

Prosperity and slums

A dynamic trajectory for positive development

A thesis submitted in fulfilment of
requirements for
the degree of Doctor of Philosophy by
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Abbreviations

UN	United Nations
UN-Habitat	United Nations Human Settlement Programme
MDG	Millennium Development Goals
SDG	Sustainable Development Goals
PSUP	Participatory Slum Upgrading Program
CPI	City Prosperity Initiative
FCT	Federal Capital Territory
BCE	Before the common era
LEDB	Lagos Executive Development Board
GDP	Gross Domestic Product
GNH	Gross National Happiness'
UK	United Kingdom
USA	(United States of America
UNECE	United Nations Economic Commission for Europe
SPM	Slum Property Map
OECD	Organization for Economic Co-Operation and Development
SPF	Slum-Prosperity Framework
SNA	Social Network Analysis
NGO	Non-governmental organization
FCC	Federal Capital City in the Federal Capital Territory
FCDA	Federal Capital Development Authority

Abstract

Slums and their management are a phenomenon as old as cities. For Developing Region cities, slums present a challenge in maintaining inclusivity and sustainability, which the United Nations considers to be a fundamental human right and essential for fulfilling Sustainable Development Goals (SDG) agenda. On-going slum intervention approaches are inadequate in providing desired outcomes. Limitations involve overcoming negative perceptions with non-inclusive and ineffective approaches, and comprehensively understanding slums' complex social, spatial, and environmental dynamics. Interestingly, as illustrated in this thesis, slums and cities are linked through continuously evolving patterns of growth that are demographic and responsive to cities' structural vitality, which is focused on prosperity. Furthermore, there is potential to streamline slum improvement with that of cities and their prosperity, and for slums to contribute to such urban improvement endeavour when, however, what it means to prosper is clarified and detailed.

This thesis recognises that definitions of slums, just like the strategies employed to address them in cities follow trends. It seeks to provide a comprehensive framework to define any slum as it exists in the city for effective intervention, and to re-formulate slums' roles, while managing them, in cities' broader progress through prosperity pursuit.

The Slum Property Map (SPM) is proposed to provide an organised and rigorous way of comprehensively describing slums and developing a narrative that defines them and their existence in the city. It is developed as a non-exclusive, structured, dynamic framework and a reliable heuristic following on an integrated ontological and cognitive research and expansive literature analysis. The proposed theory for prosperity tries to simplify perceptions of the concept through an analytical synthesis of relevant theories. It shows how our existential pursuits with and within lived spaces through time can provide an operative view and a model for prosperity. Ultimately, the Slum-Prosperity Framework (SPF) is proposed as an actionable slum intervention framework, with assistive and conceptual tools for stakeholder implementation. It is conceived to help them identify and invest in most effective pathways for improvement and prosperity through streamlined, flexible, responsive (to comprehensively defined slum), and progressive actions. The SPF's development framework, while conceptual and approximate, with relevant expert validation provides a robust base for practical advancement, especially with institutional and expert collaboration.

This thesis is motivated by the researcher's past experiences regarding slums and set to contribute to proactive and inclusive global urban improvement: for every challenge presented there can emerge novel and creative possibilities for engagement once the details of these challenges are closely examined and understood.

We are all but recent leaves on the same old tree of life, and if this life has adapted itself to new functions and conditions, it uses the same old basic principle over and over again

Albert Szent-Gyorgyi

Chapter 1 Introduction to the thesis: defining trends and proposing a way forward for slums

'I took a visiting British minister of state and a visiting colleague [...] to [self-improving squatter] settlements in Lima [...] both were profoundly impressed – but in opposite ways. The minister was depressed, the community worker delighted.'

John F.C. Turner, 1976¹

1.1 Slums are here to stay: past, present, and future

In 2003, the United Nations Human Settlement Programme, UN-Habitat, highlighted how continued slum growth in Developing Regions poses a challenge to global urban sustainability (UN-Habitat, 2003a). There are earlier published discourses and data that precede this, which include the study of urbanization in 1965 (Hauser and Schnore, 1965) and another study on the effects of rural-urban population shifts into cities and slums in 1969 (United Nations Population Division, 1969). The United Nations does not hold a conventional designation for Developing Regions/Countries (United Nations, 1999). However, the methodology for country classifications used suggests that they are those which in general have low incomes with economic vulnerability, low human development, and low industrial base (United Nations, 2012a, 2012b).

Slum urbanism has now become a dominant part of the Developing Regions' urban growth. On current estimates, sub-Saharan Africa is most vulnerable with an over 55% slum population and still rising, followed by Southern Asia, South-Eastern Asia, and Eastern Asia, each at 31%, 28% and 26% respectively (UN-Habitat, 2016a) (figure 1.1). The proportions of urban to slum populations do not, however, fully portray the realities of absolute slum populations, which is consistent with overall urban population growth. In an infinitely urbanising world,² presently at 0.9% annual average, 90% of this urbanization is occurring in the Developing Regions. Since early records in 1969 slum populations continue to rise. Recent data shows a 30% slum population increase between 1990 and 2014, reaching close to 1 billion (figure 1.2), with regions like Eastern Asia and sub-Saharan Africa having an approximate 250 million and 200 million people in slums respectively. The UN-Habitat (2013a) established that in these Developing Regions, 33% of the annual migration population

¹ (Turner, 1976, pp. 22–23).

² A 7 billion person world population mark was reached in 2011, just 12 years after the 6 billion mark (UN-Habitat, 2013a). Presently, the urban population is 54% of all population and is projected to reach 66% by 2050 (United Nations, 2014).

of 1.3 million people settle in slums. Since the year 2000, slums on average have grown by 16,500 persons per day, or six million persons a year (UN-Habitat, 2016a). The urban trend is set to continue and slum populations are expected to double by 2050 (Florida, 2014; UN-Habitat, 2016a, 2013a, 2013b; United Nations, 2014).

The above facts show that for cities, more and more sections and people are found to be in conditions that, for urban standards, require active intervention for effective and inclusive improvement. This is indicated by the revision of the Millennium Development Goals (MDG) tasks on slums for 2020, which looks forward to the new Sustainable Development Goals (SDG) agenda for 2030 (United Nations, 2015a, 2015b).

As seen in the discourse so far, this thesis steers away from the convention of introducing the topic of research, 'slums', along with a prescribed list of characteristics or description to highlight what they are. The slum is a politically accepted reference for parts of cities that are perceived through many forms of social, economic, planning, physical (infrastructure, housing etc.) disadvantage, inconsistencies to cities standards and ideals, or poor living conditions. For slums, as this thesis will show, the challenge lies in the way they are generally perceived, ineffective approaches along with a lack of proper and comprehensive understanding of the complex dynamics that exist there.

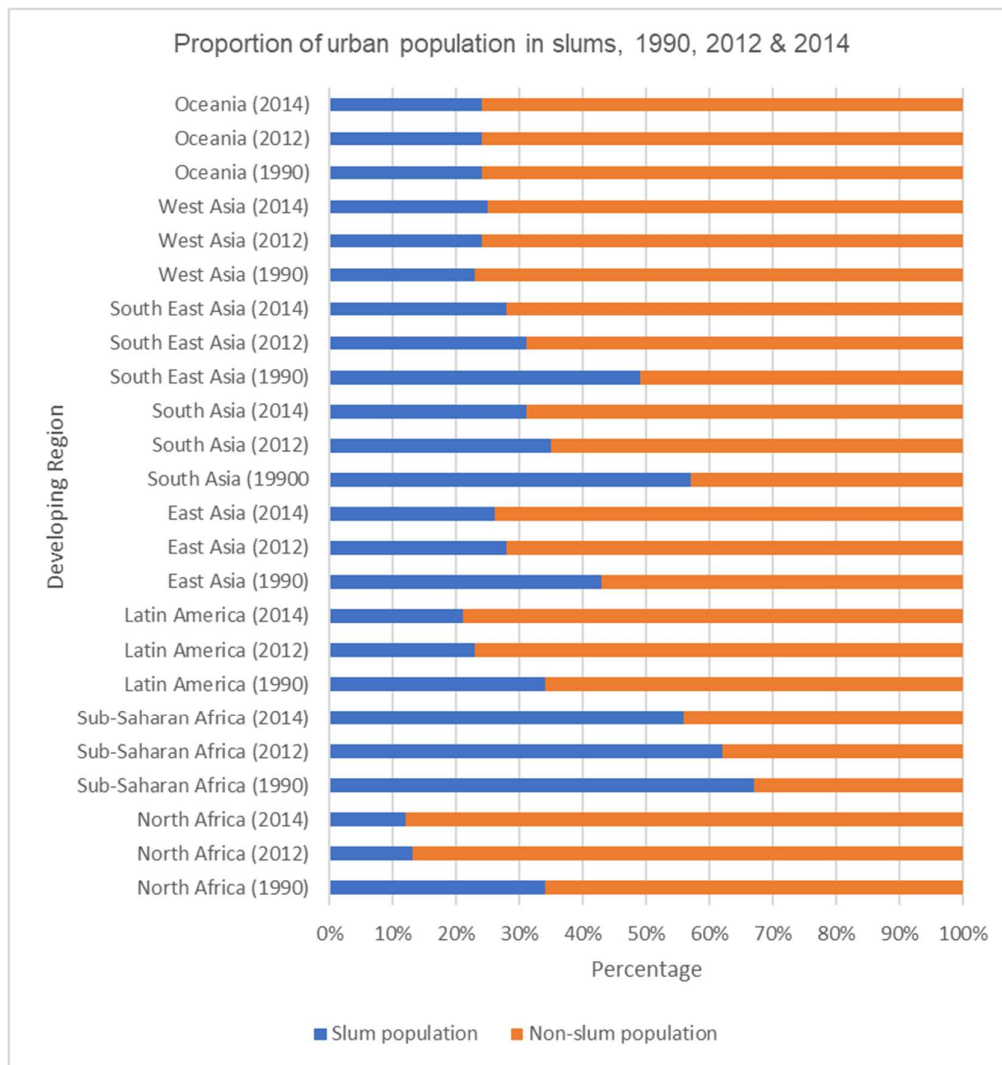


Figure 1.1: The proportion of Developing Region populations in slums to urban population. Data source: (UN-Habitat, 2016a, 2016b, 2013a, 2013b).

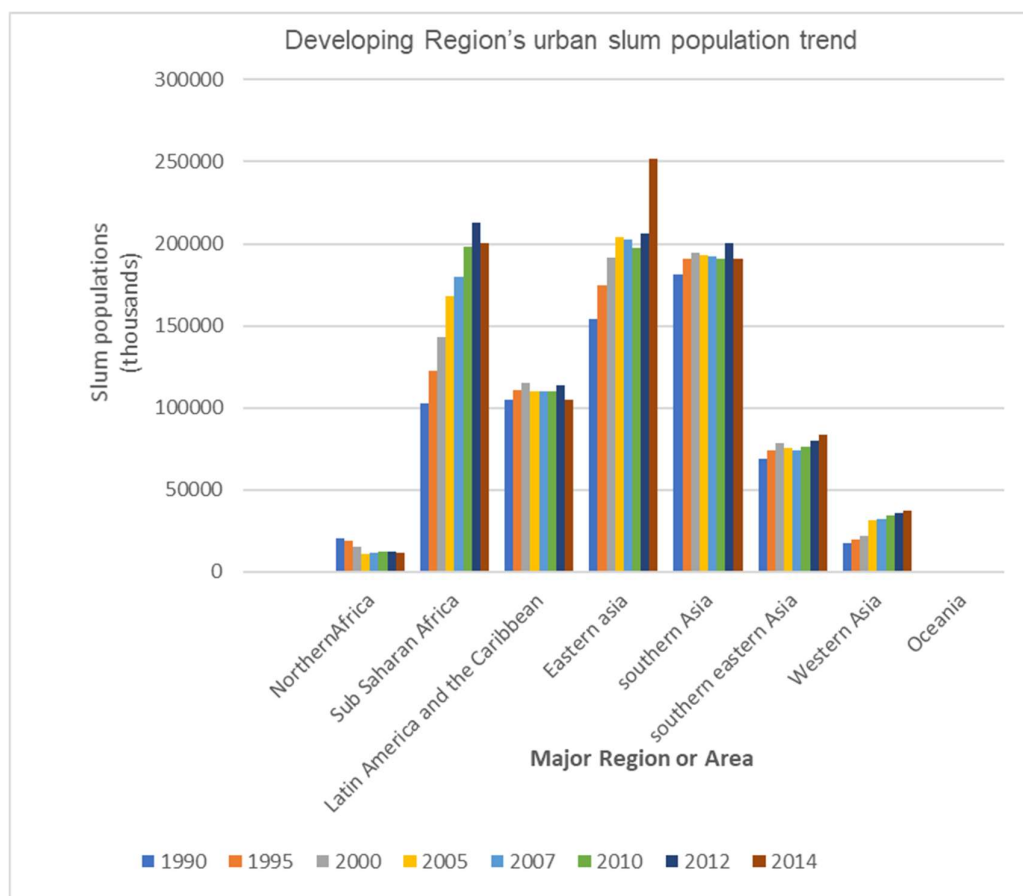


Figure 1.2: Developing Region slum population trend. Source: (UN-Habitat, 2016a, 2016b, 2013a, 2013b).

1.1.1 Prevailing perceptions and approaches to slums: inadequate at managing the phenomenon

With Cities in Developing Regions at a juncture where economic productivity, meeting global urban standards and pursuing smart cities are an issue, slums are in general not regarded as mainstream or an advantage to a city's profile (Alagbe, 2006; Marx et al., 2013; Satterthwaite, 2016; Sugam and Patnaik, 2017). The term 'slum' still carries pejorative connotations that have historical tenets (Gilbert, 2009, 2007; UN-Habitat, 2003a). The use of different terms for slums over the last few decades has done little to remove the negative connotations. This perception has steered most approaches to the management of slums towards their elimination, containment, or ineffective intervention rather than interventions that are sensitive to conditions of place and people (Hamdi, 2010; UN-Habitat, 2014a). In addition to these challenges, there are low incentives to acquire knowledge and capacity building, or proactive

processes with which to strategically intervene in slums, and low data especially in sub-Saharan Africa (Abubakar, 2013; K'Akumu and Olima, 2007; Rakodi, 1997).³

Prevailing attitudes to slums from the 1950s, and still common today, include the policy of benign neglect by government bodies who believe slums will disappear with steady economic growth (Arimah, 2010a; Daniel et al., 2015; Njoh, 2003; UN-Habitat, 2014a). Also, forced evictions and demolitions of entire settlements are still adopted as measures by many countries,⁴ destroying communities and their livelihoods in more ways than one (Arimah, 2010a, 2010b; UN-Habitat, 2003a). The re-settling or re-housing of entire slum populations into standardized, high rise (sometimes densely packed) planned tenements, or structures outside the city is also another common approach that still persists (Abubakar, 2013; Davis, 2006). These usually degenerate into slums within a couple of years or sometimes become gentrified (Cronin, 2013; Hamdi, 2010). Destroying slums without resolving issues at their roots only fuels the growth of more slums (Agunbiade, Elijah M & Agbola, 2009; Gusah, 2012; UN-Habitat, 2003a).

The above discourses corroborate the researcher's experience and understanding during years of public service in an urban development organisation and conclusions from a previously conducted study (see Abubakar, 2013).⁵ So, the methodological and philosophical approach to slum management, to improve conditions and curb the phenomenon, needs additional rigor towards more inclusive, positively focused, appropriately targeted, and coordinated actions.

1.1.2 Slums are complex

In the past three decades, however, there has been some progress in upgrading slums, which involves on-site strategies for improving their living conditions (Arimah, 2010a; Jaitman and Brakarz, 2013).⁶ Some of these strategies include initiatives on tenure – like the community based tenure model experimented in Voi, Kenya (Bassett, 2005); infrastructure – like the

³ For this thesis, reports on slums and slum study/initiatives in relation to sub-Saharan Africa was limited, and generally publications of UN-Habitat or United Nations, in comparison to other world regions.

⁴ This is after it became clear that the laissez-faire attitude to slum development was not yielding the desired effect (Arimah, 2010a)

⁵ The primary aim of the research was to collect empirical data to test the hypothesis linking the much-discussed ongoing rapid urbanization in Developing Countries to slum growth and reduction in quality of life in a suburb of Abuja, Nigeria (FCT). The thesis led to an award of Master of Environmental Planning and Protection from the University of Abuja Nigeria.

⁶ This paradigmatic shift was partly steered by John Turner's sites and services scheme in the 1970s and 80s, this was built on the concept of what housing is relative to what it really does in people's lives. It set the trend for popular participatory activity, though it received strong criticism for its effect on funding and the loss of economics of scale in the housing construction industry, and for failing to advocate slum preservation for its inhabitants (Davis, 2006; Eckstein, 1990).

integrated subsidized infrastructure and community based tenure strategy used in the Baan Mankong program, Thailand (Boonyabancha, 2009); poverty alleviation – like the microfinance facility and home improvement initiatives discussed in UN-Habitat (2011a); sanitation and education – as for example the Barrio san Jorge project, Argentina (Schusterman and Hardoy, 1997) etc. However, a 9% drop in the proportion of slum to urban populations (seen in figure 1.1) between 2000 to 2014 due to slum upgrades and the PSUP program of the UN-Habitat was dwarfed by the continued rise in absolute slum populations (UN-Habitat, 2013a, 2013b, 2011b, 2011c) (figure 1.3). This situation remains the same, the continued absolute rise in slum populations versus any achievements made is a consistent highlight in the 2016/2017 United Nations progress reports (United Nations Department of Economic and social Affairs, n.d.). The many layers of socially related, economic, and environmental complexities in any slum makes understanding them and appropriately implementing any form of intervention a challenge (Jaitman and Brakarz, 2013).

Over time, upgrade programs have been criticised for being unable to resolve decades of neglect. This is owed to approaches that do not comprehend the underlying social and other cultural dynamics with unclear programs on poverty, top down approaches that are focused on capital rather than social gains, approaches that disregard social capital, lack inclusivity, and in the end deliver outcomes that are not acceptable to both slum community and city officials, amongst others (Arimah, 2010a; Cronin, 2013; Hamdi, 2010; Patel, 2013; Turner, 1976; UN-Habitat, 2003a). These approaches echo the outcomes of management approaches previously discussed (section 1.1.1). For Uduku (1999), it is essential to balance research with proper understanding of communities and their needs as a bases for intervention; development plans to improve living in the more disadvantaged sections of the city become locally suited and more meaningful to the areas when they are based on central aspects that are garnered from their characteristics (ibid). According to the UN-Habitat efforts are still unsatisfactory for addressing the challenge posed by slums. This remains a critical point of concern in the fight to improve the overall wellbeing of cities (UN-Habitat, 2016a, 2013a, 2011c). The inability to comprehensively understand slums, therefore, contributes to their not being considered mainstream to city profiles, their associated pejorative perceptions, and the limitations of intervention approaches taken. So, for both slum and stakeholders in slum management, there is a need for a comprehensive way to grasp the complexities and realities of slums and define them, both as an avenue for knowledge and a means to effectively intervene.

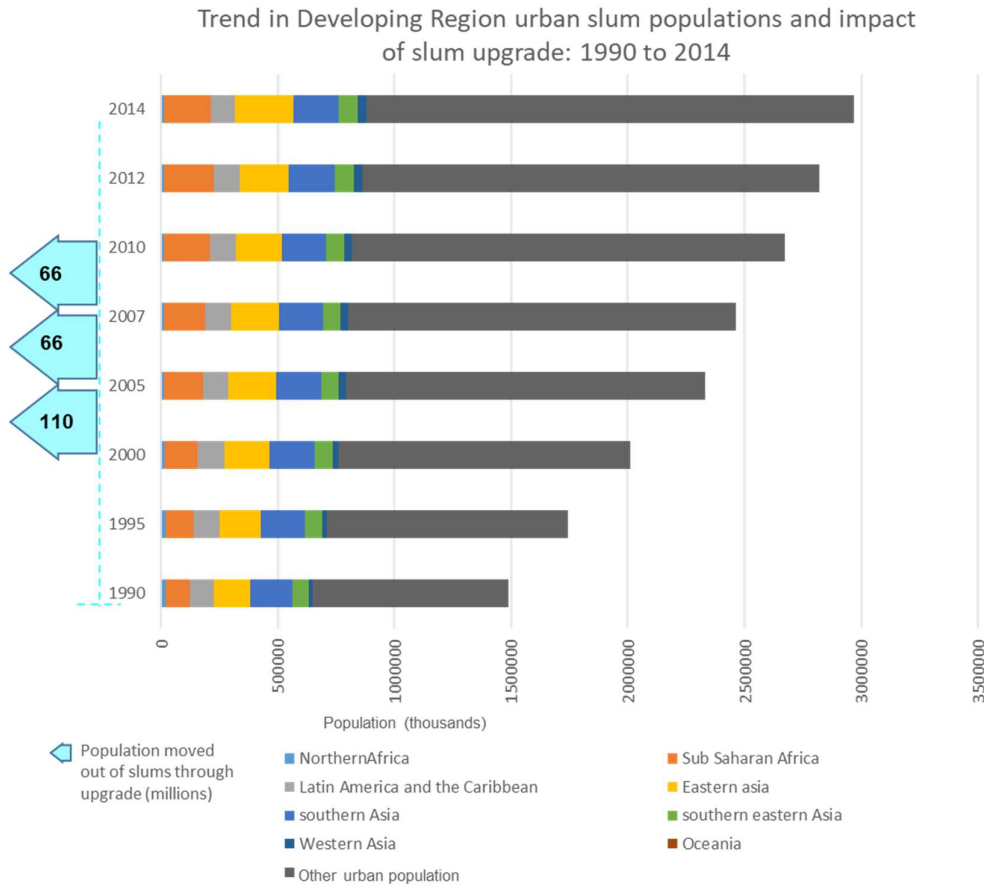


Figure 1.3: Slum population trend with impact of upgrade in Developing Regions – 1990 to 2014. The UN-Habitat notes an over 76million increase in absolute slum populations between 2000 to 2010 despite over 200 million slum population affected by slum upgrade. Data source: (UN-Habitat, 2016a, 2013a, 2011b, 2011c).

1.2 Slums are and should be approached as part of cities: argument for the thesis

The discourses so far have highlighted relevant challenges that remain in slum improvement and two interrelated gaps for research engagement (section 1.1.1 and section 1.1.2). First, there is a lack of comprehensive understanding of slums for intervention. Second, there is a need for more inclusive, positively focused, and appropriately targeted and coordinated approaches to slum management (figure 1.4). Closing the first gap is important for closing the second. However, the review also points to a consistent and essential reality about Developing Region slums that should not be overlooked: they are an urban or city phenomenon. For instance, the review of the 2015/2016 Sustainable Development Goals (SDG) on slums by the United Nations recognizes the slum as both a social entity in the city as well as a physical one (United Nations, 2015b). The task gaps that remained for the majority of the MDG goals (1 - 6) that were revised within the SDG's were in one way or another associated with people living in

slums or their characteristics (United Nations, 2015a) – for example, education, and child education and needs.

Slums and cities share a complex development history that is geographic and demographic as well as socio-cultural/economic/political. These aspects are seen in relevant literatures amongst which are Turner (1968, 1976), Neuwirth (2005), UN-Habitat (2003a), Glaeser (2011), Hernandez and Kellett (2010), and Eckstein (1990). The concentrations of economic, social, physical, and institutional urban structures that cities establish are a major derivative of their population growth, and by extension slum growth; slums fulfil a positive function in the provision of accessible domicile for those who cannot afford the city. There are other relevant day-to-day functions that slums take part in: informal and even formal services and labour that are affordable for the middle class and average city household, social interaction at communal levels, access to readily available enterprise, businesses, and goods that contribute to financial capital, which circulates amongst sellers, buyers, distributors, users, and benefits the system. The roles that slums play in the Developing Region cities are becoming ever more prominent with continuing engagement and research. As K'Akumu and Olima note in an African context: 'it seems that every time a middle class or high income residential estate is being put up, an informal settlement is on the way' (2007, p. 96).

The above aspects are, in many ways, further captured within the review of literature in this thesis. So, now it is a two-way relationship between the city and slums, a fact that the researcher can corroborate owing to personal experience. For Tannerfelt and Ljung (2006), the challenge for Developing Regions remains in the appropriate management of slum places and inhabitants. For this thesis, as for Birch (2014) and Halfani (2014), the key to understanding and effectively engaging with slums is that their perception as an aside to cities and city development needs to be re-examined. Moreover, the roles they can play, when effectively managed, in asserting a positive image of cities is not only relevant to their futures but to cities as well (Glaeser, 2011; UN-Habitat, 2003a).

Essentially, city's establishment of economic, social, and physical and institutional urban structures is focused on the pursuit of progress and prosperity (UN-Habitat, 2013a). With a revived and ongoing focus on how to best position cities for prosperity, the UN-Habitat examined several urban contexts and associated challenges, including slums. From further analysis, there is an interesting link between slums, and cities, and a potential to approach slums in a progressive way and with a dynamic view of prosperity. At the vanguard of this view were also literatures and sources that include Hamdi (2010, 2004; *Ordered Chaos: Practice in the Informal Cities of Everywhere*, 2012), which portrays spatial, social, and economic innovations in slums that challenges the conventional perception that slums are deteriorating urban environments.

Following on from this, this thesis argues that unless the general perceptions of slums are clarified, detailed, and given an adequate definition in relation to cities and their development, they will continue to present a challenge. It is necessary to re-conceptualize the way slums are understood, perceived and imagined, reformulating their roles in the wider growth and economic productivity of cities in a more positive light. What's more, exploring the notions of slums and prosperity associatively could provide a novel contextual framework for this interpretation of slums, one which reconceives slums as participants in both their own and city's future progress. This argument is further corroborated by relevant discourses from urban professionals and some members of a slum community in Abuja, Nigeria, as well as through personal experience of the slum.⁷ Hence, the focus on a slum–prosperity research programme.

1.3 Slums as participants in city prosperity: aims of the thesis

The thesis has two aims (figure 1.4): (1) to develop a comprehensive way of defining slums when intervention is needed, and (2) to contribute to a re-interpretation of slums as prospective role players in city prosperity. These aims are intertwined; the research to effectively fulfil them is built from knowledge gained from outcomes of other precedent researches, complex theories, and concepts so as to achieve robust outcomes that will address research gaps with potential for knowledge expansion.

In the first instance, a comprehensive way to define slums should be grounded in theories that can meaningfully allow one to comprehensively capture the complex contexts of slums in an unbiased way. While some researchers have sought to pursue the objective of defining slums, challenges remain. There are historical and ongoing contextual (geographical, social, spatial etc.), and time dependent aspects that make slums difficult and complex to comprehend.

In the second instance, any approach taken to effectively link slums to prosperity will also need to understand what prosperity means in a way that can allow for its active pursuit in slums. The concept of prosperity is broad and perceived differently according to different disciplines, which employ varying and interactive economic, social, and environmental scales of analysis and measures that do not apply to slums overall. There is, as of yet, no standard conception for it despite its continuous pursuit.

Engaging slums within the context of a city's prosperity also implies focus on research towards an outcome(s) that is practical and strategic, in addition to being applicable across different stakeholders. Notably, the prosperity of cities and efforts to guide them toward engaging with

⁷ See methodology section 2.1.

ongoing urban complexities more effectively are receiving attention globally. Exploring the concept of prosperity and slums associatively is considerably unexplored. Potentially, however, a simplified approach to understanding and improving slums can work in tandem with proactive endeavours for prosperity that also consider them as possible contributors to it. The above considerations guided the design of research tasks that were undertaken to fulfil the research aims. These tasks include the following (figure 1.4):

1. Proposing a comprehensive framework for describing and defining slums that is conceptually sound, to guide slum intervention in a context appropriate manner. Pursuing theories and concepts that explore ontology and a cognitive perception of things in an integrated way, along with vast information about slums was a useful approach for pursuing this task.
2. Extending research from the Theory of Human Motivation and Needs (Maslow, 1943) to generate an account of what it means to prosper. This account provided a theoretical base for the concept and a way to effectively link slums to its pursuit.
3. Developing and validating a comprehensive actionable framework for slum intervention to enable (any) slum, when comprehensively defined, to become a prosperity stakeholder, both in themselves and the wider city.

The outcomes of these tasks are (figure 1.4): (1) The Slum Property Map (SPM) – a compilation of multidimensional factors which rigorously describe any slum and form a narrative that tells the story of how it originates, develops, and functions for its inhabitants in the city. It is a standard, structured, dynamic, a heuristic and applicable framework. It is tested through a desktop case study of a slum made on the basis of knowledge gained from first-hand experience and informal discussions. (2) A theoretical construct for prosperity that provides an operative outlook on the concept and in relation to slum development. (3) A Slum-Prosperity Framework (SPF), conceived as an activity framework for stakeholders – urban and design professionals, governments, Non-Governmental Organisations (NGOs), civil society, local slum communities etc. – that helps build essential knowledge for understanding slums and outlining possible pathways for their effective intervention to establish and enhance prosperity. The SPM is integrated and considered an essential tool within the SPF. The SPF is developed as a platform to extend advocacy for the positive roles of slums in the city, strategically monitoring slum intervention and prospects for prosperity, and making comparison between slums, as well as between slums with cities. It is validated through an expert opinion investigation. Both the SPM and the SPF are accompanied by manuals for stakeholder implementation.

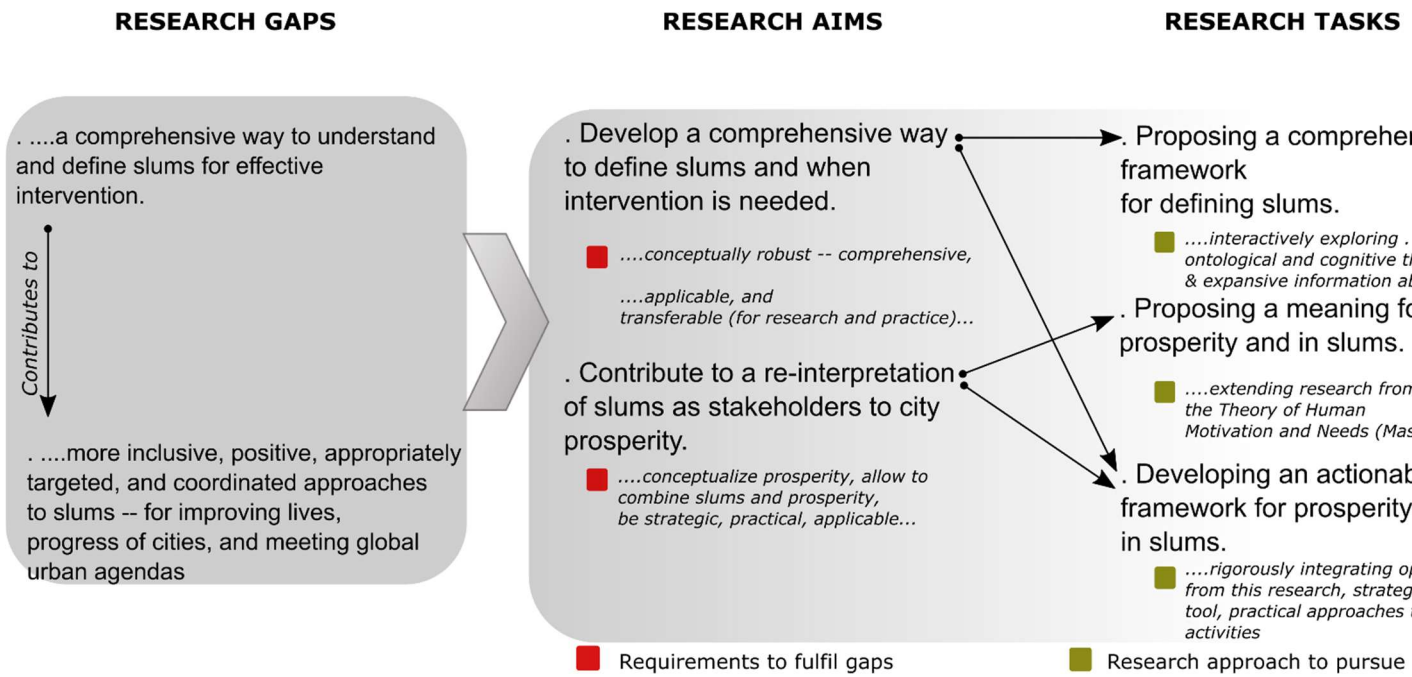


Figure 1.4: The research idea.

1.4 Structure of the thesis

The thesis is structured in eight chapters. They outline the methods used in carrying out research, literature review on aspects that inspired the design of the study and those that helped to fulfil the research tasks, the research outcomes and their validation.

Chapter 2 discusses the methodology of the research from the inception and formation of arguments to the validation of outcomes. Owing to the generality (with variable regional differences) of the challenges posed by slums in Developing Regions, outcomes should have a scope with global applicability in all slum contexts.

Slums have been a consistent phenomenon in the evolution of cities. Chapter 3 summarises the historical development of slums from the early centuries BC,⁸ when they were a challenge in places like Europe and pre-and post-revolution America to the Developing Regions of today. It also discusses how the perceptions of slums as complex places, and not mainstream to city development, are intertwined with the difficulties of properly defining them. The chapter includes an analysed outline of the limitations to defining slums and relevant conceptual requirements for overcoming them.

Chapter 4 proposes the Slum Property Map (SPM) for comprehensively defining slums and the relevant steps to apply it. The discussions here include the theoretical – ontological and cognitive – analysis that helped to develop the SPM and fulfil the relevant conceptual requirements, as well as the study of all relevant multidimensional factors that capture the character of slums.

Chapter 5 captures the relationships between slums and cities by also starting from another historical perspective and ultimately highlighting the potential for a common platform for a prosperity-related engagement. Discussions and analysis here include the evolution of cities', perception and outlooks about prosperity, and the potential to streamline slum improvement with prosperity practice.

The theory for prosperity is proposed in Chapter 6. It posits what it means to prosper and how prosperity can be pursued in a way that slums can enhance rather than inhibit it. This discussion serves as a preliminary step towards an actionable framework for slum and prosperity. The chapter captures the synthesis of analysis, which stem from the Theory of Human Motivation and Needs and combine to form a path to prosperity.

⁸ Before the Common Era.

Chapter 7 proposes the Slum-Prosperity Framework (SPF) as a way of linking the slum to an actionable strategy for establishing prosperity. It describes in detail the conceptual framework and relevant actions, strategic assistive and framework tools, practical approaches to carrying out actions, and expected outcomes.

Chapter 8 captures the application and validation of the Slum Property Map (SPM), the validation of the Slum-Prosperity Framework (SPF) and the overall conclusion of the thesis. It also provides recommendations for further improvement and research.

Appended to the thesis are seven appendices that include the following: (I) synopsis of informal discussions with seven urban professionals in Abuja to corroborate research argument, (II) synopsis of the experience of Garki village Abuja and informal discussions with residents to corroborate research argument, (III) the Slum Property Map (SPM) manual, (IV) synopsis of informal discussions with three urban professionals in Glasgow to corroborate research argument, (V) framework of indicators for slum prosperity, (VI) the Slum-Prosperity Framework (SPF) manual, and (VII) A summary of expert opinions on the logic and usefulness/applicability of the SPF.

Ultimately, this thesis sought to harness and effectively use the infinite possibilities presented by real world situations for developing more inclusive and advanced cities. This outlook is necessary in a growing world where resources, especially capital, is scarce. It is envisaged that this thesis will participate in the renewed zeal to understand and acknowledge slums' (social and physical) qualities, to contribute to more appropriate ways of approaching slum intervention, to promote social, physical, and economic integration of slums in the city, and also contribute to the slum data revolution for sustainable development (see UN-Habitat, 2016a).

Chapter 2 Research methodology

'The maxim [...] is 'to arrive at simplicity''

David Sanderson, 2010⁹

Introduction

This chapter provides an overview of the methodology and procedures taken to conduct research for the thesis. It is structured into five main sections: section (2.1) captures the strategy to engage with research, streamline aims and outline tasks with expected outcomes. The research was borne out of a general goal of contributing to slum and city improvement with a focus on localised (slum plus inhabitants) context, rather than from pre-conceived objectives, notable gaps, or extensions of other works. In section 2.2, the research approach taken to fulfilling the first task of proposing a comprehensive slum definition framework is discussed. This stage was the most extensive and complex in the progress of this work. In section 2.3, the theoretical research approach for a simple yet operative understanding of prosperity in slums is discussed. Section 2.4 captures the approach for developing an actionable framework for slum prosperity and fulfilling the last research task, which is set to provide a comprehensive engagement framework. The validations of the research outcomes are outlined in section 2.5. In conclusion, the limitations of the study also highlight the potential for further improvement and development of research outcomes. For the reader, it is hoped that this research methodology will support the robust nature of the thesis, suggest ways of further advancing this research, as well as incite other novel and pragmatic work aimed at improving our cities.

2.1 Research approach to contextualize aims and tasks: Literature review, practical first-hand corroboration

A pragmatic outlook (Creswell, 2009) was adopted at the start of the research to tackle the main area of interest, slums. This will involve conducting research with aims that are borne from and anchored to extensive knowledge about the slums, ongoing realities present in them, problems or challenges, and towards outcomes that can practically contribute to their management and improvement in ways relevant to the above aspects (see *ibid*). Following on acquired knowledge and experience regarding slum growth and inadequacy of on-going slum management approaches (see section 1.1-1.1.2), an extensive literature review was carried

⁹ (Hamdi, 2010, p. 20).

out to understand: (1) the concept and history of slums and the situations in which they grow, (2) variations of slums across time, (3) current slum trends in Developing Regions, (4) prevailing perceptions about them, as well as who studies and documents them, and (5) their management challenges and how these fit into global/local urban agendas.

The review extended to information on Developing Region slums in general without restriction to any location. The United Nations' reports, documents, and media were a valuable source of information as they consistently capture dynamics of intercontinental urban change. However, there seem to be subtle differences in the numerical urban data between reports. About seventeen reports were consulted, ranging in their publication dates from 1969 through 2014. Other accessible documents, including journals, reports, working papers, media, websites and books, were considered. The search engines for research sources included the Google Search, Google Scholar, Scopus, the University of Strathclyde's Supremo library repository, together with publication alerts from SAGE journals. These search engines were employed throughout the study. Furthermore, only open-access literature, works that could be accessed through the UK education management system, and those in English were considered.

From this review, the researcher understood that slums are not all considered separate from cities; however, they are still a phenomenon that needs rigorous and effective methods of intervention that are well collaborated at all urban levels. This summation further corroborated the researcher's assessments from experience and a previous study (see footnote 5). Essentially, this review led to the identification of relevant gaps for research and the development of an argument: there is the need for a comprehensive way of capturing the complex nature of slums as part of cities so that they can be defined. Moreover, to take action on any real-life aspect it is important to understand it first (Cuthbert, 2007). There is also a need for more inclusive and appropriately targeted slum intervention that considers the role of slums in cities' growth. This can be done by linking slums and cities' prosperity. Prosperity pursuit, however, also needs to be clarified and related to slums.

The researcher then sought to corroborate the identified potential for research and research argument in two ways:

- (1) The first way involved practical first-hand views, through informal discussions with ten urban professionals. Seven of these urban professionals were officials based in Abuja, Nigeria: there were six with relevant mandates in the city's urban development, planning and design, management, documentation offices; and one with a mandate for implementing UN-Habitat agendas on shelter and sustainable urbanization. Abuja city is a growing urban area with an estimated 3.75% urbanization rate in 2014 (Index Mundi, 2015). Another source highlights that in 2015, the city had 35% annual growth (Abeku et al., 2016). Over the past three decades, Abuja has struggled with managing

slum growth.¹⁰ The discussions with these professionals took place between the 17th of July and the 3rd of August 2014. Informal discussions with the remaining three urban professionals took place during the Plot Based Urbanism summit at the University of Strathclyde Glasgow between the 27th and 28th of October 2014. These professionals were urban design and architecture professionals working with relevant academic and urban planning organisations and UN-Habitat.

- (2) The second way involved first-hand personal experience of a place considered to be a slum in Abuja – the Garki village – and informal discussions with eight community members. This engagement took place between the 23rd and 26th of July 2014.

Outcomes from the above informal engagements are captured in the appendices to the thesis (appendix I, II and IV). These are highlighted and referenced where they apply.

Iteratively, the aims of the research were to develop a comprehensive way to define slums, both as a knowledge base and when intervention is needed (an operative definition), and to contribute to a re-interpretation of slums as prospective role players in city prosperity. These aims were pursued through three tasks (section 1.4): (1) proposing a comprehensive and operative framework for describing and defining slums, (2) proposing a meaning for prosperity in slums, and (3) developing an actionable framework for prosperity in slums and the wider city. The following sections 2.2 to 2.4 describe how the research tasks were pursued.

2.2 Research approach for a slum definition framework: historic literature review, theoretical and qualitative content analysis (Task 1)

A three-step research method was used to carry out the first research task of developing a framework for describing and comprehensively defining slums to intervene:

The first step involved a historic overview of slums from their origins in Developed World contexts to the time when they became a Developing Region issue. Here, particular focus is placed on the way they were perceived and the efforts to properly understand them in view of intervention. While a lot of literatures provide overviews of slums, not many specifically target discussions on how slums are comprehended and defined. Specifically, the literature review was focused on anthologies and subjects, whose contexts not only extended to Developing Region slum settings of the present, but also events that shaped slum communities in the past. Consulting published book reviews to aid specific search was essential to this stage. In all, seventy-three sources were used. These included books, published journals, theses, encyclopaedias, reports, websites, and UN-Habitat media lectures. The research also looked

¹⁰ So far, there are no documented slum population for the city; perhaps it is because these places form parts of council boundaries and are captured in enumerations.

at current endeavours for an operative slum definition, a shared if not yet fulfilled ambition. It also looked at current proposals to fill the gap for a comprehensive slum framework that defines slums in an operative way. There were only a few proposals of this sort and include publications by Kohli et al (2012) and Gulyani and Bassett (2010), respectively. These reviews showed just how complex slums were and still are. They also helped the researcher to identify the main limitations of a comprehensive slum definition, and to summarise and posit four relevant requirements that a comprehensive slum definition framework should fulfil to make it valid and applicable; these include being standard, structured, dynamic, and heuristic.

An integrated ontological and cognitive approach was taken to develop an operative slum definition framework with the above four qualities. This led to theoretical analysis of what makes things what they are and how they can be adequately described – philosophies of world representation, perception, reasoning, and cognition. After some initial reading, literature search focused on ‘describing objects’, ‘object properties’, ‘types or forms of object properties’, and the ‘nature of objects’. For the purposes of this study, understanding concepts of the nature of objects, and object properties was sufficient, removing the need to delve too deeply into philosophies of thought and phenomenology, or the critiques and controversies regarding them. Specifically, the research also builds on the seminal work on the Typology of Object Properties by two cognitive psychologists, Françoise Cordier and Charles Tijus (Cordier and Tijus, 2001).¹¹ In addition to its renowned authorship, the proposition in this work is considered robust in view of identifying and understanding the character of objects in the real world (Poitrenaud et al., 2005). What’s more, no updates to their work was identified by this researcher. However, this researcher found the presentation of the literature – Cordier and Tijus (2001) – as somewhat complicated, and much time was devoted to analysing concepts to ensure that interpretations remained standard. Overall forty-seven literature sources (and integrated sources) were used for this theoretical analysis, including journals, books, online books and encyclopaedias. The analysis revealed that interactive and multidimensional cognitive traits play a role in the characterization of the nature of slums; these cognitive traits can be collated and logically organised in view of a proposal to comprehensively describe and define them.

¹¹ Françoise Cordier is a professor of cognitive psychology at the Centre for Research on the Cognition and Learning, University De Poitiers in France; and head of the cognitive section. Her research interests include permanent memory semantics organization, semantics of verbs, categorization, and adult and cognitive development.

Charles Tijus is a professor of cognitive psychology at the University of Paris 8, and Director of the laboratory EA 4004 ‘human and artificial cognition’ and the master ‘psychology of cognitive processes’. His research interests cover computer modelling simulation of cognitive processes, contextual categorization, semantics of action, and problem solving.

Their publication was obtained through the interlibrary borrowing service.

Hence, the third approach taken to develop a comprehensive framework to describe and define slums in an operative way involved qualitative content analysis that involved over three-hundred literature sources without restriction to location and from a publication time span of 1969. These included journals, books, online books, reports, websites and web media, conference publications, encyclopaedias, and thesis. Content analysis is a method for subjective, but systematic interpretation of a text's contents by processes of identification and coding of themes and patterns that were not the original focus of the text (Hsieh and Shannon, 2005). Coding involves segmenting data into meaningful groups, and then labelling these with terms deemed appropriate by the researcher (Creswell, 2009). Content analysis method became appropriate for this research due to the general context of the research aim, allowing for wide analytical coverage. For this research, the content analysis was focused on identifying, analysing, and organising the multidimensional cognitive traits that are common across slums, and rigorously cataloguing them. This analysis was conducted in a reiterative manner until patterns became similar or no additional concepts could be developed. There was a challenge encountered in finding literature that discussed slums in housing estates and villages within cities. Also, this stage of research required substantial analysis of various and broad concepts that required the devotion of significant time. The NVivo and the MindGenius software were useful in carrying out this analysis.

The outcome of the content analysis in association with the ontological and cognitive philosophies on which they were built, was used to streamline the most logical and systematic framework, the Slum Property Map (SPM) with an instruction and information manual, to describe and define slums. It is conceptually robust, and transferable. It was also developed to aid in understanding slums in relation to prosperity. The next section seeks to capture the research approach taken as a means to fulfilling the second research task – that is, of understanding what it means to prosper and in slums.

2.3 Research approach to develop a meaning for prosperity and in slums: literature review, theoretical construct (Task 2)

A two-step research method was used to fulfil the second research task of understanding what it means to prosper, and how slums can take part in the process – an operative meaning.

Initial study on prosperity included a historical review of city growth and urbanization and how this relates to slum growth and cities' prosperity. Further study included review of perceptions of prosperity in the literature and concepts of collective and individual wellbeing associated with how it is looked at in society. This revealed just how complex and broad the subject was and that there was a lack of standard conception. It also revealed the varying scales and indicators for measuring it globally/locally and the possibility of identifying relevant approaches for the pursuit of urban prosperity (these became relevant in subsequent analysis for a robust

prosperity framework). The review here also included an analysis that compared slum growth and their management in cities relative to a recent UN-Habitat (2016b, 2013a) assessment of cities' stances on prosperity through wellbeing indicators. Summaries from this review and analysis showed that prosperity is a goal-focused endeavour, with current overviews placing it as a relative and dynamic concept; also, there was a potential to organise slum improvement initiatives to the pursuit of prosperity in cities and within a simpler framework of engagement about people, the wider environment, and management structures.

The literature review further included the study of several discussions on the positives of slums. Summaries from this review showed that slums have the potential to contribute to city growth and to prosperity. With regards to associating prosperity and slums, however, it was concluded that this line of research has not been given due consideration by scholars. This is because the literature search (without restriction to time), did not reveal any published research that associatively considers the two concepts of slums and prosperity. Overall, one-hundred-and-eleven sources (with integrated sources) were used for the literature review and the analysis. These included books, online books, journals, reports, broadcast and web media, and websites. Importantly, there was a need for a theory to understand what it means to prosper and how slums can become prospective stakeholders in the process.

Hence, the research took on a constructivist approach to conclude this research task. Constructivism in research involves developing a theory or pattern to add meaning to complex (social/spatial/historical etc) phenomena (Creswell, 2009). The method is common and considered useful for proposing practical solutions for managing communities and urban environments (Institute for Studies in Global Prosperity, 2016; see Moustafa, 2009). The theoretical development involves an inductive process that logically synthesizes analysis and/or data which can be from anthropological, empirical, qualitative, or literary frameworks (Creswell, 2009; Moustafa, 2009). With the knowledge of prosperity as goal-focused, relative and dynamic, and the potential to streamline a slum-prosperity agenda, the research started analytical synthesis from the 'Theory of Human Motivation and Needs' (Maslow, 1943).¹² Maslow's theory was ground-breaking at the time of its publication and is still influential to the development of human motivational behaviour. From this, the research then extended in-depth analyses into the concepts of 'Development and Human Needs' (Max-Neef, 1992). The analysis, in relation to previous analysis on ontology and cognition, allowed the research to progress into concepts of space and space production (Lefebvre, 1991). This helped to

¹² Abraham Maslow was an American psychologist and professor at Alliant International University, Brandeis University, Brooklyn College, New School for Social Research, and Columbia University (Wikipedia contributors, 2018). He was greatly influenced by neurologist and psychiatrist Kurt Goldstein, and was a protégé of Alfred Adler, anthropologist Ruth Benedict, and gestalt psychologists Max Wertheimer.

capture the process of needs pursuit in real-life contexts of spaces (and slum spaces), and then to link it with concepts of time: of dynamic sustainability (Ellin, 2013) and resilience (Holling, 1973). The research into the above concepts was carried out to a level whereby the researcher was able to conceive a logical proposal, and as such did not delve too deeply into their broader and complex philosophies. In all, one-hundred-and-twelve sources were used in this analysis. This included books and online books, journals, encyclopaedias, conference publications, websites and reports. The researcher also took a year five class on Cultural & Behavioural Factors in Architecture and Urbanism at the Department of Architecture, University of Strathclyde, to have a better understanding of the use of space and behaviours. At this stage of work, visualizing each progressive conception during the theoretical development using basic sketches was a useful strategy (figure 2.1). It helped to capture critical analysis and streamline outcomes: a proposed theory and model that explains what it means to prosper and, as such a path for prosperity, one consisting of two relevant stages to be attained.

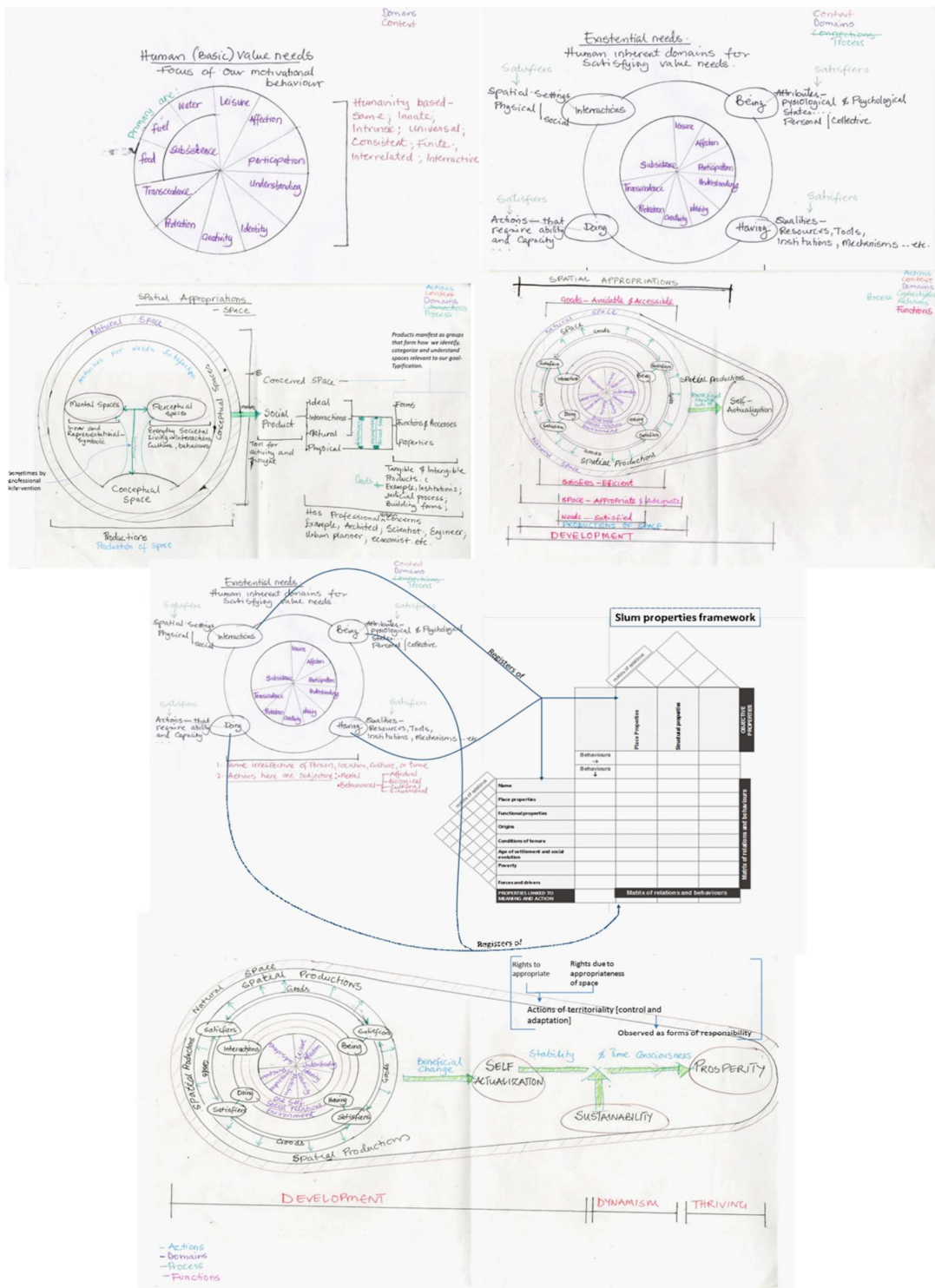


Figure 2.1: Some basic sketches that were helpful in the early development of the theory for prosperity.

Source: author

2.4 Research approach to combine slums and prosperity: conceptual analysis, qualitative content analysis, virtual simulation (Task 3)

A five-step research method was used to fulfil the third research task, which combined outcomes of the first and second research tasks to propose an actionable framework for slum and prosperity. One that is practically and strategically conducted.

With a theoretical path for prosperity established, the research then deduced the ideal conditions that can represent the two relevant stages for prosperity in the slum. These conditions are proposed as 'rights', which are due to the slum community. The idea of basing the establishment of conditions of prosperity in the slum as rights is attributed to arguments for inclusivity posed in theses by Sadri and Sadri (2012) and Ellin (2013): for every member of the city to have the freedom and capacity to take part in the experience, growth, and advancement of it. Based on the theory for prosperity and the functions that make up each stage of the process, the researcher conceived an active engagement framework for establishing conditions for prosperity. This framework is set for stakeholder implementation through logical appraisal of potentials for slum prosperity, summations, and systematic improvement strategies framed around people, the wider environment, and management structures (see section 2.3). This highlights the importance of identifying and having a balanced pool of stakeholders – professionals, civil society, locals etc., an aspect that was further explored. The actions within the framework are based on the implementation of the Slum Property Map (SPM) as a framework tool to comprehensively define the slum in view of engaging it on the path of prosperity (section 2.2). This task included considering the conceptual positions taken in the SPM including how to use it. However, other logical sub-tasks with methods were considered in the development of the framework for slum prosperity since the objective was for a comprehensive and applicable framework overall.

The research developed and proposed a framework of Indicators for slum prosperity as a tool to support the logical appraisals and summations by stakeholders. The framework of indicators for slum prosperity was developed through qualitative content analysis of literature (see section 2.2 for discussion on this method). The thematic content analysis was based on five broad urban wellbeing concepts – productivity, quality of life, infrastructure, equity, environmental sustainability, and governance (UN-Habitat, 2016b, 2013a). The focus was to simply summarise basic model real-life urban conditions or contexts that are applicable to slums, and then structure these relative to how they are directly concerned with people, the wider environments, or management structures. In all, thirty-three sources were used for this analysis, and involved online books, websites, encyclopaedias, web media, and reports including the UN-Habitat (2016c, 2014b) methodological guide to measuring prosperity. The limitation encountered here was in adequately analysing contexts related to governance.

However, governance also captures civil participation and engagement in business (UN-Habitat, 2016b), which (from analysis) are also captured within productivity, quality of life, and equity.

Implementing the framework will involve dealing with a lot of complex data regarding both slum and prosperity that needs to be represented clearly and require a strategic approach. Hence, the research analysed and implemented the use of Social Network Analysis (SNA). A useful tool to support logical analysis for efficient appraisals and summarizations by stakeholders, as well as overall implementation of actions in the framework. SNA is an excellent method and tool for visually tracking, analysing, and strategizing about relationships of actors (data, entities, concepts etc.) in a social setting (Dempwolf and Lyles, 2010; Derek L. Hansen et al., 2011a; Krebs and Holley, 2002; Newman, 2003). The SNA tools analysed and integrated within the framework were those that met the specific targets and functionalities required to pursue the actions for prosperity in slums. SNA can be done in a software environment. A software that is simpler than most to use without the need for complex computer coding was identified and proposed for use. Some amount of time was invested, within the analysis of the framework, to learning how to use the software and calibrate it for efficient use.

The research further analysed and identified the most practical and proper approaches to implementing the framework by stakeholders. In this way, the framework activities will be conducted in ways that ensure effective outcomes for prosperity in the slum. The approaches were analysed and proposed through qualitative content analysis of literature and conform to prevailing positions of best ways to pursue prosperity in an urban context (see section 2.3). The thematic focus was on 'principles of', 'essentials of', 'essential practice for', 'rules', 'foundations for', 'ideals towards', 'necessary standards for', 'how we can pursue/achieve', and 'what we need for' urban progress and prosperity. Most literatures were affiliated with economics and theology and only little within the fields of philosophy, ecology, and sociology. Discussions in Ellin (2013) led to analysis in other urban design and architecture related literature. The discourses analysed from all sources were then conceived and structured into similar ideas. Overall, forty literature sources were used. They include a journal, books, online books, working paper, websites, and reports. The outcome is a set of three essential approaches for carrying out actions for prosperity, as per the framework.

Another step taken to ascertain the effectiveness of the proposal involved implementing, through a simulation, some of the activities proposed in the framework using a virtual slum profile. This task was carried out in order to better streamline and structure the actions within the framework and the use of the SNA theories and tools. The virtual slum profile was developed solely by this researcher from varying characteristics of slums that were noted

during qualitative content analysis to develop and propose the framework to describe and define slums (section 2.2).

Ultimately, the outcome of all of the above research tasks and methods is a proposal for a comprehensive and actionable Slum-Prosperity Framework (SPF) to establish conditions for prosperity in any slum that is the focus of intervention. This proposal is also accompanied by an SPF manual for stakeholder implementation, incorporating the SPM, and with a calibrated SNA software template for user input. The software use and limitations are also discussed in the SPF manual. However, the SPF and integrated SPM also benefit from research validation.

2.5 Validation of research outcomes: desktop case study and expert opinions investigation (Task 3 continued)

A dual investigation approach was used to test the outcomes of the research, the Slum Property Map (SPM) with the Slum-Prosperity Framework (SPF):

The SPM with respective manual is intended for practical use by stakeholders to define slums and for intervention. It is, however, quite broad and will require a lot of time and resource to individually undertake at this stage of work. A desktop case study of Garki village Abuja through qualitative content analysis was done to test it and to generate a slum property map, one that could also be used as example in the proposed actions within the SPF. The case study helped in improving the SPF with SPM – proposed functions, structure, use of SNA and software, and expected outcomes. It also helped to further streamline the SPM and SPF manuals for easier consultation and referencing. For Yin (2004) case studies are useful in investigating topics that are not easily covered by other research. They function as a complementary process to other investigation and descriptive inquiry – just like the SPM. Qualitative content analysis is another common method for conducting desktop case study that is appropriate for theory-guided analysis, as it is rule-based and methodologically controlled by overlying concepts (Kohlbacher, 2006; Yin, 2004). For Yin (2004, p. 9). The general objective in the case study is to establish ‘converging lines of evidence [that] make [...] findings as robust as possible.’ In this case, the desktop case study of Garki village is used as a proof of concept. Knowledge gained from first-hand experience and informal discussions with some Garki village community members during early development of research aims (see section 2.1) further supported the information analysed through qualitative content analysis. Thirty-seven sources were used for the case study and range from a publication date of 1979 to 2017. These include online book and book review, journals, theses, news media, media, conference material, and websites. In general, few of these sources were focused specifically on Garki village, and those that were, were news reports. Only one source, Mallo and Obasanya’s (2011), conducted a survey that included the Garki village

(11% – the second highest responses); the information captured in the publication does not contradict the knowledge and experience of this researcher.

The SPF is intended for practical stakeholder use in real programmatic settings, an ideal that will require time and resource; also, the implementation of the SPM is key to that of the SPF. Hence, the SPF was tested through a qualitative expert opinion investigation which aim was to validate the logic and usefulness/applicability of the principles and structure, functions, and expected outcomes of the proposed framework that are conceptual, strategic, and practical. Expert opinion validation is a useful approach for validating and establishing concepts or processes through feedback contributions from experts (Ellis et al., 2003; Rabie, 2015; Sliuzas et al., 2008; see Kohli et al., 2012). The experts are those considered to have information or experience and better knowledge about the focus of investigation. Their collated opinions will exceed that of an individual (Ramadurai and Becattini, 2013; and Porter et al., 2011; in Rabie, 2015). The selection of experts was based on previous involvement in the research (informal discussions to corroborate research arguments and research aims), the views they held at that time about managing slums in an inclusive way, and being accessible, as much as their expertise in the field (see Rabie, 2015; see Sliuzas et al., 2008; Bracke et al., 2008; de Alwis et al., 2016). It seemed apt to ask their opinions on the outcome of the research. Ethical approval was obtained from the Department of Architecture, University of Strathclyde, and the investigation was conducted between the 4th and 18th of December 2017:

There were two groups of six experts, and include the following:

- (1) The first group of experts consisted of two architecture and urban design professionals with vast experience in research, teaching, and practice: a senior lecturer and PhD holder with interest and vast experience, collaborations, associations and initiatives, and publications in urban landscape architecture and socially restorative urbanism amongst others; and, a visiting professor at one of London's prestigious colleges who is involved in flagship initiatives, research, and action in sustainable growth and change in cities, towns, and neighbourhoods. They were asked to provide their opinions – feedback and recommendations – on the logic of the SPF through an electronic form. It was envisaged that the professionals may discuss theories and other principles that will be relevant to the research. The form was revised once during the period of investigation to make its requirements clearer for the participants. While one of the professionals in this group was quite responsive and provided useful opinions, the other was not. The forms were not returned despite several attempts to get the person to respond through mail and phone communication.
- (2) The second group of experts consisted of four urban professionals with direct/indirect experience in planning and implementation of design, shelter, and sustainable

urbanization plans with the UN-Habitat organisation, and management, documentation, population and slum management programs in Abuja, Nigeria. The professionals were asked their opinions – feedback and recommendations – on the usefulness and applicability of the SPF during online one-on-one interview sessions.¹³ These sessions lasted between 30 and 60 minutes, and the same opinion agenda tendered to the first group of urban professionals in electronic form was used to guide discussions. The rationale was to have some degree of control over inquiries (see Creswell, 2009), have opportunity to give more information on the SPF, and adjust discussions to elicit the proper and most robust responses, and it did. Nonetheless, a limitation was that responses to some of the agenda of discourse were not always targeted at the relevant context of it, and also other subjects came up and were discussed.

The NVivo software was useful for analysing all expert responses collectively. These responses in part supported research approaches taken and outcomes for the SPF with integrated SPM, and also contributed to reviewing and streamlining their functionality and recommendations for further work and improvement.

2.6 Conclusion: with limitations of the study as it stands

This chapter has sought to simply outline for the reader the methods taken in the inception and execution of research tasks and how these were concluded with outcomes. The research methodology and procedures discussed in this chapter are those that were in retrospect logical and effective for fulfilling the research tasks. Admittedly, as with most, if not all research, the pursuit of aims and tasks was not as straightforward or as simple. A rigorous, enthusiastic, and resourceful supervision was also a vital aspect to the research design, its pursuit, and outcomes.

Some of the limitations in the research methods taken are already noted in the preceding sections 2.2 to 2.5: For the SPM (section 2.2), limitations include the complicated nature of literature by Cordier and Tijus (2001) that formed a relevant research idea and, on limited literature sources to capture all variations of slums during qualitative content analysis. For the theory for prosperity (section 2.3), a limitation includes the lack of theses that associates slum and prosperity from which to build research on what it means to prosper in slums. For the SPF, (section 2.4), limitations include an inability to simply analyse one of the wellbeing concepts – governance and legislation – while developing the framework of indicators for prosperity; also, encountering little literature that discussed relevant ways to pursue urban

¹³ The Skype – audio, video, and messaging – software was used for the interviews.

progress and prosperity outside of the realm of economics. With regards the validation of the research outcomes (section 2.5), the limitations include few research publications on the case study site (Garki village), the lack of response from one professional during expert opinion investigation, and the fact that some expert responses in the investigation were not always targeted at the context of discourse. There are, however, other principal limitations for the research methodology.

For the theory for prosperity, its limitation is its substantive nature that will require validation to become a grounded theory. At this stage, however, its validation is reliant on the conception and testing of the SPF. However, these tests, overall, have their limitations: For the SPM integrated within the SPF, it is its lack of field implementation in a real setting. The outcome of the case study of Garki village is proposed to a certain degree, as information was limited to those in the literature and may not represent current realities. For the SPF, which method of testing was also influenced by that of the SPM, it too is limited by a lack of implementation in a programmatic setting, which would be ideal. Hence, there is potential for further development and testing of both frameworks with manuals. Nonetheless, expert opinion investigation is useful as a corroborative or integrated research method (Ellis et al., 2003; Rabie, 2015; Sliuzas et al., 2008). Moreover, expert knowledge, information, and experience input are especially useful for new and/or influential approaches in view of further development (Rabie, 2015). This is apt for a proposal that is considered as a starting point for robust and progressive engagements in urban improvement.

The next chapters, 3 to 7, seek to present the reviews, analysis, and outcomes of the PhD research portrayed in this chapter. The outcomes of testing to validate them and recommendations for further study and improvement or advancement of research are discussed in Chapter 8; these are focused on both theory expansions and overcoming limitations in the validation and application of research outcomes.

Chapter 3 Defining the slum: a review of trends

All cities start in mud.

Robert Neuwirth, 2005¹⁴

Introduction

This chapter provides a brief historical overview of slums and slum development, and how perceptions of their character, relationship to cities, and the management approach to them has evolved. The brief historical tour of slum development will show how slums existed in pre and industrial era Developed World nations before becoming a predominantly Developing Region¹⁵ phenomena. The chapter will then show how the definitions of slums through history, and the challenges involved in comprehensively defining them for intervention, share similar trends across the regions. It will also show how these challenges were associated with a general disregard of slums as recognized and useful parts of cities. The rising awareness during the mid-20th century of the need to tackle challenges to urban improvement marked the beginning of a more positive outlook on slums and arguments for a way to properly understand them. A review of recent attempts to provide an operative slum definition and their respective limitations, shows why this gap remains. This chapter illustrates the specific hurdles that must be overcome to form a comprehensive slum definition framework. Most importantly, this analysis provides a background for the comprehensive slum definition framework proposal described in the next chapter.

3.1 A historical review: the development and complex nature of slums

In Chapter 1, the thesis briefly discusses the rising trend in the growth of Developing Region slums and how this has become a challenge in the urban management of cities overall. In the same chapter, it is shown that this challenge to managing slums and inefficiencies being experienced is linked to the complex nature of slums and limitations of comprehensively comprehending and defining them. Discourses show that both limitations to understanding slums and inefficient approaches to their management are also linked to a general disregard of slums as strong role players in the development of cities.

For this thesis, to support the research argument and fulfil the gap for a comprehensive way to define slums it is necessary to trace the evolution of slums through history (see methodology

¹⁴ (Neuwirth, 2005, p. 179).

¹⁵ See section 1.1 for definition of Developing Region.

section 2.2). To try and understand consistent patterns to their existence, growth and characteristics, and in relation to how they were perceived and management approaches. The reviews presented in this section 3.1 and in 3.2 reveal relevant aspects that challenge the development of a comprehensive framework of engagement to understand slums and will be referred to later in the chapter.

Slums have existed in cities for a very long time and were not just a Developing Region phenomenon. The Developed World¹⁶ experienced them for an even longer period pre and industrial eras – Europe and America in particular. Slums in those periods stood in contrast to conventional methods of cities' shelter development; they existed in general as a response to varied needs and influences associated with opportunities in the cities, but within situations of deprivation or positions of disadvantage. In many ways, these aspects of slum development contribute to their complex characters and how they are perceived by the city. The discussion in this section (3.1 – 3.1.2) is generally taken from Neuwirth (2005) to illustrate the phenomenon of slum growth, including the challenge of understanding and managing them, other literatures are cited where relevant. The discourse reveals growth and characteristic similarities between the pre and industrial era slum in Europe and America and those in the new industrial and post-Industrial Developing Regions.

3.1.1 Slums in pre and industrial Europe and America

As early as 800 BC, people migrated to the cities of Greece. There were ongoing land pressures then, so, people squatted in temples or derelict and vacant property. By 130 to 30 BC, Rome was growing with populations in search of employment and trade. They had nowhere to stay and found shelter in unlikely and unbecoming private lodgings and boarding houses. Those that could not afford the private housing constructed freestanding shack colonies and lean-tos in unused spaces, alleys, on rooftops, in front of shops, over workshops, and on the outskirts of towns, in tombs, public lavatories and baths, and in underground cellars (Neuwirth, 2005; Scobie, 1986).

A typical household in France in the 13th century might be compared to the present-day slum household in Kibera, Nairobi. During the middle ages, shanty towns developed on marshes, the town moat, and open fields at its outskirts. By the 18th century, the Paris squatter population was 20% of more than half a million people. England also had its own fair share of squatters. People flocked to the city and settled in the commons, in royal forests etc., and even around the Tower of London in the 1500s. These squatter colonies involved complex

¹⁶ Developed world is a compound word used to refer to countries or nations that are considered to have an advanced economy and technological infrastructure more than others, with the services sector generating more wealth than the industrial. Other terms used to refer to such nations include 'First World', 'More Developed, and 'Global North' nations.

arrangements of tenure, land speculation and exploitation by both legal and de facto landlords. The squatter colonies remained for centuries in England, exacerbated by the Great Fire and plague of the 17th century. Events involving slum development in American history were also in many ways like those of Europe. Squatting formed a substantial part of American expansion before the late-1700s Revolution for self-government as well as after. During these times, people migrated to centres of power, trade, business, and industry, which included places like the present-day New York and Minneapolis. They constructed shacks (sometimes overnight) with materials they could source. In addition to providing labour, they were also active patriots, revolutionaries and political activists.

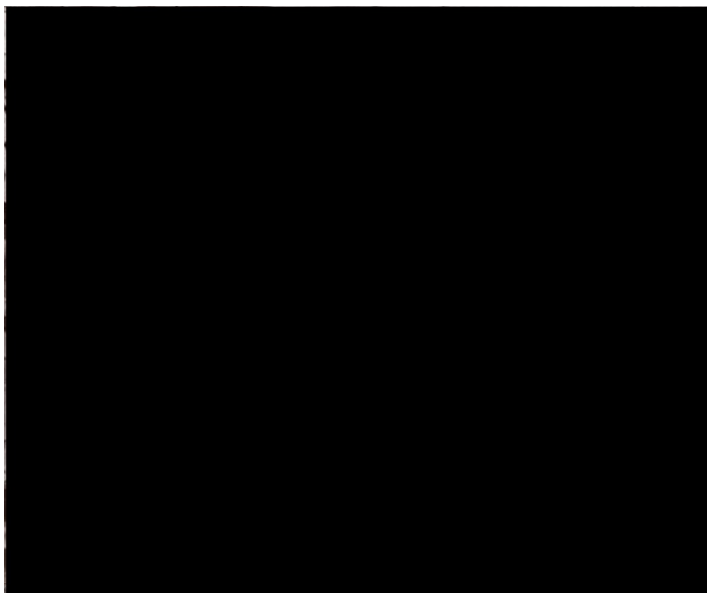
The influx of people owing to increasing industrialization and capitalism in the 18th and 19th centuries brought new challenges to European and American cities such as the emergence of housing speculation and continuation of squatting¹⁷ (Neuwirth, 2005; UN-Habitat, 2003a). With few rooms available, people crowded into densely built houses, tenements with increasingly poor residents, makeshift accommodation and all without (sufficient) services (Birch, 2014; Neuwirth, 2005; UN-Habitat, 2003a) (figure 3.1 & 3.2). These places became easy prey for business people and landlords who would charge fees just for a spot to sleep – exploiting the residents. Marginal activities were also rife in these places, cementing the link between social stigma, poverty and declining places (ibid).

Such was the unprecedented nature of slum development in the Developed World. For the Developing Regions, slums, were at that time (late 19th century) coming to fore as a new phenomenon. As shown in the next section, whilst there were contextual differences, the trend of slum development in these regions just like it happened in the Developed World, was also unprecedented, responsive to needs and steered by presiding influences, and their characters similarly complex.

¹⁷ These events were further encouraged by the passing of certain federal actions and customary laws – *ty-unnos*, gave squatters authority and power to invade land sometimes overnight.



Figure 3.1. An early twentieth century documentation of a Dublin slum neighbourhood, Gorman's yard Inchicore (1911). The tenements had been abandoned by the wealthy and fallen into disrepair generally due to negligence and a lack of regulations. The lower classes seeking jobs and those that have escaped poverty from the hinterlands made them their homes. Source: (Finn, 2014): photographic collection of the Dublin city council.



This image has been removed by the author of this thesis for copyright reasons

Figure 3.2: A room in a tenement slum with immigrants in New York captured by Jacob Riis a Danish immigrant journalist and photographer.¹⁸ Source: (Brennan, 2015).

3.1.2 Slums in the (new) Developing Regions

According to Bigon (2008) and Neuwirth (2005) the first slums of the Developing region – Dharavi, the first favelas in Brazil, the Lagos slums, and Kibera in Kenya – developed at the

¹⁸ Some of his pictures are credited to have spurred social reforms.

turn of the 20th century. This was about the same time that the New York Council was driving out slum communities from its five boroughs.¹⁹ The growth of slums and their character in the different Developing Regions was not homogeneous; however, forces of colonization, and later continuing globalization and related industrialization with other forces and drivers played a substantial part in it (Birch, 2014; Fox, 2008; Neuwirth, 2005; UN-Habitat, 2003a).

3.1.2.1 The role of colonization

Global colonization started as far back as the 15th century, with the Portuguese and Spanish setting up empires along the coasts of the Americas, Africa, the Middle-East, India, and East Asia (Wikipedia contributors, 2015). Later, in the 16th, 17th, and 18th centuries, the English, Dutch, and French established their own colonies around the globe, most times in direct competition with each other (ibid; Bigon 2008). They particularly focused their attention on America, Africa, Asia, and Oceania. However, it was not till the late 19th and early 20th century that the effects of such expansions started to define urban settling patterns in Developing Regions, mainly through the segregation of colonial and indigenous populations. Here, some examples can be cited.

In Rio de Janeiro, Brazil in Latin America for instance, the moving of the Portuguese Kingdom's seat of government along with the ruling family to the city in 1808 influenced a growing pattern of segregated urban development (Magalhães and Nacif Xavier, 2003). With the abolition of slavery and rebellion at the end of the century, people moved to the city, to find better pasture. Social differences became acute then. The first slums (*morro de providence* and *morro de favela*) appeared along with the appropriation of (vacant) inner-city houses, alleys and tenements, and their subsequent decline (Magalhães and Nacif Xavier, 2003; Valladares, 2007).

Another example in the Asian context is the city of Dhaka, Bangladesh. During the periods of British colonial rule, Bangladesh attracted a lot of colonial interests. Information on the early development of Bangladesh is limited (Hossain, 1974). However, urban mismanagement, inequality, and poverty with growing sub-urbanization linked to the development and expansion of slums in the city are also linked to inefficient planning initiatives of the period (ibid). People, especially from other parts of British-India were encouraged to migrate and settle in slums to provide much needed low-cost labour; the 'sweeper colony' of Lalbag is an example of one of such colonial slums (Cameron, 2008).

¹⁹ By 1904, the last of the squatter settlements along New York boroughs had been torn down (Neuwirth, 2005).

Other examples can be found in the African context. Shortly after Nairobi was set up by the colonial administration in 1889, the 1922 Pass Law, which limited the native Africans entry into the city, was implemented (Ekdale, 2011). Africans, including the African soldiers used by the British, were segregated in native reserves at the edge of the city.²⁰ The Vagrancy Act was also implemented during that time to remove unauthorized structures (ibid). It was owing to these events that the Kibera slum in Nairobi, for instance, developed. With the scarcity of work, migration from villages expanded to the lands at the edge of the city, so that by the late 1920s onwards, Kibera and other slums were substantially established. Lagos slums were also primarily expanded by colonial activities. The British reaction to Lagos built landscape when they settled was contradictory (Bigon, 2008). They were averse to the planned family complexes that they encountered formed along narrow sandy lanes and made of lagoon mud, decayed vegetation, palm leaves, and bamboo (ibid). Nor did they try to understand the people's culture and ideals. They embarked, in the first decades, to exclude the indigenous quarter and reclaim swamps – building houses and extending infrastructure for the British. On the other hand, however, the crown was reluctant to pool more funds in order to develop and promote economic investment on behalf of the indigenes (ibid; Fox, 2008). This aided in further deterioration of sectors of the city and led to contrasting urban landscapes.

3.1.2.2 The role of globalization with industrialization

Post-World War II, when the new wave of globalization hit, masses of people from villages moved to the cities of Latin America, Asia and Africa searching for employment amidst rising scarcity of resources, environmental and climatic challenges, and civil unrests (Ekdale, 2011; Leitão, 2008; Neuwirth, 2005; UN-Habitat, 2003a). In cities like Bombay, now Mumbai, Lima, and Cape Town for example, some of the migrant population squatted on vacant land to be close to work and market opportunities. Others found work and settled in factory tenements. When the factories became defunct, some of the factory workers were also forced out into peripheral slums that had formed (ibid). With continuing migration, inadequate housing, lack of employment opportunities and services, extensive poverty widened, and slum places and populations grew.

By the 1950s, rapid urbanization had substantially shifted to the Developing Regions, and cities expanded in a process described by phrases such as: 'urbanization without industrialization' (Hutchinson, 2010), 'disjointed modernization' (Fox, 2013), and 'false urbanization' (Agbola, 2005; in Abubakar and Ejaro, 2013). This occurred because Developing Regions were expanding fast but without the commensurate economic growth and supporting structure the Developed Nations enjoyed. A substantial percentage of populations settled in or

²⁰Africans were limited to only contracted labour and low-level admin. Health measures were used as excuse for this action.

expanded slums. The economic and structural situation in these regions were, however, further challenged by the introduction of neoliberal policies of 1970s and 1980s (Zohar, 1991; & Johnson, 2001; in Hamdi, 2004; UN-Habitat, 2011b, 2011c, 2003a; Cities Alliance, 2013). These policies were characterized by aspects that included free trade, structural adjustment policies, privatization, and agricultural deregulations with reversal of capital flows back to donor nations. In time, poverty conditions worsened, and slums grew, further influenced by low incomes, corruption, weak institutions, lack of political will, and inefficient planning and slum policies.

The slum phenomenon is currently predominantly a Developing Region issue (see section 1.1); and most if not all the factors that drove and define its existence are still evident today. As will be shown in the next section, the challenge of conceiving slums, especially to intervene also has a long history and this can be linked to management approaches taken and their impact.

3.2 What is the slum and how do we manage it? A historical review

For cities, slums do not reflect their development ideal, in response, they demand some form of intervention. The history of slum development (section 3.1) provides a wide period within which to review how slums were perceived and management approaches taken, and from this and their development history, understand the presiding limitations to defining slums and for intervention. To define slums, or anything in fact, is to precisely capture and relay what they are and their essential qualities relative to how they are understood (Chambers Dictionary, 1990; Merriam-Webster Dictionary, 2017). The challenge of properly capturing what slums are is indeed an old one.

Over time the literature on places considered to be sub-standard to cities (both in housing and open land) were referred to with varying terms – shanty towns, squatter colonies, and run-down tenements. Following this, and when the term ‘slum’ began to be used, the challenge did not involve capturing what ‘slum’ meant. Rather, the challenge was to properly capture their diverse and complex nature. The slum, as shown in the brief history, is more generally intended as a configuration of people, physical spaces and environments with associated complex interactions and activities in which the city also plays a key role. With such diverse manifestations, multifaceted contexts, and rapid expansion, properly understanding slums to adequately intervene is not a simple matter. However, this is necessary if city administrations were to intervene on them with the right method and positive outcomes.

3.2.1 Definitions and historical approaches to intervention in Europe and America: generally limiting, non-positive, exclusive

The descriptions given for slums over the years, in both the Developed World and when they started occurring in the Developing Regions, were many and diverse and struggled to provide a consistent picture of slum conditions that were being perceived. They were in general, however, non-positive and did not particularly consider the slums as relevant parts of the city, or the inhabitants and their associated social dynamics. Management approaches were also generally exclusive and sometimes ineffective. The link between the two (perception and management approach) is not conclusive; however, a review of some descriptions or portrayal of slums over this period, and the exclusive approaches taken to manage them shows a pattern. In the same vein, these accounts captured in the succeeding paragraphs, also show just how complex slums were.

During Roman era of squatting relayed in section 3.1.1, Roman author Tacitus described the nature of places in the city that include tenements and boarding houses as putrid, sodden, and sagging (Neuwirth, 2005). Shacks and lean-tos etc. that were constructed by squatters were likely to be demolished if they are attached to public or private buildings in the Roman city or considered to pose a fire risk (Neuwirth, 2005; Scobie, 1986). If not, they might be allowed to stand and were even charged rent. There are however, records of instances where squatter constructions are cleared by Roman city officials only for others to spring up in their place (Neuwirth, 2005).

Many descriptions were given for the growing slums of Europe and America during the periods of the 13th century through until the period of industrialization. The historian Geremek (1987 in Neuwirth, 2005, p. 182) described the Paris court of miracles in the Middle Ages as 'a labyrinth of evil smelling rutted lanes [that] led to a collection of mud huts teeming with beggar families...'. Stow (1842 in Neuwirth, 2005, p.184) in his documentations of London grounds from 1598, described the Whitechapel common fields as 'so encroached upon by building of filthy cottages, and with other purpressors, [...] in some places it scarce remainth a sufficient highway [...] much less is there any fair, pleasant or wholesome way for people to walk on foot.' During these periods (13th to 19th century), in terms of intervention approaches, city standards had evolved from those of Roman times; both continents (Europe and America) document accounts of squatter settlement and housing demolitions, exterminations and downright tyranny through the centuries.

The 19th century brought in more challenges of managing populations and of slum development in European and American cities as shown in section 3.1.1. It was also at this time (the 19th century) that literature started capturing these phenomena, taking audit of the conditions people were living in, and campaigning for urban reform for these challenged parts

of society (ibid). The first reference to 'slum' as a noun used to mean places where people lived was made in the 'Survey of poverty in Dublin' by James Whitelaw in 1805 (Davis, 2006). Before then, the term was a verb that initially meant to sink in a muddy swampy place, another derivation is from 'slumber' (Bigon, 2008). In another early definition, 'slum' is described as a form of depredation practiced by thieves (verb), or a lodging that has been stripped of its linen or other valuables (noun) (Prunty, 1998). In 1812, James Hardy Vaux proffered a definition of the word 'slum' in the 'vocabulary of the flash language' (Davis, 2006) as 'a racket or criminal trade'. However, this definition refers to actions by people and does not make reference to human settlements or places, as it did in James Whitelaw's publication.

During this period, the various attempts to describe the many contexts witnessed in slums can be captured through the following examples:

- According to Frank Soule, the development of San Francisco squatter areas during the mid-1800s included '[...] hundreds of rude houses and tents [that] were daily in the course of erection [...]', (Neuwirth, 2005, p. 197).
- Cardinal Wiseman in his campaign for urban poverty reforms noted in 1850 that 'Close under the Abbey of Westminster there lies concealed labyrinths of lanes and courts, and alleys and slums, nest of ignorance, vice, depravity and crime as well as squalors, wretchedness, disease [...]' (Ward, 1897, p. 568). The target of his description was a place called 'Devil's Acre' close to Westminster Cathedral and Abbey (Wikipedia contributors, 2017a). He is often given credit for the popularization of the 'slum' (an uncomfortable term then) to describe declining places (Dyos et al., 1982).
- In 1861, the writer, John Hollingshead wrote about Bayswater and Notting hill in London as a, 'dreary swamp of black manure drainage, broken bottles, old bricks and mud, [.....] the huts have grown a little worse for wear [...] are held together by a principle not yet discovered or laid down by theoretical builders. [.....] inhabitants defend their right to place, (though unauthorized) not only with legal parchments, but with energetic tongues.' (Neuwirth, 2005, p. 185). He concluded, that if people were attached to a place of such un-wholesome sanitary conditions, then there was not much help for them.
- Charles Booth surveyed the life and occupations of the working class in London and what was happening in slums in 1889 and produced a London poverty map that classified the city from a range of wealthy to very poor (Birch, 2014; British Library, 2017); he labelled the very poorest areas as 'vicious, criminal' (British Library, 2017). This was one of the first and more scientific survey of slums, it further epitomised slums' association with poverty and negative contexts. This research did however

influence the government to start planning and implementing poverty reforms. In the 1880s England sought to provide an operational definition for slums as places that were not materially fit for human habitation (UN-Habitat, 2003a).

- At the turn of the 20th century, the scholar Frederick Engels, in his early work of documenting the working class in England, did not concern himself with defining the slum per se (Cuthbert, 2011). Instead, he also categorizes them relative to their links to poverty and exploitation (ibid).
- The British special committee that was established to oversee the slum management in Britain in 1929 were known to declare: 'we do not propose to spend time defining a slum, [...] we are concerned with [...] houses which for some reason are below proper standard, and secondly, overcrowding (Special committee [...], 1929; in Bigon, 2008, p. 55 (7)).
- Other literature on slums simply leaves much to the imagination of the reader: 'You went down into slums, into the abyss' (Dennis, 2004; in Gilbert, 2007, p. 702 (235)).

There were, however, during the same period some descriptions of slums that took on a more sympathetic and enlightened outlook, seeing industrious citizens and 'comic potential' (Neuwirth, 2005, p. 222) in place of the pestilence. Some examples can be found in the records of 19th century New York slums which include:

- Journalist H.C Bunner wrote about the 'shanty architect' of Manhattan in 1880s, 'he finds no two feet of a surface on a level and he adapts his structure to the condition of the site [...] bits of wood from the docks, burnt-out city houses, from wrecks of other shanties; [...]' (ibid, p. 219).
- And about the flexible nature of a slum housing in New York, the Brooklyn Eagle²¹ writes 'a sort of ark – which can be fastened to the end of the street, and which can be floated away at pleasure.' (Neuwirth, 2005, p. 213).
- Another journalist²² writes of the slums of New York, 'Nothing is prepared for it, neither ground for material. Its builders have but an empirical knowledge of the craft they practice. They scorn a mode and they work with whatever comes to hand.' (ibid, p.234).

²¹ No direct citation was offered by Neuwirth (2005), however, bibliographic data suggests this entry as either that of (Brooklyn Eagle, 1889a, or 1889b).

²² No citation was proffered by the author.

There were also other journalists in American history portrayed in the same literature (Neuwirth, 2005) whom showed support for the plight of slum dwellers and sought to debunk the character of vice and criminality attributed to them in general. Vivid descriptions of the homes that the squatters built in the slums of New York, their flexible nature, and how the slum communities were a cohesive unit that will collectively defend against ejections and other legal rulings were also outlined. He also recounts that despite declining state of the slums, they were a beehive of enterprise – ‘squatter grogeries and groceries’ (ibid, p.215). The rest of the city found the services offered by the squatter population useful, especially towards promoting democracy in the city – the squatters made formidable political patrons.

The above descriptions given for slums show how the perceptions of slums can form from different perspectives of interest or contention, but generally focused on aspects that are considered to distinguish them from the rest of the city. During this period (mid-19th to early-20th century) slums were categorically aligned with ideas of poverty (especially), criminality, and infectious diseases (Davis, 2006; Gilbert, 2007; Neuwirth, 2005; UN-Habitat, 2003a). Essentially, the examples also capture how those giving account tried to grasp the complex contexts of slums and portray them in their own way. These complex contexts, as shown, are not necessarily negative nor are they disassociated from the cities’ contextual dynamics. As Neuwirth notes, however, sympathy and support are two different things.

By the turn of the 20th century, squatters in these regions of Europe and America had mostly been removed due to housing reforms, privatisation of lands, legal rulings, actions by health boards and building owners (Birch, 2014; Neuwirth, 2005; UN-Habitat, 2003a);²³ whilst some squatters in America particularly, were fortunate to get permission to settle down due to enactment of land pre-emption acts one of which (the homestead act) lasted up to 1976 (Neuwirth, 2005). A few squatters in these regions survived on undeveloped land and infrastructure-poor, vacant or un-finished tenements up till the 1940s and the 1980’s (ibid). Subsequently, however, slums in these regions were steadily managed because of increasing affluence, and both physical and soft reforms (further driven by slum community organizations and social grassroots movements) (Birch, 2014; Neuwirth, 2005; UN-Habitat, 2003a).

3.2.2 Definitions and historical approaches to intervention in Developing Regions: generally limiting, non-positive, exclusive

Similarly, at the turn of the 20th century, city officials in the colonized sectors of the new Developing Regions sought to define the slum contexts and when it became necessary to intervene and manage them. The thesis found limited reference of attempts to describe slums

²³ Most of whom felt their properties were being depreciated by the presence of the slums.

during this period, however, it was the non-comprehensive and pejorative and exclusive perceptions that prevailed. Some examples from Latin American and African contexts are used in this section to support this summation. The discourse also highlights the complex nature of slums and the varying descriptions given for them. In terms of slum intervention, it was just as much a challenge as it was for the Developed World.

An example in the Latin American context is Rio de Janeiro in Brazil, and how the city administration sought to understand slums and streamline policies in the early 20th century. For Magalhães and Nacif Xavier (2003), when slums first emerged in the city, they were perceived as an urban 'epidemic' (ibid, p. 12). The first official city planning document developed in 1920s stated just as much and suggested the eradication of slums. Early city administrations in the later parts of 1800s and early 1900s had already tried adopting the *Hausmann*²⁴ planning approach in the city. This involved carrying out radical renewal plans and demolitions to open green avenues and develop modern new buildings. As demolitions continued, Rio de Janeiro slums expanded in all directions with people building homes on cleared hills, suburbs, and peripheral lands. Progressively into the 20th century, housing policies were set to eradicate what are perceived as sub-standard housing the *aglomerado subnormal* (ibid). These are groups of '50 or more housing units located in a dense and disorderly manner, on land belonging to third parties, lacking infrastructure and services.' (ibid, p. 13). In 1950, this was adopted as the broad census definition of slums continuing the policy of slum removal. By the 1960's, however, this policy was implemented in parallel with a clientelist housing policy and re-urbanization projects amidst rising land speculation and with a greater percentage of the city population living in slums due to inefficient housing policies.

A key example in the African context is Lagos city in Nigeria and how colonial city officials sought to describe areas they considered to be slums and intervention approaches taken. A Briton visiting Lagos in 1900 reported that colonial efforts 'to improve the sanitation by clearing away blocks of retched native hovels,²⁵ [...] had not yielded any relief.' (Mocker-Freeman, 1900 in Bigon, 2008, p. 53 (112)). For Sylvia Leith-Ross, the wife of a serving British officer, in 1920s, the Isale Eko quarters of the city (figure 3.3) is characteristically an area with '[...] potholed streets, the shacks and roadside stalls, the tumble of houses of all shapes and sizes set at all angles' (Leith-Ross, 1983; in Bigon, 2008). The colonialists considered the sanitation, planning and building techniques of the people too primitive and comparatively improper according to their own beliefs about standard housing requirements. In truth, however, the

²⁴ Paris Urban planner Eugene Haussmann.

²⁵ Referring to the excluded native compounds.

presence and trade activities of the colonialists was directly contributing to the expansion and deteriorating conditions in the Lagos indigenous quarters.

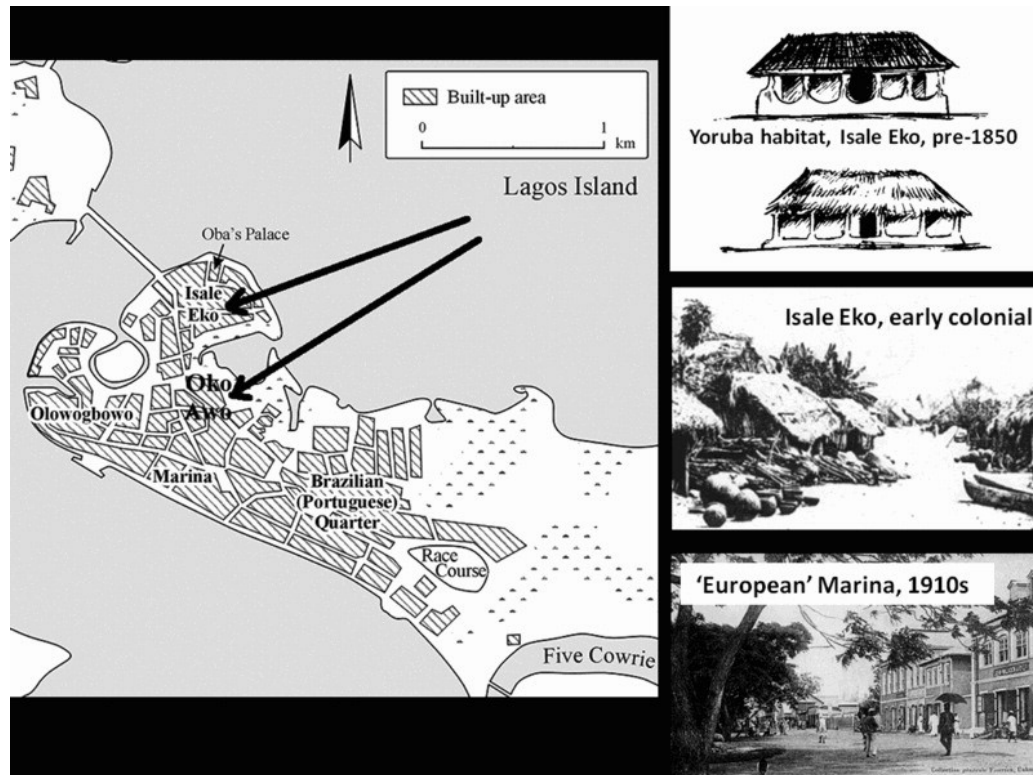


Figure 3.3: A documentation of Lagos 1850 and 1910. Lagos map (left), and typical Yoruba hut and compounds of Isale Eko excluded from improvement and in stark difference to the British quarters (right bottom image). Source: (Bigon, 2016, p. 214).

With the arrival of the bubonic plague²⁶ in 1924, the British were forced to act on areas they considered slums and the revitalisation of urban infrastructure. The colonial director of the Lagos sanitary service declared that all 'unsanitary' buildings in the Lagos island area of Isale Eko (see figure 3.3) should be demolished, 'whether infected or not' (Bigon, 2008, p. 60). This declaration in association with demolitions of homes tagged as 'decided plague foci' or 'dangerous' (ibid, p. 59) was, for the inhabitants of the indigenous quarters, arbitrary and sparked controversy. The inhabitants based their reactions partly on precedence, as the colonialists were known to burn down settlements when people reneged on taxes, for land expropriation or forced labour. In 1928, the Lagos Executive Development Board (LEDB)

²⁶ To learn more about the Bubonic plague in Lagos, see national Archives of Nigeria, Ibadan (NAI) CSO 26, 13001 vols. I-III, outbreak of plague in Lagos, 1924, as referenced in Bigon (2008).

acknowledged that the Lagos mainland was turning into a reflection of 'the disastrous state of affairs as exists on Lagos island itself' (ibid, p. 60).

The *Eleko*, one of the traditional ruling elite in Lagos, submitted an official complaint in 1930 to the LEDB. It stated how intensive slum demolitions were making people, 'who were quite happy in their houses' (ibid, p. 62), homeless, simply because the houses looked old. To this, the town engineer argued that health considerations were the purview of Sanitary Service, and that it '[...] does demolish houses because they are old, but only when they have become structurally dangerous' (ibid, p. 62). Whilst the Sanitary Service countered 'no houses are demolished because they are old,' [...] 'people who are quite happy in dark, damp, ill ventilated, and rodent infested premises are jeopardising not only their health' (ibid, p. 62). The intensive demolition campaigns taken against the slums were controversial and had a lasting impact on Lagos spatial architecture and social relations between colonizers and natives (Bigon, 2008). The British were also not eager to pool in more funds for municipalizing and improving the areas (see section 3.1.2); improvement of standards was not the principal aim of the colonial administration.

As seen in the above examples, the views of the people, public interest, and factors responsible for slum expansion, and how slum contexts and ongoing dynamics exist in the wider framework of cities were not considered in capturing the character of the slums or the actions taken. In this history of slums also, the association between how slums were perceived, and the actions taken on them are not conclusive. Generally, however, in the first half of the 20th century, slum clearance prevailed in the Developing Regions without particularly stalling the growth of more slums (Bigon, 2008; Davis, 2006; Ekdale, 2011; Magalhães and Nacif Xavier, 2003; UN-Habitat, 2003a). Slum intervention initiatives that register failures have been endemic (though not necessarily the case all round) through to modern times (UN-Habitat, 2003a). The inability to comprehensively capture what slums are, together with already established pejorative perceptions, has therefore posed an enduring challenge to slum management. It now invites the question for this thesis: what exactly is a slum? The following section tries to measure the current limitations to this question.

3.3 What is the slum? Current efforts towards an operative slum definition

The extensive shifts in rural-urban populations post 1950s with extensive expansion of slums heightened global concerns about urbanization and the need for effective urban management policies and actions in Developing Regions (Hauser and Schnore, 1965; United Nations Population Division, 1969). This slum settlement expansion made defining slums an even more complex problem. Nonetheless, finding appropriate ways to understand and define them was essential. According to (Cuthbert, 2011), scholars have been tracking the problem of defining slums for decades without actually coming to a precise working definition. There have

been, however, strong arguments for a comprehensive and positive way to understand slums for effective management, and also attempts to fulfil such requirement.

Stokes (1962) argued that the reason why slums persist despite elevated levels of economic development²⁷ in Developing Regions is that the explanations given for slums are inadequate – and a complete theory for slums was therefore necessary. He further argued that: ‘the slum is the home of the poor and the stranger These are the classes not (as yet) integrated into the life of the city.’ (ibid, p. 188). This outlook on slums according to Gilbert (2007) made the slum an even more ambiguous term, and not much less pejorative. In the 1970s, the substitution of use of the term ‘slum’ with other terms was advocated by some. One of such advocacies was by Turner (1968, 1978, 1976, 1969) whom consistently maintains that slums are both settlements with a throve of human and social capital as well as solutions to housing problems.

Other advocacies argued for a more intensive approach to understanding slums and also people inclusive management. For instance, between the early 1960s to the late 1970s, studies were published about the Latin American context with the aim of changing the understanding of informal settlements and policy (Satterthwaite, 2016). Several case studies were also presented at the Habitat I conference in Vancouver 1976 on the conditions of squatter settlements and the need for more concerted efforts towards their management (Nguluma, 2003; Srinivas, 2015; UN-Habitat, 1976). Furthermore, at a United Nations housing experts’ meeting in New York, November 1977, Peter Marris started his opening argument with a condemnation of the superficial manner in which slums are perceived and defined:

[S]lum’ is like the word ‘dirt’: evocative, disapproving, and indefinable except in the context of our expectations of what should be. Garden soil becomes dirty only when careless feet trample it on the kitchen floor: a thatched hut only becomes a slum transported to the city. The venerable courtyards of ancient university colleges are not slums, despite their cold, damp basement bathrooms, underheated rooms and unsafe staircases, because they fit our image of scholarly dignity and re[s]pose’ (Marris, 1979, p. 419).

This argument points to the fact that the explanations given for slums have not been practical so far. In the period following the initial rise of concerns about Developing Region slums, attempts to have an operational definition did not fare very well. In practice, as in historical cases, planners operationalized the concept by comparing it to known planned urban space use (UN-Habitat, 2003a). The areas that did not fit recognized practical applications were

²⁷ In the United States, as of overseas globally (including Developing Regions).

designated as slums. A famous example of this was the 1960's 'windscreen survey' (ibid, p. 16) in Melbourne, Australia, in which two planners drove about and mapped out slum areas without getting out of the car. Currently, in the Oxford Encyclopaedic Dictionary (Hawkins and Allen, eds. 1991) 'slum' is defined two-ways: as a squalid backstreet or district etc. that is overcrowded, or a house or place in a city that is not fit for human habitation. The dilemma still lies in the slums lack of adherence to urban political and economic dictums, making their perception bound by geographical differences in standards as well as societal and personal ideals.

The United Nations organization recommended an operational definition of slums to breach the definitional gap and have a measurable platform for assessing the Millennium Development Goal targets.²⁸ This was also proposed in the 'challenge of slums' (UN-Habitat, 2003a), which re-popularised the return of 'slum' to the urban discourse (Gilbert 2007). The definition they propose makes reference to an area with a combination of the following characteristics:

- Inadequate access to safe drinking water.
- Inadequate access to sanitation and other basic infrastructure and services.
- Poor structural and inadequate quality of buildings.
- Overcrowding and insecure tenure.

As noted by Davis (2006), these descriptions are restricted to more physical and legal aspects, and still a preservation of original classical definitions for a slum (even though it disregards the aspects of economic and social marginality). The UN-Habitat organization does, however, recognize the limitations of its operational definition in capturing the more subjective and complex social aspects of slum, including poverty. It carried out case studies to analyse the definition of slums used by 29 cities with slums, as part of their documentation (UN-Habitat, 2003a). They concluded that most definitions were not as clear as the slum phenomenon demands. The cities included in the case study did not comprehensively consider the four indicators in the operational definition of slums together, and only three cities considered including poverty in their definitions.

The Cities Alliance, in their own efforts to understand slums, use an assessment framework of improved sanitation and secure tenure rather than all UN-Habitat indicators.²⁹ Gilbert (2007)

²⁸ They did this after convening an expert group meeting in Nairobi, 2002 (UN-Habitat, 2003a).

²⁹ See <http://www.citiesalliance.org/cws-action-plan>.

notes that this is a somewhat contentious issue if one considers how even in re-housed slum areas, owners rent out sections to other squatters. Slum definitions used in literature including subsequent UN-Habitat literature (see UN-Habitat, 2013b, 2007a) generally rally about the operational definition provided by the United Nations. These definitions also focus more on the slum's physical characteristics, and/or the fact that they are in contravention to perceived urban principles, standards, and usage.

This fact is also reflected in the general definitions obtained from informal discussions carried out by this researcher with seven urban professionals (in Abuja, Nigeria) (methodology section 2.1). Five of the urban professionals described slums in relation to physical aspects – high density, lack of infrastructure, poor building quality and sanitation. Four urban professionals perceived slums to be in contravention of planning principles and standards. Only two considered that the physical characteristics of slums can relate to social aspects of poverty and quality of life (refer to Appendix I to the thesis for a summary of these discussions). Some scholars have also sought to address the lack of slum definition through conceptual frameworks. These proposals are analysed in the next section including their strengths and limitations.

3.3.1 Recent proposals targeted at defining slums: their strengths and limitations

The thesis identified only two recent proposals for comprehensively defining slums, they are reviewed in the following sub-sections 3.3.1.1 and 3.3.1.2:

3.3.1.1 The 'living conditions diamond'

Gulyani and Bassett (2010) suggest that slums are diverse and complex, and it is necessary to have a framework that will consider context-specific descriptions. Theirs is possibly the most comprehensive overview of slums to date. They present a framework – the 'living conditions diamond' – that can be applied to make comparison between slums and the wider city. The living conditions diamond distinguishes four broad interactive dimensions to describe slums (figure 3.4) which include: (1) tenure, characterized by type of tenure, tenure formality, security of tenure, tenure mix and duration of stay; (2) infrastructure, characterized by the level of access to ten economic and infrastructure indicators; (3) unit, characterized by building materials and structural integrity, and overcrowding; and (4) neighbourhood and location, characterized by spatial location, density with physical layout and circulation, and amenities.

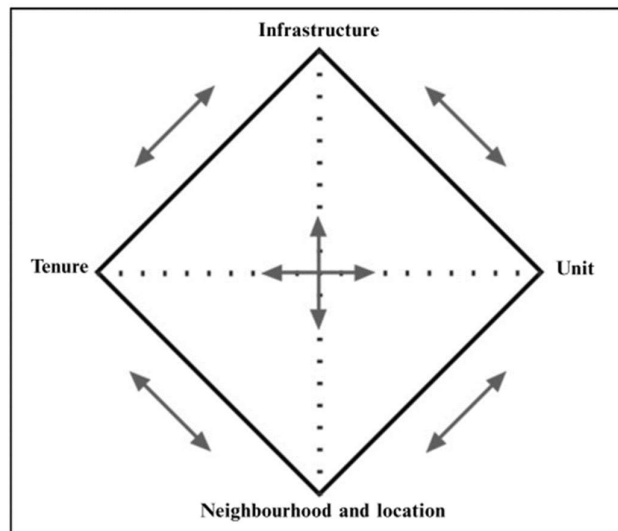


Figure 3.4: The living conditions diamond framework for defining slums by (Gulyani and Bassett, 2010).

The authors (ibid) further discuss why the four dimensions should be considered as an interactive profile with which to define a slum, including examples of conditions that make them so. They used the framework to compare between two slums in Nairobi and Dakar by compiling analytic variables of the four dimensions (above) according to the proportion of the slums' population; they use scores – from high to low – for those descriptions that cannot be quantified, like structural integrity. The results of the dimensions investigated were informative. The authors were able to compare the strengths and challenges of each slum across the four dimensions, the general state of conditions between the two slums as well as speculate on city relative effects.

This framework provided valuable insight into how one might describe the slum. There are, however, three essential limitations with the living conditions diamond framework, which the authors also highlight:

- It is limited in terms of considering causal variables that can explain why conditions are either good or bad, especially those that lie outside the slum and are aspects of the wider city framework.
- It does not consider the crucial social context of slums – political, economic, demographic – rather it only considers physical and legal conditions. At a minimum, the authors (ibid) suggest that the framework should be considered along with poverty, education, employment, and social networks.

- All aspects of the diamond are given the same weight of importance in reading and defining the slum, and they feel that as empirical research grows, more weight should be attributed to the variables that define the slum.

Gulyani and Bassett (2010) also argued (due to the limitations of their framework) for continued refinement of their proposal to develop a much-needed context-specific and globally standard definition of slums.

3.3.1.2 The ‘Generic slum ontology’ (GSO)

Kohli et al. (2012) also address the problem of a lack of information about slums and the need for a definition which is consistent, allows for comparison and can support appropriate slum intervention by those concerned. Slums are highly dynamic areas. The authors’ main objective was to help remove ambiguities related to image-oriented slum definition and to guide classification of its characteristics in an objective way. They propose the ‘Generic Slum Ontology’ (GSO): a framework to conceptualize slums and extract other contextual information on the basis of image-based classification – in particular Object-Oriented Image Analysis (OOA) techniques – through geographical remote sensing.

The GSO defines slums at three hierarchical levels that include: (1) object level – access network and building characteristics (spectral and shape image-based indicators), (2) settlement level – shape and density (spectral and shape visual indicators), and (3) environs level – location and neighbourhood characteristics (secondary data association and texture visual indicators) (figure 3.5). The framework checks whether slums can be characterized through descriptive indicators proposed for each level. Kohli et. al., (ibid) do, however, note that the framework requires local adaptation as not all indicators will apply to all slums.

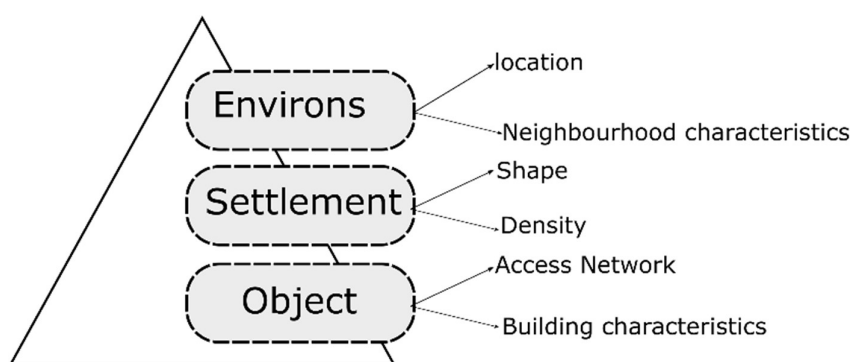


Figure 3.5: The generic slum ontology, adopted from (Kohli et. al., 2012).

To develop the scope and terms of characteristic indicators for the GSO, the authors first collated relevant indicators through literature content analysis. These indicators were then further refined using information on the perception of slums and the delineation of slums from

very high resolution (VHR) aerial geographical images by 50 domain experts (in the field of remote sensing and experience in slums).³⁰ The information of slum characteristics gathered from the expert knowledge analysis was used in the translation of indicators analysed from image observation. For example, in a local adaptation of the framework to define slums in Kisumu (Kenya), the authors translated the slum shape as 'irregular orientation of buildings' observed through image analysis to indicate 'buildings built haphazardly due to lack of planning' (ibid, p. 161).

This framework provided, yet again, valuable insight into contexts that can be used to comprehensively define the slum. There are, however, certain limitations that can be attributed to it:

- Because it is primarily an image-based framework, the descriptive indicators and proposed attributes used in the framework do not systematically consider salient social contexts of slums, like poverty for instance.
- In the same vein, attributes are somewhat prescriptive and do not differentiate between individual slums; rather they focus on general image-based characteristics
- The framework does not consider context-specific knowledge from the slum community.
- The framework is focused on only one context of slum development – squatting – and does not consider other types of slums that develop, like the chawls of India, for instance.
- The framework does not consider associations between the hierarchical concepts of object/settings/environs.
- As noted by Kohli et al. (2012), knowledge base for the development of the framework was restricted to Sub Saharan Africa and Asia as respondents used in the expert survey referred to these regions specifically.

3.3.2 The gap for a comprehensive slum definition remains

There is still no universally accepted way of defining the slum phenomenon (Bigon, 2008; Cuthbert, 2011; Kohli et al., 2012; UN-Habitat, 2007a, 2003a). This gap, which is intensified by

³⁰ According to Kohli et. al. (2012) the high level of reference to indicators of physical infrastructure in defining slums (86% of respondents), further substantiated their potential to propose the use of image-based identification and mapping to define slums.

the negative stereotype of slums and slum communities, is a primary challenge to managing them. The use of the term 'slum' remains consistently deployed and has become synonymous (even when other names are culturally substituted) with stereotypes of deprivation and the violation of city standards (Gilbert, 2007; Gulyani and Bassett, 2010). In addition to this, there are concerns as to whether such an emotive term should be used to refer to places that constitute people's environment (Gilbert, 2007).

In academic cycles, there have been efforts to rename or re-designate slums in past decades. Suditu and Vâlceanu (2013, p. 67) have reviewed how the literature has addressed these settlements with a different term rather than 'slum'. Some of them include the use of 'squatter settlements' (Willis, 2009), 'Shanty town' (Auyero, 2000; D'Cruz et al., 2009), also, 'Autonomous settlements' (Turner, 1969), and there has been an effort in Latin America to substitute it with the expression 'young settlements' (*pueblos jóvenes*) (UN-Habitat, 2003a, p. 10). However, social, economic and political forces in the urban fabric that defines them still evoke perceptions of informality, low quality of life and islands of inequity (UN-Habitat, 2007a, 2003a).

It has been shown how simple definitions are not enough to grasp such complex phenomena: there is a need to consider all systems – social, physical, economic and political – that play a part in slums. Frameworks accounting for all the above are therefore the most appropriate approach to describe slums and within which to operate and effectively intervene and manage them.

From the discussions of knowledge of slums found in the literature surveyed so far – sections 3.1, 3.2, and 3.3 – certain consistent aspects can be summarised as general challenges to forming a comprehensive understanding of slums. These are discussed in the next section.

3.4 Aspects that challenge the comprehensive understanding of slums

For this thesis, the inability to comprehensively define what a slum is can be attributed to certain aspects that make them complex and include the following:

3.4.1 Differences in perceptions

Standards vary between regions. What may be considered a slum in a certain city context, may be considered acceptable in another. Baseline measures for urban planning and housing differ between locales – according to differences in people's ideals, cultures, professional affiliations, and even social class and strata. Hence, perceptions vary considerably depending on someone's aim – the basic descriptions that the urban planner will use to define the slum, might vary from those considered by the health official, the NGO etc., or even the slum

dweller. What the planning official sees as a disruption to urban structure, un-fit and non-conducive, the slum settler might see as an avenue to better opportunities.

With these differences, come variations in the perceptions of slum; universal objective targets are therefore harder to establish. Cuthbert, (2011) asks the all-important question, how does one know that one is a slum dweller? The slum, as much as it is a physical construct, is also a figment of the mind much like subjective wellbeing. Marris (1979, p. 419), notes that the '[...] slum is only a slum in the eyes of someone for whom it is an anomaly – a disruption of the urban form and relationships which to that observer seem appropriate to his or her own values and perceptions.' It is in this regard that Yelling (1986; in Gilbert, 2007) observes that the slum is more of a political than scientific issue.

3.4.2 Locational, social, spatial and physical dynamics

Geographical locations create vast variety overall, making it nearly impossible to have a clear and uniform slum definition. With every geographical location, the social, economic, political, and physical contexts will differ (even when similarities exist). Also, as with all human settlement, slums are complex and cannot be defined according to one single parameter which can capture the relative social (including subjective) and spatial dimensions along with the physical ones. What's more, the diverse subjective contexts, interactions and associations between people will be associated with their cultures, ethics, and socio-economic profiles making their contemplation in slums rather difficult.

Furthermore, slums are not uniform entities. Within a slum area, one can find diverse housing forms, material use, multiple dimensions of tenure, or conditions of poverty. One may, for instance find that within a slum not everyone is poor or considers themselves to be, nor are they all criminals or prone to social vices. Facilities might exist in a particular slum, but the people cannot afford to access and use it. Still yet, there are the many forms of social capital that can be found in some slums that have consolidated over time; and the contexts within which these dynamics evolve and present themselves are generally peculiar to each slum, (again) even where similarities exist.

3.4.3 Transformations with time

There are three contexts for the transformations that occur in slums with the passage of time.

3.4.3.1 Internal social/environmental dynamics

The first context relates to changes that occur in socio-spatial interactions between people, and the spaces where they conduct livelihood activities. These can be environmental as well, like effects of weather, floods etc. With the passage of time, relations between people change.

Sometimes they become more consolidated and structured, other times relations disintegrate. Alternatively, the slum population can change as people move in due to migration, or others move out, due to slum clearance or choice. People's conditions can also change, including tenure arrangements, poverty, or established community hierarchy for example. A fraction of a slum population can become richer, while others remain poor, or become poorer. Social changes, are of course, reflected in people's spaces and their use of it. One can find, after some time, a small slum becoming a full-fledged settlement spanning many hectares with houses changed from simple temporary shacks to multi-storey permanent structures – for example Dharavi in Mumbai.

3.4.3.2 Relation between slum and city

The second context is relative to the expansion of the city spatial structure. Slums that were hitherto located in city fringes can, with time be engulfed by the urban structure. This is regarded as re-classification (UN-Habitat, 2013a). An outcome of this change is that other socially related, spatial, and environmental characters of slums change as well.

3.4.3.3 Changes in the form of management

The third context to transformations in slums is the changes that happen in urban and development standards of the infrastructure that make up the slum – development rules, regularity and policies, standardization of building and land functions and use, and materials etc. These aspects are continuously reviewed and updated. What might have been an acceptable or condoned development at one time in a certain location, might not be so at another time.

3.5 Conclusion: the need for a comprehensive cognitive framework to describe slums

The intention of this chapter was to briefly trace the sociological evolution of slums in Europe, America, and the Developing Worlds, their perceptions, and efforts to understand them. A degree of this understanding is important to envision prospects for their present and plan towards future improvement. The discourses were presented to provide enough knowledge about this evolution to help pave a path for practical research, rather than an exhaustive survey covering all world regions.

Pejorative perceptions of slums and the challenge of properly comprehending the complex social, spatial, and environmental slum dimensions has been consistent throughout history, including the present moment. The complex contexts within slums defy the simplistic views taken to describe them (UN-Habitat, 2003a). As such, ideas about what was deemed

appropriate by those intervening did not consider the realities and the needs of the people in such areas. Nonetheless, there were also some efforts to describe slums positively and highlight the social and spatial innovations going on in these places.

The arguments in the later parts of the 20th century for positive slum perceptions and comprehensive understanding of them, including endeavours for an operative definition have succeeded to a certain degree. It is assumed here that targets and thresholds (as is used in the proposed UN-Habitat definition) will be relevant in defining slum areas because they are part of a wider system generally regulated by standards and practice. However, thresholds alone, will not be sufficient for describing a phenomenon that is intricately associated with, and changed by complex factors as shown in section 3.4. Gilbert (2007) summarizes that the only constancy of the slum concept across history is the general perception that they are undesirable places to live. At the same time, these complex factors contribute to make slums a difficult phenomenon to capture within one streamlined definition.

The Garki village in Abuja Nigeria is a useful example here. During an informal visit to the place in 2014 by this researcher, the mix of social, spatial, and environmental contexts within the settlement were overwhelming (see Appendix II to the thesis). Some of these can be considered as negative challenges, whilst others represent potentials for positive change that the people were eager to point out. Rarely did conversations start with a disregard for place, rather, the discussions of particular challenges of living there usually followed the conventional defence of their homes. Also, it was inferred that their perceptions of exact requirements for their management and potential for growth within the city were somewhat on par with ongoing city management programs then. In all, this informal engagement in the Garki village showed the potential for continuing advocacy for inclusive intervention and for a comprehensive way to understand slums – supporting arguments posed in this chapter.

The frameworks by Kohli et al. (2012) and Gulyani and Bassett (2010) for defining slums do not systematically consider all the complexities associated with slums. However, they provided valuable insights and knowledge about slums and support the argument for the need to describe slums through a framework that is conceptually sound. There is still potential for a comprehensive way to understand the complex nature of slums and define them.

The argument posed here, as Gilbert (2007) and Cuthbert (2011) suggest, is that the slum requires a more robust contextual and conceptual analysis than current discourses offer. Also, to be able to properly describe the slum and adequately intervene, it needs a definition that is both absolute – as a platform of analysis, and relative – across perceptive, physical, social, spatial and temporal contexts. Moreover, there are many positive aspects to slum urbanism, which are being side-lined, as much as there are negative challenges. They are all part of what (any) slum is and are necessary for understanding their roles in the broader picture of the

city. Hence, to fulfil the gap for a comprehensive slum definition, we need an organised framework that considers the dimensions that gives complexity to slums.

As noted earlier in the chapter, to define slums entails understanding, capturing and relaying their qualities (section 3.3). However, defining slums, or anything in fact, entails the above aspects and more. According to Pretz et al. (2003), the first stage in resolving or managing a complex problem is a precise identification and understanding of it, in cognitive terms. This stage should be followed by a definition of it that is relevant to why the definition was needed. This is necessary for the problem to be (re) defined not as it was originally perceived, but how it was later conceived, allowing a more beneficial solution. If the slum is to be understood as it is, we need to capture complexities associated with it – a practical approach, as well as a precise cognitive understanding and definition of it – a philosophical approach. Essentially, the definition should guide intervention to be carried out in a manner that is appropriate to slum contexts – to re-conceptualize a new useful and comprehensive meaning for the slum.³¹

The next task for the research is therefore to propose a framework that will serve to comprehensively describe slums in a way that is standardized – comparable, contrastable, structured, and can allow for context appropriate action. Ultimately, the aim is to contribute to a re-interpretation of slums as role players in the broader cities' prosperity as well. To develop this new conceptualization of slums, they first need to be defined in a rigorous manner. In the next chapter, the thesis explores the development of a comprehensive framework as a way of filling this gap to comprehensively describe and define slums and when intervention might be needed; in subsequent chapters (5 to 8), it explores pathways for slum prosperity when they are comprehensively defined.

³¹ Moreover, urban designs have always, as a convention used conceptualizations, of requisite variety, to catalogue the fabric of our lived spaces into recognizable and clearly comprehensible standard forms (Cuthbert, 2011).

Chapter 4 **The Slum Property Map (SPM): for a comprehensive overview of slums**

'I am a shade of autumn and brown

I am not a city nor a town [...]

As the homeless people roam, they find my shelter, only home [...]

As the people pass me by

Same old question, what am I?'

Poem by a pupil in Acland Burghley school, London, 2005³²

Introduction

This chapter outlines a proposal – the Slum Property Map (SPM) – a framework that is aimed at fulfilling the current lack of a comprehensive framework for describing and defining slums. It initially proposes four essential functional requirements which the SPM sought to fulfil to overcome the limitations of defining slums discussed in Chapter 3. For the SPM, these requirements include being (1) standard, and therefore, non-exclusive, (2) structured, (3) dynamic, and (4) heuristic. The chapter then discusses the theoretical background used to identify, develop and organise cognitive categories of slum properties through which it is possible to describe slums. This is a first step in capturing the ontology of slums and fulfilling the first three requirements (1-3). It will also allow for the second step where all properties are linked together into a conceptual map, fulfilling the fourth (4) requirement. Here the chapter explains how to build a narrative out of all the relevant information and thereby, define the slum, a third and last step. Whilst the chapter proposes a robust and transferable framework for defining slums, it is further supported by an application manual that is proposed as Appendix to the thesis (Appendix III). Overall, the SPM presents a systematic way of understanding slums and, as such, considering their prospects for prosperity in the city. As will be reviewed in Chapter 5, the potential for a joint slum-prosperity urban improvement strategy does exist. Key to this, however, is properly defining slums.

³² (Hamdi, 2010, p. 79).

4.1 Essential requirements for defining slums: an approach for a slum property map

The dimensions within which slums exist are complex. Following the concluding arguments in the last chapter (section 3.5), this research takes a practical as well as a philosophical approach to overcoming dimensions that make defining slums complex and provides a conceptual framework towards this. This approach to defining slums combines and expands on past attempts to provide a slum definition framework by Gulyani and Bassett (2010) and Kohli et al. (2012) (see section 3.3.3). To answer the age-old question of what slums are, their story needs to be told, one that narrates the multidimensional and consistent contexts – of the place and people, and the wider city – of slum development. To achieve this narrative, this thesis proposes the Slum Property Map (SPM). It was developed to fulfil four requirements which consider the dimensions that give complexity to slums and takes an integrated ontological and cognitive approach to defining them (see methodology section 2.2). The next sections – 4.1.1 to 4.1.4 – highlight these requirements and introduce the SPM.

4.1.1 A standard framework

First, the SPM is developed to be a non-exclusive framework. A framework for defining slums must be flexible and allow any slum to be described irrespective of variations in standards, form, or location, and relative social, spatial, and physical contexts. In this case, it should be able to portray context-specific descriptions that are intrinsic to what (any) slum is – a standard way of telling the story of slums, but one that is nonetheless peculiar to each slum setting. No two slums are the same, nor can they all share the same profile.

4.1.2 A structured framework

Second, the SPM is developed to take a structured approach to characterizing all slum contexts. A comprehensive slum definition framework should be able to overcome the limited way slums are described: one in which social (economic, cultural, subjective, and political etc.) and spatial contexts of slums are often not properly captured, or sometimes completely sidelined. Hence, any slum descriptor needs to consider the complete image of slums. In the least, this will reduce cost of moneys and time that may be spent during slum intervention trying to factor in information about a slum's character that were not considered in the intervention design. The physical, social, and spatial inequities of slums and how they change are what makes them the places they are, and are characteristic of all city systems (Jacobs, 1961). These dynamics, one must remember, do not necessarily pose a negative challenge. In addition, a slum definition framework needs to consider that slum characteristics will also be defined by other social and spatial dynamics of the wider city they exist in. Slums do not exist in isolation.

4.1.3 A dynamic framework

Third, the SPM is developed as a dynamic framework, which allow descriptions to be made even when changes to general conditions occur.

The SPM sought to fulfil the first three requirements (4.1.1 to 4.1.3) through a framework of cognitive categories of slum properties that are developed to provide a way of capturing slums' ontology. Investigating and compiling these properties comprehensively describes slums and is proposed as the first step to defining them. This proposal along with theoretical backgrounds for it forms discussions in section 4.2. Taken alone, this step does not provide an operative overview of such a complex phenomenon, but it is essential for the next step, which fulfils the fourth requirement for a comprehensive slum definition framework.

4.1.4 A heuristic framework

Fourth, and most importantly, the SPM is developed to aid action in slums. A comprehensive slum definition framework should profile a slum in a manner that is conclusive and enables intervention and management. That is, it should serve as a heuristic. The complexity of slums is formed out of layers of socially related, spatial, and environmental dynamics that are interrelated and which also interactively contribute to how slums develop. To consider all these aspects of slums in a linear manner is a somewhat reductionist approach. Working on one aspect or a few without connecting it to others will surely be ineffective.

The SPM therefore proposes two further (second and third) interconnected steps: to consider and make explicit associations that such properties have amongst themselves; then, to build a narrative that maps all compiled slum properties and how they associate into a complex overview and, thereby, define it. For slums, the narrative will show their relevant (social, spatial environmental etc.) characteristics, and how they develop and function for the inhabitants and in relation to the city. It is these steps that enables the SPM to fulfil the fourth requirement and make the comprehensive overview of slums operative, they are discussed in sections 4.3 and 4.4.

However, the SPM also needs to be applicable to real programmatic settings in a rigorous way if it is to define slums. To support such endeavour, the research has developed an SPM manual for stakeholder implementation and is proposed in Appendix III to the thesis. Simply stated, it helps to form a comprehensive slum property map of any slum that is the target of analysis and/or intervention.

4.2 Building a comprehensive slum description: Slums as objects of ontological and cognitive analysis

In philosophy, ontology is a systematic account of the existence of something, a characterization of its nature or reality (Agrawal, 2005; Dayton, 2012; Kohli et al., 2012). The term has its origins in ancient philosophy around 340 BC, including the extant works of Plato and Aristotle (Kohli et al., 2012; Wikipedia contributors, 2012). Varying definitions of what an ontology entails have been proposed. Lazoglou and Angelides (2016) and Visser et al (2002) define ontology as concerned with a logical definition of concepts and their properties. Kohli (2012) follows the definition of Sowa (2000) who posits an ontology of a certain domain to consist of the vocabulary of that domain, its concepts, classification, taxonomy relations and domain axioms. Sowa (2000), further summarises it as a basic knowledge skeleton which other knowledge bases can be built around. This thesis will follow Sowa's (2000) definition and a simplified version by Gruber (1993) who defines ontology as a specification of a conceptualization. It aptly captures the intended approach here for a comprehensive slum descriptor – one that provides a simplified framework where the complex nature of any slum can be adequately comprehended and captured for effective intervention.

In ontological perspectives, Aristotle (384 BC - 322 BC) emphasizes that to know the true nature of anything that exists in the real world, its four causes need to be properly understood (Falcon, 2015; Kemerling, 2011; Koslicki, 2008). For Aristotle, we do not know as much about an object – in our case the slum, until we ask its 'why' in association with the 'what' (Falcon, 2015; Kemerling, 2011; Koslicki, 2008). That is: (1) What is it composed of, (2) what form does it take – the structure and arrangement, or pattern of parts and constitution of matter that accounts for what it is to be, (3) what causes it and/or produces the change in its form – the primary agency or force that is responsible for the production of form, and (4) what is its purpose – why does it exist and then ceases to exist? Aristotle termed these investigations the (1) material cause, (2) formal cause, (3) efficient cause, and (4) end cause. These four-causes highlight the essential interaction and dependencies between inert matter and the agency that acts on it or within it to create changes to its form of existence (Kemerling, 2011).

Aristotle's analysis led to the theory of causation and his fundamental views about the perception of objects (see Falcon, 2015). An object, in the perception of things that exist, is the aspect of the real world that is the focus of contemplation to understand it (Kluge, 2000). To the contemplating mind, the object must be something that can be seen, touched, and comprehended as having content whether tangible or intangible (ibid). The slum – a combination of people, spaces, and physical environment (both natural and manmade) and their characteristics – fits this profile, becoming our object of contemplation. So, in order to understand slums, we want to describe them and capture their ontology (figure 4.1) – a

characterization of their four-causal nature and an account of their essence.

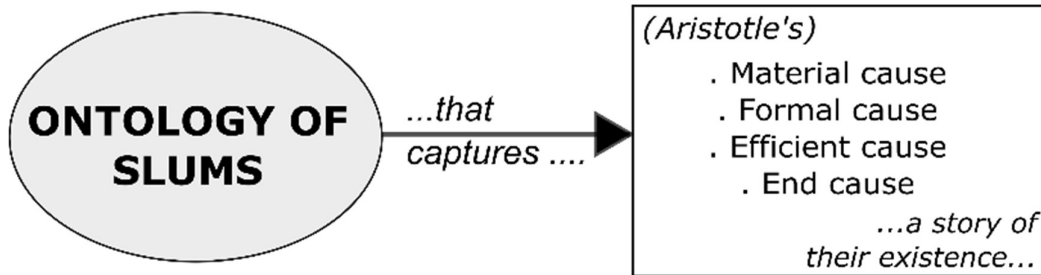


Figure 4.1: The ontology of slums: an approach to comprehensively describe slums. Source: author.

4.2.1 Describing slums through properties: objective and inferred types

Objects, when perceived, are represented through a collection of properties; properties therefore, portray the general descriptive character of objects, (Cordier and Tijus, 2001). Also, it is through such representations (properties) that objects can be engaged with for taking action. For Aristotle, the properties of an object we perceive and characterize are real 'powers' or 'potentialities' that it uses to interact 'causally' with us (the perceiver), and we activate that power when we perceive it (Marmodoro, 2014). In this case, there is a mutual dependency between qualities of an object that we perceive and any corresponding experience, activity, or change elicited owing to that perception. Properties are therefore the form through which we can experience and understand slums and will play a key role in carrying out action on them. There are, however, two variations of properties owing to the way we experience the world and objects within it.

According to Emmanuel Kant (1724 -1804), we humans experience the world in two realms that together represent the reality of objects within it: the 'phenomenal' and the 'noumenal'³³ (Cordier and Tijus, 2001; Haybron, 2011; Kerns, n.d.; Koslicki, 2008; McCloud, 2011; Philosophical Investigations, 2015). In ontological and also cognitive perspectives, our perception of objects and their representation as properties is essentially defined by the manners in which we experience these two realms, thus leading to two variations of properties: objective and inferred types (figure 4.2).

The 'phenomenal realm' of the world is composed of grounding appearances placed in normal real space-time. This realm can be experienced through pure reasoning or sensorial perception and can be seen, heard, touched etc. Descriptions of objects and their representation as properties gathered from such experience are objective; they can be qualified, quantified, analysed, and measured through factual observation. Descriptions of

³³ These concepts also have their origin in Aristotelian as well as Kantian philosophies.

(Aristotle's) material and formal cause of objects (see section 4.2), for instance, will be basically objective.

The 'noumenal realm' of the world is not placed in real space-time and include contexts that are hidden, and only become true when personal experience or knowledge awards them form. This realm cannot be experienced through the senses; rather, it is grasped through intellectual intuition and practical reasoning. As much as object perception is a conception of the mind, it has epistemological importance (O'Brien, n.d.).³⁴ The descriptions of objects and their representation as properties gathered from such experience are inferred from aspects that include ideas, acquired knowledge or testimony, and peoples' experiences and represent such aspects. The noumenal realm is therefore influenced by factors that include peoples' habits, culture, history etc. (ibid). Descriptions of (Aristotle's) efficient and end cause of objects (see section 4.2) for instance will be basically inferred.

The two types of properties, objective and inferred, are not mutually exclusive and should not be considered as such. Aspects of the noumenal can serve to reveal the true nature of objects that are observed (McLoud, 2011); we infer information about an object to support or further clarify an objective description about how it exists, or infer an observable occurrence after the act. At the same time, it is possible that information about objects are inferred through knowledge or testimony but reliant on some past objective observation (by others or ourselves), or requires objective observation to support the explanation given for it (O'Brien, n.d.).

So, for the SPM, the types of properties (describable traits) of slums that will characterize them are both objective (e.g. physical, environmental) and inferred (e.g. social, economic) (figure 4.2). Knowing how properties are experienced, as discussed in this section, is also useful for investigating them, and will be referred to later in the chapter. They, however, translate into an infinite characterization, and it is necessary to engage with only those properties that are important for describing the ontology of slums.

³⁴ Epistemology is simply the study of knowledge and of justified belief (Steup, 2016). In theorizations of the nature of things, knowledge now plays a substantial role (McLoud, 2011).

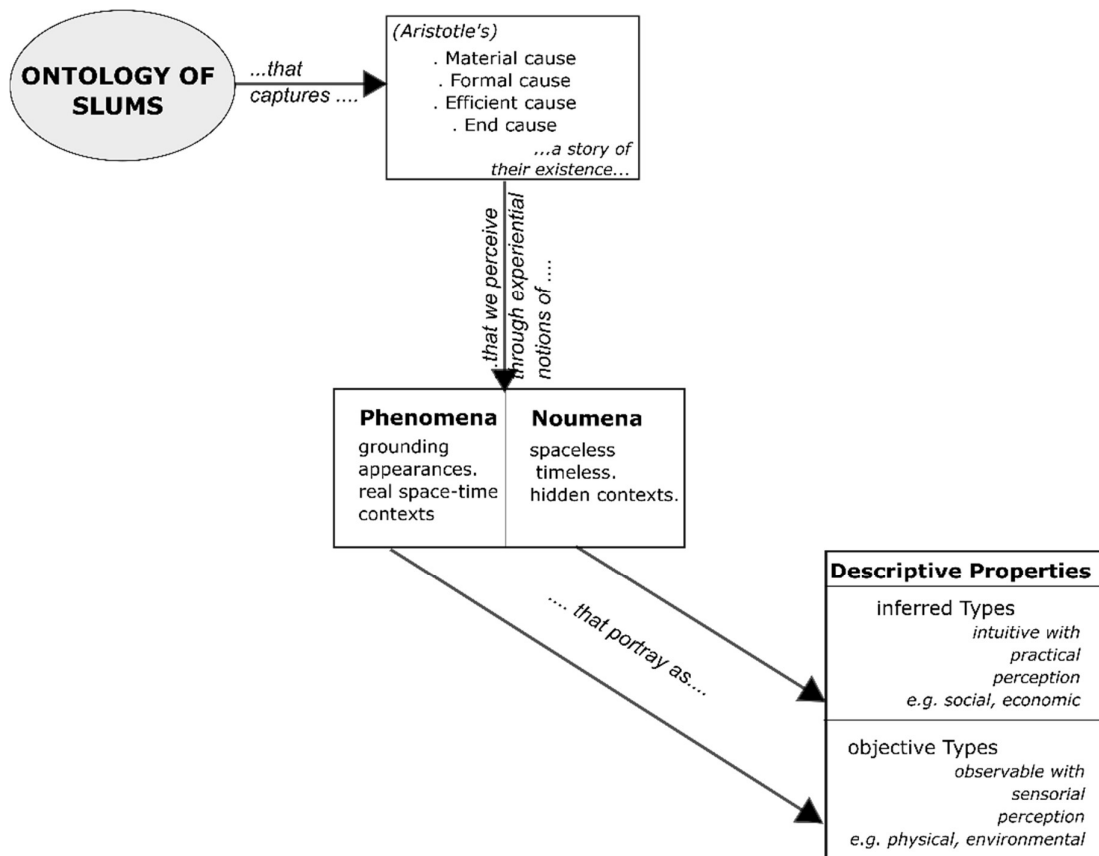


Figure 4.2: Describing slums through properties: which are objective and inferred Types. Source: author.

4.2.2 Cognitive framework for identifying and organising relevant types of properties: categories of slum properties

Cognitive frameworks are useful in identifying and organising and therefore structuring relevant properties of objects (amongst those we observe and infer). Being able to perceive objects and characterize them is dependent on relevant information that we gather about them and the processing of such information (Haybron, 2011; Koslicki, 2008; McLoud, 2011; O'Brien, n.d.). Perception and processing of information is inherent to the conceptions of the mind and an integral function of cognition (ibid). The link between ontology and cognition was made many years ago.³⁵ For Merleau-Ponty (1962 in Shanon, 2002), naturally perceiving the world as it is should not just be confined to the mental image of it, but also to being in touch with it, that is its existence. Goldstein (2015, p. 5) provides a comprehensive definition of

³⁵ It can be traced back to Heidegger's phenomenology of 1962 (concerned with being and action) and its contribution to the phenomenology of Merleau-Ponty (Korab-Karpowicz, n.d.). Before then, cognitive scientists had distanced themselves from ontology when it took hold at the turn of the 20th century on the grounds that mental functioning is basically the structures and processes of knowledge, not how it comes to be or how is being dealt with (Shanon, 2002).

cognition as the concept that describes how the mind works: first, in the creation and control of mental functions such as perception and attention;³⁶ second, as an operating system ‘that creates representations of the world so that we can act within it to achieve our goals’.³⁷ Ontology provides a philosophical outlook of what is necessary to understand objects as they exist. Cognition is concerned with the capture and recreation of necessary information to describe and adequately represent an object’s ontology and to allow pro-action relative to it – a process as well as a function.

So, to understand slums, we want to describe them both ontologically and cognitively through an organised framework of properties (capturing both objective and inferred types) that properly characterize them and help facilitate action relative to them (figure 4.3).

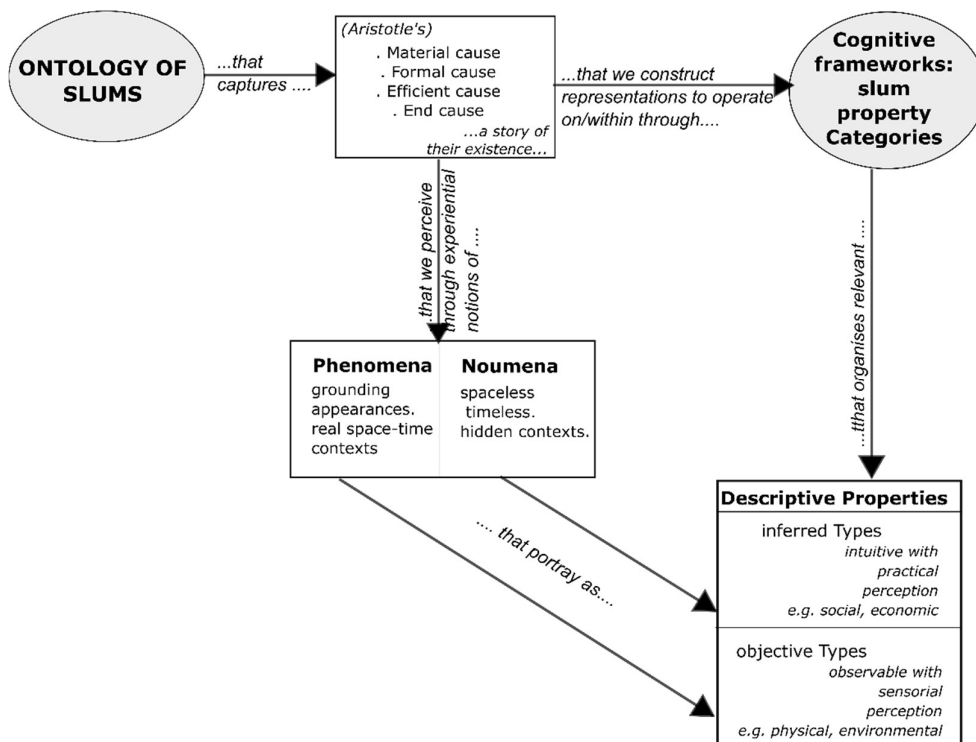


Figure 4.3: The ontology of slums through a cognitive framework of properties. Source: author

Here, the SPM proposes a set of cognitive categories of slum properties to help identify and comprehensively describe slums. This framework of properties builds from the ‘Typology of Object Properties’ (Cordier and Tijus, 2001) (see methodology section 2.2).

³⁶ Other functions include attention, memory, emotions, language, deciding, thinking, and reasoning.

³⁷ This seems apt, considering that this research is not only focused on properly describing the slum, but describing it enough enable proper action that is appropriate to it.

The contemporary study of cognition is now significantly invested in ontology (Ravenscroft, 2007; see Shanon, 2002). The seminal 'Typology of Object Properties' by cognitive psychologists Cordier and Tijus (2001) is one such contemporary application of ontology in the cognitive sciences. For Cordier and Tijus (ibid), properly recognising and representing the ontology of any object (their four-causal nature), logically rather than by intuition and to carry out actions on it, implies dealing with property concepts based on the following traits: their (1) Structure; then followed by those based on their (2) Functions, (3) Procedures, (4) Processes associated with them, and where it applies, (5) Personality Traits, and (6) Behaviours. This second set of cognitive property traits provide insights into objects' backgrounds, present conditions, as well as future ones. Property concepts based on their factors of (7) Place and (8) Name are equally important for describing objects. For this thesis, place and name traits can add additional meaning and context. These concepts of object properties are based on theory-based theories that consider the ontology of objects, making it more appropriate than others like similarity,^{38, 39} classic, family resemblance, and exemplar theories as a theoretical platform (ibid).

This research defined and expanded in line with the above eight cognitive property concepts. It proposes them as essential slum property categories that should be captured and compiled to comprehensively describe slums. It then analysed slum contexts in general, and identified and organised all the possible properties that slums should be described through to contribute towards forming the cognitive overviews. This was done through qualitative content analysis of literature (see methodology section 2.2). For the SPM therefore, the categories of slum properties will contain an organised list of properties that characterize relevant aspects of slums in order to provide a comprehensive description and capture the ontology of any slum targeted for definition.

So, for any slum to be defined, the SPM proposes that as a first step, we proceed and describe it through eight categories of relevant slum properties, compiling them with all the information and data that contextualize them. These include: (1) Structural properties of the slum: relevant properties here will include those of the 'form of the slum'; (2) Functional properties of the slum: relevant properties describing 'provision of accessible shelter and livelihood opportunities'; (3) Procedure and Agency properties of the slum: the 'origin of slum'

³⁸ In similarity theories for example, the nature of the object is ignored and information regarding the object is given in the form of oppositions, e.g. permanent versus transitory (Jackendoff, 1983; in Cordier and Tijus, 2001).

³⁹ Though their examples are centred about animate and inanimate things that can be regarded in their individuality (e.g. tree or dog), the concepts can be applied generally to all things considered as 'objects'.

and 'forces and drivers' properties; (4) Process properties of slum: the 'age of settlement and evolution' properties; (5) Personality traits of slum community: properties describing the 'place map: perception of slum by the community'; (6) Behaviours of slum the community: 'health conditions' and 'activities of people' properties, (7) Place properties of the slum: the slum's 'geography', 'demography', 'poverty conditions', and 'tenure conditions' properties; and (8) Name properties of the slum: the 'slum name and its significance' properties.

For slums, the above framework of eight slum property categories provide a standard and structured way of compiling, organising, and characterizing their nature – the social, spatial, and physical traits, as well as its challenges and positive potential. Also, while all categories interactively provide a comprehensive description of slums, each can provide a particular cognitive overview of them – a flexible framework.

Sections 4.2.2.1 – 4.2.2.8 provide a definition of each proposed cognitive slum property category. Here the discussion maintains the order with which they are presented (above) with like concepts together. The proposed slum properties that will be investigated and compiled to make up each category are also outlined and summarily discussed. As seen in figure 4.4, while some slum properties can be investigated and compiled directly, others will need to be investigated and compiled, and therefore organised, through sub-properties. Also, each category of slum properties is represented with a distinct colour, while the slum properties that will be captured to make up categories are distinguished with uppercase lettering to make them clearer, explicit and support referencing and representation. The colour coding and lettering are maintained in the proposed SPM application manual (Appendix III) (see section 4.1). In the manual, slum properties that will be investigated and compiled to make up each category are expansively discussed in the following way: (a) defining the cognitive role of the proposed slum properties in each category, (b) general aspects of slums that they, and where applicable sub-properties, will describe, (c) then why their description is useful for understanding slums and their intervention, (d) useful background information and examples about them and in relation to Developing Region slums, and (e) what to look for in the course of describing them. This analysis was also part of the qualitative content analysis of literature carried out to develop the SPM. The objective was to ensure that the manual contains necessary and adequate information to allow for a systematic and rigorous way of investigating and compiling relevant properties of any slum. In this way maintain the SPM's functional requirements and for ease of application.

The proposed categories of slum properties reflect both types of descriptive properties in philosophy – objective and inferred (discussed in section 4.2.1). The basic types of properties that slum properties making up categories are, is also highlighted in the next sections 4.2.2.1 – 4.2.2.8 and shown in figure 4.4. The research suggests this through the following: first (1) by analysing, for each category of slum properties, whether the relevant cognitive overview of

slums that they will capture is objective or inferred; and second (2) by analysing, for each category of slum properties, the relevant aspects of slums that will be described and establishing whether they are objective or inferred. Considerably, properties that are basically objective types can be further clarified through inferred descriptions, also properties that are basically inferred types can be further clarified or supported by objective descriptions. This differentiation is essentially used to guide their investigation (to gather information that contextualizes them) and representation, and therefore important. Slum properties that are basically objective and therefore observable require appropriate methods of observation and representation, whilst those that are inferred require appropriate methods for exploration, discussion, and logical evaluations and capture of ideas, knowledge, and people's experiences. The appropriate methods are proposed in the SPM manual (Appendix III).

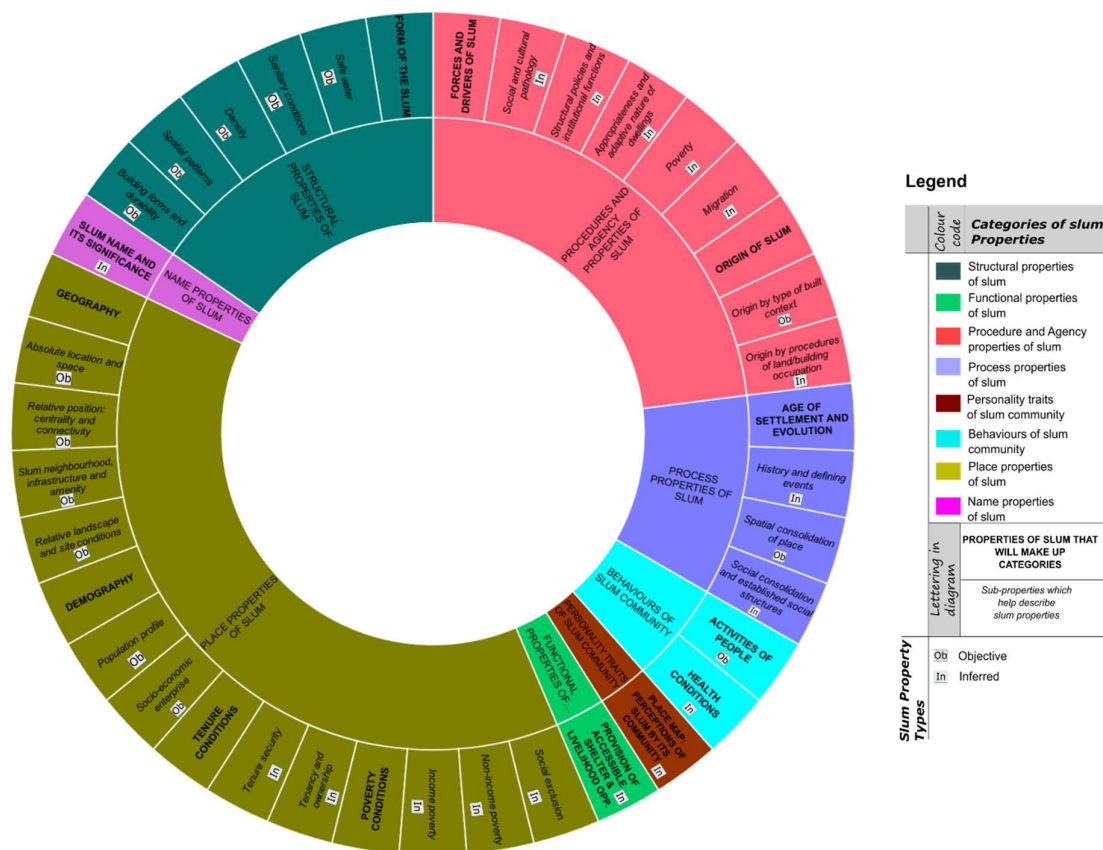


Figure 4.4: Framework of slum property categories to form a comprehensive slum description, and the Types of properties they represent. For any slum to be defined, this will be a template for its relevant and unique properties. Source: author.

4.2.2.1 Structural properties of slum

The Structural properties of slums will describe all composition of observable parts that make up the slum (see Cordier and Tijus, 2001; Koslicki, 2008), capturing their physical image in terms of the following:⁴⁰ (a) the arrangement of parts – for example a wall, floor, roof as part of the house; (b) what it is made up of (its substance) – for example a wall composed of wood; (c) quantities – for example many trees, many people, measurement of a pathway; (d) qualities of its parts – for example a polished column, turbid water, or broken window; (e) relations of portion to whole and/or individual to the collective – for instance, a group or arrangement of buildings in a wider setting; (f) relations of its material or matter in relation to forms, and how the form imposes a sort of unity to the matter – for example, the structure of the building whose walls are composed tarp and cardboard will be distinct from that made of concrete.

Slum properties that should be investigated and compiled in this category encompass those of the following:

FORM OF THE SLUM: through relevant sub-properties of ‘safe water’, ‘sanitary conditions’, ‘density’, ‘spatial patterns’, and ‘building forms and durability’ in the slum with all necessary information. These properties will describe the nature of the physical spaces, forms, and services of the slum. Most fundamentally, it is these contexts of slums that support habitation within it, and their lack or declining states are iconic to any slum’s image (see Arputham, 2016a; Gulyani and Bassett, 2010; Hamdi, 2010; Kohli et al., 2012; UN-Habitat, 2013a, 2013b, 2003a).⁴¹ Their management and maintenance are therefore a vital part of slum intervention – especially if evolving standards need to be met. They are, however, only one aspect of a complex narrative of slum.

- Slum property type: the properties that describe FORM OF THE SLUM are objective, they investigate contexts that are observable; these are, however, further supported by inferred descriptions about social contexts that are related to, define, or clarify them.

⁴⁰ Cordier and Tijus (2001) also note that location can be used to describe an objects structure. However, the researcher argues that it is more strongly associated with place.

⁴¹ These properties have been a primary focus of intervention for decades. However, few would argue from the evidence of failed slum interventions that primarily focused on these contexts alone (UN-Habitat, 2003a), that the form of the slum is only one aspect of a complex narrative of the slum. Nonetheless, their existence, and relative appropriateness in design and functionality, and efficiency are critical in the assessment of how effectively they support living and pursuit of livelihood (Gulyani and Bassett, 2010).

4.2.2.2 Functional properties of slum

Functional properties will capture the slum's purpose or what practical function it fulfils for its inhabitants and/or those who choose to settle there (see Cordier and Tijus, 2001; Kemerling, 2011). It is a property linked to the development of the slum. Functions are qualities that are generally not intrinsic to an object but lent to it due to the purpose it fulfils (ibid). Functions are strong properties for objects that undergo transformations in their physical form to suit particular use, as well as those that are purpose-built to specific use. For slums, functions can be defined by the form of the place and other social contexts of people as well.

Slum properties that should be investigated and compiled in this category encompass those of the following:

PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES: these properties will describe and represent reasons and extents to which the slum serves as choice of domicile and avenue for livelihood opportunities for those unable to afford and/or access standard city domiciles with necessary information (see Agyeman and Warner, 2002; Geoffrey Payne, 2008; Glaeser, 2011).⁴² Describing this aspect of slums highlights how the physical and social contexts of the slum interact to support people's residence, how their choices, expectations, and link to external forces that define the way it developed and continues to do so; also, it provides information about the dynamic nature of slum demography which is linked to evident improvement and progression or lack thereof regarding both shelter and livelihood opportunities in the city.

- Slum property Type: properties that will describe the PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD in the slum are inferred. They investigate aspects that are garnered through ideas, knowledge and people's experiences. These are, however, further supported by objective observations about the population and built aspects of slum.

4.2.2.3 Procedure and agency properties of slum

Procedure and agency properties will capture how the slum was developed or transformed to become a place of residence that is characterized as slum for those who inhabit it and the agencies or forces that are responsible or influential to this (see Cordier and Tijus, 2001; Kemerling, 2011; Marmodoro, 2014). For Aristotle, the existence of an object is dependent on the change that causes it to be or take its form, and this requires some agency acting upon it (Kemerling, 2011; Marmodoro, 2014). The object will not be what it is without the powers

⁴² See also (Hamdi, 2004; UN-Habitat, 2003a).

exerted by the agency that caused it.⁴³ This makes the initial and resulting forms of an object, the procedures taken to change it and fulfil a purpose and agency[ies] responsible to be categorically linked.⁴⁴ Furthermore, analysing how an object was developed and transformed to fulfil its purpose and the agencies responsible can serve to distinguish between two things that serve the same function (Cordier and Tijus, 2001). For the slums therefore, procedure and agency properties can serve as a subtle differentiating characteristic in relation to other standard residential sections of the city.

Slum properties that should be investigated and compiled in this category encompass those of the following:

ORIGIN OF SLUM: through relevant sub-properties of a slum's 'origin by procedures of land/building occupation', and 'origin by type of built context'. These properties describe how a slum originated relative to the way people occupy and settle in a place and continue to develop it and the physical and spatial contexts that are associated with the procedures (see Davis, 2006; Fernandez, 2011; Hamdi, 2010; UN-Habitat, 2003a). The origins of slums are in general linked to city standards, arrangements of rights to settle in a place, and physical and social dynamics associated with these; this presents vital knowledge that can be learnt from and used to make future management and improvement plans.

- Slum property type: within the ORIGIN OF SLUMS, properties that describe 'origin by procedures of land/building occupation' are inferred because they investigate what people have done and the manner in which it was conducted after the fact. Properties that describe 'origins by type of built context' are objective because they investigate physical and spatial aspects that are observable; these are, however, further supported by inferred knowledge about change, documentation, and use of land/property.

FORCES AND DRIVERS OF SLUM: through relevant sub-properties of 'migration', 'poverty', 'appropriateness and adaptive nature of homes', 'structural policies and institutional functions', and 'social and cultural pathology' associated with the slum. These properties are decisive factors in causing or influencing slum development and growth, or affecting conditions within the slum; they are ever-present contexts to the phenomenon⁴⁵ and a limitation to understanding slums (Gulyani and Bassett, 2010) (see also Angotti, 2006; Fox, 2013, 2008;

⁴³ It is in this regard that Aristotle makes a distinction between causal agency and patiency. Agency is what brings about or pushes change in an object to fulfil its purpose, and patiency is what changes (Marmodoro, 2014).

⁴⁴ Where an object has already taken form in its existence, then the way agency acts on it to make it useful and/or bring further change will depend on that form also.

⁴⁵ The causes of slum development have engaged research and global organizations for decades.

Hamdi, 2010; Turner, 1968; UN-Habitat, 2003a). Descriptions of forces and drivers of slums need to be understood in principle as characteristic of them as they highlight dynamics between slums and cities or links to other relevant properties of slums that need to be looked at more precisely. Indeed, Berner & Phillips (2005, p. 25) wrote: 'The notion that those seeking to tackle poverty can ignore the very power systems that generate and perpetuate poverty is an attractive one. It would make things much easier. It is, however, ultimately unsustainable. No development strategy can 'opt out' of the realities of power.'⁴⁶

- Slum property type: properties that describe FORCES AND DRIVERS OF SLUM are inferred because they investigate social, economic, and political contexts from people's experience, ideas, and knowledge, and established events; these are, however, further supported by objective observations about physical form of the slum and the population.

4.2.2.4 Process properties of slum

Processes will capture the social and physical evolution of a slum and the story of the different states it has been in and the contexts that have formed there, including relevant events and even conditions etc. (see Cordier & Tijus, 2001). These descriptions can take different forms, and can be used to describe how natural, built, and social components get to the stage they are in and dynamics at play. Process properties therefore reflect all social, spatial, and physical facets of a slums' existence and will strongly correspond to changes in these contexts of slums. Processes by their nature can profile an infinite array of properties. However, it is necessary to streamline what is essential.

So, slum properties that should be investigated and compiled in this category encompass those of the following:

AGE OF SETTLEMENT AND EVOLUTION: through relevant sub-properties of 'social consolidation and established social structures', 'spatial consolidation of place', and 'history and defining events' in slums with all necessary information. These properties describe the length of time the slum has been in existence and its related social consolidations and spatial consolidation of place. They can provide a vital view of the aspects that may enhance vulnerabilities in the slum or present as risks and those that can be relied on to become partners for development (see Hamdi, 2010; Jacobson, 2007; K'Akumu and Olima, 2007; Maturana, 2014; Neuwirth, 2005; UN-Habitat, 2003a). Understanding these properties can also serve to provide a clearer view of why a slum progresses or declines socially and

⁴⁶ Here he is referring to poverty as representative of slum development.

physically as a society – in relation to living and livelihood on the one hand, and with the wider city and administration on the other.

- Slum property type: within properties that describe AGE OF SETTLEMENT AND EVOLUTION, 'social consolidation and established social structures', as well as 'history and defining events' are inferred because they investigate knowledge, experiences, and ongoing situations, while 'spatial consolidation of place' is objective because it investigates changes to physical forms and associated spaces that can be observed. However, these are further supported by inferred knowledge and experiences about social contexts that influence them.

4.2.2.5 Personality traits of slum community

Personality traits of persons are multi-dimensional sets of psychological traits that include: (a) an individual's intellectual or mental characteristics – e.g. intelligent, organized etc., (b) emotional characteristics – e.g. amiable, furious, happy etc., (c) moral functioning – e.g. honest, loyal etc., and (d) (in their semantics) an individual's manner of behaving – e.g. adventurous etc. (Cordier and Tijus, 2001; Veld, 1999; Wojsiszke and Pienkowski, 1991). These characteristics are influenced by an individual's (inner) biology, culture and ideals, needs, ongoing events, conditions, and environment (both social and physical) (McLeod, 2014; Sincero, 2012). Personality traits are therefore the way people express themselves, both in relation to their inner person and the outer (physical and social) environment they are in, which is the slum. The people who inhabit slums are an integral and vital aspect of their existence.

Personality traits of people can be vast and many. Owing to the definition of the concept, the SPM streamlines properties that should be investigated and compiled in this category to encompass those of the following:

PLACE MAP: PERCEPTIONS OF THE SLUM by its community: these properties will describe and represent the experiences and meanings attached to ongoing slum conditions (other properties of it) according to the perceptions of inhabitants, feelings evoked by these experiences, and perceptions of self in relation to the slum and living within it. In terms of how people inhabit space, the composition of the spaces, social interactions and activities that are associated with them, and the effects these have on people are mutually correlated (Gifford, 2002). The place map will therefore capture the slum community's imaging of their different contexts. These are important for understanding their quality of life and vital to any slum profile (Hamdi, 2010).

- Slum property type: properties that describe PLACE MAP: PERCEPTIONS OF THE SLUM by its community are inferred because they investigate social and subjective aspects about people; these can, however, be supported by referring to objective observations of slum spaces.

4.2.2.6 Behaviours of slum community

Behaviours are people's manners of acting or expressive responses and physiological responses within and due to their environments (Cordier and Tijus, 2001; Hockenbury and Hockenbury, 2007; WikiAnswers community, 2017). Behaviours are linked to actions and are responsible for carrying out changes within the environment.⁴⁷ They are characteristic of what we do (as people) but are not regarded as functional or procedural properties. For example, when a house needs to be built to fulfil the function of providing shelter, the behaviours will be actual activities performed by the person to build and use the house.

Behaviours are a primary concern of 'attribution theories.' In these theories, two explanations are given for people's behaviours (Malle, 2011; McLeod, 2012; Sincero, 2012): first, behaviours can occur due to an external attribution or explanation, meaning something external to a person has caused it. Second, they can occur due to internal attribution where a personality trait of a person – intention, feelings, sentiments, motives etc. defines such behaviour. Both explanations for behaviours are linked, however. This is because even when an external force causes a behaviour, personality traits still play a relevant role in the outcome of the behaviour and how it is conducted (Cordier and Tijus, 2001; Graham, 2000; Grinnell, 2016). That is, one cannot theorize about a person's behaviour and fail to invoke the internal mental process of the person;⁴⁸ it becomes rather difficult to distinguish between the effect (characteristic outcome) due to the external force and that which can be attributed to the intentionality. Behaviours of slum communities are therefore linked to ongoing slum conditions including personality traits.

The behaviours of slum community can be vast and many. The SPM streamlines properties that should be investigated and compiled in this category to encompass those of the following:

HEALTH CONDITIONS: these will describe and represent both organic and externally caused physiological health conditions. The organic health conditions are those which treatment and management are a challenge to slum communities due to associated factors of place, like HIV etc. (Sclar et al., 2005; United Nations et al., 2010); the externally caused health conditions

⁴⁷ In the theory of causation, actions are a vital component to the existence of an object. See section 4.2.

⁴⁸ In fact, doctrines of behaviourism eliminate distinctions between actions and the underlying mental processes of thoughts and feelings (Grinnell, 2016; Graham, 2000).

are those directly influenced or caused by other properties of the slum. The descriptions of health conditions provide vital information on challenges and vulnerabilities to people's quality of life, which is an essential characteristic of the people (Satterthwaite et al., 2015; UN-Habitat, 2003a).

- Slum property type: properties that describe health conditions are inferred because they investigate aspects directly associated with people (social) or circumstances that have befallen them; these can, however, be supported by objective observations about the affected people or the circumstances.

ACTIVITIES OF PEOPLE: these will describe activities that people do in relation to ongoing slum conditions. These properties provide vital information about what the people are doing to sustain their livelihoods, improve their conditions, and strengthen social and physical place – enhancing enterprise, countering poverty, stabilizing social structure etc., as well as those that increase their vulnerability – like social vices, polluting environment, harassment and infringement on people's rights etc. (see Hamdi, 2010; Neuwirth, 2005; Satterthwaite et al., 2015; UN-Habitat, 2003a).

- Slum property type: properties that describe activities of people are objective because they investigate and compile actions of people that can be observed; these can, however, be inferred after the act or through people's experiences.

4.2.2.7 Place properties of slum

Place properties add a meaningful framework for the slum and its qualities, they capture the many layers of interrelated locational, physical, social, and spatial background contexts (see Bourdieu, 1986; Cordier and Tijus, 2001; Jackendoff, 1983; Noberg-Schulz, 1993; Rose, 2009). Tijus (2001; in Cordier and Tijus, 2001) terms this as the most important ontological property, since no object can be in two places at once, nor can two objects occupy the same space at the same time. With regards to the perception of dwelling place, the architectural theoretician Noberg-Schulz highlights that it should not be defined only by physical presence, but also by the social structure, politics, economy and activities that define existence in the physical place (Habib and Sahhaf, 2012; Noberg-Schulz, 1993; Sadri and Sadri, 2012). Both physical and social contexts of place share a synchronised existence. In this regard, The World Bank (2009, p. 1) categorises people's place as 'the most important correlate to a person's welfare.'

Slum properties that should be investigated and compiled in this category encompass those of the following:

GEOGRAPHY: through relevant sub-properties of a slum's 'absolute location and space', 'relative position, centrality and connectivity', 'slum neighbourhood, infrastructure and amenity', and 'relative landscape and site conditions'. These properties distinguish a slum's description from the wider city to the settlement and are aspects of slum existence that capture its unique location as well as influence settlement and livelihood choice patterns. They also provide a frame within which to relate other properties of a slum and help to outline opportunities, possible risks involved in slum habitation and, therefore, the viability of programs (see Adoko and Sliuzas, 2016; Hamdi, 2010; Karanja, 2010; Karlsson, 2012).

- Slum property type: properties that describe GEOGRAPHY are objective because they investigate physical, spatial, and environmental aspects that can be observed. These can, however, be supported by inferred descriptions about geographical incidences after the fact and about use, timing, and financing.

DEMOGRAPHY:⁴⁹ through relevant sub-properties of 'population profile' (count, family structures, culture, education, work, assets, political engagement), and 'socio-economic enterprise'. These describe the social geography of the slum and frame vital information about the people whose quality of life are a focus of intervention and the works they do, and as such highly important (see Hamdi, 2010; Kyobutungi et al., 2008; UN-Habitat, 2003a).⁵⁰

- Slum property type: the properties that describe DEMOGRAPHY are objective they investigate physical counts of people and in relation to their associated social, economic, and political aspects, and physical presence of socio-economic enterprise respectively. These are, however, supported by inferred descriptions of such social, economic, and political aspects.

TENURE CONDITIONS: through relevant sub-properties of a slum's 'tenure security', and 'ownership and tenancy.' These describe the conditions under which property and land in the slum are held and used (see FAO, 2002; Payne and Durand-Iasserve, 2012). This property can be regarded as an extension of social demography, but one that is characteristically relative to physical land or property, which in the case of the slum, is geographical and structural. The many variations of tenure in slums are symbolic of dwelling and habitation patterns, and are a vital factor of sustainable housing as well as the pursuit of livelihoods

⁴⁹ Demography is a branch of geography that analyses changes and trends in the social distributions of populations (Wikipedia contributors, 2016a).

⁵⁰ Slum demography (generally population and aspects of poverty) form an essential measure that is consistently documented in UN-Habitat reports (though in a much larger and general context).

(Davis, 2006; Gulyani and Bassett, 2010; Marx and Charlton, 2003; Patel, 2015; UN-Habitat, 2007b, 2003a).

- Slum property type: properties that describe TENURE CONDITIONS in slums are inferred because they investigate documentations and interactions; these can, however, be supported by objective profiles of the slum geography.

POVERTY CONDITIONS: through relevant sub-properties of 'income poverty', 'non-income poverty', and 'social exclusion' experienced by the people in the slum. Poverty is widely discussed as a persistent reality for the people living within and moving into slums, including its evolution (UN-Habitat, 2003a). It is also seen as a concept that is non-homogenous, difficult, and near impossible to analyse in slums (Broch-Due, 1995), but it is nonetheless essential for understanding how best to encourage human development.

- Slum property Type: properties that describe POVERTY CONDITIONS are inferred because they investigate situations that people are in relative to livelihood support resources.

4.2.2.8 Name properties of slum

The name of slums can be described as a holonym⁵¹ that by reference, sets all information about them in our semantic memory, as well as any meanings of the name (see Cordier and Tijus, 2001; Cummings, 2016). In the theories of meaning and natural language, name – of places and even proper names, are descriptors and generally have other descriptive elements ascribed to their meanings (Cummings, 2016; Speaks, 2014). This is because names have causal-historical reference to a source[s] – persons, communities etc. that originally assign the name, and can have meanings that are associated with these sources or attributed to the wider environment or people (this includes activities, cultures, events, etc) (ibid; Cordier and Tijus, 2001). A slum's name is an intangible and ever-present context to its existence.

Slum properties that should be investigated and compiled in this category encompass those of the following:

SLUM NAME AND ITS SIGNIFICANCE: these properties will describe the name, any meanings and associated causal references that can assert functionality, knowledge, a better understanding of it, and its effects on the quality of life of people. The assigning of names of slums can be just about labelling, or sometimes a response to other general social, spatial,

⁵¹ A holonym is a word used to describe or name the 'whole' of which other words or properties are parts of (The Free Dictionary, 2016).

and environmental context of slums or restraints in relation to them (see Suditu and Vâlceanu, 2013; UN-Habitat, 2003a; Wood, 2007). Examples of these occurrences are seen in research by Brown (2008), Ketchian (2006), and Mireku-Gyimah and Mensah (2015).

- Slum property type: properties that describe the SLUM NAME AND ITS SIGNIFICANCE are inferred because they investigate knowledge and social settings.

4.3 Building an interactive map of properties that describes slums

Describing slums in a structured way through the above proposed categories of slum properties (section 4.2.2) is a first step to defining them. In philosophies of ontology and cognition, in order to properly represent the nature of objects as they exist and act on them, it is essential to consider the concepts that define them interactively (Cordier and Tijus, 2001). Moreover, to understand and determine where action needs to be taken in slums, it is especially important to interactively consider the many social, spatial, and physical contexts that characterize them (see section 4.1.4). For the SPM, therefore, a second and crucial step to defining any slum is to consider how its descriptive slum properties meaningfully associate – affect/influence/trigger each other – to map them and establish how they interactively define its character. To unbiasedly explore this step, the SPF suggests aspects to consider and form an interactive profile of slums in section 4.3.1.

4.3.1 Establishing associations between slum properties: property tags/anchors

In this section, the SPM highlights how the categories of slum properties can potentially associate in the above manners – affect/influence/trigger, which should be explored and mapped where they occur. The SPM simply uses the term tag/anchor to portray slum properties with the potential to associate to each other. That is, when a slum property can affect/influence/trigger another, then, it is a tag/anchor to it and vice versa. A tag can mean something that is attached or held to another with the capacity to control and/or provide information about their identity; while an anchor can also mean something that is attached or held to another with the capacity to control its condition, situation, or position (The Free Dictionary, 2018a, 2018b). Essentially, when a slum property affects/influences/triggers another, it has the capacity to define its character and that of the slum in general: causing a characteristic change or difference during instances in the case of ‘affect’, in a consistent and continuous manner that represents how it develops in the case of ‘influence’ or causing it to initially manifest in the case of ‘trigger’.

The way that the categories of slum properties affect/influence/trigger each other, therefore, also reveals their degree of influence in defining the character of slums and as well in taking

action on them. That is, the more potential that a category of slum property has to affect/influence/trigger others, the stronger their role in the resulting descriptions of such properties, which all combine to define the character of the slum and any slum property map of it. This consideration further contributes to the standard and structured nature of the SPM. While the cognitive frameworks of slum properties and the method of investigating them provide a flexible way of describing slums (section 4.2.2), for action on slums, it is important to consider those that are strong role players in making the overview of slums operative.

The research deduces and posits tags/anchors, potential associations with influences between categories of slum properties in the following ways: first, (1) from the analysis and definition of cognitive concepts that categories of properties capture (see section 4.2.2) and how these concepts interact to capture the ontology of objects; second, (2) by mapping the explicit associations that were identified during the qualitative content analysis to develop slum properties within their categories; and third, (3) by making logical deductions to consider such associations from background information and examples about aspects of slums that properties describe, which were analysed from the qualitative content analysis. While it proposes the three forms of associations that can occur between the properties – affect/influence/trigger – because they were the most prevalent associations identified during same qualitative content analysis.

For each category of slum properties, tags/anchors can be complex: many with varied associations – from amongst properties and/or sub-properties in the same category and properties and/or sub-properties within other categories. Hence, for slum properties and sub-properties that will make up a category, all proposed potential tags/anchors that should be considered and explored – properties that affect/influence/trigger them and/or are affected/influenced/triggered by them – are highlighted in the SPM manual. The objective was to provide guidance for establishing such associations in a rigorous and systematic manner. Notwithstanding the influential roles that the categories of slum properties can, theoretically play in any slum property map, establishing the way slum properties affect/influence/trigger others makes localised ongoing influences on the character of the slum explicit.

The next sections (4.3.1.1 – 4.3.1.8), however, give a general summary of proposed tags/anchors (with examples that were found from literature) that in principle, should be considered and explored to properly understand and define any slum (figure 4.5). In addition to this, the potential influential role of each category of slum properties in any slum's property map are also noted. As shown in figure 4.5, the SPM qualifies this influence as ranging from 'high' to 'very low', and the discourse is structured in the same order:

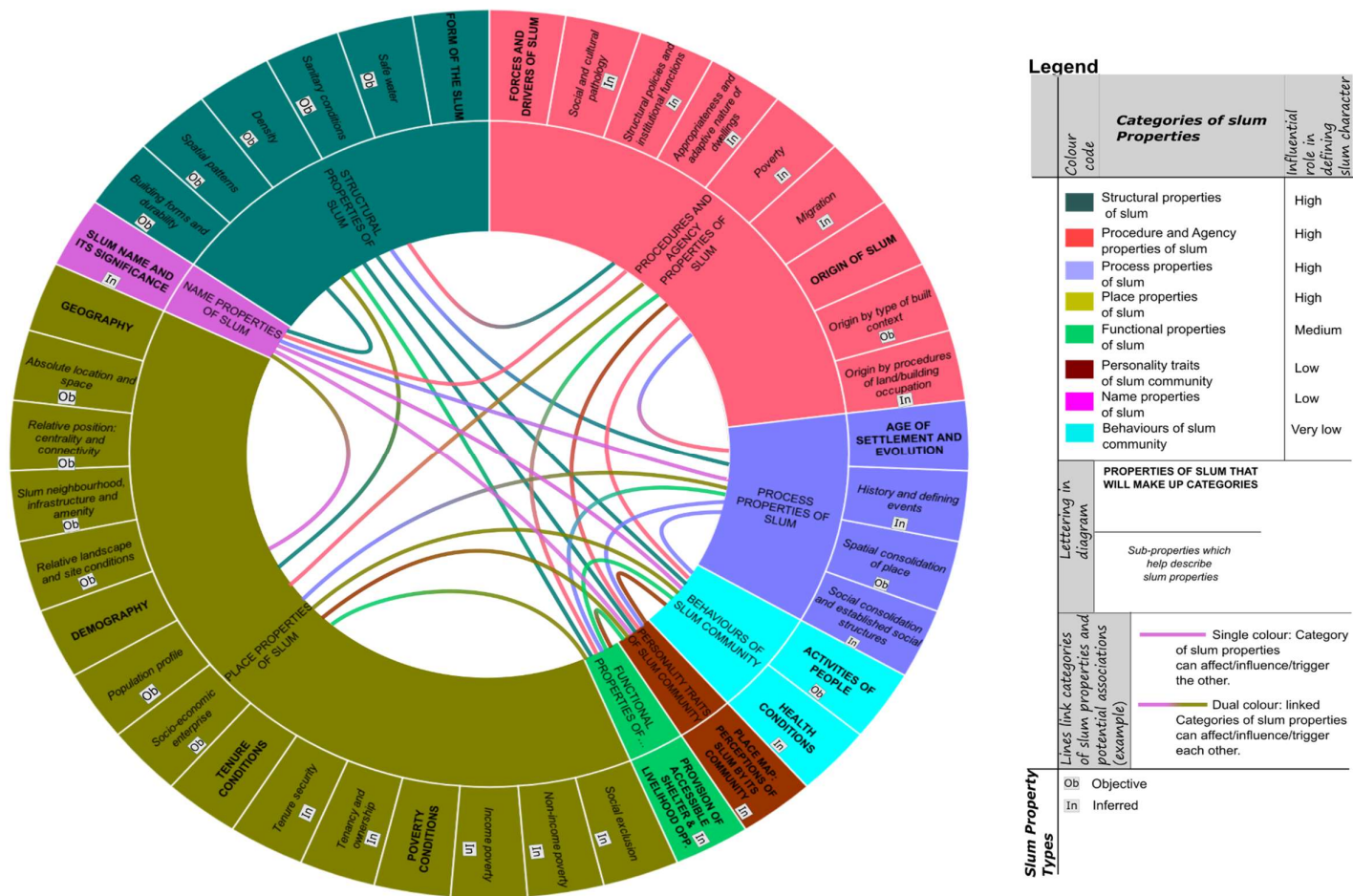


Figure 4.5: Slum Property Map. A framework to comprehensively describe slums and establish how they interact to define the character of any slum. Only tags to main categories are shown to make the schematic simpler. Source: author

4.3.1.1 Potential tags/anchors for structural properties of slum

Structural properties of a slum that include FORM OF THE SLUM properties can affect/influence/trigger others categorised as the following: functional properties which include PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, procedure and agency properties which include ORIGIN OF SLUMS and FORCES AND DRIVERS, process properties which include AGE OF SETTLEMENT AND EVOLUTION, place properties which include GEOGRAPHY, DEMOGRAPHY, TENURE, and POVERTY conditions, and name properties of slums which include SLUM NAME AND ITS SIGNIFICANCE. For example, people can settle in a building that becomes a slum through an 'informal procedure' (a procedure of land/building occupation in ORIGIN OF SLUMS property) influenced by its 'dilapidated (and unused) condition' (a building form and durability in the FORM OF THE SLUM property) (Shuford, 2015). Furthermore, the sub-properties to compile FORM OF THE SLUM can affect/influence/trigger change in each other (in layers of adjacent interactions) because they are different compositions of a slum's physical character. For example, in slums, conditions of infrastructure can affect sanitary conditions, water safety, or building durability (Gulyani and Bassett, 2010; Satterthwaite et al., 2015); or, high densities can affect sanitary conditions (Taher and Ibrahim, 2014); or, irregular spatial patterns determining the levels of infrastructure that are provided in a slum etc. (Fernandez, 2011; Gulyani and Bassett, 2010).

Therefore, owing to the possible associations that they can establish, structural properties can play a strong role in defining a slum's character. As such, in the SPM they are represented as potentially having a 'high' degree of influence in the development of any slum property map.

4.3.1.2 Potential tags/anchors for procedure and agency properties of slum

Procedure and agency properties of a slum that include ORIGIN OF SLUMS and FORCES AND DRIVERS properties can affect/influence/trigger others categorised as the following: structural properties which include THE FORM OF THE SLUM, functional properties which include PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, processes properties which include AGE OF SETTLEMENT AND EVOLUTION, place properties which include GEOGRAPHY, DEMOGRAPHY, TENURE CONDITIONS, and POVERTY CONDITIONS, and name properties of slums which include SLUM NAME AND ITS SIGNIFICANCE. For example, a slum can be characterized with 'high building densities' (a density in the FORM OF THE SLUM property) which is influenced by continuing 'informal settling on vacant land' by people (property that describes procedure of land/building occupation in ORIGIN OF SLUMS) (Leitão, 2008). For the SPM, establishing how FORCES AND DRIVERS properties affect/influence/trigger functional properties – PROVISION OF

ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES – can add insight about people’s choice of staying in the slum and combination of dynamics that spur and subsequently define such stay. For example, the ‘loss of homes due to changes in land-use policy’ (a structural policies and institutional functions in FORCES AND DRIVERS property) can make people consider slums as their only source of shelter when they cannot afford otherwise (Mallo and Obasanya, 2011). Also, it should be considered that within the procedure and agency properties, FORCES AND DRIVERS can affect/influence/trigger ORIGIN OF SLUMS. For example, an ‘implemented slum improvement policy’ in a slum (a structural policies and institutional functions in FORCES AND DRIVERS property) can provide suitable environment for inhabitants to ‘illegally subdivide land’ in it (a procedures of land/building occupation in ORIGIN OF SLUM property) (Balogun, 2004). The sub-properties that help compile the ORIGIN OF SLUMS and FORCES AND DRIVES can also affect/influence/trigger each other.

Therefore, owing to the possible associations that they can establish, procedure and agency properties can play a strong role in defining a slum’s character. As such, in the SPM they are represented as potentially having a ‘high’ degree of influence in the development of any slum property map.

4.3.1.3 Potential tags/anchors for process properties of slum

Process properties of a slum that include AGE OF SETTLEMENT AND EVOLUTION properties can affect/influence/trigger others categorised as the following: structural properties which include FORM OF THE SLUM, functional properties which include PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, procedure and agency properties which include ORIGIN OF SLUMS and FORCES AND DRIVERS, place properties – GEOGRAPHY, DEMOGRAPHY, TENURE CONDITIONS, and POVERTY CONDITIONS, and name properties of slums which include SLUM NAME AND ITS SIGNIFICANCE. For example, a ‘social community organization’ that has in time developed in a slum (a social consolidation and established social structures in AGE OF SETTLEMENT AND EVOLUTION property) can influence the establishment of varying ‘enterprise setups’ in the slum (a socio-economic enterprise in DEMOGRAPHY property) (Hamdi, 2004). Also, because AGE OF SETTLEMENT AND EVOLUTION properties capture varying physical and social events and conditions etc., they can affect/influence/trigger each other (in layers of adjacent interactions). For instance, the types of cultural, social, interest communities etc. structures that develop in slum (describing established social structures) can support spatial (and physical) consolidations of place (Hamdi, 2010; Neuwirth, 2005; UN-Habitat, 2003a), and changes to these can reflect as a relevant history of slum.

Therefore, owing to the possible associations that they can establish, process properties can play a strong role in defining a slum's character. As such, in the SPM they are represented as potentially having a 'high' degree of influence in the development of any slum property map, especially where it has existed for a very long time.

4.3.1.4 Potential tags/anchors for place properties of slum

The place properties of a slum that include GEOGRAPHY, DEMOGRAPHY, TENURE CONDITIONS, and POVERTY CONDITIONS properties can affect/influence/trigger others categorised as the following: structural properties which include FORM OF THE SLUM, functional properties which include PROVISION OF ASSCIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, procedures and agency which include ORIGIN OF SLUM and FORCES AND DRIVERS, processes which include AGE OF SETTLEMET AND EVOLUTION, and name properties of slums which include SLUM NAME AND ITS SIGNIFICANCE. For example, a slum can be geographically 'located on a steep valley' (a relative landscape and site conditions in GEOGRAPHY property), which in turn influences people to carry out 'informal settling procedures' to develop it (a procedure of land/building occupation in ORIGIN OF SLUM property), and also defines the 'terraced building forms' that develop along the steep incline (a building forms and durability in FORM OF THE SLUM property) (Karlsson, 2012; Leitão, 2008). The place properties can affect/influence/trigger each other (adjacent relations) because they are varying social, economic, and physical contexts. For example, a slum can be characterized as having landscape hazards e.g. 'landslides' (a relative landscape and site condition in GEOGRAPHY property), which can make holding unto land in a slum 'insecure' (a tenure security in TENURE CONDITIONS property) (Leitão, 2008). Associations can also exist within the sub-properties that help compile the varying place properties

Therefore, owing to the possible associations that they can establish, place properties can play a strong role in defining a slum's character. As such, in the SPM they are represented as potentially having a 'high' degree of influence in the development of any slum property map.

4.3.1.5 Potential tags/anchors for functional properties of slum

Functional properties of slums that include PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES properties can affect/influence/trigger others categorised as the following: procedures and agency properties which include ORIGINS OF SLUMS, structural properties which include FORM OF THE SLUM, processes properties which include AGE OF SETTLEMENT AND EVOLUTION, and place properties which include GEOGRAPHY, DEMOGRAPHY, TENURE and POVERTY CONDITIONS. For example, people can continue to conduct 'illegal subdividing of land' to build homes and expand the slum (a procedure of land/building occupation in ORIGIN OF SLUMS property) in order to

accommodate people who consider such homes as their 'most affordable option for shelter' (a PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES property) (UN-Habitat, 2003a). Also, slum properties categorised as structural, place, and processes properties can affect/influence/trigger properties that describe the PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD. For example, 'insecure tenure with inconsistent rent increases' in a slum (a tenure security in TENURE CONDITIONS property) can affect people's capacity to afford homes in the slum and therefore its function as the 'most affordable option for shelter' (Chattaraj, 2016).

Therefore, owing to the possible associations that they can establish, functional properties can play a less strong role in defining a slum's character. As such, in the SPM they are represented as potentially having 'medium' degree of influence in the development of any slum property map.

4.3.1.6 Potential tags/anchors for name properties of slum

Name properties of a slum that include SLUM NAME AND ITS SIGNIFICANCE can affect/influence/trigger others categorised as the following: place properties of slums which include DEMOGRAPHY and POVERTY, and process properties which include AGE OF SETTLEMENT AND SOCIAL EVOLUTION. For example, people in a slum community can find their 'chances of employ are limited' (a population profile in DEMOGRAPHY property) because their address is listed as a slum which name significantly carries a pejorative meaning (a SLUM NAME AND ITS SIGNIFICANCE property) (Gilbert, 2007). Also, as seen in sections 4.3.1.1 to 4.3.1.4, a slum's name can be affected/influenced/triggered by other structural, procedure and agency, process and place properties of slum because it can assert meaning and knowledge relative to existing character of slums. For example, 'Kumbarwada', the name of a sub-sector of Dharavi means 'potter's colony' (a SLUM NAME AND ITS SIGNIFICANCE property) and is so named after the 'indigenous community of potters' that have settled there (a population profile in DEMOGRAPHY property) (Jacobson, 2007; see also Chandan, 2013).

Therefore, owing to the possible associations that they can establish, name properties can play a lesser role in defining a slum's character. As such, in the SPM they are represented as potentially having 'low' degree of influence in the development of any slum property map.

4.3.1.7 Potential tags/anchors for personality traits of slum community

From their definition, personality traits of a slum community which include PLACE MAP: PERCEPTIONS OF THE SLUM properties are characteristically of intelligent agencies and influence what people do, and as such can act as intermediaries to change in the social,

physical, and spatial properties of slums. In the SPM, the PLACE MAP: PERCEPTIONS OF THE SLUM properties are set to be investigated and compiled in two-ways. First as outcome/responses of other slum properties (see section 4.2.2.5). Hence, they can be influenced/triggered by other properties categorised as the following: structural properties which include FORM OF THE SLUM, functional properties which include PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, procedure and agency which include ORIGIN OF SLUMS and FORCES AND DRIVERS, process which include AGE OF SETTLEMENT AND EVOLUTION, place properties which include GEOGRAPHY, DEMOGRAPHY, TENURE, and POVERTY CONDITIONS, and name properties which include SLUM NAME AND ITS SIGNIFICANCE. In this way, even when perceptions of place by the people and feelings evoked trigger some change in the character of the slum, the origin of it will be clear. For example, the meaning attached to the name of the slum e.g. 'illegal community/slum' (a SLUM NAME AND ITS SIGNIFICANCE property) can influence members of the slum community to 'feel ashamed' of being associated with their home address, not identifying with it in the presence of other people (a PLACE MAP: PERCEPTIONS OF THE SLUM property) (UN-Habitat, 2003a). The second way that the PLACE MAP: PERCEPTIONS OF THE SLUM properties are investigated and compiled is by capturing people's perceptions of self and place. In this instance, the PLACE MAP: PERCEPTIONS OF THE SLUM properties can affect/influence/trigger change in other categories of properties, but essentially functional properties which include PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, procedures and agency which include FORCES AND DRIVERS, place properties which include POVERTY CONDITIONS, and behaviour properties. For example, the slum community can perceive that the slum has become 'part of their identity' (a PLACE MAP: PERCEPTIONS OF THE SLUM property), and because of that, the slum serves as a 'source of identity and building relations' rather than avenue for shelter (a PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES property) (Turner, 1976).

Therefore, owing to the possible associations that they can establish, personality traits of slum community can play a lesser role in defining a slum's character. As such, in the SPM they are also represented as potentially having a 'low' degree of influence in the development of any slum property map. Their intermediary role, however, makes them a relevant feature for all other properties.

4.3.1.8 Potential tags/anchors for behaviours of slum community

From their definition, the behaviours of a slum community which include HEALTH CONDITIONS and ACTIVITIES OF PEOPLE are also characteristic of intelligent agencies and describe what people do or conditions they are in. They can act as intermediaries to

change in the slum. In the SPM, these properties are also set to be described as outcome/responses to other slum properties; as such, they will be influenced/triggered by all other properties in categories that include the following: structural properties which include FORM OF THE SLUM, functional properties which include PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, procedure and agency which include ORIGIN OF SLUMS and FORCES AND DRIVERS, process properties which include AGE OF SETTLEMENT AND EVOLUTION, place properties which include GEOGRAPHY, DEMOGRAPHY, TENURE, and POVERTY CONDITIONS, and name properties which include SLUM NAME AND ITS SIGNIFICANCE, and can become a link between them. For example, a slum community's income can be characterized as in general being 'income below the poverty line' (an income poverty in POVERTY CONDITION property), and as a reaction to this lack of income, youths carry out 'recycling activities' on a daily basis (an ACTIVITIES OF PEOPLE property) (Hamdi, 2004). Also, because behaviours respond to the influences of personality traits, the SPM posits that we consider HEALTH CONDITIONS and ACTIVITIES OF PEOPLE that are the effect/response to PLACE MAP: PERCEPTIONS OF PLACE. For example, the meaning attached to the name of the slum e.g. 'illegal community/slum' (a SLUM NAME AND ITS SIGNIFICANCE property) can make members of the slum community to be 'disgusted with the term' (a PLACE MAP: PERCEPTIONS OF PLACE property) that they organise and conduct civil action to change it (an ACTIVITIES OF PEOPLE property) (Robertson, 2014; Wood, 2007).

Therefore, owing to the possible associations that they can establish, behaviours of slum community can play a weak role in defining a slum's character. As such, in the SPM they are represented as potentially having 'very low' degree of influence in the development of any Slum property map. Their intermediary role, however, also makes them a relevant feature for all other properties.

4.4 Building a narrative to capture the story of slums and define them

For any slum that is set to be defined, the SPM proposes that they should be comprehensively described through eight categories of slum properties with all information and data as a first step (section 4.2). Establishing how the properties interactively associate to map the character of the slum – developing a slum property map – is proposed as the second step to defining a slum (section 4.3). The suggestions of how to conduct these steps are proposed to also help in limiting bias in the compilation of properties and how they interact. The third and last step in this process involves bringing these outcomes, of the first and second steps, together to build a complex narrative of the slum property map in a logical and structured manner. Unless the compilation of slum properties and how they interact are linked together with all information

and data that contextualizes the slum properties, meanings will be lost. Fulfilling this step helps to communicate the story and definition of the slum and its existence in the city.

In this regard, the SPM suggests that we maintain all properties that describe the slum in the organised structure of categories of properties with sub-properties that they were analysed according to and present their narrative in a hierarchy. This form of presentation is set to build a clear narrative that will systematically capture the comprehensive character of any slum and, at the same time, prioritise essential information so that action may be carried out in it, limiting bias also. This proposal is not conclusive, it is deduced and posited primarily based on the following: (1) by analysing which categories of slum properties and the contexts of slums that they describe are important to communicate first in order to comprehend its character, and (2) by considering the potential influence of the categories of slum properties in defining the character of slums owing to the possible associations that they can establish. To further help in this process and the first and second step as well, the SPM numerically codes the categories of slum properties – numbering from category 1 to 8, relative to the proposed hierarchy for forming the narrative to define slums (figure 4.6). The properties that make up these categories with sub-properties that help capture them are also numerically coded starting from '1', while still reflecting their categorical numbering. In the SPM manual, the numerical coding structure is maintained in addition to the colour and lettering format to present them and provide users guidance about how to investigate them without imposing a rigid structure to carrying out the investigation. The objective was to further support the clarity of concepts, effortless conceptual and practical identification of slum properties and their referencing and representation, and the overall application of the SPM manual.

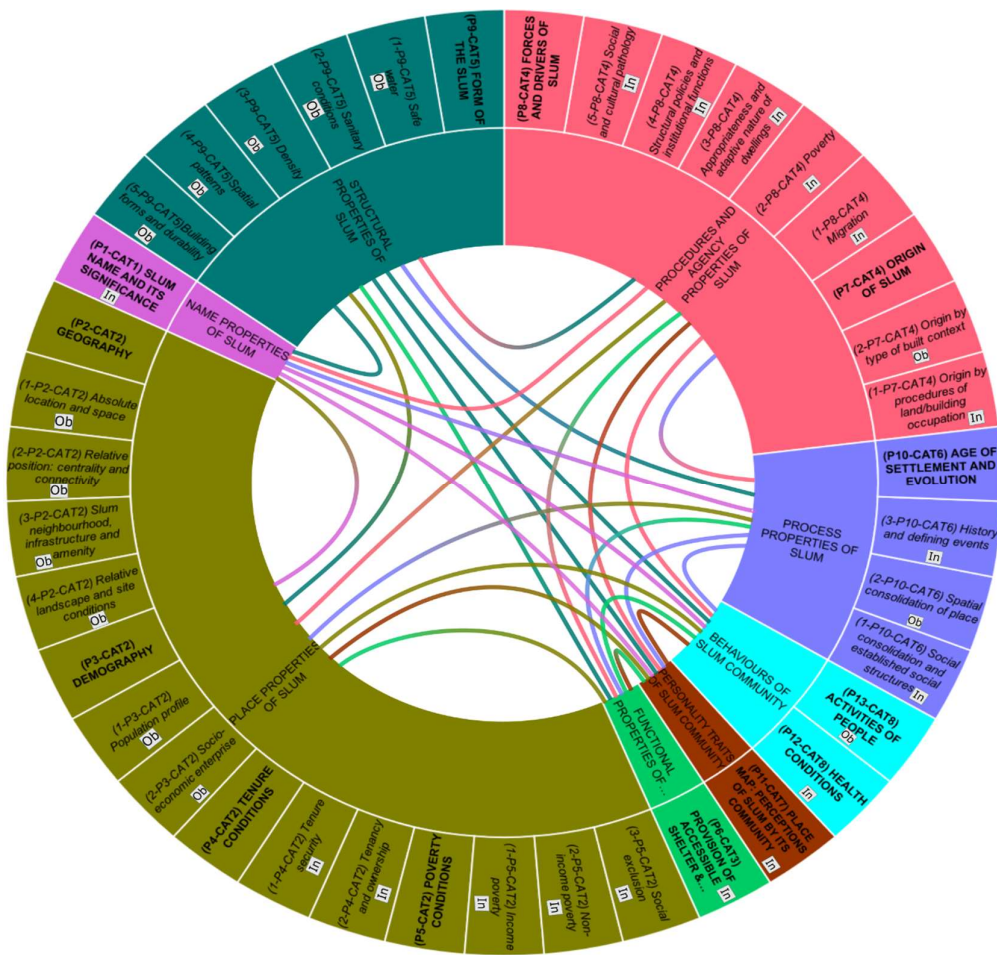
Hence, in order to form a narrative that tells the story of (any) slum and its existence in the city, and define it, one should systematically structure narrations about the categories of properties that have been compiled in the following manner:

1. Category 1: (CAT₁) Name properties of slum, which include (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE properties. These properties potentially hold 'low' influence in a slum property map. However, they provide an identity for it in the city and, are a point of reference for and in relation to all other properties of it, even more so where the meaning of the slum name can be attributed to one or more of such properties.
2. Category 2: (CAT₂) Place properties of slum which include (P₂-CAT₂) GEOGRAPHY, (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) POVERTY CONDITIONS, and (P₅-CAT₂) TENURE CONDITIONS. For slums these properties provide a vital overview of all underlying social and physical contexts of slums within which all other properties with conditions they capture are framed, allowing them to be better comprehended. As Farinelli (2003; in Agnew, 2011, p. 2 (11)) notes, 'place [...] is part of the terrestrial surface that is not

- equivalent to any other, that cannot be changed with any other without everything changing.' Moreover, these properties potentially hold 'high' influence in defining any slum property map.
3. Category 3: (CAT₃) Functional properties of slum which include (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES. These properties potentially hold 'medium' influence in any slum property map. However, they will capture relevant information about the expectations of the people in relation to staying in the slum and outlying (city) contexts, whether these have been met or not and can be reconciled with the social and physical contexts they exist within.
 4. Category 4: (CAT₄) Procedure and Agency properties of slum which include (P₇-CAT₄) THE ORIGIN OF SLUM and (P₈-CAT₄) FORCES AND DRIVERS OF SLUM. These properties will map dynamics that define the slum's initial, current and future development and expansion in relation to its presiding physical and social contexts, and agencies that drive such development. Moreover, these properties potentially hold 'high' influence in any slum property map.
 5. Category 5: (CAT₅) Structural properties of slum which include the (P₉-CAT₅) FORM OF THE SLUM. These properties will capture a vital aspect of the slum – its physical image; they will, however, be better comprehended with prior understanding of how it originates (procedures and agency properties), purposes (functional properties) it serves for the slum community, and contexts within which they are framed (place properties). Moreover, these properties potentially hold 'high' influence in any slum property map.
 6. Category 6: (CAT₆) Process properties of slum which include (P₁₀-CAT₆) AGE OF SETTLEMENT AND EVOLUTION. These properties will provide a documentation of the social, spatial and physical aspects of a slum that has established over the years. It will capture the relevant evolution of the structural properties, procedure and agency properties, functional properties, place properties, name properties of a slum, and also the behaviours and personality traits that are associated with them. Moreover, these properties potentially hold 'high' influence in any slum property map.
 7. Category 7: (CAT₇) Personality traits of slum community which include the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF SLUMS by them. These are identified and described as outcome/response to other properties (Category 1 to Category 6) of the slum where they occur. However, they can also describe people's general impression of themselves and place which will be better comprehended with already established discourse on the conditions and contexts that the slum community live with and within. They also

potentially hold more influence (which is 'low' compared to previous categories of slum properties) in defining a slum's property map than behaviours.

8. Category 8: (CAT₈) Behaviours of slum community which include (P₁₂-CAT₈) HEALTH CONDITIONS and (P₁₃-CAT₈) ACTIVITIES OF PEOPLE. These are identified and described as outcome/response to other properties of the slum including personality traits of slum community (Category 1-Category 7) where they occur. Also, they potentially hold 'very low' influence in the development of any slum property map.



Legend

Colour code	Categories of slum Properties	Influential role in defining slum character
Yellow	(CAT1) Name properties of slum	Low
Green	(CAT2) Place properties of slum	High
Blue	(CAT3) Functional properties of slum	Medium
Red	(CAT4) Procedure and Agency properties of slum	High
Dark Green	(CAT5) Structural properties of slum	High
Purple	(CAT6) Process properties of slum	High
Brown	(CAT7) Personality traits of slum community	Low
Cyan	(CAT8) Behaviours of slum community	Very low

Hierarchy for defining slum

Lettering in diagram

(P_n-CAT_n) PROPERTIES OF SLUM THAT WILL MAKE UP CATEGORIES

Property number →

Category number →

(n-P_n-CAT_n) Sub-properties which help describe slum properties

Sub-property number →

Property number →

Category number →

Slum Property Types

Ob Objective

In Inferred

Lines link categories and potential associations (example)

Single colour: Category of slum properties can affect/influence/trigger the other.

Dual colour: linked Categories of slum properties can affect/influence/trigger each other.

Figure 4.6: The SPM: A framework to comprehensively describe slum through properties, establish how they interact to define its character and form a narrative that tells its story. Source: author

4.5 Transferability and robustness of the proposed Slum Property Map

As shown in sections 4.2 to 4.4, the Slum Property Map (SPM) provides a comprehensive and rigorous approach to developing a slum property map that comprehensively describes and defines any slum. It is argued that the SPM at this stage fulfils all requirements that are essential to defining slums, and it is an applicable conceptualisation tool:

1. The SPM was built from a robust theoretical base (see section 4.2). The conceptual framework of the categories of slum properties extends from established proposals in the philosophies of reasoning, perception, and cognition. It is comprehensive of all aspects found to contribute to the overall character of slums from literature and, organises and represents them in a way that is structured to support rigorous description of slums in a unique and relative way.
2. The lists of slum properties that make up the categories of properties derives from qualitative content analysis of literature (see methodology section 2.2) that looks at both general contexts of slums ((Davis, 2006) for example) and specific case studies or research ((Parham, 2012) for example). As such it is widely applicable to describing slums and proceeding to establish associations between the categories of slum properties. The context specific associations that capture the character of any slum, and their intensity can be varied to suit specific cases.
3. The proposed interactive structure of the SPM suggests associations between properties that describe the relevant social, physical, and spatial contexts of the slum, including how they are associated with intelligent agency – personality traits and behaviours of slum community (see section 4.3). This quality of the SPM further ensures that when a narrative of a slum is compiled (see section 4.4), its story remains unique to it; it can share the same general profile or bear resemblance to another's yet is not necessarily the same. It is also this quality that makes the conceptual framework a heuristic and fulfils the potential for a comprehensive understanding of slums. The story of any slum can be told in a way that the effects of actions and outcomes between different contexts of the slum can be considered, thus, guiding interventions appropriate to their nature and peculiarities.
4. The proposed hierarchical structure for compiling the narrative that defines slums further contributes to the flexibility of the SPM. The narrative for each category of slum properties provides readers with a comprehensive slum property map relative to specific overview of slums that they capture, where the interest is only on such overview. Where necessary, one can consider the established tags/anchors and how

they associate with the categories of slum properties being reviewed and follow-up to understand their own contexts and how they capture the character of the slum.

5. The SPM can be applied in an incremental manner to profile slums when conditions change, or to analyse changes that have occurred because it is developed within a conceptual framework that is structured and organised. As such, it is not a static framework, but one that can be applied in a dynamic way to define slums.
6. The SPM is not exhaustive. In association with the SPM manual, it is conceived to give room for choice, further development and expansion: guided by the theoretical background of property concepts and information provided in the manual, other relevant or specific properties and approaches for describing and defining slums can be mapped.

The above qualities, therefore, also give it the potential for other similar applications, not only slum research.

4.6 Conclusion: a systematic précis for defining slums and their prospects for prosperity

The intention of this chapter was to propose the Slum Property Map (SPM), a framework for comprehensively describing and defining slums. The aim was to fill the gap in the literature for a comprehensive way to define slums that is conceptually sound and overcomes challenges to properly comprehending slums and facilitating effective intervention. Slums are an evolving but consistent phenomenon and taking steps to engage in improving livelihoods within slums and for cities requires that we consider ongoing realities in relation to both.

The chapter fulfils its objective through a streamlined structure that first proposes four basic requirements for a robust framework to define slums and how the SPM sought to fulfil these requirements, addressing both logic and practicality. It is a theoretical and conceptualization framework (see Gruber, 1993; Kluge, 2000; McKinney, 1969): proposing a standard, structured, dynamic, and heuristic way of defining any slum and for intervention to improve them; and also allowing for usage in a transferable way whilst still maintaining its robust nature. For any slum to be defined, the SPM suggests a three-step approach: The first is to comprehensively describe and capture the slum ontology through a proposed cognitive categories of slum properties that will compile both objective and inferred types of properties, thus providing a comprehensive picture of the slum; they include the following: (1) Name properties, (2) Place properties, (3) Functional properties, (4) Procedure and Agency properties, (5) Structural properties, (6) Process properties of slum, (7) Personality Traits and (8) Behaviours of slum community. The definition of concepts and properties with sub-

properties of slum that will make up these categories highlight their varying roles and relevance towards understanding slums in addition to appropriate approach for investigating and representing them.

The second step is to consider all categories of properties that describes the slum and establish how they associate with each other – affect/influence/trigger each other, to map the character of the slum and show those with higher influence in it. Here, the suggestions of essential links to consider and explore between the properties of slum – tags/anchors (that associate with each other), is set to help remove bias in the process and develop a comprehensive and operative slum property map. The third step is to form a narrative that combines slum properties with contexts they capture and how they associate into a complex overview and define the slum. A logical hierarchy to building the narrative is set to help streamline relevant information both towards comprehending the slum character and prioritising what is necessary for action.

For investigations that aim to define slums to be clear and systematic, the thesis further proposes an SPM application manual. While the discourse in the chapter captures the concepts and principles of the SPM and its implementation, the manual complements such discourse and how to use it in practice to define slums: highlighting the conceptual role of the categories of slum properties, comprehensively defining them with relevant information to fulfil the first step to build a slum description; then, positing for each property and where applicable sub-property that make up categories, all varied and complex tags/anchors with associations that should be considered and established to map the character of the slum and build the narrative. The SPM manual is presented in Appendix III to the thesis.

It is argued that the SPM with manual provides a robust and transferable framework for describing slums and defining them. It is conceptually sound and comprehensive in its analysis and development of categories of slum properties and as such widely applicable to slums. Also, it can be used in a flexible way to define, compare, and contrast between slums, in an organised way relative to the overview of slums that the varying categories of slum properties capture, in a dynamic way to define slums, and encourages further development of the framework to advance its functionalities.

In all, the Slum Property Map (SPM) proposes a solution to the challenges that make the slums hard to define, and especially, to envisage possibilities for improvement; it does not, however, eliminate the fact that slum complexities will always exist. However, it shows that these complexities are not a challenge, but rather what makes slums, like every other urban space, each distinctive in their own way. It is not proposed as prima facie or consolidatory and can become a platform for other novel pursuits to improve slums and cities. Essentially, in fulfilling the gap for a way to define slums, the SPM has allowed the research to pursue the

second research aim: to consider the role of slums in improving their habitat and the city by engaging prosperity. Specifically, the SPM serves as a sub-framework and tool in the larger conceptual framework for slum and prosperity proposed in this thesis. As will be shown later in the thesis' pursuit of a prosperity path for the slum, the SPM also benefits from a desktop case study, a proof of concept and further rationalisation of its operative structure.

First, however, in the next chapter, the thesis explores the basis and arguments for pursuing the goal of framing slums as prospective role players to city prosperity in order to improve slums and progress cities overall. Interestingly, the evolution of slums in cities extends beyond mere demographics to cities vital structural dynamics. The analysis, in addition to that which considers the potential for associating the two complex concepts – slum and city prosperity, provide a prelude towards an operative understanding for the concept of prosperity and for a framework of action to pursue it.

Chapter 5 Relating slums, city, and prosperity

'No city can claim to be prosperous when large segments of the population live in abject poverty and deprivation.'

UN-Habitat, 2013¹¹⁹

Introduction

This chapter explores the potential for associating the two complex concepts of slum and prosperity with the aim of slum and city improvement. It will briefly capture cities' development and highlight how their pursuit of vitality and growth, of which prosperity is key, is linked to slum development. To explore the hypothesis that prosperity could become the goal for slums as well as cities, the chapter first analyses the varied, broad, and non-standardized perceptions of it. This is to understand prevailing outlooks about the concept and identify an effective research path for defining what it means to prosper. Notwithstanding the limitations to the concept, ways to properly streamline cities' prosperity are still being considered; the chapter then reviews institutional endeavours to profile and monitor prosperity trends in cities. From this, it extends analysis to show how published prosperity profiles of cities, associated characteristics, cities approach to urban management, and slum profiles can be directly related. There is potential: (1) to streamline prosperity pursuit in tandem with slum improvement and organise this relative to people, wider environment, and structures that manage both within an operative meaning of prosperity, and (2) for slums to contribute to such pursuit. In the next chapter, these assumptions will guide the study of the concept 'to prosper' found within theoretical discourses and help to develop a model for prosperity that will yield a framework for action in slums.

5.1 Slums and the city: looking from the outside in

Cities have always evolved due to some form of specialization or advancement (structural urbanization) from the time of the Roman Empire to the era of industrialization, drawing populations towards them (demographic urbanization) (Cowan, 2005; Glaeser, 2013; Hutchinson, 2010; UN-Habitat, 2013a). The usual definition of city, town, or urban area¹²⁰ is an area where large political units abound generally encompass non-agricultural activities and social heterogeneity (Henderson, 2004; Hutchinson, 2010). An ability that humans have

¹¹⁹ (UN-Habitat, 2013a, p. XII).

¹²⁰ The word urban was first used by the Romans, to describe a newly ploughed city, during their conquest years in the early 15th century (Hutchinson, 2010).

progressed over time in the development of settlements (and cities), is that of trying to perfect the functionalities and systems that build and manage them (Habraken, 2013) – always striving for better, stronger and more robust approaches. The most vibrant of cities, from records of early cities to today, always tend to become ‘magnets’ for populations seeking opportunities. The discussions below are generally taken from the Encyclopaedia of urban studies (Hutchinson, 2010),¹²¹ other literatures are cited where relevant.

5.1.1 Cities through time: social and economic vitality hubs and opportunities for the ambitious

The records of early urban life in ancient places like India, Egypt, Mesopotamia, and (what is now) Syria about 7000 years ago, can be attributed to the use of mathematics, written documentations of community activities, social structures, government systems, and planned edifices (see Mark, 2014). These places recorded high concentration of inhabitants, which according to scholars of that era range between 5,000 to 80,000 people (ibid). Before the Common Era (BCE), the writings of Halicarnassus (330BCE) recorded how the Greeks established colonies throughout the Mediterranean; they are credited with marking the start of western culture. The Roman empire then rose and established itself all the way to Egypt. Influenced by Greek ideals, the Romans practiced urban planning, setting out districts and city zones (figure 5.1) and import systems (ibid; Glaeser, 2013; Stambaugh, 1988). It oversaw its territories with a well managed government structure. People were drawn from all over to access opportunities offered, especially trade (ibid; Neuwirth, 2005). At the height of its empire (27BCE), it had more than 1million inhabitants and 50 to 90million people in its empire – remarkably, around 20% of the then world population (Hutchinson, 2010; Wikipedia contributors, 2017b).

¹²¹Including acquired knowledge (by this researcher), in the course of architectural studies.

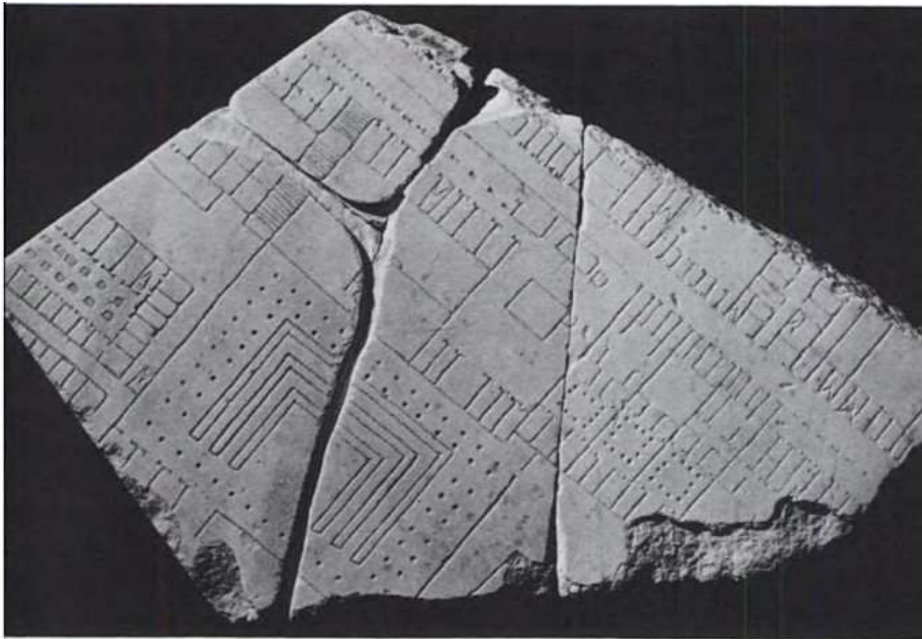


Figure 5.1: Part of a marble slate of a Roman city plan showing residential and commercial zones.

Source: (Stambaugh, 1988).

This unprecedented growth of the city population that occurred during the Roman Empire was not experienced again until the 19th century (ibid). Other vibrant trading centres like Palmyra (present day Syria) recorded populations of up to 200,000 people. Cities of the Islamic middle-east that rose after the Roman Empire also drew populations who were seeking to benefit from their vibrant learning institutions – the beginnings of geometry, astronomy, optics etc. This urban progression was followed by the 14th century Renaissance with cities of culture, art, politics, and trade like those in Italy and China supplanting the Islamic world in size and importance.

Early industrialization and specialization followed through from the 15th century unto the industrial revolution of the 18th century drawing populations to cities. By the 20th century, the most culturally and economically vibrant cities were also the largest – places like Paris, London, New York, and Tokyo. Then, in the post-war (1950s), cities of the Global South grew, with Mexico topping the charts for many years, followed by Lagos, Calcutta, Mumbai and Sao Paulo. By then, cities had become enclaves for the meeting of diverse and complex cultures, capital, labour, and knowledge amongst others (ibid; see also Habraken, 2013; Jacobs, 1961; Raban, 1974). The trend in progressive endeavours aimed at extending and strengthening cities' standards of economic, political, social, cultural, ecological, and urban management (and policy) structures to improve cities wellbeing overall has sustained. It is these vibrant structures and environment of cities that pull in populations seeking to pursue opportunities, even if only by proximity to other people (Angel, 2014; Hardoy and Satterthwaite, 1986;

Payne, 2008; UN-Habitat, 2013a). Cities serve as platforms for ideas, exchange, creativity, and productivity, but also many upheavals and challenges,¹²² especially that of sustainably managing populations. This dimension of city growth is reflected in the history of slum development.

5.1.2 Accessible city domicile: slum as first choice for the incoming poor and disadvantaged

Poor populations continue to move to cities for development opportunities (or the promise thereof) that these cities offer. Whether they are being 'pulled' or 'pushed' (due to a myriad of social, economic, or political reasons) from the hinterlands or other cities, the primary objective of moving to or staying in cities for these poor/disadvantaged populations is to have a better life overall (ibid; Glaeser, 2011). For these populations, the slum will always be a source of relatively accessible urban residence, and most times a permanent one.¹²³ The cities with vibrant 'city pull' profiles discussed above – particularly ancient Greek and Rome, the industrial stages of Paris, London and New York, and present-day Sao Paulo, Lagos, and Mumbai – are in general also those with historical and present-day records of impressive slum population growth (see Chapter 3).

Theory has over the years associated slum development with cities vibrancy and structural growth, especially economic productivity. Economic productivity has been used to reflect strength of cities and opportunities provided by them. In 18th century Paris, Fernand Braudel concluded that owing to the pattern of poverty populations since the 14th century, the higher the economic expansion, the greater the number of destitute (Neuwirth, 2005). Altman and Chemers (1980; in Agnihotri, 1994) also theorized that the localization of slums in the city is generally concurrent with its outside expansion due to economic progress (See Aggarwal and Haglund, n.d.; Eckstein, 1990; Epstein, 2008; UN-Habitat, 2003a). For Florida (2014), the growth of slums in Developing Country cities and their non-temporal nature is characterized by their persistence in cities experiencing booms in economic growth. Also according to Kelly and Williamson (1984), Developing Country cities started experiencing the problem of unrivalled growth, leading to spatial dislocation and issues of structural adjustment, due to bursts of economic boom experienced in the third quarter of the 20th century. The literature shows that

¹²² It is in this regard that the sociologist Ray Pahl, while trying to describe the ubiquitous quality of the 'urban' declared 'the city cannot be defined' (Cowan, 2005, p. 414). This assertion was criticized by Raban (1974) an adept traveller whose experience in cities had shown him, first-hand, the opportunities that cities (despite certain upheavals) offer to the teeming populations that move between their fabrics daily. In his view, the rural setting has a deceptive air of security and intimacy that hampers individual productivity.

¹²³ This analysis is also relevant in proposing the function of the slum in the Slum Property Map, see Appendix III (Category 3).

in places, like Africa for example, global economic dynamics as a whole had taken an unassuming role in determining the physical and social layout of cities (Rakodi, 1997).

Slum populations are generally collated at national levels by UN-Habitat. Using just this one economic view of measuring city growth, let's look at near current examples of how slum growth can correlate to cities' vibrancy. Overall, these analyses are concurrent with the UN-Habitat's (2016a, 2013a) assessments of people moving into slums in Developing Regions.

5.1.2.1 Slum expansion in economically vibrant cities: some examples

Amongst Developing Region cities (mentioned above), Sao Paulo was driven by a vibrant coffee industry, and is currently one of the leading investment cities in Latin America (Cohen, 2004; UN-Habitat, 2016d). In 2004, it contributed to over 50% of Brazil industrial output, and recent estimates assert close to a 20% share of national Gross Domestic Product (GDP) (ibid). Its vibrant growing economy contributes to a fast-growing population of over 10% of the national population. However, it has substantial housing shortage and vast slum populations (ibid; UN-Habitat, 2013a, 2010).

Another example is Lagos, the former capital of Nigeria, which has been an established commercial and industry port since the early 17th century, and is still a strong economic axis in west Africa (Agbola, 2005; Olokesusi, 2011; UN-Habitat, 2016d). In a 2011 publication, Lagos was estimated to contribute about 40% of the country's non-oil GDP (Olokesusi, 2011). It is one of Africa's fastest growing megacities, and though its most current population census has been debated, estimates had the population at about 17 million, with a locally established migration rate of 3000 persons per day (Dulthiers and Kermeliotis, 2012; Olokesusi, 2011). It too however has a substantial percentage of its population (unofficially estimated at over 70%) in slums (Ngomba, n.d.; Rice, 2012; UN-Habitat, 2016d, 2014c, 2013a).

Kinshasa DR Congo is another example of a steadily growing centre for business and transnational investment and contributes up to 85% to its country GDP (UN-Habitat, 2016d, 2014c). It is one of the fastest growing cities in sub-Saharan Africa, with 13% urban population share, but with vast slum areas that are continuing to grow (ibid).

5.2 Slum and city: looking from the inside out

A link between cities and slums has been highlighted so far. Glaeser (2011, p. 67) notes that 'poverty is a sign of a city's success'. According to him, the issue is semantic: the rate of poverty in a city shows it has potential to offer opportunities to improve the livelihood of the least fortunate. When cities fail to attract people from all walks of life in the bid for improvement, then this becomes a point of concern. It is when the cities are unable to move

the poor up the ladder to a better life, such that slums and poor conditions of living become a default, that a problem ensues, and the city fails (ibid).¹²⁴

The challenge for cities, as noted in Chapter 3, has always been how to effectively manage slum populations while at the same time catering to progress of cities and meeting global urban demands.¹²⁵ Slums are in principle not considered mainstream to these endeavours, which are generally focused on the cities' prosperity.

5.2.1 Prosperity of slums and city: a common goal worth exploring?

The past two decades or so have seen an upsurge of discourses regarding how to best position cities (particularly in Developing Regions) to attain prosperity in light of the many challenges and upheavals of urbanization (Legatum Institute, 2014a; UN-Habitat, 2013a). The UN-Habitat has revised the relevant contexts of urban prosperity through its years of research and engagement in urban management. For them (UN-Habitat, 2013a), prosperity is a common ideal upon which cities' primary economic, political, social, cultural, ecological, and urban management (and policy) structures are focused. It is a global drive and is used to assess cities' capacity to sustain individual and collective wellbeing (ibid; Jackson, 2011). Similarly, the economic theory of city growth shows that cities grow because people are seeking prosperity offered by the concentrations of labour, specialization, and centralization of products that can be found there (Hutchinson, 2010; Jung, 2006). From a social point of view, Noberg-Shulz (1993) refers to the city as a an area of gathering, meeting and collective dwelling that opens a milieu of possibilities for people no matter how different they are (see Marcus, 1985).

The UN-Habitat recognizes the versatility of cities as a form of habitat for man-kind and a platform for global productivity and creativity has become even more prominent. However, while cities are seeking pathways towards prosperity, they are also generating issues of inequality, economic and environmental challenges (Halfani, 2014; UN-Habitat, 2013a). When prosperity is confined to a population group or not generally enjoyed by all, there is the need to re-assess cities within new dynamic perspectives (ibid). Global consensus sees slums, including other interrelated aspects that include inadequate and inefficient planning policies, low average incomes, low levels of human capital, inadequate infrastructure, high levels of

¹²⁴ Richard Florida's new book – *The new urban crisis* (2017) – also provides another overview of deepening segregation in cities.

¹²⁵ This challenge was evident even before times of industrialization. Tiberius Gracchus a Roman politician, sought to improve the lives of the poor and disadvantaged in the city and stall rural-urban movement through agricultural and land reforms (Neuwirth, 2005). He, along with his supporters were executed by the ruling class as his policies were not in their best interest. Agis, who was king of Sparta between 245-241BC, also suffered the same fate (ibid).

crime, poverty, coupled with corruption, weak institutions and poor governance, to be impediments which threaten cities' prosperity (UN-Habitat, 2013a, 2013b; Weiss, 2001).

The UN-Habitat asserts that for 21st century cities to effectively counter the upheavals and imbalances of urbanization, it is necessary to engage respective city agendas 'with a fresher notion of prosperity' (UN-Habitat, 2013a, p. XI). Herein lies the potential to engage this ideal. The association between slums and cities is not only physical but extends to all facets of cities growth and development which are focused on prosperity. For both city and slums, therefore, there is a potential for engagement on a common progressive platform for prosperity. In this case, why not consider prosperity as a goal that both fits the slum and efforts towards extending sustainable urbanization? This would support arguments that consider slums as part of cities (see section 1.2).

For Halfani (2014), in order to re-calibrate cities towards prosperity, one needs to not just re-assess the way that cities strive for prosperity, but one must also scrutinize the concept itself. So, what is prosperity, or what does it mean to prosper? Also, can slums contribute towards this ideal? The following sections 5.3 to 5.5 seek to address these questions.

5.3 What is prosperity? Non-standardized, but progressive conceptions

From its linguistic to conceptual views, what prosperity means is still a work in progress; a standard and accepted definition of prosperity is still lacking (UN-Habitat, 2013a). It is generally considered an economic idea. However, the rising interest in prosperity in cities is happening in parallel with continuing research and arguments about what prosperity is, and especially how best to pursue it.

5.3.1 Prosperity is economically focused: English linguistic opinion

The term prosperity is derived from the Latin word '*prosperus*', middle English '*prosperite*', and French '*prosperitas*', meaning favourable or fortunate (Dictionary.com, 2015; Vocabulary.com, 2015). Definitions of the term 'prosperity' vary in dictionaries and encyclopaedia but generally hinge on economic wellbeing and being successful financially or overall productivity, further adding to the complexity of the term. See for instance Chambers Dictionary (1990), Dictionary.com (2015), Oxford Dictionaries (1991), Webster's 1913 Dictionary (2015), and

Britannica encyclopaedia. Whilst the Roycroft (Hubbard, 1914) even takes a humorous look at defining prosperity, one that is still, however, based on productive vitality.¹²⁶

5.3.2 Prosperity as economic value: prevailing views

Economic disciplines have long enjoyed monopoly over a general conception of prosperity. In global economic analysis, there is a 'potential growth rate' considered as the sustainable assumed rate of economic growth that should not trigger inflationary pressures over the medium to long term (Besomi, n.d.; Cowling, 2006; Prescott, 2002). Prosperity is conceived as being the state of attaining this potential growth rate and passing it with substantial percentage points (ibid). This view of prosperity relative to economic productivity is founded on the reasoning that higher Gross Domestic Product (GDP) shows better economic value of goods and services exchanged within the market (Broch-Due, 1995; Jackson, 2011).

This outlook of prosperity is a modern construct that has its roots in the history of city growth (Jackson, 2011). In the nineteenth to twentieth century, the demographic and structural changes brought about by urbanization and industrialization influenced cities to develop productive enclaves that will set them apart in the global sphere. Economic growth was (and as noted in section 5.1.2, in principle still is) used as a primary measure of cities' successes and was expected to be manifested in their architectural landscapes, industries, and institutions, influencing more growth (ibid). Ghodke (1985, p. 237), for instance, is known to have written '[d]uring the Napoleonic wars (1793-1815), the British agriculture enjoyed continued prosperity – the cultivators enjoyed high prices for farm products and the land lords earned high rents.'

This general focus of prosperity was further set during the times of the Great Depression in Europe and America with discussions and debates focused on economic growth. Most notably, Lord Keynes (Keynes, 1936, 1933) (in the United Kingdom) discussed the problem of attaining prosperity entirely in terms of economics and wealth creation. He also rightly argued that the first base for tackling prosperity lies at the helm of the government or political will.¹²⁷ There are prosperity outlooks (mostly recent) that are however challenging this economic monopoly.

¹²⁶ '1. That peculiar condition which excites the lively interest of the ambulance-chaser. 2. That which comes about when men believe in other men. 3. That condition which attracts the lively interest of lawyers, and warrants your being sued for damages or indicted, or both.' (Hubbard, 1914).

¹²⁷ Other proposals by Keynes include General Theory, which brought about a revolution in economic circles.

5.3.3 Prosperity as a relative and dynamic endeavour

Of late, this conception of prosperity solely in terms of an economic endeavour has been questioned. The UN-Habitat (2013a, p. 13) summarises this evolution:

More than 70 years ago in 1937, the Nobel-winning metric of Gross Domestic Product was purported to be the 'mother of all statistics', capturing the notion of prosperity through any country's total production of goods and services. [...] it is becoming more and more apparent that this aggregate is too narrow to provide the accurate measure of a society's overall well-being today. In 1972, the king of Bhutan declared he was interested in measuring 'Gross National Happiness' (GNH). In 1990 the US economist Mahbub UI Haq convinced future Nobel Laureate Amartya Sen to create 'an index as vulgar as GDP but more relevant to our own lives' (Dickinson, 2011). In 2006, China developed its own Green GDP Index, which seriously challenged the validity of the standard aggregate, once environmental aspects were factored in. In 2009, Joseph Stiglitz called for an end to 'GDP fetishism' and one year later, the British government announced that it would, for the first time, survey happiness in addition to purely economic measures [...]

The recent re-assessment of prosperity came about in view of great disparities in income globally and the ripple effects, climate change and its effects, differences and divides that have led to social tensions world-over etc. (Bate, 2009; UN-Habitat, 2013a). In terms of human happiness, research has also shown that it does not appear to advance beyond a certain point of economic growth in wealthier nations; rather, economic growth propels a sort of social recession (ibid; Jackson, 2011). From an economic point of view, there are also differences in the notions of what prosperity entails and in relation to other disciplines like health, climate and ecology (Cowling, 2006). There are other arguments (preceding and succeeding Keynes') that highlight the same need for political will in addition to taking into consideration people's relations with the environment and vice versa, streamlining specialization, goods exchange, knowledge, and technologies for economic prosperity (Patten, 1902; Ridley, 2010)

The outcome of this re-focus are propositions of more practical and broader outlooks of prosperity that consider other intangible and even subjective aspects of living. For Jackson (2011), prosperity is a concept that is inextricably tied to human relations and to some notion of continuity that is physical, social, and environmental. It is the flip side of poverty or adversity – 'wanting things to go well is a common human concern' (ibid. p, 1). For Ellin (2013), prosperity means thriving in relation to self, society, and place. Prosperity, for the UN-Habitat (2013a, pp. XI & 13) 'means different things to different people; regardless of culture and civilization, it refers to a general individual and socioeconomic wellbeing and security for the

immediate and foreseeable future. [...] [it] remains one of human kinds most enduring pursuits across time and space'. The Legatum Institute (2014b) describes it in this way: 'more than just the accumulation of material wealth, it is also the joy of everyday life and the prospect of an even better life in the future.' Similarly, Shah (2012) (relative to the Legatum definition) notes that the relevance of the varying essential aspects of prosperity can be considered differently by different people: some might consider the more social and subjective aspects of it more relevant to their wellbeing than the economic ones.

The above perceptions reveal the diversity of the concept. The relevance of space or environment, for instance, is only implied in the outlooks of Shah (2012), Legatum Institute (2014b), Ellin (2013), and the UN-Habitat (2013a). There are, in the course of narratives also, subject specific (economy, theology, philosophy, ecology etc.) discussions on principles that should dictate the pursuit of prosperity in the urban realm – for instance in Ikerd (2013) and Olson (2000). The discussions in this section so far reveal two key aspects of prosperity: (1) it is a relative concept of a progressive nature that concerns tangible and intangible contexts, in which case, (2) a dynamic framework is essential to understanding and capturing it; moreover, as seen in the above discourse and 5.3.2, even explanations for economic prosperity seem to encompass other non-economic but relevant aspects of life like knowledge and environmental response. These are key analyses in the research to understanding prosperity and considering the role of slums in it and will be referred to later in the thesis. The complexities associated with the idea of prosperity notwithstanding, endeavours to capture how prosperity is manifest and can be improved in societies are ongoing and involves various global and local organisations. One of the ongoing prosperity assessments by the UN-Habitat provided a framework for a slum-city prosperity analysis that highlights the potential for a beneficial partnership between slum and city prosperity improvement.

5.4 Outlooks on assessing city/urban prosperity

With the idea of prosperity being progressively developed, the appropriate assessment of prosperity, one that informs an approach to monitoring, policy, and practice for cities/nations is also being reviewed. For the UN-Habitat (2013a, p. 13) – the adage was 'what gets measured [properly] gets done.' Cities capacities to sustain individual and collective wellbeing (see section 5.2.1) and improve it is used to assess their stance on prosperity. For the organisations (including the UN-Habitat) engaged in these endeavours, it implies objectively measuring the conditions of or situations regarding relevant urban contexts, using these as prosperity indicators. There are variations of indicators that these organizations consider useful in assessing prosperity through assessments of general wellbeing and include the social and environmental (even when it is only implied in general perceptions of the concept)

contexts in addition to economic (table 5.1). This research includes, amongst examples, ongoing outlooks on measuring wellbeing.

Table 5.1: Some initiatives to measure prosperity by organisations. Data source: (DEFRA, 2013; Harrison et al., 2016; Legatum Institute, 2016, 2014b; UNECE, 2013; UN-Habitat, 2016b, 2016c, 2013a)

Measures of prosperity	Indicators used
National Wellbeing Accounts Index <i>New Economics Foundation UK</i>	Subjective and psychological wellbeing (vitality, resilience, self-esteem, happiness etc.), social wellbeing (interaction, participation, appreciation, activities, benefaction).
Sustainable Development Index <i>Department for Environment, Food and Rural Affairs</i>	35 indicators that include economic, social and academic, and environmental factors.
Prosperity Index <i>Regional Research Institute USA</i>	Economic prosperity to improve business: business, people, and business location
Sustainable Development <i>UNECE / OECD, and EUROSTAT</i>	20 thematic indicators for looking at past, present, and future wellbeing, and country structural policy effects on these: Subjective well-being, consumption and income, nutrition, health, housing, education, leisure, physical safety, trust, institutions, energy resources, non-energy resources, land and ecosystems, water, air quality, climate, labour, physical capital, knowledge capital, and financial capital.
Legatum Prosperity Index <i>Legatum Institute</i>	9 indicators within 3 categories: economic – business, economy entrepreneurship & opportunity; social – health safety & security, social capital, education, environment; institutional – personal freedom, governance.
City Prosperity Index <i>UN-Habitat</i>	62 indicators that measure: productivity, quality of life, equity, infrastructure, environmental sustainability, governance and legislation.
Human Development Index <i>United Nations Development Programme</i>	4 indicators organised within 3 dimensions with: long and healthy life – life expectancy at birth; knowledge – expected years of schooling, mean years of schooling; and decent standard of living – GNI per capita.

The United Kingdom’s National Wellbeing Account Index compiled by the New Economics Foundation UK’s assessment is based on personal, psychological, and social wellbeing measures of life satisfaction (Harrison et al. eds, 2016); while at the same time recognising the relevance of economic wellbeing. Similarly, the UK Department for Environment Food and Rural Affairs has wide-ranging wellbeing indicators. These are, however, also limited to the UK

context and are not structured under ascribed headings; rather, they include aspects like social capital, research development, and obesity greenhouse gas emissions, river quality, water use, air quality, land-use etc. (DEFRA, 2013). The Regional Research Institute, USA (United States of America) uses indicators of people, business, and business location to assess economic prosperity (UN-Habitat, 2013a). The UNECE / OECD, and EUROSTAT measures over sixty indicators set about twenty themes that include knowledge capital, subjective wellbeing, natural environment – water, air quality, climate, economic or financial capita etc. (ibid; UNECE, 2013). The Legatum institute (2014b) prides itself as the leading institute for assessing national prosperity about three categories as seen in table 5.1 – economic, social, and institutional. In 2016/2017, the organisation revised its methodology to include an environmental indicator in the social dimension (Legatum Institute, 2016). The varying approaches by organisations towards these assessments continue to highlight relative differences in perceptions of prosperity.

The UN-Habitat's (2016b, 2016c, 2014b, 2013a) city prosperity assessment is one of most recent and comprehensive measures of prosperity. They consider prosperity at the level of cities whilst recognising that local paths to progress can differ. They argue that cities need to engage functions that consider productivity as part of a wider framework that represents the quality of the system. Rather than singular indicators, they focused on analysing prosperity in five basic interrelated categories of urban contexts in 2013. Their own dimensions of prosperity, which include the following: (a) productivity – the city's capacity to grow economically and generate employment opportunities that support adequate living standards for the population; (b) quality of life – the extent of social services support for improving living standards that award people the space to maximize their creative and productive abilities; (c) equity – the city's capacity to distribute its services, physical assets, and productive gains equitably across its population dispersions; (d) Infrastructure – the city's capacity to deploy appropriate, efficient, and adequate physical assets and amenities for the population's sustenance and to support the economy's growth; (e) environmental sustainability – the city's capacity to function without degrading or destroying the environment. In 2015, the organisation revised its methodology to include a sixth dimension: (f) governance and legislation – the city's capacity to adequately sustain shared prosperity across all its contexts through effective regulatory and standardization frameworks that ensure strong institutions and civil participation. Other wellbeing measures include the Human Development Index,¹²⁸ which corresponds with productivity and quality of life of the UN-Habitat measure; and the Sustainable Development Commission, which argues for Redefining Prosperity in terms of

¹²⁸ <http://hdr.undp.org/en/content/human-development-index-hdi>.

material needs through social, psychological, and economic wellbeing indicators (Sustainable Development Commission, 2009; UN-Habitat, 2013a).

The six dimensions for monitoring cities' prosperity proposed by the UN-Habitat are broad subjects yet provide a structured way of looking at prosperity status through wellbeing indicators. They also seem to consolidate, to a certain degree, most indicators proposed by other institutions (for example those previously discussed by the New Economics Foundation UK, UNECE/OECD, and Legatum institute). Health, safety and security factors used by the Legatum institute for instance are indicators for quality of life in the UN-Habitat prosperity outlook. Also, the UN-Habitat's proposed prosperity framework looks at cities rather than regions and considers Developing country contexts. Hence, the thesis focuses on their prosperity measures to find a correlation for slums and prosperity and reinforce a valid engagement platform. However, the varying urban contexts that organisations look at to understand cities' stance on prosperity (that have been noted so far in this section) also highlight the potential for putting together applicable aspects that can be streamlined towards slum and urban improvement. This idea becomes relevant and is referred to later in the thesis.

5.4.1 Slums, low prosperity cities, and structural inefficiencies: a linear relation

In 2013, the UN-Habitat assessed and published a Cities' Prosperity Index (CPI) with the five dimensions proposed in that year: productivity, quality of life, infrastructure, equity, and environmental sustainability. This data covered 72 cities in both Developed and Developing Regions with a focus also on aiding them to design 'prosperity-oriented' city policies (ibid, p. 16).¹²⁹ The CPI analyses cities into six categories (the equity index was excluded for the initial analysis): (1) 'very solid prosperity factors', (2) 'solid prosperity factors – first category', and (3) 'solid prosperity factors – second category'. Cities in the above categories fall within Developed Region nations with only two Developing region cities second category, and three more in the third category. Other categories include cities with (4) 'moderate prosperity factors', (5) 'weak prosperity factors', and (6) 'very weak prosperity factors' all within Developing or least Developed Region countries. The UN-Habitat then outlines the broad characteristics that contributes to their prosperity status as shown in table 5.2 below.

¹²⁹ This has culminated in the development of the city prosperity initiative with more than 300 cities participating, see <https://unhabitat.org/urban-initiatives/initiatives-programmes/city-prosperity-initiative/>.

Table 5.2: The global city prosperity index of cities and their characteristics. Source: (UN-Habitat, 2013a, p. XIV).¹³⁰

Group (by prosperity factors – with 4 dimensions*)	Characteristics	Cities
Cities with very solid prosperity factors (0.9 and above)	<ul style="list-style-type: none"> • Strong integration of the five dimensions of prosperity. • High production of goods and services, strong economic fundamentals, high productivity. • Urban power functions, good governance, (urban planning laws regulations, and institutional frameworks) work fairly well creating safe and secure environments. 	Vienna, Warsaw, Milan, Barcelona, Copenhagen, Zurich, Amsterdam, Auckland, Melbourne, Tokyo, Paris, Oslo, Dublin, Helsinki, Stockholm, London, Toronto, New York
Cities with solid prosperity factors- first category (0.8-0.899)	<ul style="list-style-type: none"> • The dimensions of prosperity are connected, generating a self-reinforcing, cumulative momentum. • Relatively strong institutions, responsive legal and regulatory framework. • Large availability of public goods. 	Ankara, Mexico City, Guadalajara, Bucharest, Shanghai, Almaty, Sao Paolo, Moscow, Seoul, Prague, Athens, Budapest And Lisbon.
Cities with solid prosperity factors- second category (0.7-0.799)	<ul style="list-style-type: none"> • Show less coordinated ill balanced development in the spokes of the wheel of urban prosperity • Institutions, legal and regulatory frameworks and urban management practices are undergoing consolidation. 	Casablanca, Cairo, Manila, Johannesburg, Jakarta, Cape Town Beijing, Yerevan, Kyiv, Bangkok, Amman
Cities with moderate prosperity factors (0.6-0.699)	<ul style="list-style-type: none"> • Wider discrepancies within the five dimensions of prosperity. • Institutional and structural failings. • Less balanced development. • Neat divide between rich and poor. 	New Delhi, Yaoundé, Guatemala, Ulaanbaatar, Phnom Penh, Nairobi, Mumbai, Chisinau, Tegucigalpa
Cities with weak prosperity factors	<ul style="list-style-type: none"> • Production of goods and services is still too low. 	Lusaka, Dar es Salam, Harare, Dakar, Addis Ababa, Lapaz, Accra, Lagos, Kampala, Dhaka, Kathmandu, Abidjan

¹³⁰ Highlights and italics added by this researcher.

(0.5-0.599)	<ul style="list-style-type: none"> • <i>Historic structural problems, chronic inequality of opportunities and widespread poverty.</i> • <i>Inadequate capital investment in public goods.</i> • <i>Lack of pro-poor social programs.</i> 	
Cities with very weak prosperity factors	<ul style="list-style-type: none"> • <i>Dysfunctional systems, institutional failings.</i> • <i>Sluggish economic growth.</i> • <i>Widespread poverty and destitution.</i> 	<i>Monrovia, Conakry, Antananarivo, Bamako, Niamey</i>
(below 0.500)	<ul style="list-style-type: none"> • <i>Post or on-going conflict countries.</i> 	

*Excluding the equity index.

The UN-Habitat (2013a) further propose the conceptual Wheel of Urban Prosperity (figure 5.2) to highlight cities' status regarding the five factors of prosperity. Furthermore, even though it is rare for cities to achieve a balance among the five dimensions of prosperity, there is still a need for strong, appropriate and sustainable policies and implementation (ibid). In 2015, the organization conducted another CPI assessment of sixty cities, this time across the six dimensions including governance and legislation. Once again, there was a distinct pattern in the dispersion of cities amongst the six categories; a bit direr in fact, with Developing Region cities generally performing moderately, weakly, and very weakly.

It is possible to understand the UN-Habitat's concern for slums (along with other urban contexts) challenging the ideals for city prosperity (see section 5.2) by analysing City Prosperity Indices (CPI) of cities with weak prosperity and their slum population growth. However, this analysis also highlighted the potential for a prosperity outlook for both slum and city.

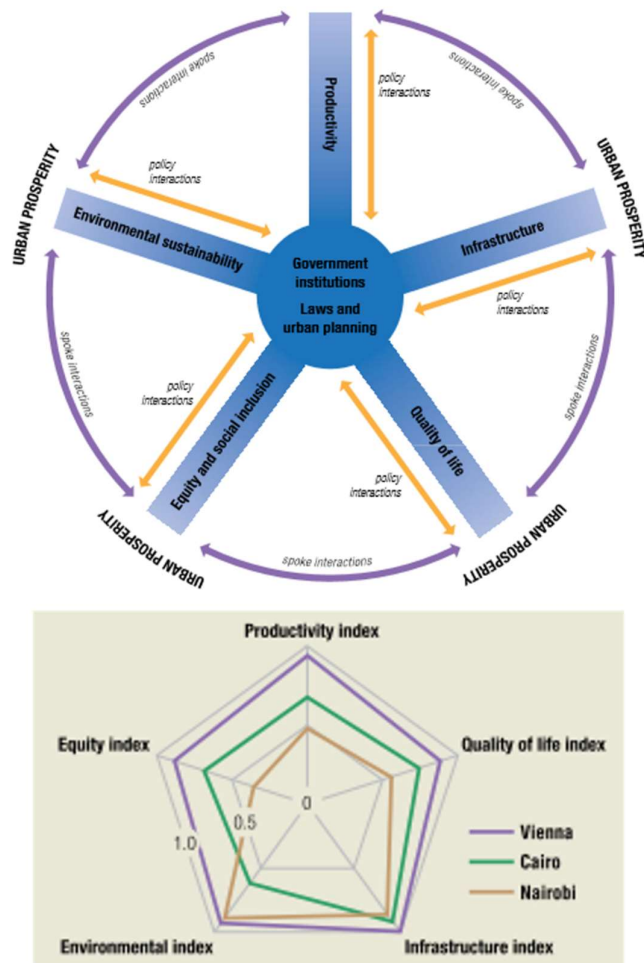


Figure 5.2: (Above) the wheel of urban prosperity proposed by the UN-Habitat, and (below) an example of an applied wheel for three select cities. Source: (UN-Habitat, 2013a, pp. 12 & 24).

The UN-Habitat collate slum populations at country level. An analysis between CPI and slum population growth shows that cities in countries that have experienced increases in slum population between 1990 and 2009 are accompanied by overall weak or moderate prosperity indices. Summarily, however, this trend is associated with the cities' overall approaches to slum management and the characteristics that contribute to their low prosperity assessments. As seen in table 5.2 above, the cities with weak prosperity are characterised by aspects that include low production of goods and services, historic structural problems and institutional inefficiencies, inequality of opportunities, with poverty and lack of pro-poor social programs (UN-Habitat, 2013a). For UN-Habitat (ibid), these characteristics of the cities are further expanded by aspects that include poor governance and weak institutions, corruption, weak infrastructure, low social capital etc., including slum growth (see section 5.1).

The challenges to managing slums include institutional inefficiencies, lack of and unclear programs on poverty, non-inclusive approaches that focus on capital rather than social gains,

and all associated with a lack of comprehensive understanding of slums and their social dynamics (see section 1.1 and 3.1.2). These challenges are in principle characteristic of the above-mentioned impediments to cities' prosperity, especially lack of pro-poor social programs, poor governance, and weak institutions. For Marx et al. (2013) and Tannerfelt and Ljung (2006), misguided ineffective policy, practice agendas, and legal frameworks substantially influence diverse increasing patterns of slum growth in Developing Regions. For Rakodi (1997) the rises in poverty populations, especially in African states, is coincident with decline in the effectiveness of institutions to manage cities. Whilst all these aspects can necessarily impede all six interrelated dimensions of prosperity, they are strong indicators of the lack of equity and governance (see section 5.4) (UN-Habitat, 2013a).

In the 2013 UN-Habitat CPI index (table 5.2), there are twelve Developing Region cities with 'weak prosperity factors' (category 5) – Abidjan, Kathmandu, Kampala, Lagos, Accra, La paz, Addis Ababa, Dakar, Harare, Dar es Salam, and Lusaka – having indices that range from 0.5 to 0.59 across four dimensions. These include productivity, quality of life, infrastructure and environmental sustainability (figure 5.3). Equity was excluded from this result. From amongst these cities, Harare and Dhaka are used as example to simply show how cities approach to slums can be associated to and may be influencing their stance on prosperity – a depreciation in the case of Harare, and improvement for Dhaka.

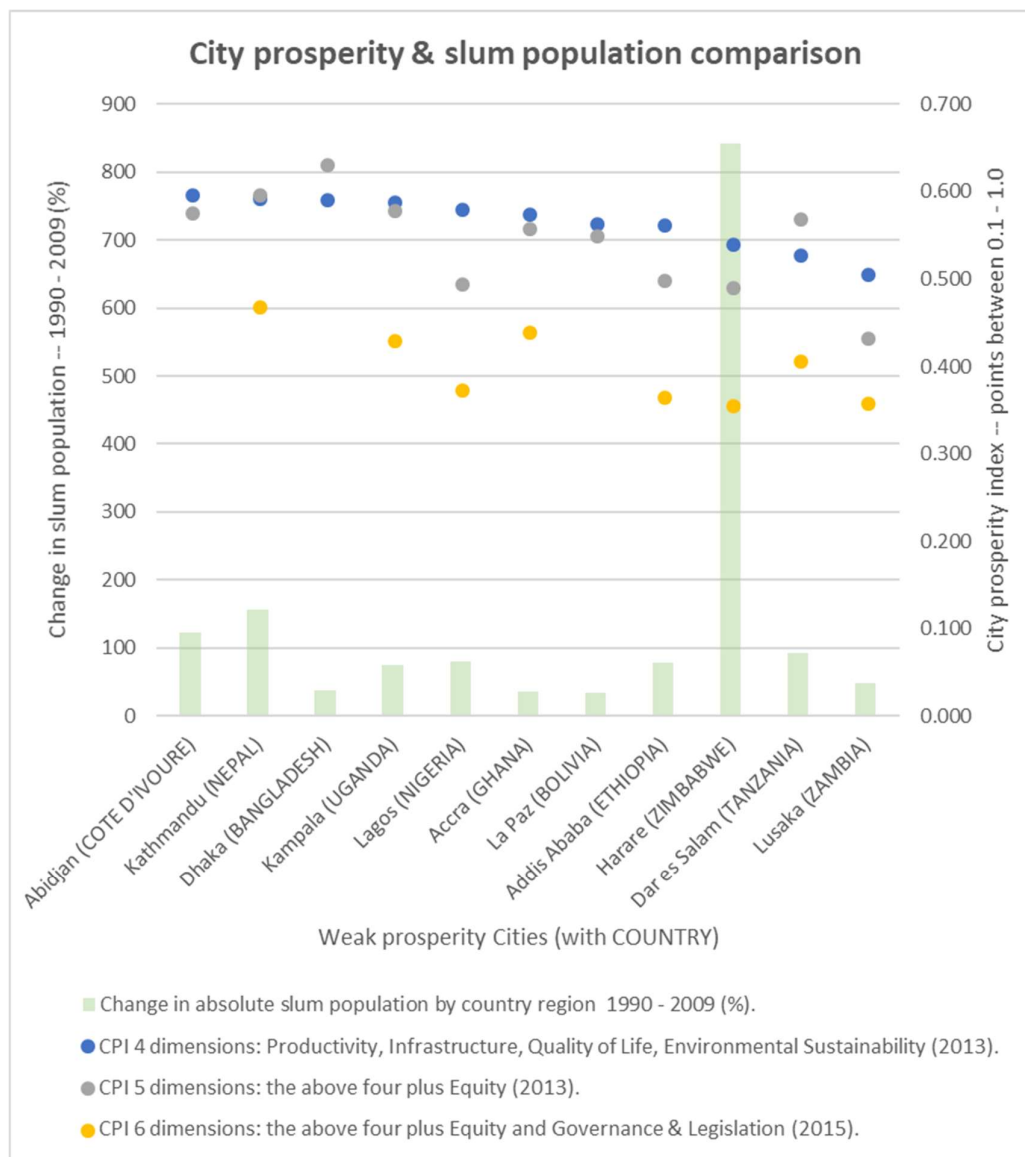


Figure 5.3: City prosperity index for cities with weak prosperity and change in absolute slum populations for their countries between 1990 and 2009. Data source: (UN-Habitat, 2016b, 2013a).

5.4.1.1 Example 1: Harare

Harare is the capital of Zimbabwe. The country slum population rose by over 800% between 1990 and 2009, with a 20% rise between 2005 and 2007 alone (UN-Habitat, 2013a). This rise is generally attributed to implementation of extreme urban and slum management activities in Harare; in 2005, the government undertook a series of clean-up campaigns that saw the displacement of over 700,000 people from homes and sources of livelihoods (Arimah, 2010b; Chinaka, 2006). It was hypothesized that demolitions were a political backlash for poor election turnout. This may have contributed to continued slum development as people who were left homeless resorted to further squatting (ibid). The campaign also affected the lives of

a further 2.4 million to varying degrees and the destabilization of the informal sector (then accounting for 40% of employment) (ibid). All these aspects will impact on productivity, quality of life and may have contributed to Harare's CPI index.

As seen in figure 5.3, Harare has one of the lowest CPI – 0.542 – amongst cities categorised with 'weak prosperity factors' across the four dimensions listed above in the 2013 assessment. In the individual analysis (across the four dimensions) that consolidate to generate this index, measures for infrastructure and environmental sustainability were highest, each at 0.864. The programmes of demolition further impeded civil participation and efficient and inclusive management, these are aspects of governance and legislation, and equity (see UN-Habitat, 2016c). For Muchadenyika (2015), promoting inclusive governance culture and institutional capacities is needed for slum management in Harare. For the UN-Habitat (2013a), activities that lead to further slum growth directly impact equity (and because prosperity dimensions are interrelated, all others are affected). When equity assessment was added to Harare's prosperity, its CPI plummets to 0.493, and then to 0.357 when governance was factored in 2015 (figure 5.3).¹³¹ This highlights the possibility that Harare's approach to slum management, which inadvertently influences further slum growth, also impacts its stance on prosperity.

5.4.1.2 Example 2: Dhaka

Dhaka is the capital city of Bangladesh. It is one of the poorest, fastest urbanizing, and densely populated cities in Asia, and the ninth largest city in the world (Ahmed, 2016; Burdett and Rode, 2011; UN-Habitat, 2013a). Bangladesh on the whole experienced an absolute slum population increase of 37.7% between 1990 and 2009, one of the lowest in this group. Dhaka itself is estimated to have 30% of its 14million population living in slums in the past decade (Ahmed, 2016; Habib, 2009). Slum management in Dhaka has also seen its fair share of evictions, and difficult tenure conditions that are made worse by gang-lord landlords, making slum improvement by both slum residents and agencies difficult (Ahmed, 2016). The inclement weather in Bangladesh also contributes to the plight of the urban poor and slum growth – especially urban fires and floods (ibid).

There has been, however, some key urban improvement engagements in Dhaka slums by government and agencies in the past decade (Ahmed, 2016; Habib, 2009). These include the following: Urban Partnerships for Poverty Reduction, water aid, United Nations Development Programme, coalition for urban poor, Habitat for Humanity, and the Dhaka City Corporation.

¹³¹ The measures used in UN-Habitat (2016b) are unified in 'hundreds' – 0 to 100, unlike when the analysis was conducted in 2013, which was in 'units' from 0.000 to 1.0.

There is much potential for further improvement in slums that is also offered by the Bangladeshi government's urban improvement policies on climate, amongst other urban issues (Ahmed, 2016). All these activities can substantially contribute to improving the interrelated dimensions of prosperity, especially equity (see UN-Habitat, 2013a). As seen in figure 5.4, Dhaka has a CPI index of 0.593 captured across the four dimensions of productivity, infrastructure, quality of life, and environmental sustainability. In terms of individualised measures (across the four dimensions), infrastructure and environment are highest at 0.637 and 0.627 respectively, which are higher than most. When the equity measure was added, Dhaka's CPI shoots up to 0.633, which is highest in the group;¹³² the city was not included in CPI assessment in UN-Habitat's index for 2015 that measured governance. For the UN-Habitat (2013a), were Dhaka to manage its equity aspects even more effectively, the impacts to its growing enterprise and marketing industries (of which the informal city contributes substantially) and financial industries will be remarkable. This analysis also highlights how the urban approach to managing slums and disadvantaged sectors of the city can potentially impact their stance on prosperity.

The analysis discussed in this section highlight challenges that cities need to overcome. Conversely, however, it indicates the potential for a slum-prosperity programme partnership.

5.5 Slums and cities' prosperity: a potential for combined improvement

Whilst the above analyses between slum development, its management, and cities' stance on prosperity is substantive, it does highlight the potential for prosperity improvement strategies, or rather endeavours to pursue it, to go in tandem with slum management. As noted, the challenge for Developing Regions lies in the effective management of urban and slum populations within the wider framework of sustainable urbanization (Tannerfelt and Ljung, 2006; UN-Habitat, 2013a). What's more, cities, the UN-Habitat (2013a) further argues, are best placed to deal with the challenges of urbanization and foster prosperity that is shared and felt by all the population. It is, however, necessary for them to calibrate effective urban management approaches that balance diversity, connectivity, and physical integration at a human scale (ibid). Exploring the potential to engage slums and the city within a common progressive platform for prosperity could serve to do just that. At the same time incite and augment current slum management practice and policy towards better effective and proactive strategies.

Notably, however, whilst much improvement has occurred (and is still ongoing) regarding more contextually appropriate indicators in the pursuit of progress and prosperity (see section

¹³² Dhaka was not included in CPI assessment in UN-Habitat's index for 2015.

5.4), these are many, varied, involve specialized empirical analysis on a broad scale, and may not all necessarily apply to slums. Nonetheless, and from a basic and more simplified perspective, they help provide a categorical structure with the potential to relate to any comprehensively defined slum; moreover, 'the most useful place to start when considering [...] aspects of prosperity is with measures that already exist, but which have not previously been brought together' (Bate, 2009, p. 3).

5.5.1 Dimensions to engage slum prosperity: people, wider environment, management structures

The broad framework of productivity, quality of life, equity, infrastructure, environmental sustainability, and governance and legislation used for measuring and assessing cities' stance on prosperity (which encompass other institutional wellbeing indicators) when looked at closely, is essentially concerned with three interactive real-life aspects: (1) people, (2) wider environment: natural and man-made, and (3) management structures for both people and environment. For the thesis, the above aspects are valid dimensions within which to develop contextually appropriate indicators to operate within in the broader pursuit of slum improvement relative to cities progress or growth; it is also a simpler yet structured approach to learning from the UN-Habitat's broad framework. The boundaries between the proposed dimensions should be considered as permeable interfaces with overlaps. This is because people live with and within environments, which affect and impact people and vice versa (Gifford, 2002).

This dimensional overview for streamlining improvement towards prosperity is also simpler because it can be corresponded to the slum character. The Slum Property Map (SPM) proposed in Chapter 4 is set to identify and capture relevant aspects of slums within a comprehensive slum property map. This framework for defining slums is built from philosophies that look at capturing what things are as they exist in the world. It highlights the interactions and dependencies between the physical and environmental, and the organic and social (see section 4.2). Hence, it is possible to draw correspondence between the slum, through the SPM, and the dimensions to engage improvement towards prosperity (figure 5.4). This correspondence is deduced and posited from the analysis of the broad overview of slums that the cognitive categories of slum properties in the (SPM) help to develop (see section 4.2.2 for the definition of the categories of slum properties). This correspondence between the slum and the three dimensions should also be considered permeable with overlaps – in addition to reciprocal impacts between people and environment, properties that are about people can be supported by descriptions of the wider environment and vice versa – as seen in the following discussions:

About people: Productivity focuses on contexts that look at how people are being supported by the system economically, the opportunities available for them, and how they are contributing towards such progress; quality of life focuses on the supports that people are getting towards improving personal capacities and subjective wellbeing, and standards of living; while equity focuses on the extent to which people have access to other tangible and intangible assets that support wellbeing and their secured participation in the scheme of development. This focus is also reflected in the indicators used by other institutions shown in table 5.1, for example, social wellbeing, subjective wellbeing, education, health, knowledge capital, personal freedom etc. All the above contexts are in one way or another concerned with people and their personal and collective interrelations, which are supported by the physical man-made and natural assets. From a broad overview, all the categories of slum properties that compile the SPM also explore contexts that are in one way or another about people their interrelations and interactions. These include the following: name properties, place properties, functional properties, procedure and agency properties, structural properties, process properties, personality traits of slum community, and behaviours of slum community.

About the wider environment: Infrastructure on the other hand is basically focussed on looking at urban contexts that are man-made and physical in relation to the environment, and how efficient, adequate, and appropriate they are; while environmental sustainability is focused on the quality of the environment in terms of supporting wellbeing and also its maintenance. The focus on the wider environment is also reflected in other institutional indicators shown in table 5.1 that include energy resources, air quality, water, housing, and physical safety. This dimension can also be considered as permeable and associated with people. People live within and use these to support endeavours. Productivity can be used to enhance the efficiency of the infrastructure as well environmental sustainability which also needs to be equitably distributed to the population; quality of life, for the UN-Habitat (2013a) forms the nexus of all prosperity dimensions – improvement in other dimensions of prosperity will improve quality of life, while improvement in people’s quality of life will exponentially impact positively on others. Categories of slum properties that can correspond with the environment include place properties, structural properties, procedure and agency properties and process properties of slum.

About management structures: The inclusion of measurement thresholds for governance and legislation in urban contexts is owed to a general awareness that an efficient management structure is necessary to sustain both people and environments in the city if prosperity is to be achieved. In the UN-Habitat’s (2016b, 2013a) consideration for environmental sustainability, management also plays a key role. Regulatory frameworks are, however, designed and managed by people for implementation by people. Hence, as much as aspects of governance and legislation and sustaining environment seem stronger in terms of management structure,

the potential to engage all other dimensions should not be disregarded. Another aspect of this dimension is how endeavours to assess and scale cities/nations pursuits of prosperity serve as a monitoring platform to find best ways to position cities towards achieving it, as discussed in sections 5.4 to 5.4.1. The published results are keenly followed by urban discourse and policy architects at both city and national levels. With regards management structures for both people and environments therefore, the categories of slum properties that can correspond to this dimension include the following: name properties, place properties, functional properties, procedure and agency properties, structural properties, process properties, and behaviours of slum community.

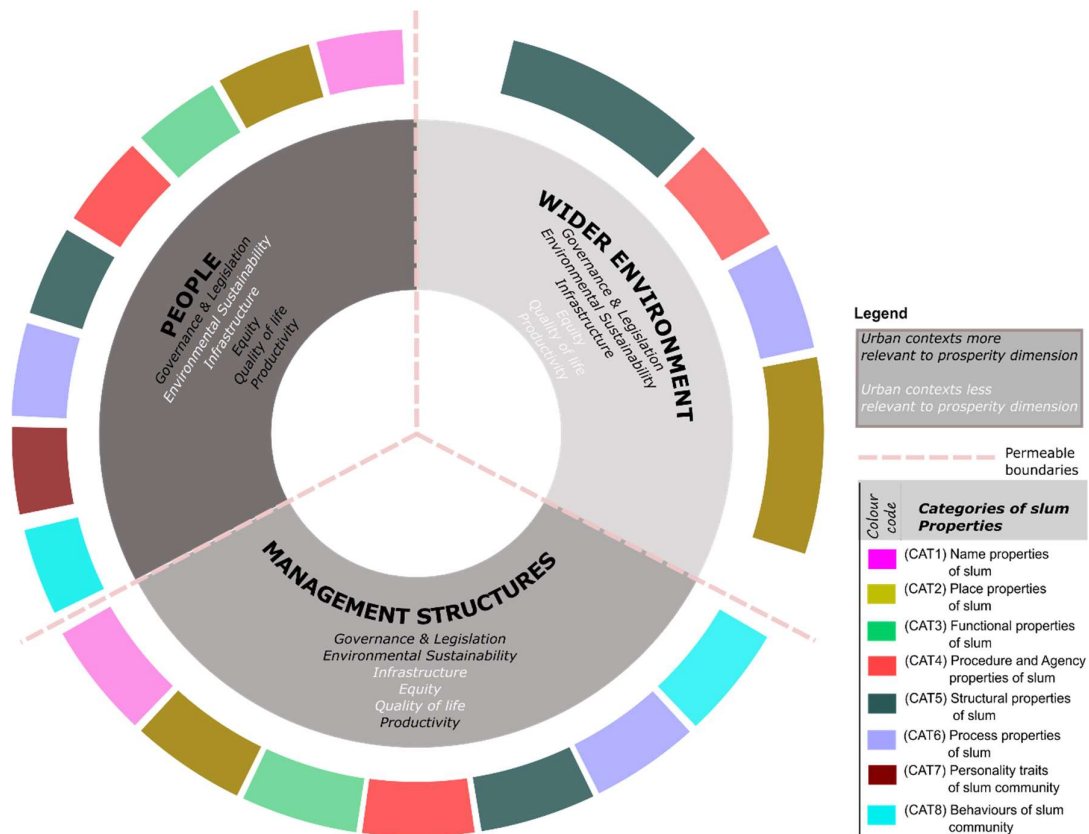


Figure 5.4: Dimensions to engage in slum improvement towards prosperity. Source: Author.

The above analysis and position are taken to consider and streamline slum improvement towards prosperity relative to dimensions of people, wider environment, and management structures. However, this approach is only a first idea/step. Notably, a standard and accepted interpretation of prosperity is still lacking (see section 5.3); for this thesis, any approach for slum-prosperity is only relevant in view of a detailed and operative clarification of prosperity, without which the pursuit remains limited. Hence, the questions remain for this thesis: what does it mean to prosper – the process of it? Can slums contribute towards this ideal? While there was still no fast answer to the first question, rather (as concluded in section 5.3.3) the

potential to conceive it within a dynamic framework of knowledge, there is, nevertheless, much potential for contributing to the second.

To date, approaching slums in relation to prosperity has not been given due consideration by scholars (see methodology section 2.3). However, because cities economic and political, social and cultural, and urban management development structures are in fact focused on prosperity (see section 5.2), the potential for slums to contribute to these aspects of cities' growth and their prosperity does exist. At the vanguard of this position is a set of growing arguments that show positive aspects of slums, and the potential for their inclusion in the wider framework of city development. These are discussed in the next sections 5.5.2 to 5.5.4.

5.5.2 Slums as prosperity resource partners: social, spatial, natural, and material capital, adaptability and resilience

Historical analysis of slums reveals just how complex they are (see Chapter 3). However, it has also revealed that in a bid to support livelihoods a degree of industriousness, resourcefulness, innovation, and entrepreneurship are a characteristic qualities of slums (Neuwirth, 2005). These qualities include the following: (1) sometimes-strong social capital. Neuwirth's (ibid) narration shows how slum communities developed strong social bonds and networks that could organise for aspects like tenure, improvement works, recognition etc. (though sometimes unsuccessfully). (2) Resourceful and innovative homes and spaces. People found ways to build their homes with what they could find – tomato cans, construction debris...; they would construct the houses to suit their conditions, the climate, and the need to move fast; or, they would organize self-labour and incrementally develop their settlement. (3) Enterprises and material capital. Neuwirth (ibid) narrates how slums, from times BC to 19th century New York were a beehive of enterprise. Men, women, and children saw the opportunity for trade, agriculture, and industry in the varying conditions they lived in and within the cities – waste, livestock and nature, and services opportunities. (4) The above also show a degree of adaptability, flexibility and perseverance in the attitude of slum dwellers and how they respond to the environmental, economic and political dynamics of the wider city in order to maintain their lives and livelihoods.

The records of the industrious natures of slums and social capital continues in the slums of the new Developing Worlds in the early 20th century, and also in the present-day Developing Region slums. Neuwirth (2005), Hamdi (2010, 2004, 1995), Turner (1968, 1976), Hernandez and Kellett (2010), Kellett and Napier (1995), Bigon (2008), Biswas-Diener and Diener(2001), Leitão (2008), UN-Habitat (2016a, 2003a), and Brand (2010), are only some of the relevant literature that show examples of these particular nature of slums. Their discussions reveal even more advanced contexts of the housing solutions and contributions to housing improvement, with materials and sourcing, booming trade and social enterprises, industries,

and material capitals that also serve the wider city. A few examples found in literature include: a local women's piggy bank society that developed in a certain slum, but expanded into a tailor-made local bank with over 100 branches and 6000 members in slum settlements within 18 districts, attracting more than \$7million in savings (Hamdi, 2004); also, there is Dharavi's booming textile industry that finds its way into high end stores beyond the Mumbai city, its recycling, and furniture industry etc. with an estimated \$500million/day and \$30billion/year value (Bhide, 2013; Echanove and Srivastava, 2010; Hahn, 2012; "India," 2017; Jacobson, 2007); the potters activity and trade in Dharavi are a vital aspect of Indian traditional Diwali celebrations city-wide, and the pots are a key aspect of Mumbai's culinary trade (Kapoor, 2017).

Other positive qualities of slums include strong social and cultural identities and networks (these can extend to other parts of the city), leadership and community structures, and a robust knowledge of things that are social, environmental, and economic. Colin Ward in (Turner, 1976, p. 7) earlier noted:

It is clear that the poor in some (though by no means all) of the exploding cities of the third world, often have a freedom of manoeuvre which has been totally lost by the poor of the decaying cities of the rich world, [...] they have nothing to depend on apart from the machinery of welfare. [...] But in the unofficial, informal sector of the economy of 'cities the poor build' in Africa or Latin America, [...] 'lateral information and decision networks' enable them to draw on resources that the rich nations have forgotten about.

These same qualities of slums were also evident to this researcher during informal discussions and observation with some members of the Garki village community in Abuja (see Appendix II to the thesis). More examples can be cited here to show slums' potentials to contribute to their own and city improvement. However, this discussion will be better substantiated through valid arguments for recognising the robust nature of slums and using these as resources in urban development that are formed from research or direct/indirect experience.

5.5.3 Arguments for slums as contributors of social, spatial, natural, and material capital, adaptability and resilience

Some urban professionals were consulted in the research process to corroborate research arguments being formed (see methodology section 2.1, and appendices I, and IV). For these professionals, there are rich social cultures, connections, and organizational structures in slums that can partner to support and accommodate any form of physical or other improvement. For Abegaz (2014), and Fortuno (2012), in addition to the cited literatures in section 5.5.2, the social qualities of slums as well as their history, social and spatial heritage

are real contexts for slum programs and policy that should not be disregarded. For Pugh (2000) and Alcantara (2012) also, little advocacy has been awarded to harnessing the rich culture evident in slums during their management, and towards contributing to cities' development (see Altman and Chemers (1980), and Leavis and Thompson (1960) for more on people's culture as a vital aspect of urban development). This also reinforces Uduku's (1994) position on how urban and low income (including Non-Governmental Organizations) communities' cultural approach to area improvement and self-help strategies are relevant to the development and preservation of cities' social infrastructures.

The urban professionals consulted in the research process (see Appendix IV) also highlight the need to identify and harness the robust spatial character and innovation that can be found in slums, in addition to their enterprise. For Brand (2010), the spatial and mixed-use densities, creative and innovative building and land development techniques, and incremental processes in slums should be appreciated. Slums reflect organic human settlements; similar positions are taken in Fernandez (2011), Echanove and Srivastava (2010), and Porta et al. (2014). Brand (2010) further notes that learning from these qualities of slums can actually save our planet from the extremes of urbanization; slums are highly green communities (despite unsanitary conditions) due to the sometimes-minimum use of construction materials, transport energy, recycling, and low scale industries (ibid). What's more, the vast informal capital generated by slum communities have the potential to add to cities' growth (ibid).

Similarly, for Hernandez and Kellett (2010), slums and the informal sector (enterprise, services etc.) associated with them play a vital role in the support of cities and contribute a great percentage to the economy in addition to building innovation (see also Bhide, 2013; Sugam and Patnaik, 2017; UN-Habitat, 2013a, 2003a). Rahul Mehrotra (2010), in his forward, further stresses the need to reframe discussions on slum urbanism:

[...] beyond the humanitarian dimension (of empathising with the city of the poor) to look at its value as a crucible of innovation, adaptability, flexibility, resistance and several other aspects that will inform the broader discourse on urbanism in general are obvious pointers for design. However, in order to make a more substantial connection to understand and inform contemporary urbanism, the binaries that have come to define the terms of this debate (rich and poor, formal and informal, centre and periphery, third and first worlds) be dissolved. [...] to reframe the debate about the informal would sustain this innovative form of urbanism and its seamless integration into the discussion of contemporary urbanism. It is with this shift that the informal city will be seen not as a condition that needs to be remade but rather as a contagious phenomenon that actually remakes and humanises cities.

In other words, the vast resources found in slums should not only be acknowledged but put to good use as well in the broad quest for progress. There are, furthermore, several explicit arguments for slums to be considered as relevant role players in the development and even prosperity of cities, some of these are discussed in the next section.

5.5.4 Arguments for slums as partners towards city improvement and prosperity programs

For Bertinelli and Black (2004), and Tannerfelt and Ljung (2006), the continuous process of urbanization (which cannot be stopped) is an opportunity, rather than a challenge, for populations (including those of slums) to consolidate and strengthen economies (see also Cohen, 2004; Hardoy and Satterthwaite, 1986; Harris, 1988; Ncube, 2012). Economic development, productivity and urbanization respond to each other in a linear way. Bertinelli and Black (2004) go further to develop a dynamic urbanization model that shows how limiting the number of people in cities, or those that can contribute to it, will slow economic progress and lead to a development trap. Rural-urban migration (especially in Developing Regions) and the negative externalities of urbanization can be countered by investment in human capital, technology, infrastructure, and the sustainable spatial distribution of populations (ibid) (figure 5.5).

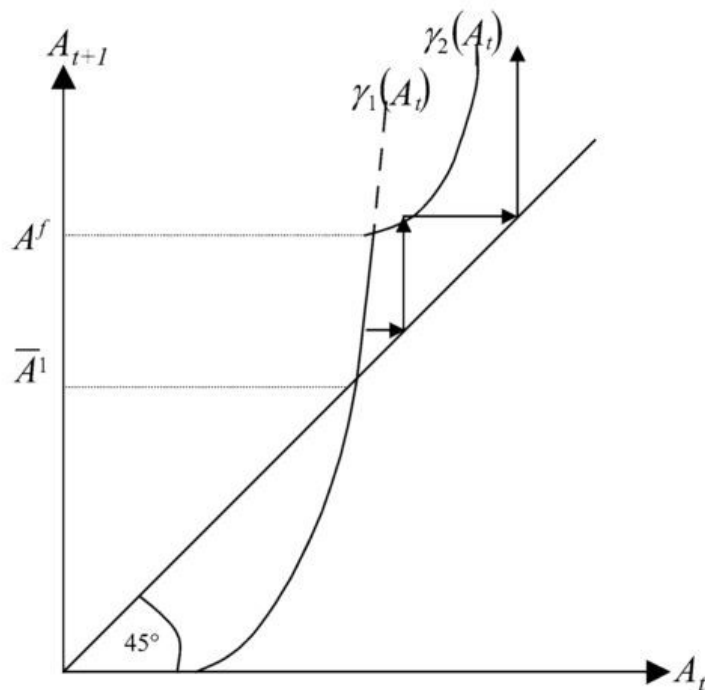


Figure 5.5: Model for unbounded urbanization and economic growth. Source: (Bertinelli and Black, 2004, p. 90). A^f is the point of partial urbanization with low human capital investment, with continued rise in the

number of people migrating it reaches a point A^f , which is still a point of partial urbanization. However, with the continued rise in the number of people migrating and sufficient investment in human capital with commensurate level of technology (y) (and their contribution to it), full urbanization occurs at the point A^f and continues forever (A_t to infinity).

Some of the literature directly advocates that slums and their management should be an active stakeholder in city development, not beneficiaries of top-down programs. For Hamdi (2010, 2004, 1995), it is important for slum intervention to be designed based on qualities of the slum without disregarding their negative challenges, and with a view of impacts on the wider city. Pugh (2000) also recommends the inclusion of squatter settlements' regeneration within holistic city planning, where it will have a greater probability of being sustained socially, economically, and environmentally. In the same vein, Abubakar (2013) also recommends that urban renewal plans¹³³ should be implemented to improve slums within comprehensive policy plans, where the appropriate institutions work interactively throughout design and implementation.

Similarly, other literatures show a common theme for re-assessing and re-energizing the equilibrium of cities (through aspects like financial equity, infrastructure, and human capital enablement) to improve poverty and reduce slum prevalence in cities. This includes Hutton (2002), Satterthwaite (2003), UN-Habitat (2013a), and Arimah (2010a, 2010b). Weiss (2001), with a direct focus on city prosperity, proposed a 'metropolitan economic strategy' as policy approach for engaging poverty populations¹³⁴ in creating their own prosperity. In practice, organisations charged with slum management, like the Surat Municipal Corporation (2017) and the UN-Habitat (2016a), highlight the need to recognise slums in the city and their contributions to labour, markets, informal productivity; with continued streamlined work, slums can potentially contribute to cities' prosperity and the sustainable urban agenda. Also, for some of the urban professionals (with whom this researcher had informal discussions), there is the potential for slums to become integral to city growth and even prosperity – only if, these officials assert, certain more socially strategic, target focused, and knowledge-based approaches are implemented (see Appendix I and IV to the thesis).

5.6 Conclusion: approaching slums in relation to prosperity

The aim of this chapter was to present discourses in a way that relates slums, cities, and prosperity. This was done by first exploring the hypothetical platform that associating slums and prosperity can present as a path of engagement for both slums and cities. This review and

¹³³ This was done in the Nigerian context.

¹³⁴ Note, Weiss (2001) does not directly refer to slums per se but poverty populations in suburbs.

analysis helped to define research tasks towards fulfilling the second research aim of re-interpreting slums as stakeholders in city prosperity.

Slums, in current discourse are considered as a continuing challenge to cities' prosperity. Prosperity is broad with varying perceptions, and a standard conception is still a work in progress. However, there is potential to develop an understanding of it as prevailing perceptions indicate it is a relative concept that can be conceived within a dynamic framework of knowledge. Despite the lack of standardization of what it means to prosper, however, organisations and nations continuously seek to streamline and monitor cities'/nations' systems towards pursuit of prosperity. There are several global and localised prosperity monitoring platforms that exist, among which the UN-Habitat's provides a broad framework for relevant urban contexts that are measured to show cities'/nations' stance regarding it. Interestingly, while cities with low prosperity are also those with high regional slum incidence, the pattern is inconsistent for Developing Regions but consistent with city systems having inefficient and ineffective slum management policy and practice.

The analysis indicates that there is a potential to streamline slum improvement with prosperity progress of cities. This can be designed within a framework for improved conditions across areas of prosperity that can match the character of slums as per dimensions of people, wider environment, and structures that manage both – but, only within a meaning of what it means to prosper. There also exists vast capital resource potential in slums that can support their engagement on this path. These possibilities do not remove the fact that (negative) challenges do exist in the slum. They are, however, valid indications to further positive outlooks and advocacies for slums within a relevant (and city specific) framework that comprehensively reflects the realities in these places, contributing to this emblematic shift in urbanism.

The SPM was proposed in Chapter 4 as a framework to comprehensively capture properties that describe slums – highlighting social, spatial, physical contexts that can be both positive aspects and negative challenges – and thus define them. The task that follows for this thesis is therefore to propose an overview of what it means to prosper. The rationale was to develop a theory for prosperity as a goal that is progressively pursued in a relative and dynamic way (see section 5.3). Subsequently, the aim will be to use this meaning to guide a practical and model approach for the analyses and enhancement of slums' prospects of becoming role players in prosperity – in themselves and the wider city. Hence, the next chapter proposes a theoretical model¹³⁵ for prosperity, in general, and in the slum.

¹³⁵ A model is a simplified description of a process or system (Oxford living Dictionaries, 2016a).

Chapter 6 Pursuing prosperity: a theoretical proposal

A house I once lived in came with a potted grape ivy. [...] During the two years I lived there, it never changed shape or sprouted a leaf. [...] It became emblematic for me of so many places that while they may be surviving, are clearly not thriving.'

Nan Ellin, 2013¹³⁶

Introduction

This chapter proposes a theory for what it means to prosper: it describes it as a process which can be pursued so that slums enhance their prosperity and not inhibit it. It follows from arguments in the last chapter that there is potential for a slum-prosperity framework and a need to have a theory that can explain what it means to prosper and for slums. The quest for prosperity is a progressive human endeavour based on some objective that needs to be attained; it can be relative and dynamic. The proposed theory is built on Theories of Human Motivation and Needs, and human development and needs (Maslow, 1943; Max-Neef, 1992). The chapter first briefly analyses human motivational behaviour and explains how this thesis sought to build from a recent proposal for it and the outcome: an account for prosperity as a two-stage process that involves development and thriving. Development is discussed first, along with how the process of fulfilling needs centred-goals is linked to a wider context of lived spaces and relevant outcomes. While discussing thriving, we find that prosperity entails a more resilient process than merely attaining set goals. Overall, the theory for prosperity posits an operative meaning, in addition to a substantive definition. It also helped to develop a platform for an actionable framework for slum and prosperity that will be proposed in the next chapter. It is envisaged that this conceptualization of prosperity could potentially serve as a stimulant for future attempts to standardize it.

6.1 A focus on human motivational behaviour and needs: a platform to engage prosperity

The potential for a framework whereby slums' improvement can contribute to prosperity and overall urban progress depends on an operative understanding of the concept of prosperity. The thesis sought to develop a theory that will explain what it means to prosper, and it was synthesized from other valid relevant propositions in research and literature (see methodology section 2.3). For Hawking (1988), Creswell (2009), and Wacker (1998; in Udo-akang, 2012) a

¹³⁶ (Ellin, 2013, p. 1).

theory is useful for forming a representation of the real world or an aspect of it. Also, for establishing relations to other concepts, gaps, or new avenues for research (Moustafa, 2009). It is a construct or a proposition, or an interrelated or mutually dependent sets of these.

There seem to be arguments about the usefulness of theoretical frameworks when several are developed relative to a particular phenomenon, as this makes them somewhat arbitrary in nature (Rapoport, 1985; in Moustafa, 2009). Moustafa (2009), however, counters that theoretical frameworks need to objectively fit existing evidence from other theories, after which those more superior will fit and integrate evidence better than others. Hence, despite many differing views about what constitutes a theory (Udo-akang, 2012), discourses on its nature suggest that it should be able to rationally explain a phenomenon (from valid observations with very few arbitrary elements), provide an analysis framework, be predictive and serve as a heuristic, and thereby stimulate further research development (ibid; Hawking, 1988; Creswell, 2009).

This theoretical approach for an operative meaning for prosperity is in line with other valid propositions that seek to provide an understanding about complex urban concepts with a view of improving effective urban practice. Some examples include: Moustafa (2009) – a conceptualization for neighbourhood sense of community; Institute for Studies in Global Prosperity (2016) – a theory on global social order towards prosperity (in development);¹³⁷ Garmestani and Benson (2013) – on principles of reflexive law to enhance city resilience; Seeliger and Turok (2013) – on a framework of adaptive governance to enhance slum resilience; and Wong (2015) – arguing for a comprehensive and coherent conceptual framework that will improve the United Nations Habitat's CPI index and its indicators in an incremental manner.

To develop the theory for prosperity, the thesis focuses on the two ongoing realities about the perceptions of prosperity summarised in the last chapter as a basis: the first is that (1) it is a goal-focused human endeavour, of a progressive nature, and second (2) it is relative and dynamic in nature. To begin to grasp what it means to prosper, therefore, it is necessary to look at motivational behaviour, which is a vital aspect of our inherent self-expression as humans.

For centuries, philosophy has been engaged with investigating and capturing the essence of human existence and charting its practical progress. Spirkin (1983, p. 1) asked: 'what is a human being?' in response, he explains that the human being or person is an integration of

¹³⁷ At the time of review, this proposition was not yet concluded. The researcher aims to keep up to date with this research outcome in the future.

biological, organismic and personal, inherited, natural (with nature and environment), and social qualities, and qualities and aspects which are acquired in life (ibid). Acquisition of things in life involves a continuous interaction between the human and the outlined human qualities and is relative to the pursuit of goals or objectives – bringing into context ‘motivational behaviour.’ For Spirkin our ultimate goal is social development, which requires creating the appropriate conditions for self-expression (ibid). Understanding the motives that guides the pursuit of goals requires an understanding of needs and how they award potency to such goals (Deci and Ryan, 2000). This in turn includes social and spatial developments and leads to the theory for ‘Human Motivation to Fulfil Needs’ from which this thesis finds ground for understanding what it means to prosper. In an economic perspective, a precedent to this idea can be found in an earlier argument by Patten (1902). For him, the review of the economic prosperity philosophy and practice to address social decline and unhappiness/misery in the urban has to do with adjusting priorities to create enduring satisfaction or pleasure for persons through their use of goods, rather than seeking to increase the production of goods.

The theory for human motivation to fulfil needs, in modern discourse, starts with the proposal by Maslow (1943).

6.1.1 An overview of human needs and Maslow’s philosophy about their satisfaction

There is a wide glossary of needs related to human motivation, the most prominent of which are the basic needs (Doyal and Gough, 1984; Gil, 1992; Hartley, 2010; Oxford University Press, 2010). Basic needs are innate to every individual and refer to what are required for basic survival and the avoidance of harm (ibid). The concept of basic human needs has been involved in urban discourses as far back as the early 1900’s (see Oxford University Press, 2010), but they were not theorized until the middle of the century. This development was owed to two conceptualizations of human motivation and needs published in the field of psychology. One of these was by the American psychologist Abraham Maslow (1943) with a proposed ‘Theory of Human Motivation’ as a ‘general dynamic theory’ that discusses motivational behaviour as the channel for the satisfaction of needs.

This thesis finds the proposal by Maslow to be a platform of engagement for understanding the human motivational behaviour involved in pursuing needs-centred goals or objectives. For Maslow, the satisfaction of needs occurs in a hierarchy of pre-potency where some needs appear when others have been satisfied. He proposes the five following needs domains (figure 6.1): (1) Physiological needs to sustain the body’s homeostasis and appetite to survive come first. For Maslow, when these needs are not satisfied, a person’s behaviour is driven by the need to do so before any other need can be pursued. Physiological needs are followed by (2) security needs, both explicit and implicit. (3) The love needs are indicative of affection and

belongingness, rather than sex, and widely analysed in psychology. (4) The need for esteem with regards to both oneself and that of society come next. (5) Lastly, there is the need for self-actualization, which is concerned with the achievement of some targeted personal specialty – ‘In one individual it may take the form of the desire to be an ideal mother, in another it may be expressed athletically,’ etc. (Maslow, 1943, p. 377). People that have attained gratification in this regard he terms as basically satisfied. However, he (ibid) notes the rigidity of this hierarchy of needs can at times not follow the same format due to varying aspects that include behaviours and the perception of needs potency.

Maslow’s theory sets the trend for prevailing research on human motivation and needs, whether in extension of it, or arguments and critiques regarding its limitations and the re-assessment of the concept of basic needs. For this thesis, one of such limitations has to do with the process of pursuing needs rather than their potency. If self-actualization is the pinnacle of the ‘needs’ hierarchy, then its outcome should ultimately encompass all others. However, it does not (figure 6.1). According to Maslow, self-actualization is also used in a limited fashion in the theory.¹³⁸ Another limitation includes how natural and man-made environments have not been taken into account, or the consideration of the role of people’s culture, ideals, and subjectivities in dictating responses to needs (Hayes, 1994). The conceptualization of needs is (still) interpreted differently and theoretically contested between disciplines (Hartley, 2010). Debates are not only concerned with critiquing and defending its epistemology and qualifying terms for it, but also about its subjectivity and objectivity (ibid).¹³⁹ The next decades after the publication of Maslow’s theory will see further research endeavours to propose more empirically standard or alternative theories (Alderfer, 1969);¹⁴⁰ one of these was by Maslow himself, suggesting a modification with regards to deficiencies and growth motivations (Maslow, 1962). One of the re-assessments of basic human needs and their fulfilment is by the economist Manfred Max-Neef (1992; 1991). It includes a more functional view of the concept.

¹³⁸ Later in life, Maslow, would engage himself with qualitative studies on people and self-actualization, trying to establish meaningful conclusions.

¹³⁹ Political writers reject needs concept as being socially relative or subjective, and social Marxists argue that needs are social constructions that are particular to societies (Doyal and Gough, 1984).

¹⁴⁰ Alderfer (1969) collates other proposals all focused on needs intensity that include (Barnes, 1960) – a two-step hierarchy of physiological and esteem, and belongingness, (Harrison, 1966) – a two-step model consisting of physiological-economic needs and a higher need of ego, and by (Hall and Nougaim, 1968) – an empirically developed theory that seemed to contradict the dictums in Maslow’s (1943) theory. Alderfer (1969) proposed an alternative theory – a threefold concept of existence, relatedness to other people, and personal growth or development. Other examples include human needs in open spaces and place meaning by Francis et al. (2012) and Salama and Wiedmann (2013).

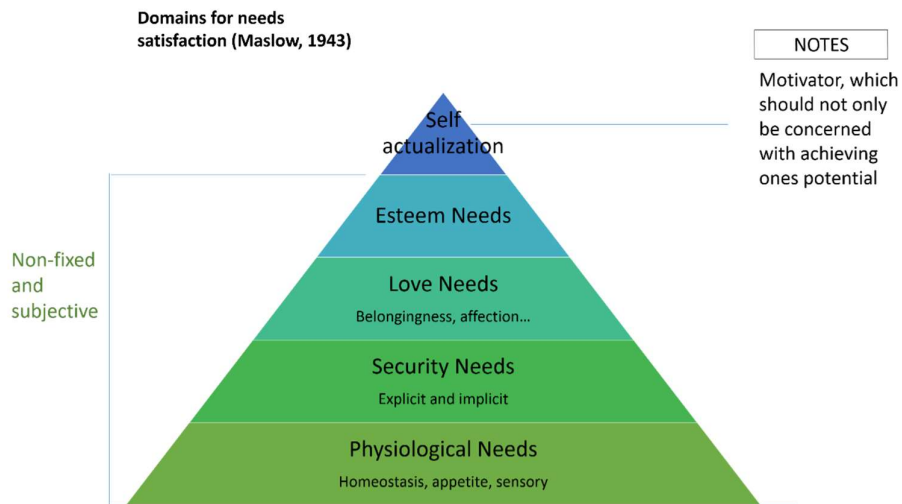


Figure 6.1: Maslow's scale of human needs with relevant notes. Adopted from Maslow (1943).

6.1.2 Finding a path for what it means to prosper: extending the needs-motivation process

The economist Manfred Max-Neef (1992) re-assessed and expanded on the concept of fundamental human needs with a pertinent focus on process and outcomes, rather than potency alone. As will be shown later in the chapter, his proposal seems to capture a theoretical aspect that Maslow (1943, p. 371) argued was important for a valid theory for human motivation – namely, how motivational behaviour can simultaneously focus on many basic needs. Here the thesis finds that Max-Neef's portrayal of needs ties in well with the analysis on the progressive pursuit of prosperity as a relative and dynamic endeavour; also, with the idea that these endeavours are as much about people and the habitation of environments as they are about the environments and structures set to manage both (Chapter 5). Indeed, without disregarding the basic specificity in which it is presented by Maslow (1943), self-actualization entails a more practical yet need-centred context. The thesis then finds further corroboration in the concept of productions of space (Lefebvre, 1991) and the ontology and cognition of things in the theory for the SPM (Chapter 4), as well as the concepts of dynamic sustainability and 'thriving' (Ellin, 2013), and resilience (Holling, 1973). The literature by Ellin, in particular, focuses on prosperity in the urban context.

On the basis of the above conceptualizations, a theory for what it means to prosper is proposed as a two-stage process of: (1) Development – where the fulfilment of needs implies a process that uses both contextual and operative spaces for beneficial change and further progress, and secondly, (2) Thriving – where Development is maintained through complex and time-conscious processes of existence towards prosperity. From this theory, the thesis also

posits a substantive definition of prosperity and the role of slums in the process of contributing to it. The next two sections 6.2 and 6.3 seek to expound on this proposal.

6.2 Development: the first stage towards prosperity and an existential model for living

Development represents the first stage towards prosperity. In this proposal, development occurs as an interplay of functionalities between our motivation to fulfil needs-centred goals, implementation of spaces in the process and its outcomes. This helps to provide a functional overview of the pursuit of goals. This is theorized in section 6.2.1. In section 6.2.2, the proposal takes the motivation to fulfil needs-centred goals into theories about space and shows how the process can be applied to real-world lived spaces, including the slum. The proposal then proceeds to capture the outcomes of the process and how it culminates in development in section 6.2.3. This is an essential aspect on the path to prosperity that allows it to become an active engagement framework.

6.2.1 Operationalizing the pursuit of basic needs-centred goals

For Max-Neef (1992), our needs as humans are structured in two parts – (1) the basic, value or axiological needs, which in this thesis will be referred to as basic needs, and (2) existential needs. The two needs interactively define how needs-centred goals are pursued in the process.

The basic needs, as for Maslow (1943), are those concerned with our nature, value and ethics. For Max-Neef, these include nine primary needs domains:¹⁴¹ (1) subsistence, (2) protection, (3) affection, (4) understanding, (5) participation, (6) creativity, (7) identity, (8) leisure, and (9) transcendence.¹⁴² There exists no apparent hierarchy to the motivations to fulfil these needs apart from the need for subsistence, which reflects the need to stay alive (figure 6.2). All the human basic needs exist in a simultaneous and complimentary manner with trade-offs interspersed (Max-Neef, 1992). An example by Max-Neef (ibid) is that breastfeeding an infant can simultaneously fulfil its need for subsistence, affection, protection,

¹⁴¹ Max-Neef (1992) also considers freedom as a need, this researcher, however, does not and perceives it not as 'being human' quality, rather a socio-cultural principle for pursuit of needs and living. Maslow also considers it as an objective of esteem, and an aspect of security, and it was also not included in the version of Max-Neef's wheel of needs developed by Verene Nicholas and Alastair McIntosh of the Scottish centre for human ecology. Also, supporting this view is a discussion by the sociologist Zygmunt Bauman ("Talk to Aljazeera: Interview with Zygmunt Bauman," 2017) on the importance of complimenting security with freedom – 'security without freedom is slavery, and freedom without security is chaos.'

¹⁴² Transcendence is included as part of the basic needs by this researcher. It was not explicitly proposed by Max-Neef, but he considered it in his discussions with Alastair McIntosh (footnote 97) (Max-Neef, 1992, pp. 203, 214), and was included in their version of the needs wheel.

and identity. For every individual, these needs are the same, finite, consistent, universal, innate, interrelated and interactive, but, nevertheless, attributable to human evolution (ibid).¹⁴³ The author (ibid) did not define these needs. However, whilst the aim of this thesis is to progress from needs context and explain how we set and pursue goals relative to them, it is also important to understand them for the application of the theory. Hence, the nine basic needs are defined by this thesis in box 6.1. The motivation to fulfil needs-centred goals is generally conducted relative to one or more of three milieus: oneself (personal), wider social relations/networks (or the collective), and the environment (wider man-made and natural) that we exist in (Ellin, 2013; Lefebvre, 1991; Max-Neef, 1992) (figure 6.2).

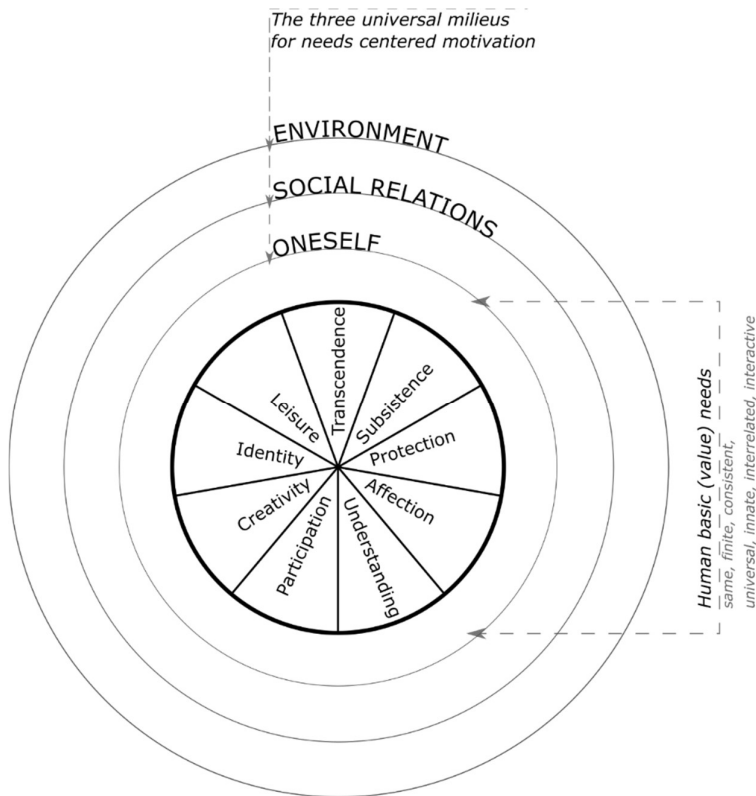


Figure 6.2: Basic human needs and the three milieus for needs satisfaction. Source: adopted from (Ellin, 2013; Lefebvre, 1991; Max-Neef, 1992).

The second type of human needs, the existential needs, are those through which we strive to fulfil basic needs relative to ourselves, our wider social relations, and the environment. For Max-Neef (1992), these needs are the four main domains concerned with our existence and include: being, having, doing, and interacting. These are the same and common to every individual irrespective of time, locale, or culture. The process of satisfying needs can be

¹⁴³ For Max-Neef (1992), this means that even though evolution changes at a very slow rate, other needs might with time, manifest and be universal to all humans.

exemplified thusly: for us to fulfil a basic need (e.g. subsistence), there are particular states we need to 'be in' (physiological, mental, and psychological), certain things we need to 'have' (tangible and intangible things, effects, institutions, mechanisms, tools, forms etc.), things we need to 'do' (passive and active actions), and third party 'interactions' that need to happen (between locations, time, and different social or social and environmental spaces). The tangible and intangible conditions and aspects of what we need to be, do, have, and interact with are known as satisfiers (ibid) (figure 6.3).

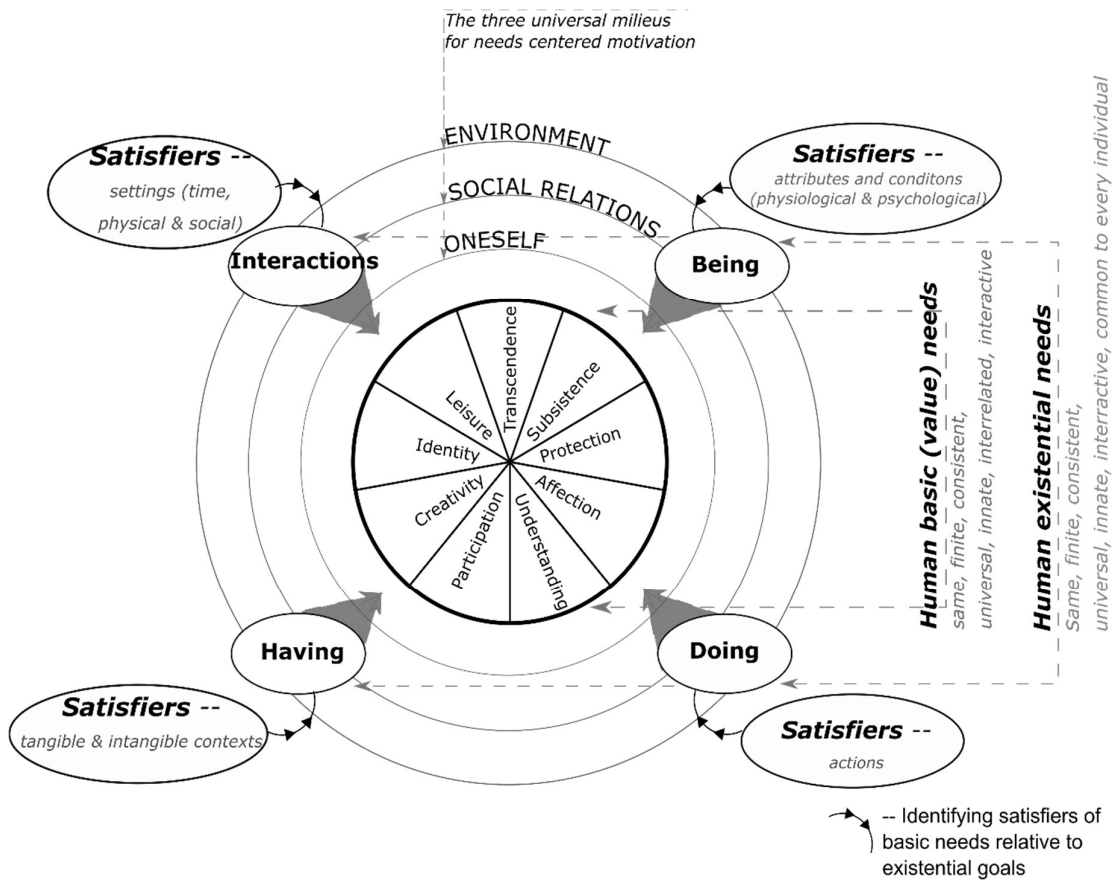


Figure 6.3: Existential needs domains that register satisfiers for fulfilling basic needs. Source: author.

The need for subsistence, for instance, with its physiological, social, and mental aspects requires elements such as shelter, food, sound mental and emotional health, activities that include work, feeding, sleeping, as well as interactions in social and physical environments that support these etc. Max-Neef (1992; 1991) proposes a matrix of existential needs and the basic human needs with examples of some necessary satisfiers for them (figure 6.4). These examples are especially useful for further understanding needs and what is needed to satisfy them. Satisfiers are variable and can be varied by time, cultures and aspirations, circumstance and social profiles; they can change in quantity and quality, with history, vogue, technology, wider social and physical environment, and therefore inexhaustible (Max-Neef, 1992). The

choice and use of satisfiers, therefore, reflects individuality and context – people use what they have that is applicable and available. The same satisfier can be used to satisfy several needs, simultaneously, or satisfy one need and by doing so stimulate the satisfaction of other secondary ones. At the same time, a need might require several satisfiers to be met. As such, we may surmise that there is no one-to-one relationship between needs and satisfiers, and they can perform active, latent, and catalytic roles. Max-Neef (1992) further expands on this discourse including how certain satisfiers can fulfil one need while inhibiting or violating another.

NEEDS	Being (qualities)	Having (things)	Doing (actions)	Interacting (settings)
Subsistence	physical, emotional and mental health	food, shelter, work	work, feed, procreate, clothe, rest/sleep	living environment, social setting
Protection	care, adaptability, autonomy	social security, health systems, rights, family, work	Cooperate, plan, prevent, help, cure, take care of	Living space, social environment, dwelling
Affection	respect, tolerance, sense of humor, generosity, sensuality	friendships, family, relationships with nature	share, take care of, make love, express emotions	privacy, intimate space of togetherness
Understanding	critical capacity, receptivity, curiosity, intuition	literature, teachers, educational and communication policies	analyse study, meditate, investigate	schools, families, universities, communities
Participation	adaptability, receptivity, dedication, sense of humor	responsibilities, duties, work, rights, privileges	cooperate, propose, dissent, express opinions	associations, parties, churches, neighborhoods
Idleness	imagination, curiosity, tranquility, spontaneity	games, parties, spectacles, clubs, peace of mind	day-dream, play, remember, relax, have fun	landscapes, intimate spaces, places to be alone, free time
Creation	imagination, boldness, curiosity, inventiveness, autonomy, determination	skills, work, abilities, method, techniques	invent, build, design, work, compose, interpret	spaces for expression, workshops, audiences, cultural groups
Identity	sense of belonging, self-esteem, consistency	symbols, language, religion, values, work, customs, norms, habits, historical memory	get to know oneself, grow, commit oneself, recognize oneself	places one belongs to, everyday settings, maturation stages
Freedom	autonomy, passion, self-esteem, open-mindedness, tolerance	equal rights	dissent, choose, run risks, develop awareness, be different from, disobey	temporal / spatial plasticity (anywhere)

Figure 6.4: The matrix of basic human needs, existential needs, and examples of satisfiers. Source: adapted from (Max-Neef, 1992, p. 11&12)

Contextualized satisfiers do not on their own enable needs to be satisfied, this happens when goods are harnessed and used. The goods thereby become resources (Max-Neef, 1992). For this thesis, satisfiers are the perception of contexts that are needed for needs satisfaction, whilst goods as resources are their operative manifestation – real-world contexts/assets. Hence, aspects that vary and determine our choice of satisfiers also apply to their operative manifestation (figure 6.5); the same is true for the roles that they can play in the process. Overall, the overview of the process of needs pursuit, needs, concepts of satisfiers and their manifestation perform a key role in the pursuit of goals and help explain a process that is inherent to people and how they conduct living – an existential process. However, the way it is explained through the above concepts – where goals based on requirements are envisaged

with necessary satisfiers identified, along with how these are matched with real contexts/assets that can be used – allows us to view the motivation to fulfil needs, a subjective and complex process (ibid), in an objective and functional way. As will be discussed in the following section 6.2.2, the perceived satisfiers and their manifestation are spaces, and social products as well as resources for human activity.

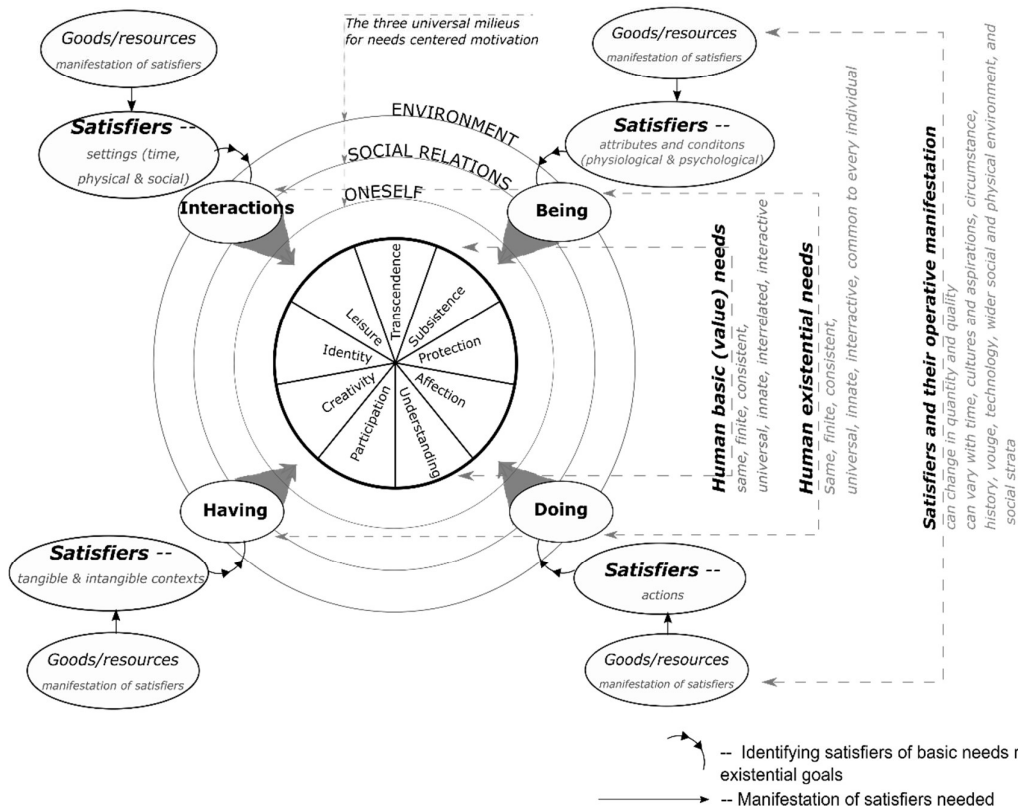


Figure 6.5: Human basic and existential needs, related milieu for needs satisfaction, satisfiers and their manifestation in the existential process. Source: author

Box 6.1: A proposed definition framework of Basic human needs: a compilation by this thesis. Source: author.

1. Subsistence: Derived from Latin 'subsistere', this is what is needed to stay alive at the basic minimal level, or to subsist (Cambridge Dictionary, 2016a; Sharif, 1986; "Subsistence," 2017; Yagisawa, 2014). Subsistence can be related to Maslow's (1943) physiological needs to maintain the body's homeostasis and fulfil its appetites. Homeostasis is concerned with the body's stable, constant, and normal chemical state, and appetite or hunger are developed by people when the body lacks the necessary elements to maintain it (ibid). The greatest share of subsistence pursuits is therefore geared towards satisfying hunger or thirst, shelter or clothing, and fuel all for self-preservation (Bertram, 2017; Sharif, 1986; Townsend, 2006).

However, other social and mental efficiencies are also recognized as necessary for subsistence (Sharif, 1986). People are social beings that associate with each other – parents, workers, partners, leaders – and perform various roles in their engagements (ibid). Activities or conditions for individual satisfaction rarely occur in isolation. Income is also seen as essential for the support of subsistence because it gives people command over their ability to maintain certain standard of it (Sharif, 1986). Since the 19th century, the concept of subsistence has been used to understand and work on poverty (Townsend, 2006). For mental efficiency, the ability to process information of sensory, motivational, emotive or other nature and be able to conceive and implement such information is a basic aspect of human functioning (Samsel, n.d.; Wesnes, 1987). Hence, activities like sleep, rest, leisure, maternal responses, and sensory experience (taste, smell, stroking etc.), can also become targets for subsistence fulfilment (Maslow, 1943; Sharif, 1986).

2. Protection: This describes the condition of being safe and secure from the occurrence of harm and persecution, threats of these, vulnerability to their effects and impacts, perceptions of their severity, and the probability of their occurrence (Cambridge Dictionary, 2016a; Polonko, 2010; Wikipedia contributors, 2017c). Protection can be related to Maslow's (1943) safety needs. Safety and security are tied to our physiological and sensory needs of subsistence – where one is able to provide for and sustain it (Heugens, 2010; Maslow, 1943). At the same time, physiological needs can be undermined when one is in need of safety (ibid) (as is shown by the ongoing Middle East and African migration to Europe through precarious land/sea routes). Social protection is also important, and when social services systems fail to protect people from harm it constitutes a lack of protection (Max-Neef, 1992). Maslow (1943) uses several examples (especially in children) to show how the desire to protect oneself from endangerment, as well as the reassurance of protection from the scourges of illness, death, non-protective or loving parents, are inherent human motivations. Safety, security, and invulnerability are associated with notions of stability and rights, justice, freedom, and the proper support for these socially, physically and with regards environment (Heugens, 2010). For Maslow (1943), persons will show a preference for contexts that are familiar and meaningful, insured, and secure, rather than for the unknown when making choices because these depict stability. With regards to freedom, he (ibid) notes that true freedom is necessarily based on adequate safety and security. Having control or power to limit irregularities in one's everyday situations also supports capacities for stability (Open Education Sociology Dictionary, 2017).

For example, Michael de Certeau notes a tacit difference between concepts of strategy and tactics: strategic control enables an environment that is predictable, tame, and limits variables, hence limiting irregularities; tactics on the other hand requires measures to be taken to deal with life variables (Buchanan, 2011).

3. Affection: This is concerned with the reciprocal conditions of love, devotion, fondness, or liking between people or living things, showing how much one cares about the wellbeing and happiness of the other (Cambridge Dictionary, 2016; Dalai Lama, 2007; Rhodes, 2007). Humans are overtly social creatures by nature, living and interacting with each other, and affection is a natural and essential part of this interaction (Dalai Lama, 2007; Rhodes, 2007). Affection is explicit and something that one tends to give or receive. Hence, reciprocity and belongingness are a vital characteristic of it and can be customarily characterised by restrictions and inhibitions (ibid; Maslow, 1943).

There are varying forms of affectionate love (Al-Khalili et al., 2012; Helm, 2017), for the ancient philosophers these include: (a) *Eros* is a sort of passionate love and desire or acquisitive love for another. This love is responsive to qualities like goodness, beauty, or reasons, and involves sexual desire between people. (b) *Ludus* is concerned with fooling around, flirting, or playful affection. (c) *Pragma* is a more stable and mature form of affection than *eros* and involves commitment, understanding, passion, compromise, and goodwill. (d) Self-love known as *philautia* is also important as it is necessary to care about yourself before you can care for others. (e) *Philia* is another type of deep but non-sexual intimacy concerned with respect, friendliness, or fondness towards family members, friends, business partners, associates, community members etc.; it too is responsive to qualities like goodness. (f) *Agape* is an unconditional type of love that does not respond to the quality of the other; rather, it is non-exclusive and seeks to create value – like the love for all humanity and the expression of god’s love. For Rousseau, another kind of love has to do with (g) compassion – *pitie*, the motivation to relieve the suffering of other people or creatures without compromising one’s subsistence (Bertram, 2017).

Emotions are a vital reflection of love but do not necessarily define affection. This is because emotions can be experienced implicitly and unless shown through the display of affection, can remain undetected (de Sousa, 2013; Rhodes, 2007). For Maslow (1943), reciprocal forms of love are intensely needed by people such that they will want to attain these more than anything else. The need for these in people is also something that sustains one even when one is advanced in age (Steverink and Lindenberg, 2006). Here for example, a stable marriage can play an essential role (Brake, 2016). Essentially, affection creates value in people and between people that is worthwhile as they enjoy doing things for and with each other (Helm, 2017; Homiak, 2015). The lack of or thwarting forms of love is known to be the core of maladjustment and psychopathology cases (see Maslow, 1943).

4. Creativity: Creativity is a mental characteristic; it describes the tendency to generate, invent, imagine, develop, identify, or recognize acts, ideas, possibilities, alternatives, novel products, concepts etc. that change an existing domain into something new, different, or better (Cambridge Dictionary, 2016a; Csikszentmihalyi, 1996; Franken, 1993; Weisberg, 1993; Wikipedia contributors, 2017d); it is considered one of central factors that distinguishes humans from other similar beings. Language, technology, artistic ingenuity, understanding etc. are all aspects of our creativity (Csikszentmihalyi, 1996). Motivations for creativity can be numerous but are often linked to person's ability to see alternatives that are unique to situations and link it to one's qualities of thinking, flexibility and adaptability and, most of all anticipation of the unknown (Franken, 1993; Weisberg, 1993). There are three domains that interact in the expression of human creativity: (a) the person(s) who applies intelligence, has the passion, and energy etc. in a certain domain, (b) the domain, which can be any symbolic discipline – arts, science, social related etc., which can be governed by systems and rules, and (c) the field, which consists of the people that assess, critique, teach, foster, and support effective creativity (Csikszentmihalyi, 1996; Wikipedia contributors, 2017d). For people, creativity can arise from an instance of insight, but the most creative accomplishments are those due to substantial effort (ibid; Weisberg, 1993), specialization, hard work and focus. It is also best fostered in stimulating environments and within domains with which the creator is familiar with (Csikszentmihalyi, 1996).

The outcomes of creativity are tangible and intangible products of value that may be useful for solving problems, conquering challenges, communicating ideas, values etc., communicating with ourselves, and achieving varied and complex forms of stimulation (Franken, 1993; Weisberg, 1993). Another outcome is the sheer life satisfaction and fulfilment that is achieved in the throes of creativity, one that gives clarity and richness to complexities (ibid). This can be associated with Maslow's (1943) self-actualization, where persons will tend to express themselves relative to a personal urge or a specialty they are fitted for. In theological theories, creativity is deemed a unique motivation of humans that reconciles religion and God's creation of humanity – where all was created where there was nothing (Culp, 2017; Frankenberry, 2011). For personalism theories, the centrality of the person is considered a combination of identity and creativity in association to other intuitive qualities that include subjectivity, objectivity, and causal activity (Williams and Bengtsson, 2016).

5. Understanding: To understand is a psychological process tied to knowledge of aspects of the real world, which remains a difficult and ambiguous concept to define (Changing Minds, 2016; Heick, 2012; Ip, 2003; Lim, 1999; "Understanding," 2017). Learning to know or knowing is not the same as understanding (ibid): while knowledge can be dispensed and assimilated by a recipient, it remains simply knowledge unless meaning is derived from it allowing one to explain it, interpret it, gain insight from it, cohere it to other propositional or objective understanding, and use it towards some purpose or goal (Heick, 2012; Ip, 2003; Lim, 1999; Pritchard and Turri, 2014). It is not knowledge or information that is valuable, rather the value that can be generated from it (Pritchard and Turri, 2014). To understand, therefore, is to learn meaningfully and is often, though not always, related to concepts of learning and other theories associated with it (Lim, 1999; "Understanding," 2017). For Heick (2012) and Lim (1999), understanding involves not only learning the procedures that underline a certain knowledge, but also the principles behind it. It defines a simple relationship between the learner and the content or object, which can be anything from the abstract to the physical – the weather, oneself, information etc.

Understanding is motivated by the need for clarity, and this relates to all aspects of one's existence. It enables one to develop greater control within (social, physical, and natural) environments for making informed choices, generalising insights to support rules, laws, associations, and intelligent activity relative to these, and gain social positions of expertise and authority (Changing Minds, 2016; Ip, 2003; "Understanding," 2017). In all it leads to valuable cognitive achievement (Pritchard and Turri, 2014).

For Kvanvig (2003; in Pritchard and Turri, 2014) understanding is factive, and one can possibly have an understanding of something and yet lack true belief in the proposition.

6. Identity: Identity is a psychological, biological, and sociological concept. It can be viewed from two scopes: (a) the person and (b) the person within the wider social and place context (see Oyserman et al., 2012; Shoemaker, 2015; Wikipedia contributors, 2017e). These are explained below:

(a) Person: this is as self-awareness of ourselves as human beings (ibid; Olson, 2015), it is a timeless quality and the psychological essence that makes us individually unique (ibid). In addition to what it means to have a self, dimensions that capture self-awareness include characteristics, traits, and roles that one considers and believes true in terms of the self, at various times and place(s) (ibid). This includes persons' memories and capacity to recollect overlapping past experiences that constitute a past, present contexts, and aspirations for a future (Shoemaker, 2015). Other dimensions include belief, ideals, intentions, desires, goals, similarity of character, gender, race, ethnicity, ancestry, cultures, religion, occupation, relationships, responsibilities, social class, and esteem (ibid; Oyserman et al., 2012; Wikipedia contributors, 2017e). Some of these can be more relevant than others – some occupational and social roles like being emperor or taxi driver for example, are contingent because one can exist without being them. The same cannot be said for being human or experiences (ibid; Olson, 2015; Shoemaker, 2015). Esteem is especially important to identity. It captures the implicit sense of self-confidence, self-adequacy, and freedom (Maslow, 1962; Max-Neef et al., 1991; Oyserman et al., 2012).

(b) Person within the wider social: all individuals are borne into a social unit or affiliated in one way or another to with social units and places; none is borne or exists in isolation. Wider social and place contexts are in some way responsible for some of the individual's identity – name, ideals, beliefs, responsibilities, personhoods, development, and dimensions we live (Oyserman et al., 2012; Shoemaker, 2015; Wikipedia contributors, 2017e). Hence, memberships in these wider social and place contexts and the shared characteristics, traits, and social roles, reputation, prestige determine identity overall. In all, the concept of identity is considered as a core to those of community and place identity (see Brown, 1987; Lewicka, 2008, 2005; Moustafa, 2009). Also, the formation of mental concepts, the roles and choices that person(s) make, as well as the review of consequences and actions taken are identity based (Oyserman et al., 2012; Wikipedia contributors, 2017e).

7. Leisure: There are three major concepts used to define leisure (Hurd and Anderson, 2011; Veal, 1992): there is (a) leisure as time that one has which is free from the obligation of tasks required for maintenance of self, or residual time that one has after all other basic needs of maintenance have been met. Essentially, this time is used constructively towards freely chosen passive or active activities of relaxation or idleness, enjoyment, diversion, personal or social development, healthy living, broadening of knowledge, or just to exercise creative capacity (ibid; Max-Neef et al., 1991). Hence, (b) leisure as

the activities performed is also used also to define it. These can include any context of the above-mentioned activities that are conducted during leisure time and provide opportunities for recreation, personal growth, service to others and/or elements in the environment (Hurd and Anderson, 2011; Veal, 1992).

Generating a list of prescribed leisure activities is difficult, however, because the perception of what is considered leisure can vary between people. As such, it is also important to acknowledge (c) leisure as a subjective state of mind (ibid). Here, the attitude towards the experience is based on certain perceptions (ibid): of freedom to act and participate without external constraint or control; of competence in terms of skills and ability to take on the challenge of the leisure activity; of positive effect, satisfaction, or enjoyment that is the outcome of an activity; and last but not least, is the motivation to participate in the leisure (ibid). For Cushman and Laidler (1990; in Veal, 1992), leisure for people is intrinsically motivated for its own sake and as a valuable end in itself.

In a similar discussion, public spaces are posited as important factors for leisure – for comfort, relaxation, passive and active engagement with others and the environment, and discovery (Salama and Wiedmann, 2013). These are aspects of leisure which can serve to bind social costumes, sense of cohesion, even financial gain. They are also important for the pursuit of creativity (ibid; Max-Neef et al., 1991).

8. Participation: Participation is a concept that can apply to various realms of existence – political, economic, community, architectural, democratic, etc. Its definitions are broad and sometimes unclear (Oakley, 1991; Rifkin and Kangere, 2001; Wulz, 1986). However, from varying positions on what participation means, it can summarily be described as voluntary contribution/collaboration, involvement, organization, cooperation, active influence, and deliberation across any realm of meaningful social activity with the aim of social and economic progress (Leydet, 2017; Oakley, 1991; Rifkin and Kangere, 2001; Sanoff, 2000; Wikipedia contributors, 2017f). It can also be described as the passive activity of receiving, sharing in, and accountability for the outcomes of these social activities (Rifkin and Kangere, 2001). For Wulz (1986), it suggests varying forms of decision making by the parties involved. He further posits that it can be in the form of recognition of one's (or people's) views, requirements, representative preferences (social, cultural, and physical), feedback and opinions, freedom of choice, the right to inform or influence, and ultimately make conclusive decisions.

Participation is considered a process rather than an outcome or a target to achieve (Oakley, 1991; Rifkin and Kangere, 2001). As a human endeavour, it is essential to people's autonomy of agency and freedom, self-awareness, self and social development and wellbeing, self-sufficiency, fostering interrelations, greater control and strength, and avoidance of social harm in societies (ibid; Dover, 2013; Festenstein, 2014). Autonomy itself is achieved when there is receipt of adequate information and understanding of the social environment within which one participates (Doyal and Gough, 1991; in Dover, 2013). It is also considered core to the convention of rights, and citizenship (Leydet, 2017; UNICEF, n.d.).

In another philosophical context, the mere ambition or motivation to participate in the reality of existence is in itself a degree of participation in it (Treanor and Sweetman, 2016). Additionally, active recognition of self and the productive pursuit of living (and needs) relative to ones capacities and within the wider social community is considered as social participation (Dover, 2013).

9. Transcendence: In dictionaries and literary usage, transcendence is described as exceeding one's usual limits, or existing, going, rising, or striving beyond one's physical or normal level of knowledge and experiences (Collins Dictionary, 2014; Hawkins and Allen, 1991; Merriam-Webster Dictionary, 2017). In theology and philosophical dialogues, however, transcendence has a much deeper meaning and is perhaps the most universal concept of all the basic needs.

Transcendence captures the concept of the divine god, who is both within and beyond, and surpasses and pervades limitations of the universe and existence overall, and also basic grasp of the human mind (Culp, 2017; Wikipedia contributors, 2017g). For Emmanuel Kant (ibid), this concept is the transcendent and is different from being transcendental. For Gabriel Marcel, transcendence should not just be posited as a mere 'going beyond' or the experience of the transcendent divine, rather a tension between what is in the material world in which we exist and that which is transcendent (Treanor and Sweetman, 2016).

Hence, transcendence is also used to capture how people exist. One's existence and nature as a human is defined just as much by the way he/she practically engages in living – cognitively and socially, for him/herself and relative to what he/she is – as they are by ontological factors that capture what he/she is at any time in the wider cosmos (Crowell, 2015; Treanor and Sweetman, 2016). The attitude of pursuing living and going beyond what is, toward what can be, is considered as transcendence and synonymous with being (ibid; Levine and Norenzayan, 1999; Thornhill and Miron, 2017; Wikipedia contributors, 2017g). In this way, self-consciousness, knowing, and experiencing the world and of things become interconnected.

This experience of transcendence is itself motivated by the urge to confront certain limitations, social situations, diversities, challenges, conflicts, and contradictions, or augment something that is amiss etc. (ibid). The human mind seeks to go beyond its limits towards new forms of comprehension from one progressive stage to another, evolving and surpassing what we are (e.g. sustenance or understanding etc.), in our situations and embodiment (ibid). This view of transcendence is less about what 'is beyond our comprehension and control, of the world, and more about living through it and the possibilities of our own mortality (Levine and Norenzayan, 1999). The possibilities of human transcendence is infinite and only limited by the human consciousness (ibid). The pursuit of this thesis, for example, can be viewed as the researcher's transcendental nature to surpass certain limits of knowledge.

6.2.2 Fulfilling needs-centred goals within context of lived spaces

Analysis of the concept of space and production of space is used to show why contexts/assets that we contextualize and operationalize to pursue needs-centred goals are in fact variations of lived spaces. From this analysis, we can link our goal centred-pursuits to all lived spaces, including those of slums. So, what is space, and what qualifies as space?

The idea or philosophies about space has gone through trends over the centuries. From its strict mathematical conceptions, space as absolute realm that contains all senses and everything else, to notions of experience and logic etc. One can learn more about these views, arguments and support from philosophies of Aristotle, Descartes, Leibniz, Plato amongst

others. For Lefebvre (1991) the review shows that conceptions of space so far, have not reconciled explanations for the mental realms of the person and expressions, the engagement with nature and the physical, and the practical everyday social living. So, for him, space captures all aspects of the world that has content or presence including the recesses of our mind and processes related to it, social spaces that capture societal living, and in the environment of the world. To support Lefebvre's (1991) outlook, Sadri and Sadri (2012) explore the etymology of 'space', to portray not just the physical form of it, but also in relation to activity, meaning and interactions: old Latin *Spatium* – the extent of width and length that is purely physical; also, as investigated by Heidegger, the ancient meaning of German *Raum* – a place that is cleared for the purpose of settling or lodging; old English/German *Buan* – the social acts of dwelling including mental processes of it, or the way we dwell on earth, and the old Saxon *Wuon* – to stay in place, to be, bring, or remain at peace. Other space etymology includes the Arabic *Makan* which derives from existence with strong social and mental relevance; the Russian *Mup* which both means space and peace; and the Turkish word *Barinma* which means to dwell.

Furthermore, spaces can also be considered as social products of our mental spaces and perceptual spaces (Lefebvre, 1991): the way we perceive and process knowledge of contents or the presence of things – conceive them – can be captured within a conceptual triad. The first part of this triad are our mental spaces (the ideal), which are the representational and symbolic expressions that 'we create about a space when we are [hearing, seeing, smelling etc.], [or] thinking about that space, or [...] representations that we produce about the [...] space in our minds' (Sadri and Sadri, 2012, p. 3). The second are our perceptual spaces, the way we decipher things and our life aspects that take part in it – our everyday societal living, culture, knowledge, behaviours, aspirations, interactions etc. The third are the conceptual spaces, which are the outcome of the mental and perceptual spaces and as such social products.¹⁴⁴ They embody our actions and thoughts, tangible and intangible conceptualizations of the real world, the ideal, physical, natural, social, and abstract spaces (including the naming and coding of things etc.); these are spaces of everyday discourses that we live with and within, modify and use in daily livelihood pursuits (ibid; Sadri and Sadri, 2012; Gifford, 2002). Lefebvre (1991) notes:

¹⁴⁴ According to Lefebvre (1991), the fact that space is a social product is concealed by two illusions: that of transparency and that of reality. In the illusion of transparency space becomes a clear place with natural space as a stencil where actions have free reign, activities in space lend a miraculous quality to thought and this incarnates in design leading to conceived spaces acting as a mediator between the mental space and the social activities. In the realistic illusion, we think that space is unquestionably real and just the context in which we carry out our daily livelihood activities. It is just there.

Space is not a thing among other things, or a product among other products: rather it subsumes things produced and encompasses their interrelations in their coexistence and simultaneity – their (relative) order and or (relative) dis order. It is the outcome of a set of operations, and thus cannot be reduced to a rank of an object. [...] social space is what permits fresh actions to occur, while suggesting others and prohibiting yet others.’ (ibid, p. 73).

This conception of space aligns with and provides another fresh outlook to the cognitive conceptualizations of the ontology of objects – the perception and representation of the real world to act within it (see Goldstein, 2015) (see section 4.2). All objects, including slums, that can be comprehended are, therefore, spaces; spaces supersede the rank of just objects (Lefebvre, 1991). Deductively, from the above conception of space, Lefebvre’s mental spaces correspond with the individual mind and how it cognitively functions to perceive, capture, and create representations of the real-world and objects being experienced. The perceptual spaces are the actual interactions and interrelations of the individual, and those which influence the experience of the real-world being perceived – biology, culture, knowledge etc. These aspects, as discussed earlier, also influence the choice of satisfiers to fulfil needs-centred goals. While the conceptual spaces, the lived spaces, are the embodiment of what the mind comprehends and can be cognitively identified and represented; the conceptions of lived spaces are evident in the context of satisfiers and their operative manifestation (section 6.2.1) – as such contextual and operative spaces.

From this analysis, we can surmise that the lived spaces, for slums, are those that can be identified and represented based on the cognitive framework of concepts that characterize the nature of objects (now spaces) proposed in the Slum Property Map (SPM) (see section 4.2). These include name, place, structure, functions, procedures and agencies, processes, personality traits, and behaviours. The cognitive framework listed can be mapped unto the contextual and operative spaces that are relevant in the process of needs-centred goal pursuit (figure 6.6). This is deduced and posited by analysing their definition and the cognitive overviews of objects, now spaces, and slums that they help develop. The contexts of ‘being’ – the physiological, mental, and psychological conditions/states we need to be in, and those of ‘doing’ – passive and active activities we need to do, can be captured within personality traits and behaviours of people. Whereas the tangible and intangible effects, institutions, mechanisms, tools, forms, conditions etc. contexts we need to ‘have’, and different social and/or environmental ‘interactions’ between locations and time can be captured within structure, functions, procedures and agencies, processes, place, and even names. It is these spaces that we perceive as necessary to fulfilling needs-centred goals and further register their presence, access or harness and use relative to the four existential needs.

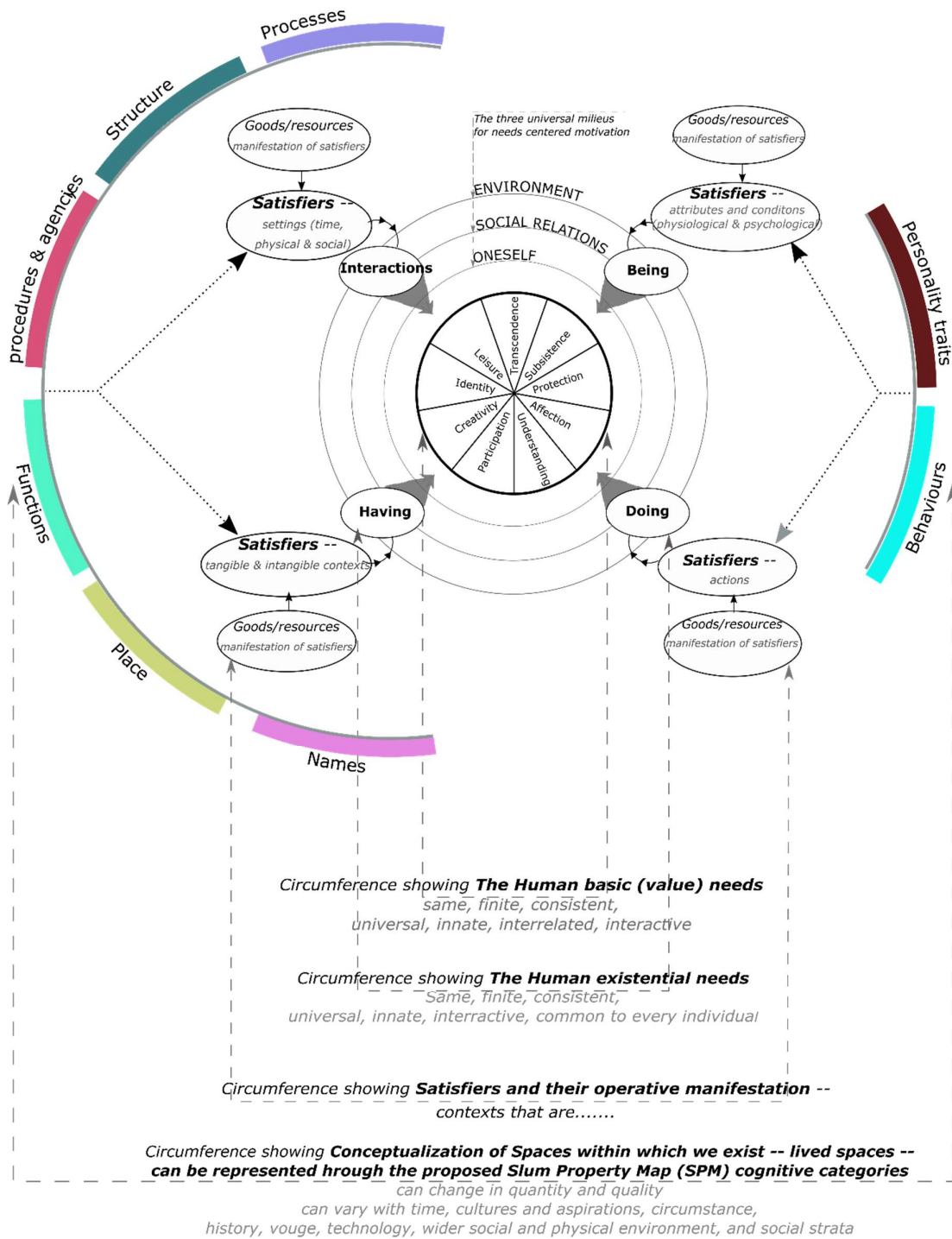


Figure 6.6: Conceptualization of lived spaces used in the human motivation to fulfil needs-centered goals.

Source: author.

An explanation can thus be summarised for the functional process of fulfilling needs-centered goals (with a simpler diagram – figure 6.7): needs-centered goals exist for people relative to selves, social relations, and wider environment. The process of fulfilling them – the existential process – is conducted by contextualizing and operationalizing lived spaces. These spaces

can be identified and captured through a cognitive framework of concepts that characterize the ontology of objects in the real world, which are conceptually spaces. For Lefebvre (Lefebvre, 1991), the spaces serve as tools for activity and thought, engagement, and even control, domination, and power.¹⁴⁵ In the philosophies of ontology and cognition, the cognitive framework of concepts that characterize the nature of spaces can be represented through properties that allow us to act relative to them. In this case, the way categories of properties that capture such concepts associate with one another – affecting/ influencing/triggering – will also be a relevant aspect to existential activities.

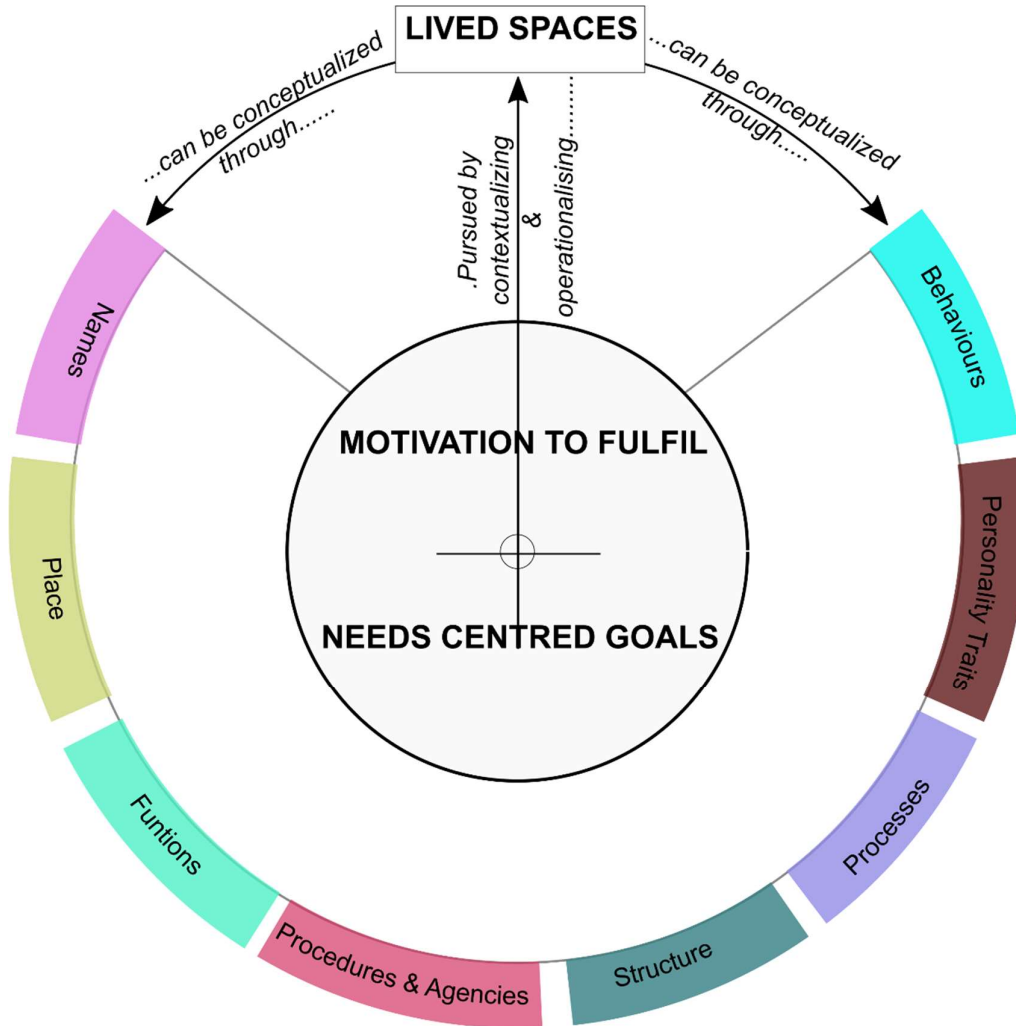


Figure 6.7: The motivation to fulfil needs-centred goals conducted through implementation of lived spaces including the slum. Source: author.

¹⁴⁵ He (Lefebvre, 1991), highlights that for Marx and Engels one can only award concreteness to the concept of production, when it answers the questions of 'who produces? What is produced? How is it produced? Why and for whom.

Inarguably, the basic and existential needs do exist in the slum, a place composed of people and their interrelations with and within their environments; and from the above analysis, the lived spaces used in the existential process, also exist in the slum and can be adequately represented through the SPM that allow us to operate within it. From previous analysis also, the slum spaces and their improvement can be structured about people, the wider environment and structures set to manage both (see section 5.5.1), thus becoming relevant within a standardised path for prosperity. In this theory for prosperity, however, the outcomes of the existential process and how these become relevant in the pursuit of progress is also important.

6.2.3 Outcomes of fulfilling needs-centred goals within context of lived spaces

The motivation towards and active pursuit of a needs-centred goals should basically lead to an outcome that satisfies such pursuit (Max-Neef, 1992). Here, we may assume that an ideal¹⁴⁶ process of needs satisfaction means that: spaces that are being considered as essential to fulfil need(s)-centred goals are appropriate, adequate, and accessible where they need to be harnessed, to the task of affording people the capacity to fulfil their goals. The existential process becomes efficient. When needs are satisfied, it means we have actualized our goal(s), attaining self-actualization (Ellin, 2013; Max-Neef, 1992). For Max-Neef (1992), attaining self-actualization causes development.

The definition of development varies across fields of practice and disciplines. Essentially, as a concept, it is the notable beneficial change that occurs from one condition to another more enhanced one in the systematic pursuit of certain objectives or goals (Hamdi, 2004; World Bank, 2004). For this thesis, the beneficial change happens when the goals being actualized leads to an improvement of conditions in the slum space (or any concept of space in fact) – a bridge between conditions of need and those of need being fulfilled. Hence, development is caused when all existential processes lead to self-actualization and provide benefits and improvement in relation to selves, social relations, and/or environment. What's more, it captures a comprehensive and efficient (and as such ideal) model for living and livelihood with and within our lived spaces (figure 6.8).

Development is proposed as the first essential stage in the theory for prosperity in slums, as well as showing a valid potential for attaining it, especially when it is sustained. But, to attain prosperity, there is another real-world element that is important to consider. For Ellin (2013),

¹⁴⁶ Precise, proper or suitable (Collins Dictionary, 2014)).

sustainability¹⁴⁷ (the principle of it) is not an end unto itself, rather, part of an infinitely dynamic process; this brings the concept of time in the progression to prosperity and an important factor for the second stage to prosperity hereby proposed, thriving.

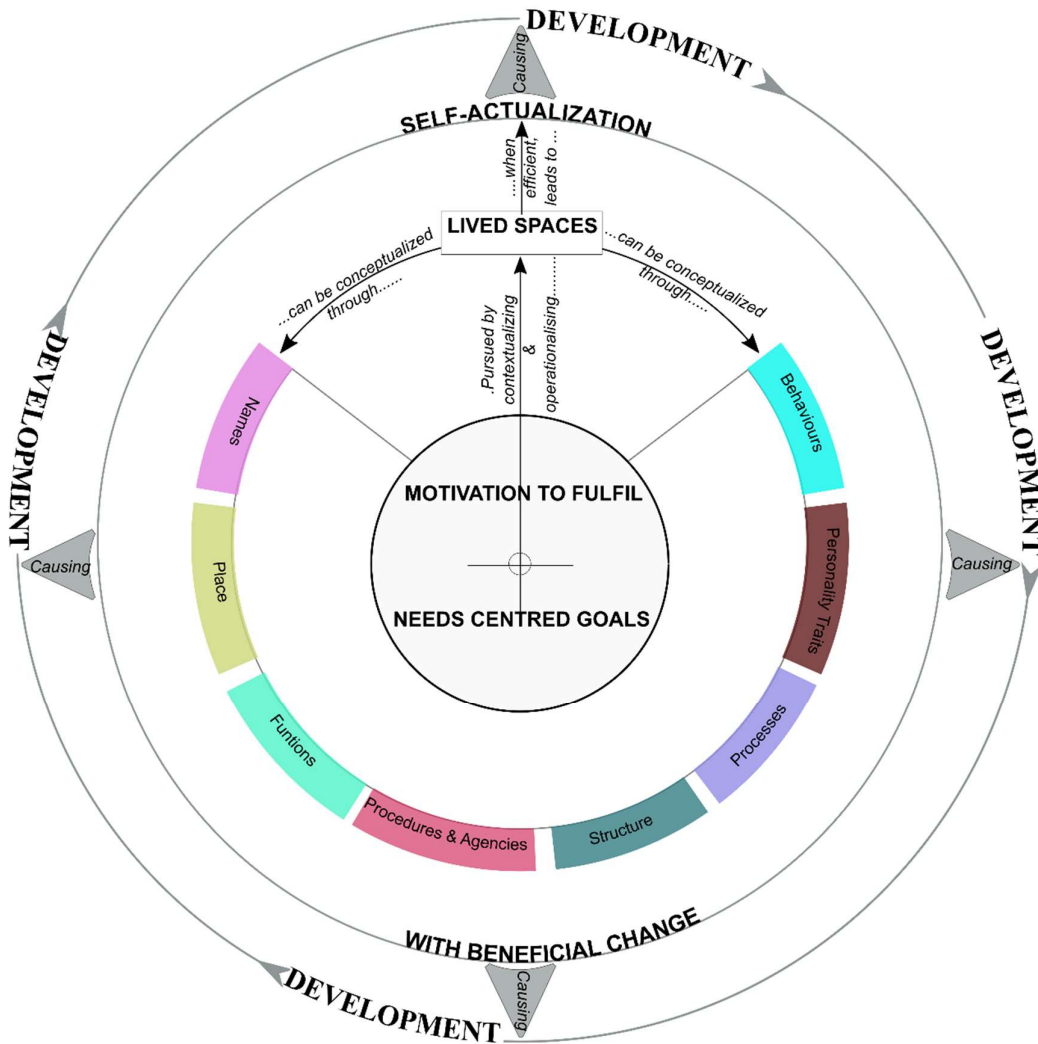


Figure 6.8: Development: an efficient existential model, the first stage to prosperity and valid potential for it. Source: author.

6.3 Thriving: the second stage to prosperity

Thriving is proposed as the second stage to prosperity and takes time-consciousness and concepts of resilience into consideration within the existential process of living and

¹⁴⁷ The limited fashion in which sustainability is being regarded is also discussed in Satterthwaite (1999).

development proposed in section 6.2. These ideas as well as a substantive definition for prosperity are posited in the next sections 6.3.1 to 6.3.3.

6.3.1 Time-consciousness: a dynamic development model

For Ellin (2013), Habraken (1998, 2013), and Lefebvre (1991), there are three inseparable active agents in the way we conceive of and inhabit the world: the first are (1) people or humans (Lefebvre refers to people as the 'energy' in the world), then, (2) spaces (conceived, occupied, and used); and last is (3) time. Humanity cannot be comprehended without the interrelation of these three. Lefebvre's (1991, p. 12) argument below can sum up the interrelation of people-space-time:

'[...] energy-space-time [...]. The 'substance' [...] of this cosmos or 'world', to which humanity with its consciousness belongs has properties that can be adequately summed up by the use of the three terms mentioned above. When we evoke 'energy', we must immediately note that energy has to be deployed within a space. When we evoke 'space', we must immediately indicate what occupies that space and how it does so: the deployment of energy in relation to 'points' and within a time frame. When we evoke 'time', we must immediately say what it is that moves or changes therein. Space considered in isolation is an empty abstraction; likewise, energy and time. [...]

It is also true to say that evidence of its existence stares us in the face; our senses and our thoughts apprehend nothing else.'

So far, people's needs-centred pursuits through contexts of lived spaces leads to development (an existential model), a state that should necessarily be sustained to keep delivering benefits. Any active engagement with spaces, however, is only relevant with a consciousness of time. It is therefore, by interactively considering the concept of development within that of time-consciousness that we may begin to contemplate a sustained state of it. Time denotes change – transformations, evolutions, renewal – and is a factor that is inherent to humanity and our spaces (Ellin, 2013; Habraken, 1998; Lefebvre, 1991; see also Porta and Romice, 2014; Thwaites et al., 2007). It is also these aspects of time-consciousness and change that further render our spaces a complex phenomenon (Habraken, 1998; Thwaites et al., 2007; Walker and Salt, 2012).¹⁴⁸ We may consider three interrelated outlooks about the changes that occur in livelihood activities. (1) With time, changes, occasional or consistent, occur in the lived spaces; these changes can be caused by our activities or just the natural course of existence. (2) Our activities are structured or conducted within allotted times. As we live, there are the

¹⁴⁸We (humans) are agents of change, we develop to endure and even when we destroy, we lay it back again with similar intentions even though time will always win (Habraken, 1998).

human changes that occur – biologically, physiologically, socially (and related concepts), and culturally. These changes can also be related to the changes in our (1) spaces. In this case, (3) our needs-centred goals, whether it is associated with subsistence, or leisure etc., and essential requirements to fulfil them can necessarily change to reflect the first two changes (1 and 2) and vice versa. In the proposed progression to prosperity, to practically capture the concept of development and change and connect them with that of effective adaptation, it is necessary to consider the concept of resilience.

6.3.2 Dynamic path of sustainable development: a resilient path

Discussions on the notion of resilience started with the work of Holling (1973) and were concerned with probabilities of extinction in ecological systems. To understand resilience is to consider the world as a complex interrelation of different spaces and systems, small and large, natural and manmade that are interdependent, interactive, and able to go through biological, evolutionary, and/or transformational cycles of change (Walker and Salt, 2012). For Holling (1973), complex relationships cause oscillations in the sustainability equilibrium of the ecological system, owing to the changes that come with use and occupation with the passage of time. Resilience is the capacity of a system (whether through intervention or not) to adapt and recover after changes have occurred and maintain sustainable equilibrium states.¹⁴⁹ That is, it is ‘the capacity [...] to absorb disturbance and re-organize so as to retain essentially the same function, structure and feedbacks – to have the same identity (Walker & salt 2012, p. 3).

Hence, the thesis posits that when people can efficiently develop and sustain it, maintaining a steady momentum of development through cycles of change (and related challenges), the benefits and improvements to living will be dynamic. In this proposal for prosperity, time-consciousness and catering to change (resilience) is the function that differentiates sustainable development as a static end to one that is dynamic. Hence, every attainment or instance of development carries the potential for prosperity. For Ellin (2013) a dynamic state of sustainability is considered as thriving,¹⁵⁰ which for her, is a prerequisite for prosperity. For this thesis, thriving implies a sustained development efficiently adapted to people’s evolving needs and in response to contextual changes in people and lived spaces. When people thrive, they become their best creative and productive, and this transcends to the wider community and the environment (ibid).

¹⁴⁹ According to resilience thinking, when systems are forced beyond their normal boundaries either through a sudden shock, for example an environmental disaster, or a gradual process, such as population expansion, new challenges and possibilities emerge (Garmestani and Benson, 2013).

¹⁵⁰ In several dictionaries, to ‘thrive’ means to vigorously grow (Cambridge Dictionary, 2016a; Hawkins and Allen, 1991; Merriam-Webster Dictionary, 2017).

6.3.3 A meaning and model for what it means to prosper: to develop and thrive

This thesis uses a simple illustrative model to summarise and posit the path to prosperity or what it means to prosper (figure 6.9):

The model has three principal axes representing people/humans/energy, space, and times. (1) On axis 'H' is the human and its domain changes. Our needs as humans are finite. However, our goals with perceptions of what is required (lived space as satisfiers) can change with time and from time to time, and this can be relative to changes that occur with and within us and changes to lived spaces. (2) On the 'S' axis are the lived spaces (all contexts of it) that we exist within and domain changes that occur naturally with the passing of time, and those that occur owing to occupation and use. (3) On the 'T' axis is time and its inevitable continuity that brings about change and captures the time span of our needs-motivated goals, and/or our own time span that is inherently tied to needs-motivated behaviours.

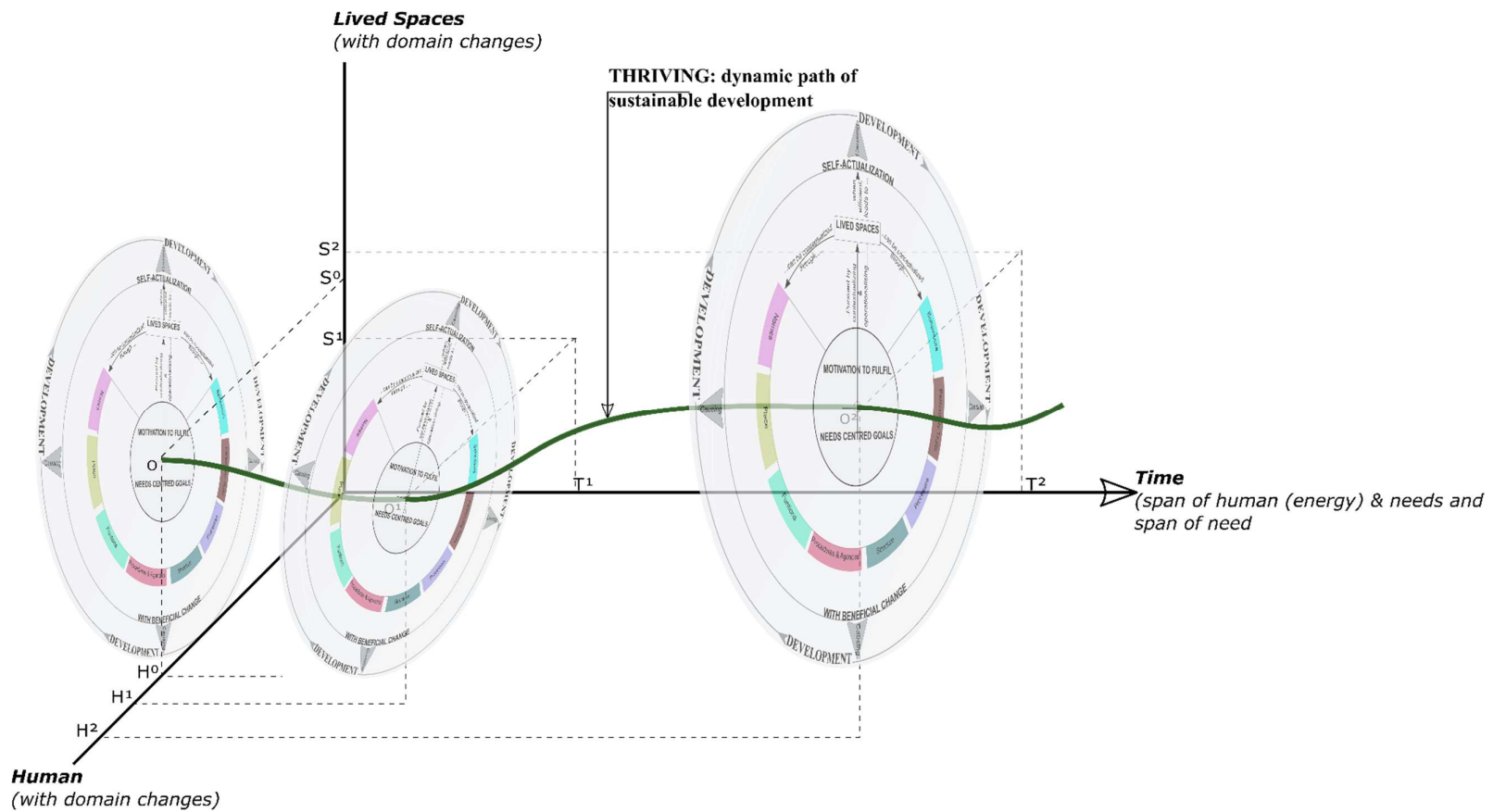


Figure 6.9: Conceptualizing the path to prosperity formed of two stages – development and thriving. Source: author.

- Let us consider that there is a need-centred goal for the human (person(s)) at a particular state of time 'T' with spaces that are adequate and appropriate towards its achievement, the need-centred goal, the human, and relative spaces at this time are represented in the diagram as 'O', 'H⁰', and 'S⁰' respectively.
- Let us consider also that the existential processes of needs-centred goal pursuit were efficient, and development has ensued at that time – this is shown as the outline 'DEVELOPMENT' at 'O' (maintaining the illustrative representation of development as in figure 6.8).
- Then, with the passage of time – assuming times 'T¹' and 'T²' for example – changes were registered with persons themselves – H¹ and H² for example, or with spaces – S¹ and S² for example, or a combination of both.
- These changes will necessarily require adaptation to a new – different or updated – existential model with required space implementation to fulfil needs and pursue development.
- Essentially, at any stage in time where an existential process is applied in the process of prosperity, it should necessarily cause self-actualization and development – learning from and improving its performance to maintain its functional role and ensuring beneficial outcomes to the person(s), O¹ and O² for instance.
- In this case, the illustrative 'circular' domain of development – 'DEVELOPMENT' – may fluctuate in position and shape as it adapts to existential requirements at every point in time but should always sustain its identity – retaining a fully formed model, and the potential to prosper.
- Let us consider that the nucleus 'O' of each illustrative existential model for development – 'DEVELOPMENT' – represents the centre of equilibrium of an efficient model that is sustained.
- Then, the undulating and waving path that each model follows from one centre of equilibrium to the next is a dynamic state of sustained development – as development that thrives, and for this thesis, this is what it means to prosper.

Propositionally, the thesis defines prosperity as a dynamic state of robust and sustainable development, supported by and reflected in our ideal lived spaces and relative to the actualization of some needs-centred goal about ourselves, with social relations, and/or the

environment. It is a ubiquitous goal that is innate in every individual and in its very nature indicates a concept that is progressive and universal.

6.4 Conclusion: An outlook on prosperity for the slum

The intention of this chapter was to propose a comprehensive representation of what it means to prosper, one that can simplify the complexities associated with its conception and provide a framework of engagement for slum-prosperity and in the city – re-imagining their role within cities' wider systems. It has been shown so far that there is an identifiable relationship between certain concepts that form a path to prosperity: (1) human existence and needs-centred motivational behaviour – with regards ourselves, social relations and the environment (natural and generated), (2) contextualization and operationalization of our lived spaces towards these needs-centred existential activities that result in self-actualization, (3) development that represents the beneficial outcomes of this process, and (4) the resilience of development through livelihood changes – to us and with wider social interactions, and our lived spaces – that comes with the passage of time.

Also, our lived spaces encompass all conceptions of the nature of the world as it is and can be identified cognitively as name, places, functions, procedures, structure, processes, behaviours and personality traits. These are concepts proposed in the Slum Property Map (SPM) and reflect the multidisciplinary nature of space. This means that there is the potential to combine the SPM into a dynamic framework for the pursuit of prosperity relative to the defined properties of any slum. Within this framework also, it is possible to analyse and streamline the quality of lived spaces in their functional capacity towards development and prosperity about dimensions of people, wider environment and management structures. This guarantees that it has a foundation and is a vital function in a standardized process for slum prosperity. Granted, the pursuits of economic growth and relevance in the global urban sphere dominates cities' approaches to urban management and slums in particular. This theory shows that rather than being a concept dominated by economic productivity, prosperity is inherent to the process of existence itself and other life disciplines. This further substantiates arguments in section 5.2 – economic and social structures of the urban are interdependent and can be achieved within a wider framework of prosperity.

This path to prosperity, however, is not always ideal (see section 6.3.3). In the stage of development, when spaces are not adequate or appropriate to the task of ensuring such, it means deprivations will be the outcome. Furthermore, when the existential process of development is unable to cater to change and adaptation, the process of prosperity is compromised. For Jackson (2011), lack of prosperity is an indication of poverty (all facets of it); and poverties can manifest pathologies (Max-Neef, 1992). The concept of pathologies captures social problems that disrupt the progress of human societies, of which wider

manifestations of poverty and slums are considered to be influential factors (Orcutt, 2004; Sociology Guide, 2015). Pathologies and their implications describe several aspects of people's living and livelihood activities that are inconsistent with ideal values of society. These can include unemployment, exile, violence, lack of property ownership, residential instability etc. (ibid; Max-Neef, 1992). Some of these are evident in slums. The negative challenges faced in slums can then be referred to as pathological manifestations of poverties due to an inability to prosper and in relation to the slum as part of the wider city.

The operational task, henceforth, of understanding the prospects that slums and their communities of people hold for prosperity involves ensuring the process of prosperity is possible. In addition, paths to poverties and pathologies are corrected or averted. Stakeholder intervention, either directly or indirectly, should seek to create an equilibrium between spaces and people in their everyday existential processes that support capacities, first of all, for development towards thriving. In the next section, the thesis proposes two essential conditions that should become the slum intervention goals for stakeholders within an actionable framework.

Chapter 7 The Slum-Prosperity Framework: to engage slums in city prosperity

'[...] informal urbanism, or the kinetic city is about invention within strong constraints with indigenous resources with the purpose of turning odds into a survival strategy – often a sustainable strategy.'

Rahul Mehrotra, 2010¹⁵¹

Introduction

This chapter proposes a comprehensive actionable framework for slum intervention and to enable them to actively participate in both their own and city's prosperity: The Slum-Prosperity Framework (SPF). The SPF is set to contribute towards fulfilling the gap for more inclusive, positively focused, and appropriately targeted slum intervention approach. The chapter first outlines two essential conditions for prosperity in slums, which the SPF prompts stakeholders in slum and city improvement to establish through actions tailored to slum contexts. In this way, it attempts to operationalize the path to prosperity theorized in Chapter 6. It relies on a comprehensive understanding of slums through the Slum Property Map (SPM) proposed in Chapter 4, in addition to the use of other functional framework tools. Here, strategic use of Social Network Analysis (SNA) tools and using certain practical approaches to carry out the proposed actions for prosperity will help towards implementation of actions and effective outcomes. The chapter then systematically presents the actions for prosperity in slums with expected outcomes and the combination of framework tools that effectively support them. The SPF further benefits from a manual with a calibrated simple to use software proposed in Appendix VI. Overall, the SPF allows for accumulation of information and identification of pathways for improving prosperity prospects in slums in a responsive way. The result of studies that sought to validate its concept – a desktop case study for the integrated SPM, and an expert opinion survey for the SPF overall – are discussed in the next chapter.

7.1 Conditions for slum prosperity: for stakeholders to efficiently establish through relevant actions

Chapter 6 proposed a path to prosperity that can be pursued in slums, which involves development and thriving and connects theories of human motivation to fulfil needs, space and spatial productions, and resilience in time. The Slum-Prosperity Framework (SPF)

¹⁵¹ (Mehrotra, 2010, p. xii).

requires stakeholders, who are fundamentally committed to slum intervention, to establish two essential and interrelated conditions for prosperity in the slum. These conditions, when set in place, will allow the slum community to develop and to thrive (see methodology section 2.4). They include the following: (1) rights to adequate and appropriate spaces for development, and (2) rights to participate in the territorial control and management of spaces (figure 7.1). For Lefebvre (1991), Sadri and Sadri (2012), and Ypi (2014), the right to actively participate in the conception (production) and appropriation of spaces in time is a collective and inclusive right for every city citizen. There are many forms of rights for people, the basic is based on guarantees or what is due to them throughout life that is justified, morally, and ethically proper (Dictionary.com, 2018; Equality and Human Rights Commission, 2018). For this thesis, when slum communities are awarded the rights to develop and thrive, they participate in the production of the oeuvre¹⁵² of their city. When the slum community – or any people in fact – have their right to prosperity revoked, they can be no longer said to live; rather, they just exist (Ellin, 2013).

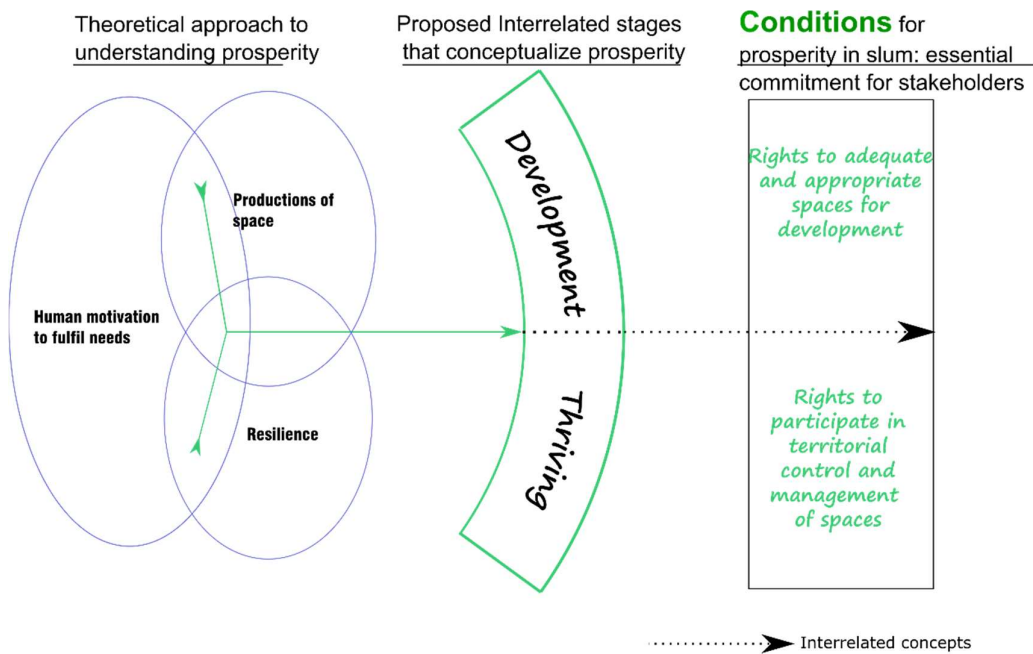


Figure 7.1: Schema for pursuing prosperity in slum. Source: author.

¹⁵² Lefebvre (1991) likens the city to the concept of oeuvre (the collection of art works done by an individual in their lifetime), because the city is an outcome of societies natural collective social productions representing their lifetimes. For Sadri and Sadri (2012) the declaration of global human rights is the closest concept to describe our basic rights to participate in the oeuvre of our city, and itself does little to reflect the importance of this basic right (see also (Harvey, 2008)).

7.1.1 The slum community's right to adequate and appropriate spaces for development

The first right is somewhat straight forward: it is to ensure the slum community is enabled to adequately participate towards development. Development occurs when the pursuit of needs-centred goals in lived spaces is efficient, leading to self-actualization with improvement for the person/self, social relations, and/or environment (section 6.2). On this account, there is a functional triad linked to the quality of spaces, one that can be applied practically to review and actualize development (figure 7.2):

(1) First, there are the basic human needs on which the pursuit of goals is based. These are pursued in lived spaces that are appropriate and adequate to the task of actualizing them. There are nine basic human needs in all (Max-Neef, 1992), which include: subsistence, protection, affection, understanding, participation, creativity, identity, leisure, and transcendence. An attention to needs can guide the improvement of spaces, especially in support of the basic needs of subsistence.

(2) Second, there are lived spaces with and within which we exist and, and which take particular forms in slums. When they are ideal – adequate and appropriate, they afford the capacity to efficiently actualize needs-centred goals in an active, latent, or catalytic way and cause development. In slums, therefore, the lived spaces present a constant tension between development and deprivation, as they suggest whether or not there are beneficial outcomes. It is possible to map a road to prosperity in slums through the quality of lived spaces and what they have to offer as portrayed through their characteristics. This indicates the importance of comprehensively understanding the slum's spaces and recognising their potential to enhance or inhibit development and thriving.

(3) Third, there is the potential for prosperity through the attainment of development, which is a first stage on its path. This will be registered relative to the adequacy and appropriateness of spaces for development, and thus an assessment of their capacity to achieve such potential.

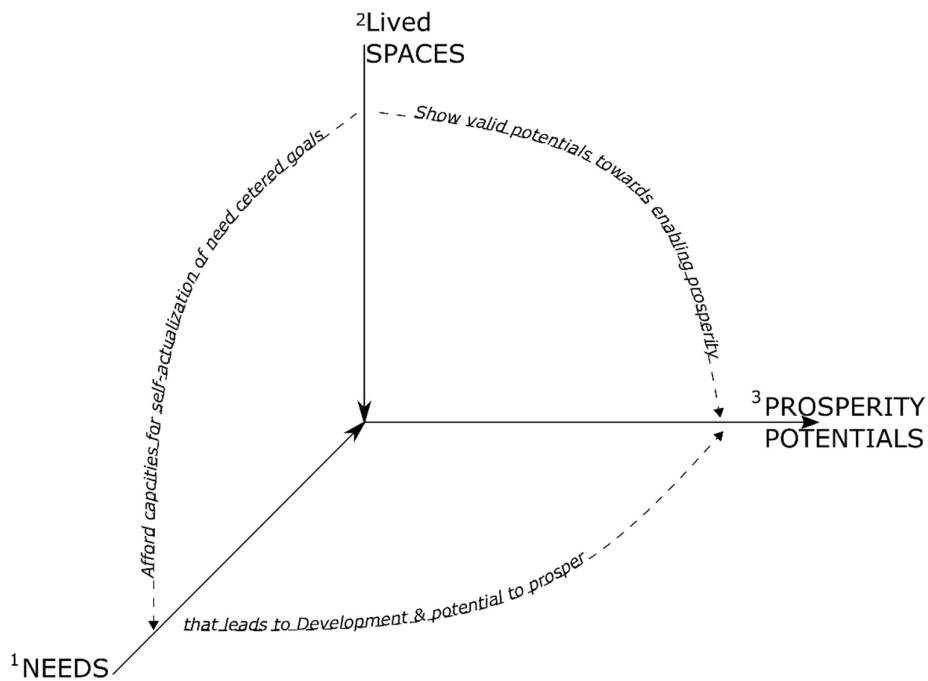


Figure 7.2: A functional triad of concepts in the stage of development towards prosperity. Source: author.

So, for any slum that is the focus of intervention, the SPF seeks to engage stakeholders with an aim of establishing rights to appropriate and adequate spaces for development through two actions (1 and 2). These include the following: action 1: compiling the slum property map, and action 2: profiling potentials for prosperity. These will help to understand the slum’s space and how it is made up of people, their environments and interrelations and endeavours, as well as how these spaces support development; and from this information, the aim is to actively engage and enable them to develop. The Slum Property Map (SPM) proposed in Chapter 4 is a framework for identifying and comprehensively defining the lived spaces of the slum through eight categories of slum properties. The quality of slum spaces and their capacity to enhance or inhibit development on the path to prosperity (in line with what is ideal or model in real-life urban contexts) can be recognised through appropriate indicators related to the people, the wider environment and the structures that manage both (see section 5.5.1 and 6.2).

Hence, in order to support carrying out actions 1 and 2, two integrated framework tools are proposed. They include the SPM with manual that is proposed in Chapter 4 and Appendix III, and a framework of indicators for slum prosperity, which is proposed in Appendix V. The indicators for slum prosperity are not proposed as conclusive and were developed through qualitative content analysis that was based on relevant individual and collective urban concepts of wellbeing (see methodology section 2.4). The concepts have been used by the UN-Habitat (2016b, 2013a) for assessing the pursuit of cities’ prosperity and include: productivity, quality of life, infrastructure, equity, environmental sustainability, and governance.

This proposed structure of the framework also aids in its standardization, transferability and further development.

7.1.2 The slum community’s right to participate in the territorial control and management of spaces

In the proposed theory for prosperity, it has been shown that emphasizing on dynamic rather than static sustained development is essential for thriving (see section 6.3). Actualizing needs-centred goals with beneficial change and improvement relative to person/self, social relations, and/or environment must be maintained over time. The model used in section 6.3 to represent the path to prosperity – development and thriving, is also useful here (figure 7.3). The task for stakeholders is to ensure the line of thriving for the development model, in the model for prosperity is maintained for the slum community. This suggests catering to changes in people and their need(s) and lived spaces that are used to attain self-actualization and develop, which occur with the passage of time (transformations, evolutions and renewal), and as such their resilience (see section 6.4).

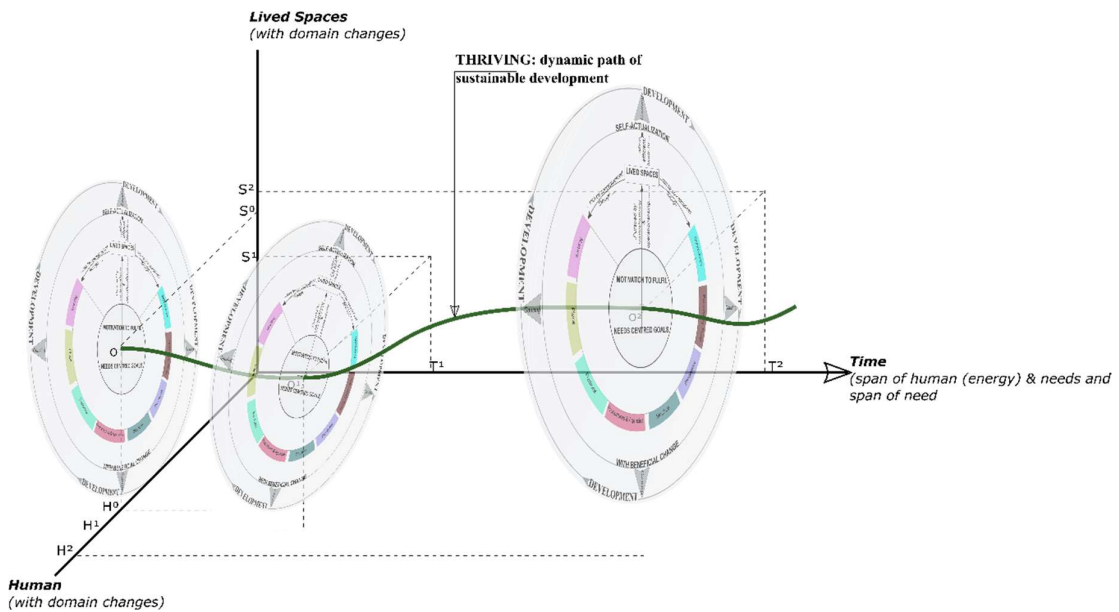


Figure 7.3: The conceptualized path to prosperity comprising development and thriving. Source: author.

Catering to resilience in the development model requires capacities for adaptations and recovery of the system when necessary. This can happen when people have or are able to exert some form of territorial control in the appropriation and management of their spaces (Akbar Jamel, 1988; Habraken, 1998; Lefebvre, 1991; Max-Neef, 1992; Walker and Salt, 2012). The concept was also highlighted by Illich, John Turner and Ebenezer Howard (see Akbar Jamel, 1988; Hamdi, 2004), suggesting the need for just the right support and

regulation from planning to avoid exploitation. For Max-Neef (1992, p. 198), enabling people to have social control of their own futures is important because 'both the diversity and autonomy of the spaces in which they act must be respected.'

There are many definitions of territorial control or territoriality, and most of these verge on anthropological and geographical concepts (Brown, 1987). However, with continuing urbanization, the social and psychological aspects of territorial control are becoming ever prominent (as predicted by Brown (ibid)). For Gifford (2002, p. 150) territoriality can be described as 'a pattern of behaviour or attitudes held by an individual or group that is based on perceived, attempted, or actual control of a definable [tangible and intangible] space'. Control, has to do with having the capacity and ability to informally participate in, affect, and influence the use, adaptations, and recovery of the character of spaces (ibid; Brown, 1987). Territorial control emphasizes people's capacities for personalization, creating identities and attachment¹⁵³ to spaces and their defence, which impact a sense of ownership, purpose, or responsibility towards them (Akbar Jamel, 1988; Brown, 1987; Gifford, 2002). Spaces that are under actual control are considered as 'territories', and those under the increased control and ownership of users or appropriators are known as 'primary territories' (Gifford, 2002). Having access to primary territories allows for more order, personalization, organization and predictability, improving peoples' sense of self-determination, adequacy and even security, and combine to enhance peoples' sense of belonging to place (Akbar Jamel, 1988; Brown, 1987; Gifford, 2002).

Sense of belonging has to do with the will to continuously invest – psychologically and productively – in maintaining the benefits of spaces and cater to their resilience (Ellin, 2013; Hamdi, 2010). For Ellin (2013), a sense of belonging makes livelihood engagements more meaningful for people. It helps create a sense of harmony, purpose, distinction, dynamism, esteem, mutual respect and civility with oneself, others and the environment.

In fulfilling the second condition for prosperity, the task for stakeholders is to enable the slum community to participate in the territorial control of use, adaptation, and recovery of spaces. In this way, they will consider their spaces as primary territories, have a sense of ownership and more responsibility for the same, and a sense of belonging to place and city. This stage is more organic and involves concepts that are themselves the focus of continuous urban

¹⁵³ Personalization describes person(s) modification or adaptation of space and making it meaningful to self (Brown, 1987; Lewicka, 2008). Place identity is a feature of the person and has to do with significance or 'self-categorization in terms of place' (Lewicka, 2008, p. 212). Place attachment is concerned with bonding of people to places, it has several dimensions that are emotional, cognitive and behavioural (Brown, 1987; Lewicka, 2008, 2005). This can be an outcome of place identity, but not necessarily so. One can read more about these concepts in Brown (1987), Gifford (2002), Lewicka (2010, 2008, 2005), and Romice and Frey (2007).

research and implementation. The process, however, starts with ensuring that spaces that are to be appropriated for development are appropriate to the task. Investments in place and being able to progress, in fact, depends on spaces meeting people's needs and being allowed to develop. It is only then that people can start to exercise other forms of transferral and behavioural (with associated cultural, social, subjective) values to invest in place. Moreover, spaces that are able to meet people's needs more than others become more significant to the processes of living (Brown, 1987).

For stakeholders engaged with slum intervention, two more actions are suggested to engage with establishing the second condition for prosperity (actions 3 and 4), which include: action 3: identifying requirements and resources as per needs, and action 4: designing intervention. These help to establish and maintain development in the slum, making use of the slum and what it has to offer, as well as the potential pathways to engage with the slum community and ensure they are set to thrive. Two further integrated tools are proposed to support these actions and include: the definition framework of basic human needs, developed from Max-Neef's (1992) nine basic human needs and defined through literature content analysis (see box 6.1 in section 6.2.1), and the use of a real-time visual dashboard – a documentation and knowledge module. Figure 7.4 schematises the SPF showing the four actions with expected outcomes and information and integrated framework tools that support their implementation.

However, it is also important for these actions to be conducted in a strategic and practical way to help promote prosperity in the slum. Hence certain requirements are necessary and therefore infused within the activity design to effectively achieve prosperity in slums. These are discussed in the next sections 7.1.3 and 7.1.4.

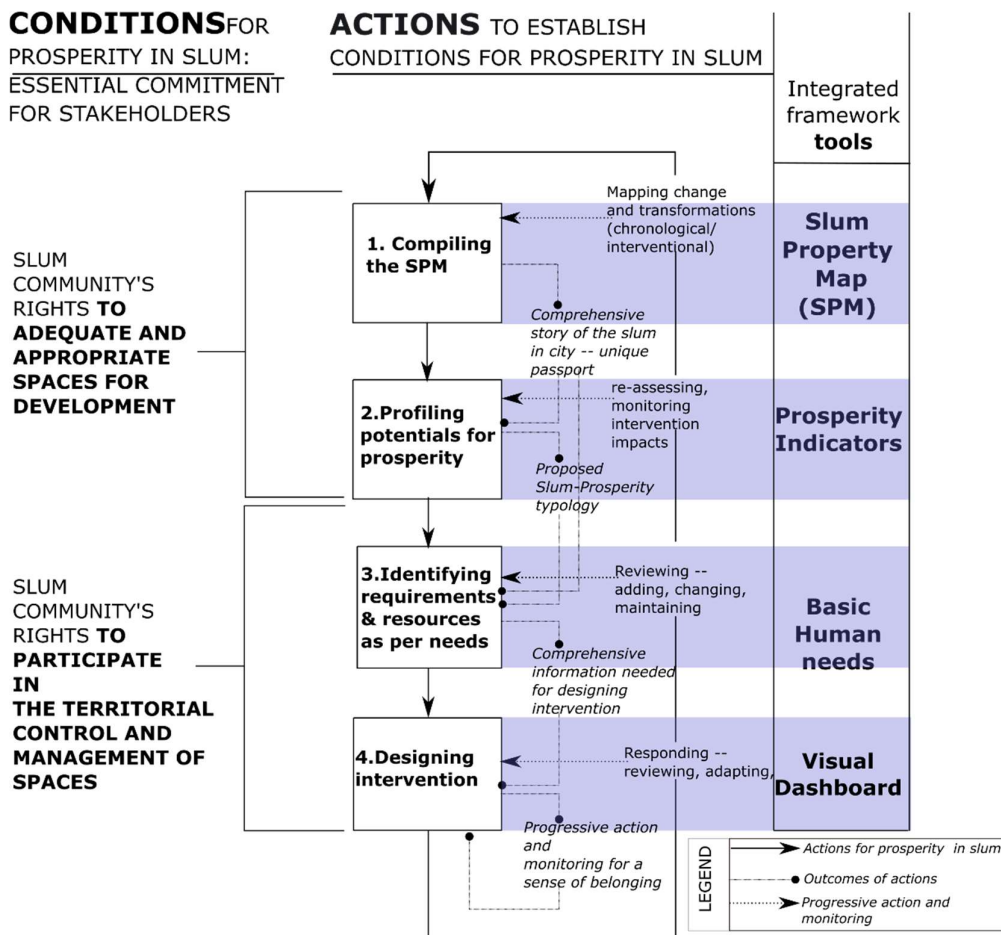


Figure 7.4: Slum Prosperity Framework (SPF): a schematic showing actions to establish conditions for prosperity, their outcomes, and integrated framework tools. Source: author.

7.1.3 Strategic tools for engaging actions for slum prosperity: Social Network Analysis (SNA)

The slum is complex. This aspect is reflected in any slum property map that defines a slum as it exists in the city (see Chapters 3 and 4), and by extension also, actions that aim to promote the slum’s attainment of prosperity. In order to carry out resolutions in complex settings it is necessary to think systematically, associatively, and holistically, the philosopher Zohar emphasizes that we must apply our mental capacities in 3-ways: (1) the brain analyses, relates facts, and searches for a logic to define tasks; (2) the heart, forms and builds parallel relations between the dynamic social, natural, and physical environment; (3) the natural spirit, which is creative and, intuitive, pushes boundaries (Hamdi, 2004; Zohar, 1997; in Hamdi, 2004). For Hamdi (2004), finding effective solutions in settings like slums entails these applications, especially the last two. The SPF helps build a framework that can support analysis and clarity of representation for stakeholders engaged in establishing prosperity in the way it relates facts about the interactive slum property map.

To be strategic, where actions taken are supported by a well-informed and proactive tool – the SPF proposes and implements tools of Social Network Analysis (SNA) (see methodology section 2.4). SNA helps to visually track, analyse, and strategize about relationships of actors (data, entities, concepts etc.) in a social setting using the concept of ‘Network(s)’ (Dempwolf and Lyles, 2010; Derek L. Hansen et al., 2011a; Krebs and Holley, 2002; Newman, 2003). In the network, SNA uses mapping tools and statistical algorithms that characterize, analyse (using geodesic distances), and assess relations between actors that would otherwise be very complex to contemplate. In our context: the actors that make up the network are the properties that describe the character of the slum, through compiling its slum property map, and the indicators for slum prosperity; the relationships capture the way in which properties associate, expressed as property tags/anchors, in the slum property map, and how they profile potentials for prosperity. In conducting the actions for prosperity, these two sets – actors and relationships – are correlated by SNA tools that include network graphing, degree centrality, affiliation of prosperity, eigenvector and betweenness centrality (figure 7.5).

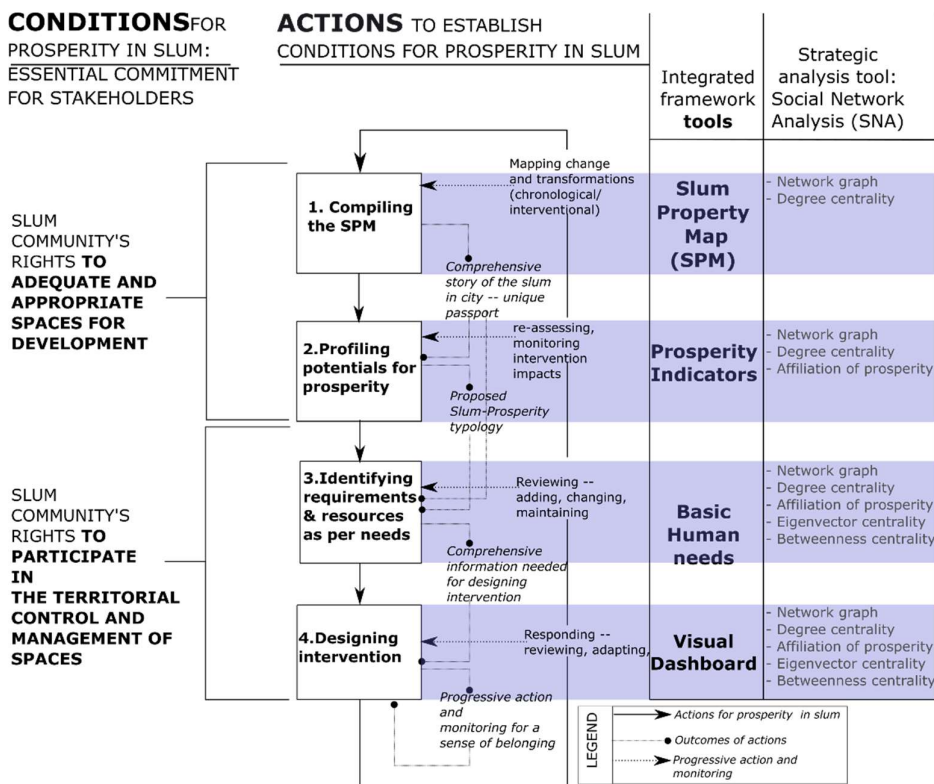


Figure 7.5: The SPF: a schematic showing actions to establish conditions for prosperity, their outcomes, integrated framework tools, and Social Network Analysis implemented. Source: author.

7.1.4 Practical approaches: how to carry out actions for slum prosperity

How to pursue prosperity in cities is an ongoing endeavour (see Chapter 5).¹⁵⁴ To be practical, the SPF suggests three relevant interrelated approaches for stakeholders to take while carrying out the actions for prosperity. These include the following: (1) asset-based prospecting, (2) advocative and enabling participation, and (3) small and incremental pursuits in every way. The above guidance provides a degree of order to the SPF, prescribing valid positions on how to pursue prosperity in real world situations, and as such its effectiveness, transferability, and further development. These three approaches are drawn from qualitative content analysis of literatures that posit hands-on and ideal ways to conduct sustainable urban improvement (economic, social etc) and prosperity (see methodology section 2.4). The approaches are discussed in the bulleted lists below and the propositions from which they were analysed from the literature are summarised in box 7.1. Yet still, within their requirements are the same underlying agents – people or energy, space and its myriad forms, and time (see section 6.4).

- First, it is necessary to take an ‘asset-based prospecting’ approach to carrying out actions for prosperity in the slum. This means (1) engaging in a way that comprehensively searches for, recognises, and identifies the robust character of the slum – the people, their abilities and other socially related aspects, the environmental, spatial, and physical – without disregarding the challenges within; overall, with a firm view that all the above have the potential to become assets in the pursuit of prosperity. It also means (2) engaging in a way that recognises, encourages and strengthens people’s capacities for improvement and local autonomy with respect to this self-improvement. Key to this approach is ensuring all process are not conducted at the expense of people’s and the natural environment’s welfare.
- Second, it is necessary to take an ‘advocative and enabling participative’ approach in carrying out actions for prosperity in the slum. This means recognising the slum community as a vital group in the process and enabling them to voluntarily participate and, mentally, socially and physically contribute to it, decisively influence, and deliberate about it, and also receive and share in its outcomes. Key to this approach is considering ethical implications of involving slum community, while fostering social relations and interactions to ensure people effectively participate.
- Third, it is necessary to take an approach that is ‘small and incremental in every way’ in carrying out actions for prosperity in the slum. This means considering and

¹⁵⁴ This is irrespective of the varying perceptions of the concept of prosperity.

identifying resource partners in the slum and all that it represents in its character, no matter how inconspicuous. Also, focusing on small and manageable, but, impactful targets of engagement to be coordinated incrementally, rather than taking on many tasks that may overlap and become too complex with time. This is a time-conscious based principle that supports the second stage in the theory for prosperity (section 6.4) and the second condition to fulfil it (section 7.1.2).

Suggestions of how these approaches apply to the relevant actions (1-4) to establish conditions of prosperity that are to be implemented by stakeholders is shown in figure 7.6 and are also discussed in the outline of the actions in section 7.3. The stakeholders, as seen in the proposal for slum prosperity, so far, are key actors in the conception of and efficient implementation of the Slum-Prosperity Framework (SPF).

CONDITIONS FOR PROSPERITY IN SLUM:
ESSENTIAL COMMITMENT FOR STAKEHOLDERS

ACTIONS TO ESTABLISH CONDITIONS FOR PROSPERITY IN SLUM

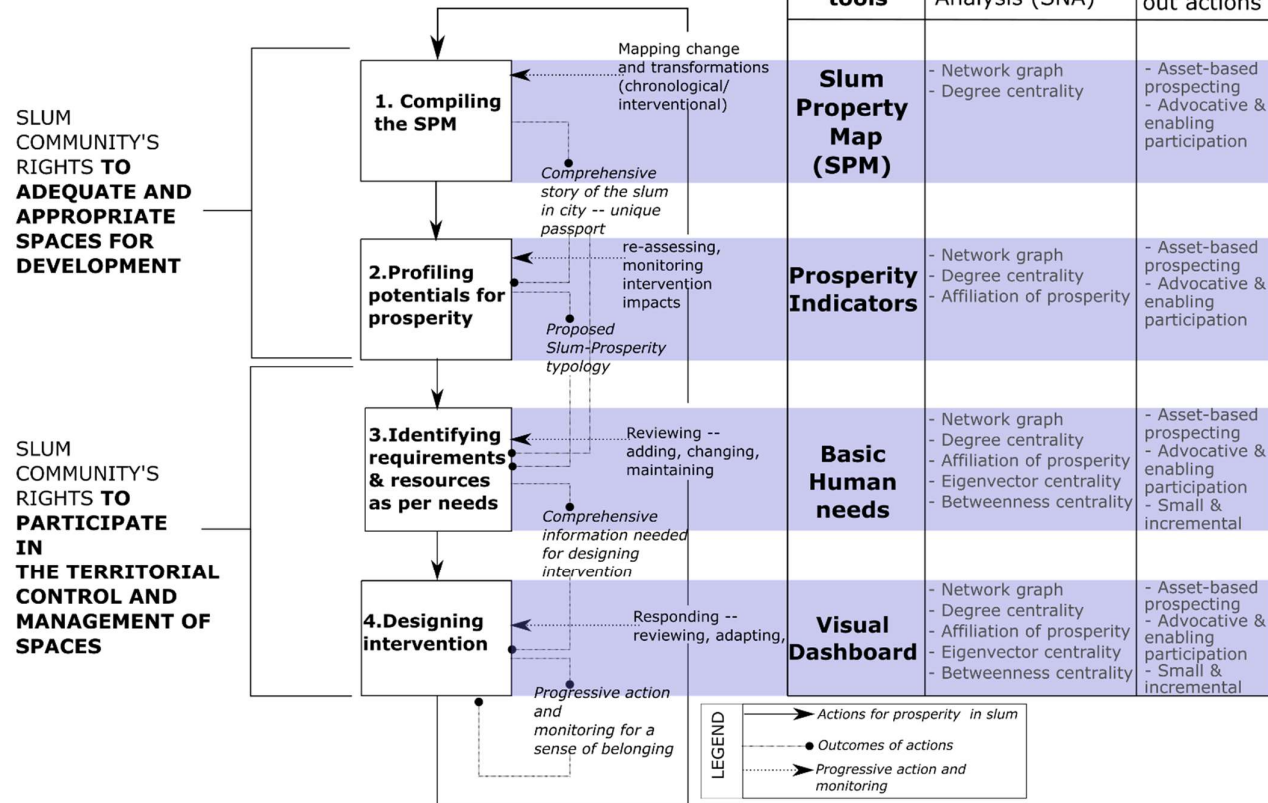


Figure 7.6: The SPF: a schematic showing actions to establish conditions for prosperity, their outcomes, integrated framework tools, Social Network Analysis, and practical approaches to implement. Source: author.

On an asset-based prospecting approach for engaging towards prosperity: For Hamdi (2004) and Ellin (2013), a paradigm shift from needs-based to assets-based approach to resolving urban problems is necessary, working with what is already inherent in communities – both challenges and positives. It is also important to harness and manage people’s natural ability to self-motivate towards achieving progress. Hamdi (2004) references sociologist Georg Simmel, whose philosophies of emergence teach that the organic system is self-motivating, drawing on a multitude of information to organize and move forward.

For economist Olson (2000), to prosper, it is important to recognise local and autonomous markets and contributions, and expand them to augment those of government and leaderships. These need to be supported administratively by establishing and maintaining voluntariness, regularity, protection of properties, and enforcement of contracts that are inclusive (Acemoglu and Robinson, 2012; Azfar and Cadwell, 2003; Clague et al., 1999; McMillan, 2011; Olson, 2000; Pöttering et al., 2009). Furthermore, maximizing benefits presented by population agglomeration, and guiding community level emergent initiatives in addition to capturing population’s resources is necessary for prosperity (Azfar and Cadwell, 2003; Glaeser, 2013; UN-Habitat, 2013a). This encourages autonomous decisions which further influence knowledge and expertise exchange (ibid).

For Ikerd (2013) all resource-centred endeavours towards progress and sustainability have to respect the natural science rules. These are laws that guide the existence of the natural ecosystem that we all depend on – how it functions, captures, stores, and regenerates its energy cache (ibid). It is therefore necessary to work in harmony with nature, or it will fight back with destructive consequences – in the event of natural disasters, all other forms of activity become voided. As such, we need to understand and practice the right protection and maintenance hierarchy – nature first, society (the people) second, then economy. It is a ranking arranged by order of interrelated possibilities and purpose. The purposes of valuable economy and people are derived from possibilities presented by well-catered and un-exploited nature and people, which are dependent on economy to realize their potentials.

On an advocative and enabling participative approach for engaging towards prosperity: For Dayton-Johnson (2001), Ikerd (2013), and Shah (2012), taking care of self, community, and environment, and having the social responsibility to promote such are a basic step to progress and to prosperity. Humans are social by nature and band together in families, tribes, and communities for companionship, reproduction, security, and even trade; our lives are interwoven and even defined relative to interactions with others that are dear/meaningful to us (ibid; Zohar, 1991). Programs are better placed to succeed when they consider the cultural values of communities’ and their interconnectedness, and in this way avoid ‘ills of massive defection’ (Dayton-Johnson, 2001). What’s more, when societies face challenges together and share the fruits of endeavours willingly, it strengthens presiding socio-economic structures – especially social inclusion, capital, mobility and cohesion (OECD, 2011; Stanley, 2003; Sztompka, 2002).

For UN-Habitat (2013a), Lummus (2014), Acemoglu and Robinson (2012), and Gunderson (2011), civil society constitute and are the important part of cities. Their participation not only empowers people but leads to better designs and responses tailored to societies’ concern and nations productivity. For prosperity, these investments should not only target productivity, but also peoples’ intellectual capacities (mental), and fostering innovation that are institutionally and infrastructure supported (see also Hamdi, 2014, 2010, 2004).

For Bird (2009), and UN-Habitat (2013a) prosperity involves an egalitarian system of leadership that maintains doctrines of equality and considers every citizen as having fundamental social worth within the system. For Glaeser (2013), Ikerd (2013), and McMillan (2011), a libertine system fashioned by truth, strong ideals and beliefs, moral responsibility, equity, justice that instil national ownership and lack of corruption are equally important to support endeavours for prosperity. What's more, philanthropy and acts of benevolence in society (Ikerd, 2013; Sebastian, 2010) can support prosperity pursuits; this position is not based on rule, justice, or justifiable actions, rather it is care based (ibid) – the stronger catering to the more vulnerable.

On a small and incremental approach for engaging towards prosperity: For Ellin (2013), Hamdi (2004), Thwaites et.al (2007), Maurer (2004), and Habraken (1998) systems should be structured to grow incrementally using what one has no matter how little, and slowly building on it to have impact. This requires responding to changes and complexities in society adaptively rather than only rationally or prescriptively. This approach is closely related and expands on principles that promote social interaction and activities and those that are asset-based. All of societies productive, behavioural and emotional associations depend on time-consciousness. Time-consciousness is a constant awareness and understanding that time exists and with it comes continuity, change, mobility, and succession (Dainton, 2010; Lefebvre, 1996; Rovelli, 2016). For prosperity, programs should conceive flexible functionalities that respond to these associations on a long-term basis (Ellin, 2013; Hamdi, 2004). In this way, institutions, policies, and cultural norm will evolve along a path that is unique to the system.

7.2 The stakeholders for slum prosperity: potential users of the SPF

The Slum-Prosperity Framework (SPF) is targeted at stakeholder implementation. For this thesis, the 'stakeholder' means persons or parties that have interest, concern, responsibility, and are therefore committed to urban/city improvement and progress (see Collins Dictionary, 2014). In the context of the SPF, this involves establishing conditions of prosperity in the slum to support such improvement and progress in an effective way.

An aspect that is highlighted through the thesis is how slums are part of cities and, existing in these contexts means dealing with ongoing urban realities. The arguments presented in section 5.5.4 suggests that their management stands a better chance of being sustained socially, economically, and environmentally when staged within a holistic institutional urban platform. For the SPF, an institutional platform of stakeholders that are initiators, overseers, and also active participants is relevant. These can include global, public or governmental, non-governmental, or academic stakeholders. Globally, those involved in urban practice in any of the above institutions include urban professionals of both academic and practical capacities, and civil society. Civil society has become an active proponent in the improvement of our cities in both Developing and Developed Nations (Burra, 2005; Romice, 2001). In Developing Regions especially, with the continued withdrawal of states from social services programs and funding and increase of public-private involvement, civil society involvement has risen. The Archdiocese of Nairobi in Kenya and the Society for The Promotion of Area Resource Centres

(SPARC)¹⁵⁵ are good examples of civil society organisations with relevant engagements in slum improvement in the past decades (Burra, 2005; Wanjohi, 2007). The organisations they operate within can also be termed 'non-governmental'.

This research is further built on the argument that slums can play a key role in the improvement and progress of cities overall, and in this way, their sustainable management. The slum community are therefore key participants in this process. This assertion is supported by arguments captured in section 5.5.2 and 5.5.3. In recent decades, Slum communities have been actively mobilising and taking interest in how to improve their conditions and their management. Notable slum organisations include the Slum Dwellers International (SDI)¹⁵⁶ and National Slum Dwellers Federation (NSDF) (Burra, 2005). Involving the slum community as stakeholders to their own intervention drives on-the-ground local initiatives and contributes local knowledge, human capital, and time, not only towards plan execution, but analysis and data gathering (Hamdi, 2010; Natakun, 2013) (see Appendix III). In their approach to Participatory Slum Upgrading Program (PSUP), the UN-Habitat is a proponent for local community stakeholders. For Sanoff (2000), this type of involvement is essential to meeting program requirements for the receiving community, their contribution to decisions, and outcomes; in return, the professionals and other non-community members get robust and current information and relevant rational contributions to the process. Moreover, in this proposal (the Slum-Prosperity Framework, SPF), the slum community are considered vital and voluntary participants in carrying out actions for prosperity (see section 7.1.4).

So, in the SPF framework, stakeholders and potential users can and should include urban and design professionals, government officials, non-governmental organisations (NGOs), other civil society, and local slum communities etc. Essentially, there should be an equal pool of stakeholders in these capacities, both in terms of who looks at facts and from what perspective, and who makes logical evaluations and summations, as well as effectively implementing the SNA support tools. All the above are key activities for establishing conditions of prosperity in the slum.

The following section 7.3 comprehensively outlines the necessary actions for stakeholders to engage with and establish conditions of prosperity in the slum.

¹⁵⁵ See <http://sparcindia.org/index.php>.

¹⁵⁶ See <http://sdinet.org/>.

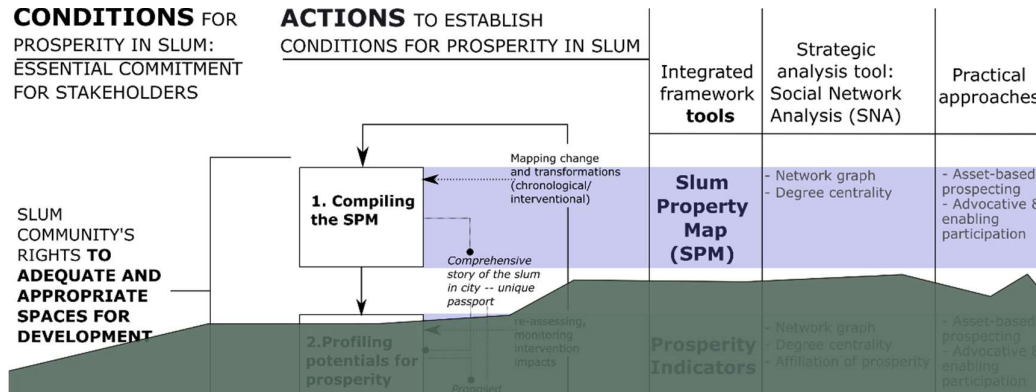
7.3 Establishing conditions for prosperity in the slum: actions for stakeholders

For any slum that is the focus of intervention, stakeholders must engage in four actions (introduced in sections 7.1) using integrated framework tools and supported by SNA. They must carry out these actions using approaches that are best placed to ensure prosperity conditions in the slum. The four actions – action 1: compiling the slum property map, action 2: profiling potentials for prosperity, action 3: identifying requirements and resources as per needs, and action 4: designing intervention – are captured in sections 7.3.1 to 7.3.4. Each of these actions are interrelated with those preceding them (apart from action 1) and overlap with succeeding actions through outcomes and feedback. This shows how the SPF is robust and a reflection of the theories it is based on. Pursuing the four actions will set the slum community on the path to develop and thrive and therefore prosperity.

At the initial stage of intervention, it is important to maintain a systematic approach to all actions proposed. Thereafter, the actions can be enacted in a flexible and progressive way relative to requirements. This flexible nature of the SPF is further outlined in action 4: designing intervention (section 7.3.4). Furthermore, it is assumed that there will be continuous consultation on the relevant approaches to carrying out the four actions (section 7.1.4) as it may help to streamline engagement and guide other small endeavours for prosperity in the slum.

Examples are important to guide the use of any framework and here, show how the SPF can apply overall. A desktop case study of Garki village, Abuja, was conducted to test the concept of the SPM (see methodology section 2.5). This is the framework tool used to implement the first action (action 1). It should be noted that the description of Garki village is limited as it is formed in literature and not in the field through primary means.

7.3.1 Action 1: Compiling the slum property map



This action is fulfilled when stakeholders apply the SPM manual (Appendix III) to comprehensively describe the slum’s spaces and build its slum property map, capturing its unique definition and story in the city. This action can become a useful extension of the proposed SPM (Chapter 4), in which stakeholders conduct further analysis for action in the slum. The description of the slum will capture key information about it and most especially about the people, who they are, their attitudes, experiences, relevant activities, priorities, conditions and situations they live with and within, risks, and also interest in improving the slum etc. An asset-based prospecting approach helps to compile the slum property map of the slum while advocating for and enabling the slum community to play a vital role in the process. This also has the potential to reduce cost and time.

In order to build the slum property map of the slum, the SPM manual guides users through three steps which are comprehensively discussed in chapter 4 and in the SPM manual. Summarily, however, the three steps include the following:

- (1) Analysis and compilation of lists of eight categories of descriptive properties. These are outlined below showing slum properties that will be compiled in each category and (where it applies) sub-properties through which to describe and compile them. The framework of properties is colour coded, numbered, and distinguished through lettering formats to make them clear, identifiable and easily referenceable; this also lends itself to the overall ease of application of the manual.

Property Category 1 (CAT₁): Name properties of slum
 SLUM PROPERTIES: (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE

Property Category 2 (CAT₂): Place properties of slum
 SLUM PROPERTIES: (P₂-CAT₂) GEOGRAPHY:

- Sub-properties*
- (1-P₂-CAT₂) Absolute location and space
 - (2-P₂-CAT₂) Relative position, centrality and connectivity
 - (3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity

(4-P₂-CAT₂) Relative landscape and site conditions

SLUM PROPERTIES: (P₃-CAT₂) DEMOGRAPHY:

*Sub-properties (1-P₃-CAT₂) Population profile
(2-P₃-CAT₂) Socio-economic enterprise*

SLUM PROPERTIES: (P₄-CAT₂) TENURE CONDITIONS:

*Sub-properties (1-P₄-CAT₂) Tenure security
(2-P₄-CAT₂) Tenancy and ownership*

SLUM PROPERTIES: (P₅-CAT₂) POVERTY CONDITIONS:

*Sub-properties (1-P₅-CAT₂) Income poverty
(2-P₅-CAT₂) Non-income poverty
(3-P₅-CAT₂) Social exclusion*

Property Category 3 (CAT₃): Functional properties of slum

SLUM PROPERTIES: (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES

Property Category 4 (CAT₄): Procedures and Agency properties of slum

SLUM PROPERTIES: (P₇-CAT₄) ORIGIN OF SLUM:

*Sub-properties (1-P₇-CAT₄) Origin by procedures of land/building occupation
(2-P₇-CAT₄) Origin by type of built context*

SLUM PROPERTIES: (P₈-CAT₄) FORCES AND DRIVERS OF SLUM:

*Sub-properties (1-P₈-CAT₄) Migration
(2-P₈-CAT₄) Poverty
(3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings
(4-P₈-CAT₄) Structural policies and institutional functions
(5-P₈-CAT₄) Social and cultural pathology*

Property Category 5 (CAT₅): Structural properties of slum

SLUM PROPERTIES: (P₉-CAT₅) FORM OF THE SLUM:

*Sub-properties (1-P₉-CAT₅) Safe water
(2-P₉-CAT₅) Sanitary conditions
(3-P₉-CAT₅) Density
(4-P₉-CAT₅) Spatial patterns
(5-P₉-CAT₅) Building forms and durability*

Property Category 6 (CAT₆): Process properties of slum

SLUM PROPERTIES: (P₁₀-CAT₆) AGE OF SETTLEMENT AND EVOLUTION:

*Sub-properties (1-P₁₀-CAT₆) Social consolidation and established social structures
(2-P₁₀-CAT₆) Spatial consolidation of place
(3-P₁₀-CAT₆) History and defining events*

Property Category 7 (CAT₇): Personality traits of slum community

SLUM PROPERTIES: (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY

Property Category 8 (CAT₈): Behaviours of slum community

SLUM PROPERTIES: (P₁₂-CAT₈) HEALTH CONDITIONS

(P₁₃-CAT₈) ACTIVITIES OF PEOPLE

Structuring and organizing all analysed and compiled slum properties within their categories (conceptual groups), with information, data, and relevant methods used maintains a clear framework of knowledge about the slum. This is useful for communication, referencing, further analysis, and monitoring. The manual proposes an SPM template to be filled and which takes this format. Table 7.1 shows an example of the filled in template of the comprehensive description of Garki village, and a schematic outline in figure 7.7. Here, the information is in the form of a literature review with images and maps documented in digital format as part of research, as such not included in the table.

- (2) Building an interactive property map of the descriptive slum properties by making explicit associations that such properties have amongst themselves – how the description of one property can affect/influence/trigger another one becoming a ‘tag/anchor’ to it, and/or vice versa. These require logical judgements backed by investigation in the slum. Tags/anchors with associations between properties and/or sub-properties in the same category and with other categories can be complex – many, with varied and reciprocal associations This activity also highlights slum properties that play a stronger role than others in defining the character of the slum. This is due to the extent of the properties they affect/influence/trigger.
- (3) The third and last step involves building a complex narrative that documents the comprehensive slum property map of the slum – all categories of properties with information and data that contextualizes them and how they associate. Linking these presents a meaningful character profile of the slum. A structured narrative of properties – from category 1 to 8, based on a consistent format of association (either how they affect/influence/trigger tags/anchors or are affected/influenced/triggered by them), provides relevant overviews that helps to cohere the character of the slum and prioritise information for intervention. At the same time, collectively tell a comprehensive story of the slum in the city.

Table 7.1: An example: a comprehensive list of properties that describe Garki village. Source: author.

Category 1 (CAT ₁): Name properties of slum			
(P ₁ -CAT ₁) THE GARKI VILLAGE'S NAME & ITS	(P ₁ -CAT ₁) Garki	(P ₁ -CAT ₁) Named by Hausa community	(P ₁ -CAT ₁) Garki comes from 'Gagaraci'

Category 2 (CAT₂): Place properties of slum

(P ₂ -CAT ₂) THE GARKI VILLAGE'S GEOGRAPHY	(1-P ₂ -CAT ₂) Located in Garki, Abuja	(1-P ₂ -CAT ₂) Covers an area of 19 hectares	(1-P ₂ -CAT ₂) Spatially segregated
	(1-P ₂ -CAT ₂) Urban developments along village perimeter	(2-P ₂ -CAT ₂) Absorbed peri-urban status	(2-P ₂ -CAT ₂) Abuja population expansion
	(2-P ₂ -CAT ₂) accessible relevant places & centres of activity	(2-P ₂ -CAT ₂) Business/residential district zone	(2-P ₂ -CAT ₂) City core position
	(2-P ₂ -CAT ₂) FCC pull	(2-P ₂ -CAT ₂) Access the city by foot, cycle, cars	(2-P ₂ -CAT ₂) Mixed prime development expansion in Abuja
	(2-P ₂ -CAT ₂) Well connected to the FCC	(2-P ₂ -CAT ₂) Sometimes Inefficient transportation	(2-P ₂ -CAT ₂) Transport cost constrains income
	(2-P ₂ -CAT ₂) Traffic hold-ups	(3-P ₂ -CAT ₂) Cultural activity space (lacking)	(3-P ₂ -CAT ₂) Efficient communication service
	(3-P ₂ -CAT ₂) Inefficient health services	(3-P ₂ -CAT ₂) Inadequate water infrastructure	(3-P ₂ -CAT ₂) Bad road conditions
	(3-P ₂ -CAT ₂) Some social & social-education amenities	(3-P ₂ -CAT ₂) Intermittent & inadequate electricity infrastructure	(3-P ₂ -CAT ₂) Only 80 metres of road Infrastructure
	(4-P ₂ -CAT ₂) Predominantly wet Abuja climate	(3-P ₂ -CAT ₂) Navigation: walking, cycling, driving	(3-P ₂ -CAT ₂) Uncoordinated sewage infrastructure
	(4-P ₂ -CAT ₂) Stagnant water puddles	(4-P ₂ -CAT ₂) Mosquitos	(3-P ₂ -CAT ₂) Inadequate Solid waste infrastructure



(P ₃ -CAT ₂) THE GARKI VILLAGE'S DEMOGRAPHY	(1-P ₃ -CAT ₂) Estimated 5000 population	(1-P ₃ -CAT ₂) Distance and non-availability of Farmland	(1-P ₃ -CAT ₂) Extended family structures
	(1-P ₃ -CAT ₂) Gbagyi/Hausa ethnic majority	(1-P ₃ -CAT ₂) Other ethnic minorities	(1-P ₃ -CAT ₂) Rich media and festival culture
	(1-P ₃ -CAT ₂) Varied work engagements	(2-P ₃ -CAT ₂) Many enterprises and businesses	(2-P ₃ -CAT ₂) Mostly informal enterprise

	(2-P ₃ -CAT ₂) Prostitution and other social vices (Lagos St.)		
(P ₄ -CAT ₂) THE GARKI VILLAGE'S TENURE CONDITIONS	(1-P ₄ -CAT ₂) Customary tenure (1-P ₄ -CAT ₂) Flaunt their customary rights	(1-P ₄ -CAT ₂) Insecure tenancy (substantive rights until time of relocation)	(2-P ₄ -CAT ₂) Land vested in the FCT
(P ₅ -CAT ₂) THE GARKI VILLAGE'S POVERTY CONDITIONS	(1-P ₅ -CAT ₂) Challenge of sustaining income (2-P ₅ -CAT ₂) Socio-cultural amenity deprivation (3-P ₅ -CAT ₂) Socially excluded from the FCC development (3-P ₅ -CAT ₂) Participation exclusion	(1-P ₅ -CAT ₂) High cost of living in city (2-P ₅ -CAT ₂) Infrastructure and services deprivation (3-P ₅ -CAT ₂) Spatially excluded (3-P ₅ -CAT ₂) Lagos street security challenge	(1-P ₅ -CAT ₂) Income level above the poverty line (2-P ₅ -CAT ₂) Adequate communication connection (3-P ₅ -CAT ₂) Generally secure community (2-P ₅ -CAT ₂) Adequate access to city
Category 3 (CAT₃): Functional properties of slum			
(P ₆ -CAT ₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES FOR THE GARKI VILLAGE	(P ₆ -CAT ₃) Accessible domicile	(P ₆ -CAT ₃) Preference for the Abuja city-core	(P ₆ -CAT ₃) Native settlement
Category 4 (CAT₄): Procedures and Agency properties of slum			
(P ₇ -CAT ₄) THE GARKI VILLAGE'S ORIGIN OF	(1-P ₇ -CAT ₄) Illegal subdividing/procedures (2-P ₇ -CAT ₄) Urban village	(1-P ₇ -CAT ₄) Planned land/property possession	(1-P ₇ -CAT ₄) Standard settling/procedures

<p>(P₈-CAT₄) FORCES AND DRIVERS OF SLUM FOR THE GARKI VILLAGE</p>	<p>(1-P₈-CAT₄) Inter-urban and intra-urban migration</p> <p>(1-P₈-CAT₄) Bridge-headers in the community</p> <p>(2-P₈-CAT₄) Poverty as consideration for settling</p> <p>(4-P₈-CAT₄) Inefficient mass housing policy</p>	<p>(1-P₈-CAT₄) Demolition exercises in Abuja</p> <p>(1-P₈-CAT₄) Safer and more efficient city</p> <p>(2-P₈-CAT₄) Poverty is a consideration for staying</p>	<p>(1-P₈-CAT₄) Development opportunities</p> <p>(2-P₈-CAT₄) High Abuja rents</p> <p>(4-P₈-CAT₄) Inefficiencies in the Abuja Relocation/integration policy</p>
Category 5 (CAT₅): Structural properties of slum			
<p>(P₉-CAT₅) THE FORM OF GARKI VILLAGE</p>	<p>(1-P₉-CAT₅) Inadequate improved water source</p> <p>(1-P₉-CAT₅) Unimproved drinking water source</p> <p>(2-P₉-CAT₅) Challenging grey water disposal</p> <p>(3-P₉-CAT₅) High building density</p> <p>(4-P₉-CAT₅) irregular winding spatial pattern</p>	<p>(1-P₉-CAT₅) Limited water aquifer basin</p> <p>(1-P₉-CAT₅) Water collection is a burden for children</p> <p>(2-P₉-CAT₅) Strewn garbage</p> <p>(3-P₉-CAT₅) High occupancies</p>	<p>(1-P₉-CAT₅) Non-protected water</p> <p>(2-P₉-CAT₅) Blocked unorthodox water drainages</p> <p>(3-P₉-CAT₅) Higher population concentration (Lagos St.)</p> <p>(3-P₉-CAT₅) High population density</p>
Category 6 (CAT₆): Process properties of slum			
<p>(P₁₀-CAT₆) THE AGE AND EVOLUTION OF THE GARKI VILLAGE</p>	<p>(1-P₁₀-CAT₆) Ruling monarchy</p> <p>(1-P₁₀-CAT₆) Ethnic lines</p> <p>(1-P₁₀-CAT₆) Tradesmen (community of practice)</p>	<p>(1-P₁₀-CAT₆) Palaces as ruling HQTRS</p> <p>(1-P₁₀-CAT₆) Socio-economic community of interest</p> <p>(2-P₁₀-CAT₆) (Historic) traditional building structures</p>	<p>(1-P₁₀-CAT₆) Traditional power hierarchy and ethos</p> <p>(1-P₁₀-CAT₆) Strong familial and social ties</p> <p>(2-P₁₀-CAT₆) Addition & extension of house units</p>

	(2-P ₁₀ -CAT ₆) Upgrade of housing units	(2-P ₁₀ -CAT ₆) Family size home consolidation	(2-P ₁₀ -CAT ₆) Home consolidation to increase income
	(2-P ₁₀ -CAT ₆) Tenure conditions restrict home consolidation	(2-P ₁₀ -CAT ₆) boundary restricts home expansion	(2-P ₁₀ -CAT ₆) Unattended non-functional spaces
	(3-P ₁₀ -CAT ₆) Nigerian FCT relocation policy	(3-P ₁₀ -CAT ₆) Court action (for human rights)	(3-P ₁₀ -CAT ₆) Cultural demography evolution
	(3-P ₁₀ -CAT ₆) Inconsistent integration & resettlement programme policy	(3-P ₁₀ -CAT ₆) Integration bids	(3-P ₁₀ -CAT ₆) Historical Hausa-Fulani Invasions
	(3-P ₁₀ -CAT ₆) Over two centuries old settlement	(3-P ₁₀ -CAT ₆) Re-settling from hill as Garki evolution	(3-P ₁₀ -CAT ₆) Stable community governance
	(3-P ₁₀ -CAT ₆) Trade and agriculture as Garki evolution		

Category 7 (CAT₇): Personality traits of slum community

(P ₁₁ -CAT ₇) PLACE MAP: PERCEPTION OF GARKI VILLAGE BY ITS COMMUNITY	(P ₁₁ -CAT ₇) Apprehension (about tenancy)	(P ₁₁ -CAT ₇) (Lagos St. vice) disrupts sense of peace	(P ₁₁ -CAT ₇) Civil rights are disregarded
	(P ₁₁ -CAT ₇) Village is non-conducive to living	(P ₁₁ -CAT ₇) Sense of oppression	(P ₁₁ -CAT ₇) Privacies are infringed
	(P ₁₁ -CAT ₇) Garki is 'their homeland'		

Category 8 (CAT₈): Behaviours of slum community

(P ₁₂ -CAT ₈) HEALTH CONDITIONS IN GARKI VILLAGE	(P ₁₂ -CAT ₈) Sanitary related &/or air-borne diseases	(P ₁₂ -CAT ₈) Malaria	
(P ₁₃ -CAT ₈) ACTIVITIES OF PEOPLE IN GARKI VILLAGE	(P ₁₃ -CAT ₈) Petty crimes & drug use (Lagos St.)	(P ₁₃ -CAT ₈) Active resistance by youth	(P ₁₃ -CAT ₈) Identity endeavours
	(P ₁₃ -CAT ₈) Knowledge gathering, speaking out and other forms of involvement	(P ₁₃ -CAT ₈) Improving homes without due process	(P ₁₃ -CAT ₈) Pirating water connections

Making sense of and carrying out analysis on compiled information and data can be quite a challenge, especially since multiple and overlapping associations between properties are highly possible when describing the slum. The SPF implements Social Network Analysis (SNA) at this stage to document the interactive slum property map as a network and model it using a network graph (see Derek L Hansen et al., 2011; Newman, 2003). It does this by:

- Capturing all the descriptive properties that compile the slum property map as ‘nodes’ in the network with contextual information and the data attributed to them.
- Capturing, for slum properties that have been explicitly identified as having tag/anchor properties that they affect/influence/trigger, all the tags/anchors with type of association (whether affect/influence/trigger) as adjacent ‘edges’, including reciprocal ones. Each directed association with a tag/anchor qualifies as an ‘outdegree’ with a geodesic value of ‘1’. This endeavour leads to a ‘directed’ network of the slum property map, and, through its visual modelling, a ‘directed network graph’. An example of the Garki village directed network graph is shown in figure 7.8.

Because there are varying slum property categories (concept groups) and different types of associations (of either affect/influence/trigger) between them, a slum network is considered as a multimodal and multiplex network respectively (see Derek L. Hansen et al., 2011b; Derek L Hansen et al., 2011). For each descriptive property in the network graph of the slum property map, the higher its directed associations (represented as edges) to other properties the higher its influence in defining the character of the slum which is shown by the range of outdegree values. In the Garki village example (figure 7.8), (3-P₁₀-CAT₆) *inconsistent integration & resettlement programme policy*, (3-P₂-CAT₂) *inadequate water infrastructure*, and the (2-P₃-CAT₂) *many enterprises and businesses* are some of its properties that have highest outdegrees, at 10, 10, and 7 respectively, and play stronger but varying roles in defining its character. They affect/influence/trigger the character of more slum properties than others. The narrative of Garki slum property map is documented in section 8.1 as part of validation exercise of the thesis (see conclusion section 7.4).

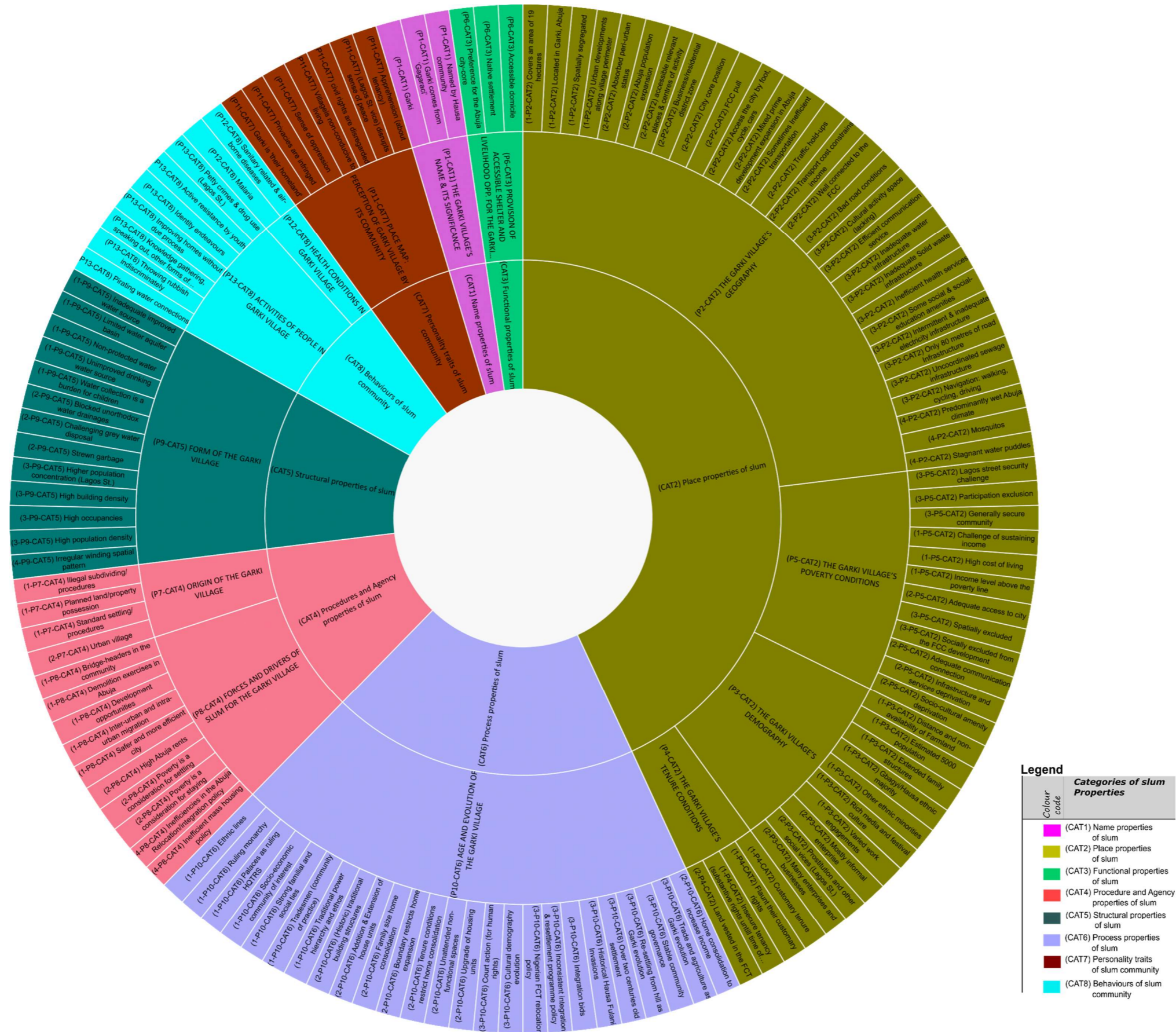


Figure 7.7: A schematic of comprehensive lists of properties in the slum property map of the Garki village. Source: author.

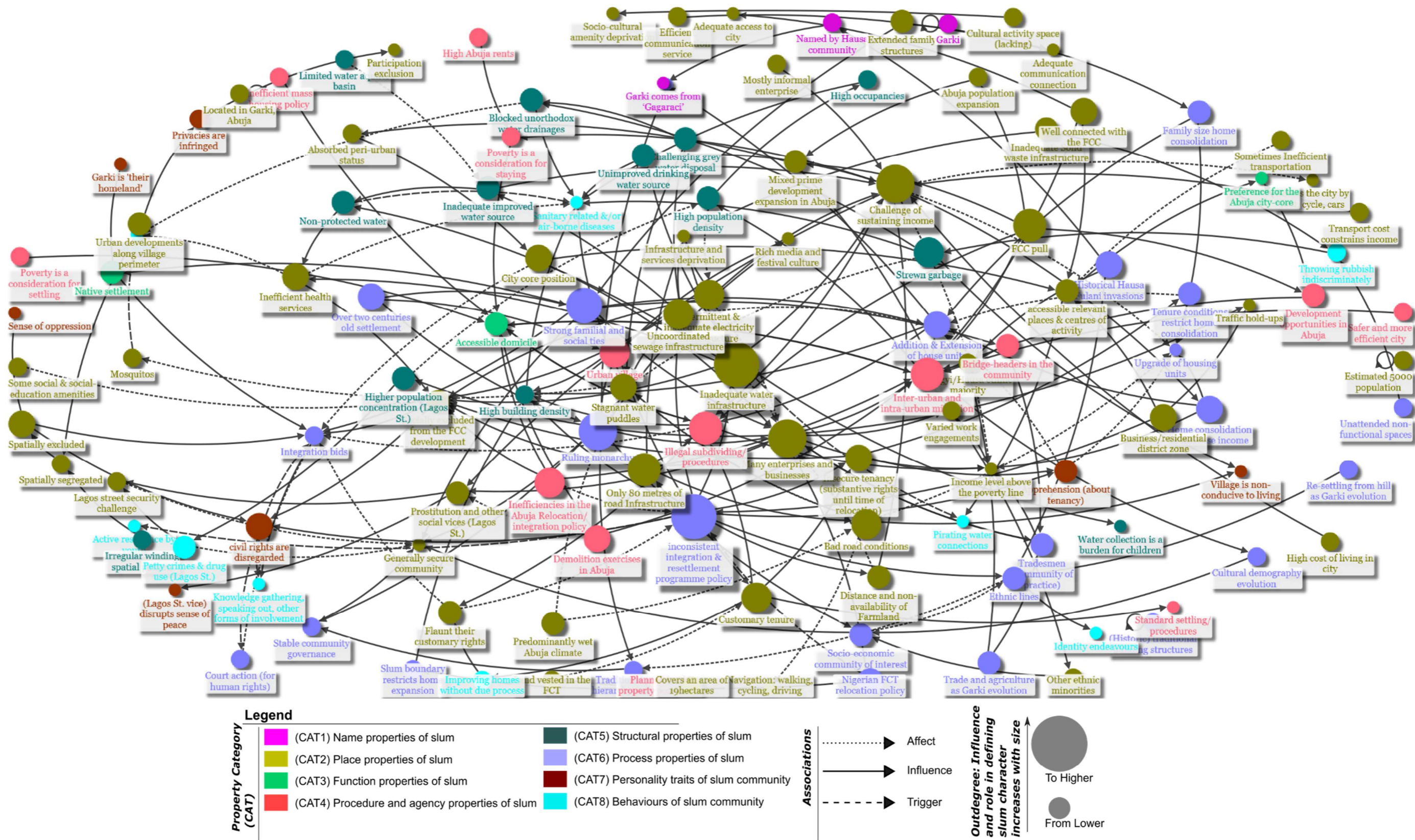


Figure 7.8: A network graph of the Garki village slum property map showing associations between properties that are tags/anchors to each other and their outdegree. The largest property vertices are those with the highest outdegree and influence in defining the character of the slum. Those with loops associate with themselves or do not associate with any property. Here, the number codes for the slum properties are removed to make labels clearer, the lists of properties in table 7.1. can be further consulted. Source: author.

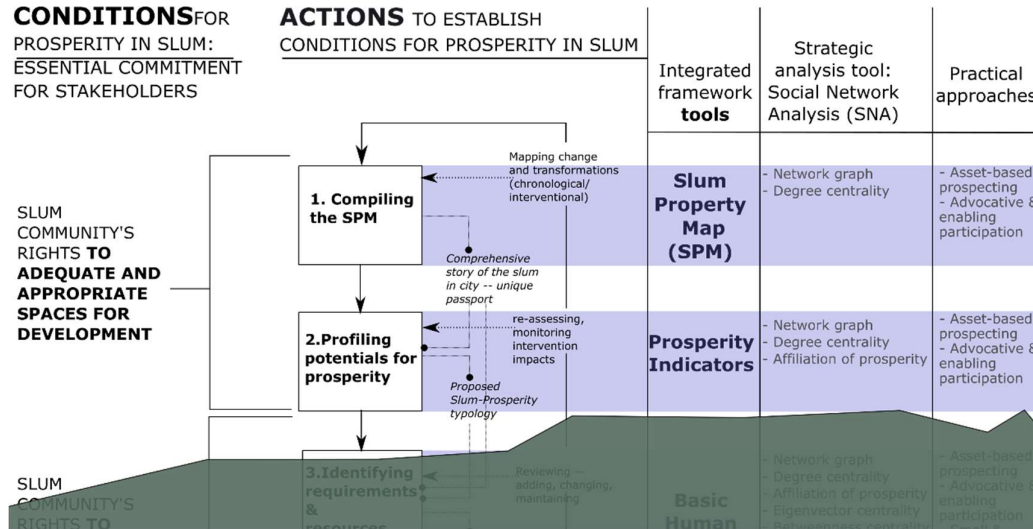
7.3.1.1 Outcomes

The outcomes of fulfilling this action of compiling the slum property map is a comprehensive interactive and applicable framework that defines a slum through:

- A range of property sets that describe and capture its nature in reality (table 7.1 and figure 7.7).
- Comprehensive information and supporting data in appropriate formats – knowledge, attributes of values, literature, implicit responses, maps, physical evidence documentation, visuals and diagrams, including effective methods used to collect data.
- The way they associate relative to effects on each other. One which can be conceptually and visually tracked and navigated in a model graph that also qualifies such associations (figure 7.8). This is an important visual component in addressing improvement towards prosperity.
- In all, a comprehensive interactive slum property map and story of how it exists in the city. As compiling the slum property map is set to be essentially participative, any outcome would be perceived as relevant, appropriate, and applicable by all slum and other stakeholders.

These outcomes will be the slum's unique passport in the city and a framework within which to consider how the slum character might play enhancing or inhibiting parts in the pursuit of prosperity.

7.3.2 Action 2: Profiling potentials for prosperity



This is the second action for approaching development in the slum. It is fulfilled when the information gained so far – the slum property map of physical, spatial, social, economic, and environmental properties that describe the slum’s space – is looked at by stakeholders to establish how adequate and appropriate they are at affording people the capacities to develop. That is, they are set on a scale that indicates their relative distance to prosperity, allowing intervention that strategically streamlines and monitors practice with an eye towards improving conditions for it. Asset-based prospecting within the slum property map helps to profile the prosperity potential for slum properties. This should also be conducted through advocative and enabling participation.

Pursuit of development towards prosperity is not a mechanical endeavour, rather it must be locally and contextually asset-based. There is the potential to combine the framework of properties for any slum property map, so that it illuminates pathways to prosperity in relevant areas. This action is, based on applying the framework of indicators for prosperity (Appendix V) and matching individual properties that describe the slum to model real-life contexts (for supporting development), through simple logical judgements. The objective is to establish whether they enhance or inhibit such contexts and therefore the pursuit of development. There are fifty-four proposed indicators for prosperity organised about interrelated dimensions of people, the wider environment, and management structures. These indicators are considered to be applicable to and can match any slum property map (figure 7.9). The matching of the slum property map to indicators for prosperity provides a comparative and structured but also non-fixed and permeable map (as people affect the environments they live in and vice versa). This frames slums in relation to prospects for development and, prosperity – a contextual slum-prosperity map.

Objective instructions for coding, structuring, qualifying and valuing slum properties' matches to prosperity indicators further supports this endeavour (see Abeyasekera, 2005; NIST/SEMATECH, 2012; Sauro, 2012). A positive '+1' value shows the potential of a slum property matching an indicator of prosperity to support and therefore enhance the model context it captures; essentially, such a slum property will positively describe the slum's character. By contrast, a negative '-1' value shows the potential of a slum property matching an indicator of prosperity to infringe the model context it captures and as such inhibit it; the descriptive slum property will essentially be a negative challenge to the slum. This research strove to match the Garki village slum property map to indicators for prosperity. Table 7.2 shows an excerpt with qualifications of slum properties as an example, building its slum-prosperity map. A schematic of the map is shown in figure 7.10.

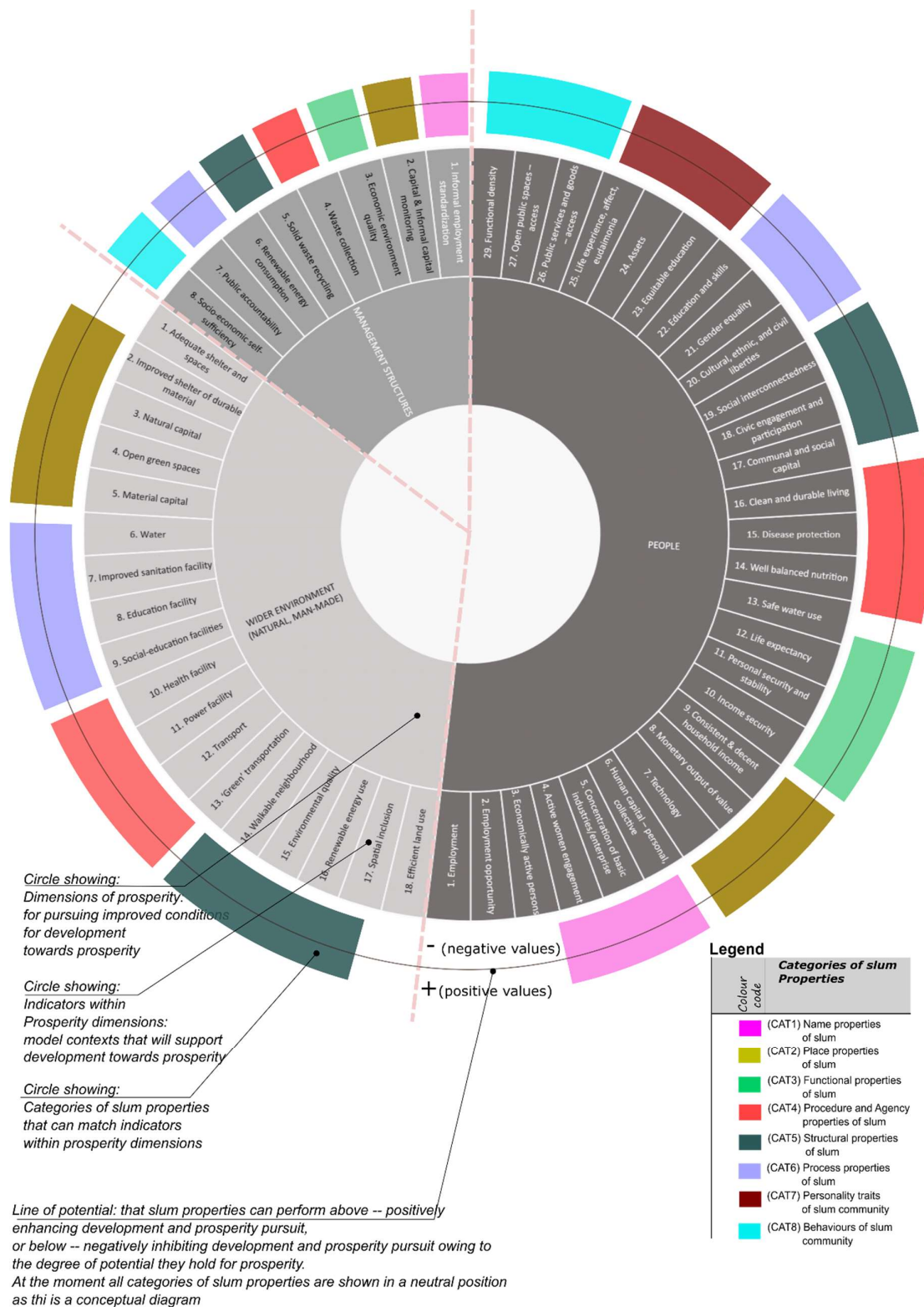


Figure 7.9: The framework of indicators for prosperity grouped about people, wider environment, and management structures. It shows potential matches to any slum property map where they can enhance or inhibit prosperity pursuit. The dash line between groups are used to show that the boundaries between them are non-fixed and permeable. Source: author.

Table 7.2: Matching, valuing, and qualifying slum properties to indicators for prosperity: an example.

Source: author.

Dimension of prosperity	Indicator for prosperity	Slum property that matches indicator for prosperity	Potential that slum property holds for prosperity	Value of potential that slum property holds for prosperity
Management structures	1. Informal employment standardization	(2-P ₃ -CAT ₂) Mostly informal enterprise	Negative match: potential to inhibit development towards prosperity	-1
Management structures	5. Waste collection	(2-P ₉ -CAT ₅) Blocked unorthodox water drainages	Negative match: potential to inhibit development towards prosperity	-1
People	1. Employment	(1-P ₃ -CAT ₂) Varied work engagements	Positive match: potential to enhance development towards prosperity	1
People	1. Employment	(2-P ₃ -CAT ₂) Many enterprises and businesses	Positive match: potential to enhance development towards prosperity	1
People	5. Concentration of basic industries/enterprise	(2-P ₃ -CAT ₂) Many enterprises and businesses	Positive match: potential to enhance development towards prosperity	1
People	11. Personal security and stability	(2-P ₃ -CAT ₂) Prostitution and other social vices (Lagos St.)	Negative match: potential to inhibit development towards prosperity	-1
People	11. Personal security and stability	(3-P ₉ -CAT ₅) High building density	Negative match: potential to inhibit development towards prosperity	-1
People	17. Communal and social capital	(1-P ₁₀ -CAT ₆) Ethnic lines	Negative match: potential to inhibit development towards prosperity	-1

Wider environment	1. Adequate shelter and spaces	(3-P ₉ -CAT ₅) Higher population concentration (Lagos St.)	Negative match: potential to inhibit development towards prosperity	-1
Wider environment	1. Adequate shelter and spaces	(3-P ₉ -CAT ₅) High occupancies	Negative match: potential to inhibit development towards prosperity	-1
Wider environment	9. Social-education facilities	(3-P ₂ -CAT ₂) Some social & social-education amenities	Positive match: potential to enhance development towards prosperity	1

In this example, the Garki village has (3-P₂-CAT₂) some social and social-educational amenities. This indicates that it supports '9. Social-education facility,' a wider environmental dimension, whilst (2-P₃-CAT₂) prostitution and other social vices (Lagos St.) indicates they are not protected and invulnerable to vice and its effect in society, which infringes '11. Personal security and stability' of people. A slum property can categorically match one or more indicators of prosperity when it matches their context or none at all when it neither supports nor inhibits any model context – e.g. the property that describes the Garki village as an (1-P₃-CAT₂) estimated 5000 population.

SNA is implemented here to affiliate the slum property map network to prosperity matches and attribute the values that qualify such matches, becoming an affiliation network (see Derek L. Hansen et al., 2011a). This helps to build a pattern graph that maps the cumulative potential for prosperity across slum properties, objectively capturing the contextual slum-prosperity map as well as mapping influential roles between properties that define the slum. An example of such a pattern graph of the Garki village slum-prosperity map is shown in figure 7.11. Here, the village's (2-P₃-CAT₂) many enterprises and businesses, and that they are (2-P₂-CAT₂) well connected to the FCC (Federal Capital City) hold high potentials to enhance development towards prosperity at 4 and 3 points respectively. While (3-P₉-CAT₅) high building density has the most potential to inhibit it at -5points. Taking a positive outlook, the overall degree to which the slum space, through its properties, enhances prosperity (all positive '+1' matches) on a scale of overall slum-prosperity map provides a prosperity index of the slum.

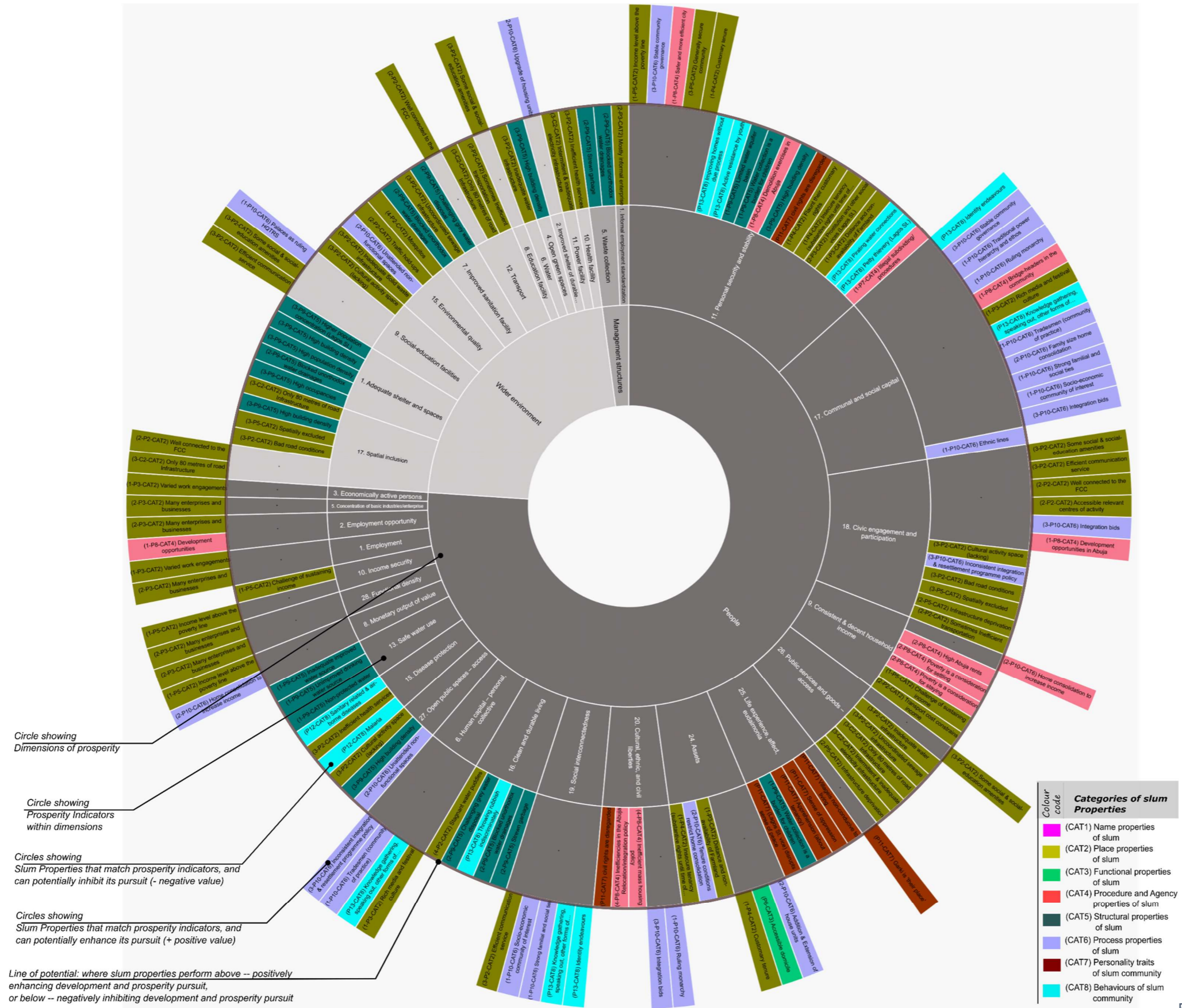


Figure 7.10: Slum-prosperity map of Garki village

showing contextual matches to prosperity indicators and how properties inhibit (below the line of potential) or enhance (above the line of potential) pursuits of development towards prosperity. For Garki village, slum properties below the line of potential are considerably more than those above. Source: author.

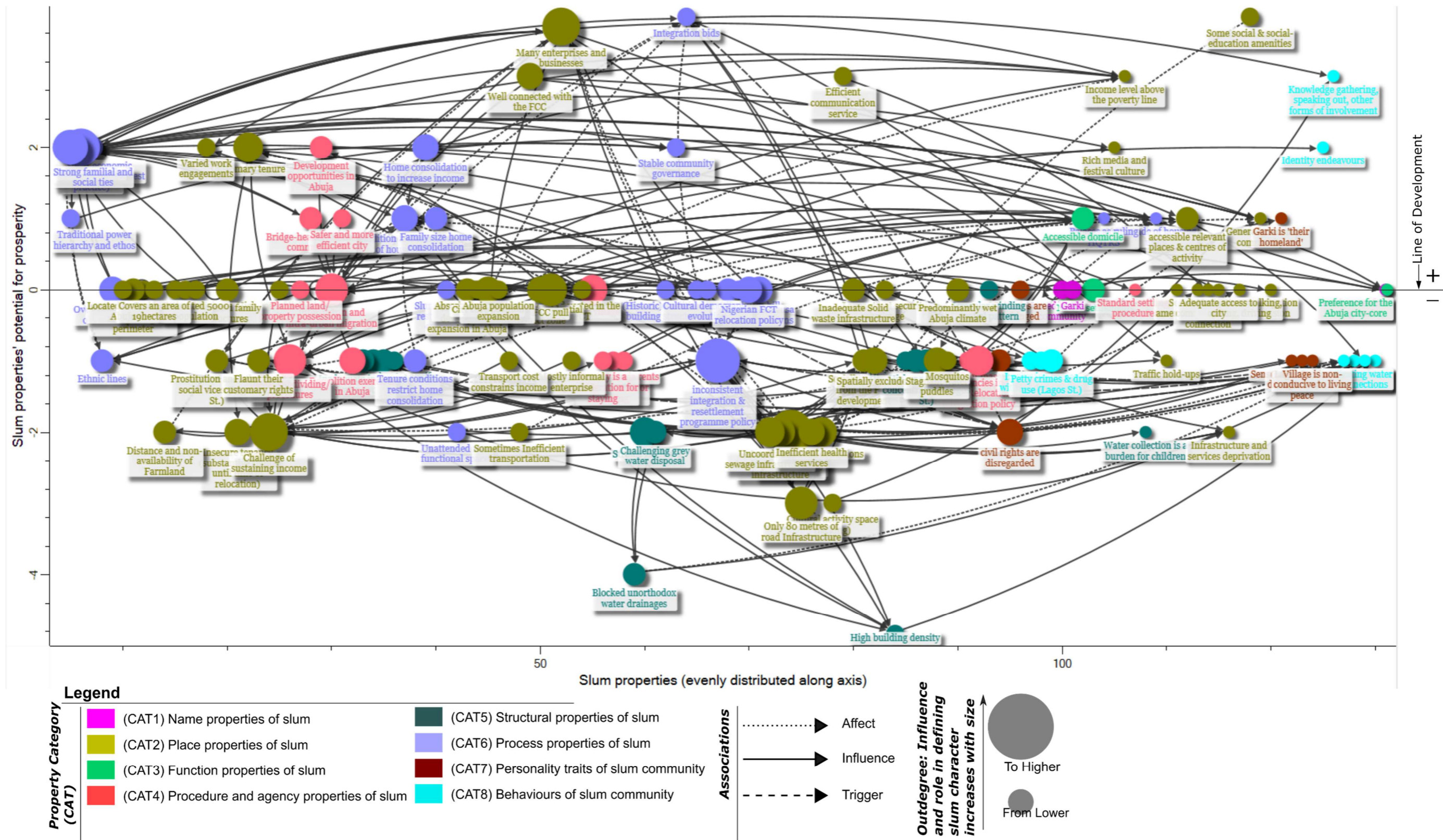


Figure 7.11: A pattern graph of slum-prosperity: an objective representation of Garki village's comprehensive slum property map showing associations between properties and their outdegree highlighting those with influence in slum character, and how properties potentially enhance or inhibit prosperity. Properties along the '0' mark potentially neither enhance or inhibit prosperity (here, the number codes for the slum properties are removed to make labels clearer, the lists of properties in table 7.1. can be further consulted). Source: author.

7.3.2.1 Outcomes

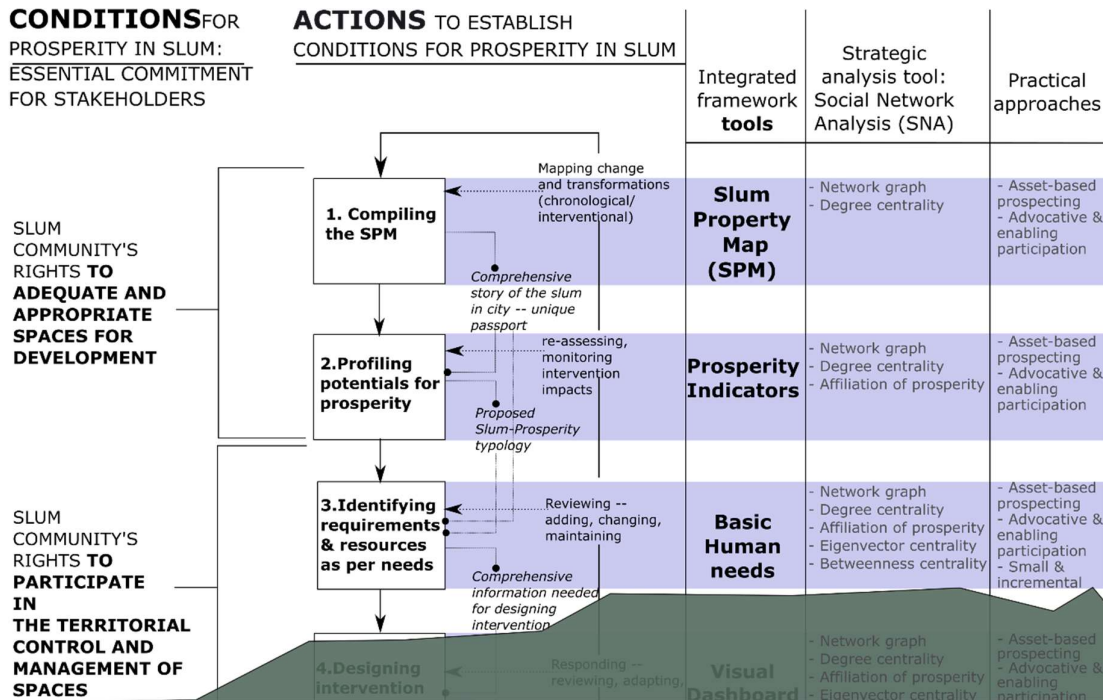
The outcomes at this stage are incremental sets of results in addition to outcomes from action 1:

- A comprehensive conceptualization of (1) how the slum property map performs across areas of (people, wider environment, and management structures) indicators for prosperity, the varying model contexts that they capture, which needs to be considered, and a slum-prosperity map (see figure 7.10); (2) qualification of such prosperity in the comprehensive slum property map with an objective pattern graph (see figure 7.11); and (3) a prosperity index (decimal from 0.00 to 1 or percentage from 1% to 100%) that shows the slum spaces' affordance for and relative distance from prosperity. For stakeholders, the slum community, and the city, the prosperity index is a point of reference and an objective 'pace-setter' to be improved on and surpassed. This is apt since the pursuit of global urban prosperity is, as convention, being watched and monitored.
- In general, the slum-prosperity map and index can serve as a 'typology of the slum in the city.' A 'type' in urbanism is a rationally derived abstraction or notion that catalogues and classifies/categorises something into recognizable and clearly comprehensible concepts (Cuthbert, 2011; Scheer, 2010). Slums that have indices which perform above the average median of a maximum value of '1' decimal or 100%, which is 0.5 or 50%, are categorically 'above average' or 'slums of hope'.¹⁵⁷ Any such slum has more potential for enhancing prosperity than inhibiting it, and with concerted efforts can be mobilised so that it creates better prospects for prosperity. Slums that perform below the median average can be typified as 'below average' or 'slums of despair'. This means that they inhibit more than enhance prosperity pursuit and will require more concerted efforts to set them on track and enable prosperity. This is therefore the case for the Garki village Abuja example, as it showed a prosperity potential index of 0.404 or 40%.

As principles of engagement are maintained, any slum-prosperity map and typology are better understood and deemed valid by slum community through appropriate feedback program and interaction. The slum-prosperity map provides actionable frames within which to begin to contemplate better prospects for prosperity in the slum.

¹⁵⁷ Stokes (1962) proposed the initial concept of slums that distinguished between slums of hope – those moving up in structure socially and physically, and slums of despair – those that are in some way denied the privileges of moving up.

7.3.3 Action 3: Identifying requirements and resources as per needs



This action interfaces between the first condition for prosperity, slum community's rights to appropriate and adequate spaces for development, and the second, slum community's rights to participate in territorial control and management of spaces. This action guides stakeholders to an understanding of how to generate a strategic plan to 'push-up' the character of the slum space to make it appropriate and adequate to support development and engage with thriving and prosperity. In this way, also pushing up the urban prosperity 'typology' of the slum. This action involves defining what should be done to improve the slum properties that show positive potential for enhancing prosperity and sustaining them. In addition, and most important, to improve those that challenge and inhibit development towards prosperity to ensure they support capacities for it. An approach that remains comprehensively prospective while also maintaining ideals of advocative and enabling participation, helps to fulfil this action. Also, it is key that endeavours consider small and incremental pursuits in every way. This will create an environment where improvement programs can be done in an incremental manner together with the slum community itself; thus, reducing the chance of their being overwhelmed with the risk of resistance, and increasing the chances of success. This sets the stage to establish the second condition for prosperity.

The SPF approaches this action first through a study of 'eigenvectors' in the slum property map of a slum. Eigenvector properties have a high degree of reach, owing to the extent of both direct and secondary associations to other properties (properties they directly affect/influence/trigger and other properties that their direct linked properties further

affect/influence/trigger respectively) (see Derek L Hansen et al., 2011). Hence, eigenvectors in a slum property map are properties that when they are scaled-up or corrected, will create a ripple effect along linked properties and overall a wide impact in improving the slum character. Here, SNA also helps support logical stakeholder analysis to identify eigenvectors in the slum property map network.

To become a target of engagement for improvement, however, the eigenvectors also have to show other relevant characteristics. So, in association with the comprehensive slum-prosperity map, properties that are possible targets of engagement for improving the slum character and ensuring development, in whatever context, will be: (1) in order of relevance, those with high a potential for enhancing prosperity that need to be scaled-up in order to sustain prosperity prospects, have significant eigenvector characteristics, as well as high outdegree and influence, so they widely impact positive change in the slum character overall. (2) Then, in order of relevance also, those with high potential for inhibiting prosperity that need to be corrected in order to improve prosperity prospects, have significant eigenvector qualities, and high outdegree and influence, so as to widely impact the same positive change in the slum character overall. Reviewing these requirements within a network model of slum-prosperity-eigenvectors supports these considerations. In the example of Garki village shown in figure 7.12, (here the researcher made initial assessments and choices) potential first targets to scale-up and sustain can include (2-P₃-CAT₂) many enterprises and businesses, and their (3-P₁₀-CAT₆) integration bids owing to their high potential for prosperity, substantial eigenvector values (at 0.038 and 0.023 respectively) and outdegree. While potential targets of engagement to correct can include (1-P₅-CAT₂) challenge of sustaining income and (3-P₂-CAT₂) inadequate water infrastructure owing to their high potential to inhibit prosperity, substantial eigenvector values (at 0.034, and 0.033 respectively) and outdegree.

As noted, it is important to take up few and manageable tasks at a time. Debates about selecting first choices of engagement, which should be few (not many – see first paragraph in this section), from amongst descriptive slum properties that have been identified as potential targets of engagement, so as to establish the most effective improvement outcomes at the onset, should generally consider:

- Their direct and secondary linked properties that could essentially benefit from any improvement plan implemented and what the expected outcomes will be on their character and the slum's in general. These properties could themselves become possible targets for incremental engagement. This deliberation is supported by reviewing slum property groups/clusters that are linked to eigenvectors more than others (see Derek L Hansen et al., 2011). Figure 7.13 shows slum property groups/clusters for the Garki village slum property map.

- Following this, their role, when up-scaled or corrected, in supporting the pursuit of needs – by order of relevance – ‘subsistence’, then ‘security needs’ as they can substantially challenge subsistence when compromised. Then other needs can be considered. The pursuit of other needs within the basic needs can be considerably synergised to fulfil that of subsistence. This assessment is based on simple reasoning and supported by the definition framework of basic human needs (Max-Neef, 1992) presented in box 6.1 in section 6.2.1, which highlights what they mean and why they are important.

This activity will lead to manageable yet structured sets of descriptive slum properties that are first choices of engagement within which to consider the following: (1) the ideal nature of upscaled or corrected spaces; for the SPF, ideal spaces will be what are adequate and appropriate to substitute choices of engagement and make the slum character as efficient for supporting development as per needs – necessary satisfiers for it. For example, a type of space that could substitute (3-P₉-CAT₅) high building density in the Garki slum property map could be ‘standard densities’ etc. Then, this would tell stakeholders something about (2) the necessary resources to effectively realise such ideal nature of spaces in the intervention program. Resources will be the inputs, suitable to the context of ideal spaces, that are required to upscale a positive target of engagement or correct and/or remove a (negative) challenging one.

Resources could be other space settings (tangible or intangible) or activities that may need to be enacted; these may be contexts that already exist in reality and are accessible or those that will be built up from even the smallest of sources. For the SPF, the starting point for establishing the most effective resources to fulfil ideal space requirements is of course the slum property map (figure 7.14), to consider the following:

- The overall context of the slum property that is the target of engagement – comprehensive description with supporting information and data, and their associations that show how they affect/influence/trigger other properties and vice versa. The contexts of resources can considerably align to the concept of the slum property – tangible and intangible contexts that slum community need to have or interactions to establish with regards (CAT₁) name, (CAT₂) place, (CAT₃) function, (CAT₄) procedures and agency, (CAT₅) structure, and (CAT₆) processes, or they include activities and people’s conditions of being with regards (CAT₇) personality traits and (CAT₈) behaviours. Their associations may also highlight possible choices or vulnerabilities and potential risks to counter or avoid.
- Then, the expected impact of upscaling a positive target of engagement or correcting and/or removing a (negative) challenge to an eigenvector group/cluster earlier

established. Essentially, any planned resource implementation of a target property for action should effectively cause some positive ripple effect in the character of linked properties. Also, whether such a resource will be effective to any influencers/triggers of target property.

- The model real-life context of prosperity (indicator(s)) that the property is affiliated with and their thematic group(s) – people, the wider environment (natural and man-made), and management structures. If the property is affiliated with a prosperity indicator of people, for instance, then a resource can be something that will directly reflect such context and impact people.

Resources implementations should, however, be augmented by identified ‘starting-blocks’ within the character of the slum that can activate (see Hamdi, 2004), broker, or partner with such practical and positive improvements to slum. For the SPF, starting-blocks are any physical, social, or behavioural etc. contexts of the slum property map that do not inhibit prosperity and have high potential to act as such and/or with at least over average ‘betweenness centrality’. That is, those properties, which in their associations are relevantly positioned between networks of linked slum properties, and may act as ‘bridges’, or in a more functional perspective become ‘bridge-builders’ between them (see Derek L. Hansen et al., 2011a). Choice of bridge-builders from within the slum property map is non-exclusive, and furthermore, non-dismissive of any potential impact in the slum property map if implemented along with resources. This logical analysis is also supported by a betweenness centrality analysis in SNA to develop a slum-prosperity-eigenvector-betweenness map. For the Garki village example shown in figure 7.15, the (2-P₃-CAT₂) many enterprises and businesses, having a (1-P₁₀-CAT₆) ruling monarchy and (1-P₁₀-CAT₆) strong familial and social ties, and the (2-P₂-CAT₂) accessible relevant places and centres of activity can be potential starting-blocks owing to their potential to enhance prosperity and over average betweenness values at 2859, 913, and 1045 respectively.

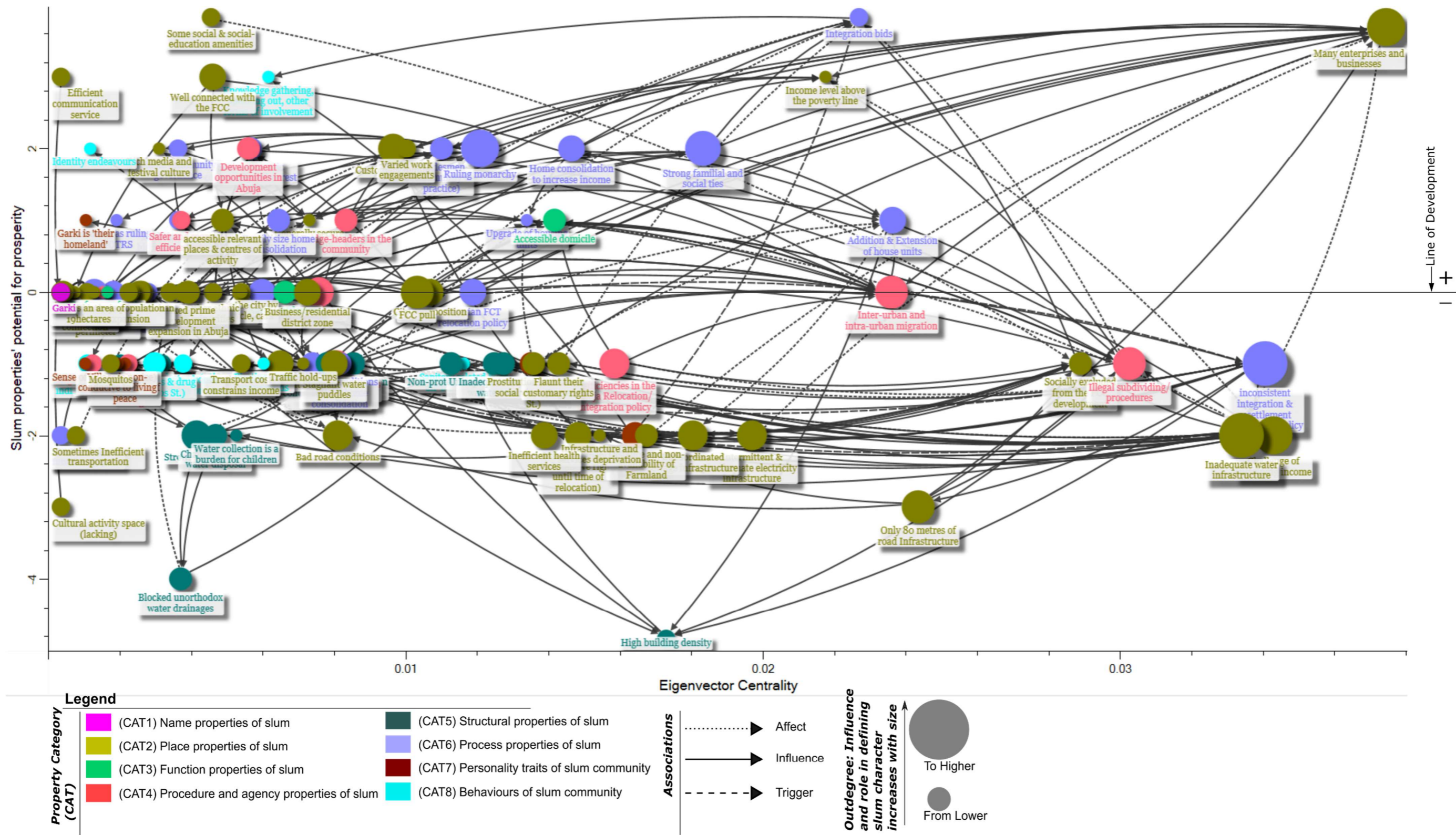


Figure 7.12: The Garki village slum-prosperity-eigenvector map: showing comprehensive slum property map with outdegree and with influence in slum character, and how properties potentially enhance or inhibit prosperity showing values along the vertical Y axis, and eigenvector values are used to arrange the slum properties along the horizontal X axis (here, the number codes for the slum properties are removed to make labels clearer, the lists of properties in table 7.1. can be further consulted). Source: author.

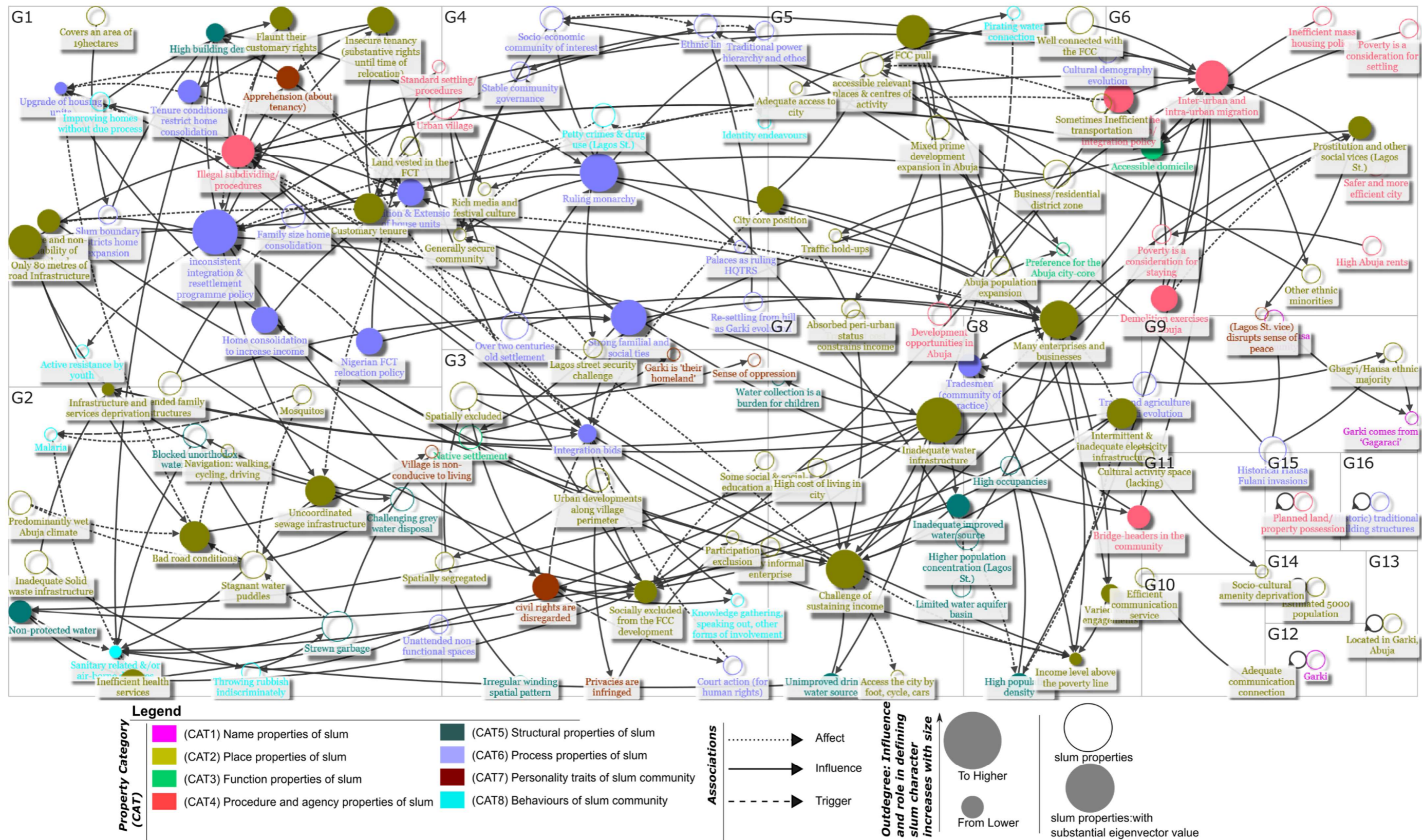


Figure 7.13: Garki village slum property map property clusters or groups – G1 to G17 – more linked to each other. The properties with substantial eigenvector values (over average) have been left as solid disks to make them somewhat explicit within the map of properties, while other properties are set as nonsolid (circles) (here, the number codes for the slum properties are removed to make labels clearer, the lists of properties in table 7.1. can be further consulted). Source: author.

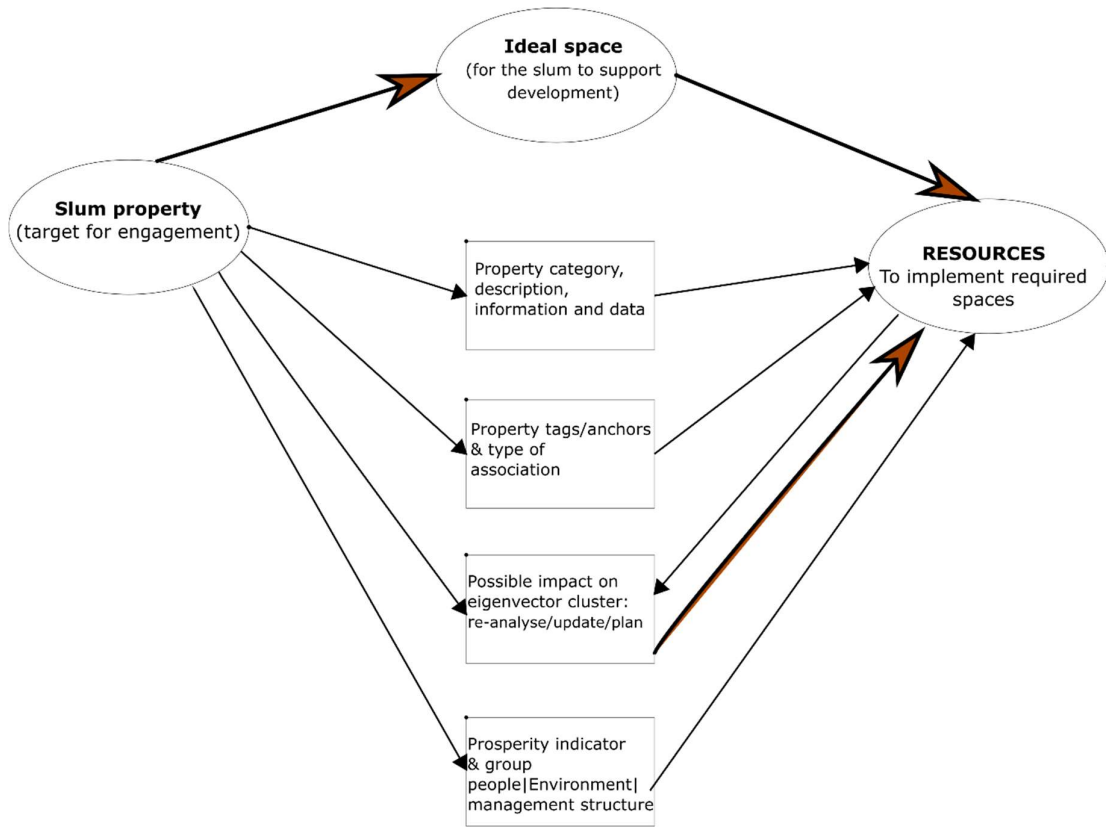


Figure 7.14: Aspects that will determine appropriate resources to implement ideal spaces in the slum.
Source: author.

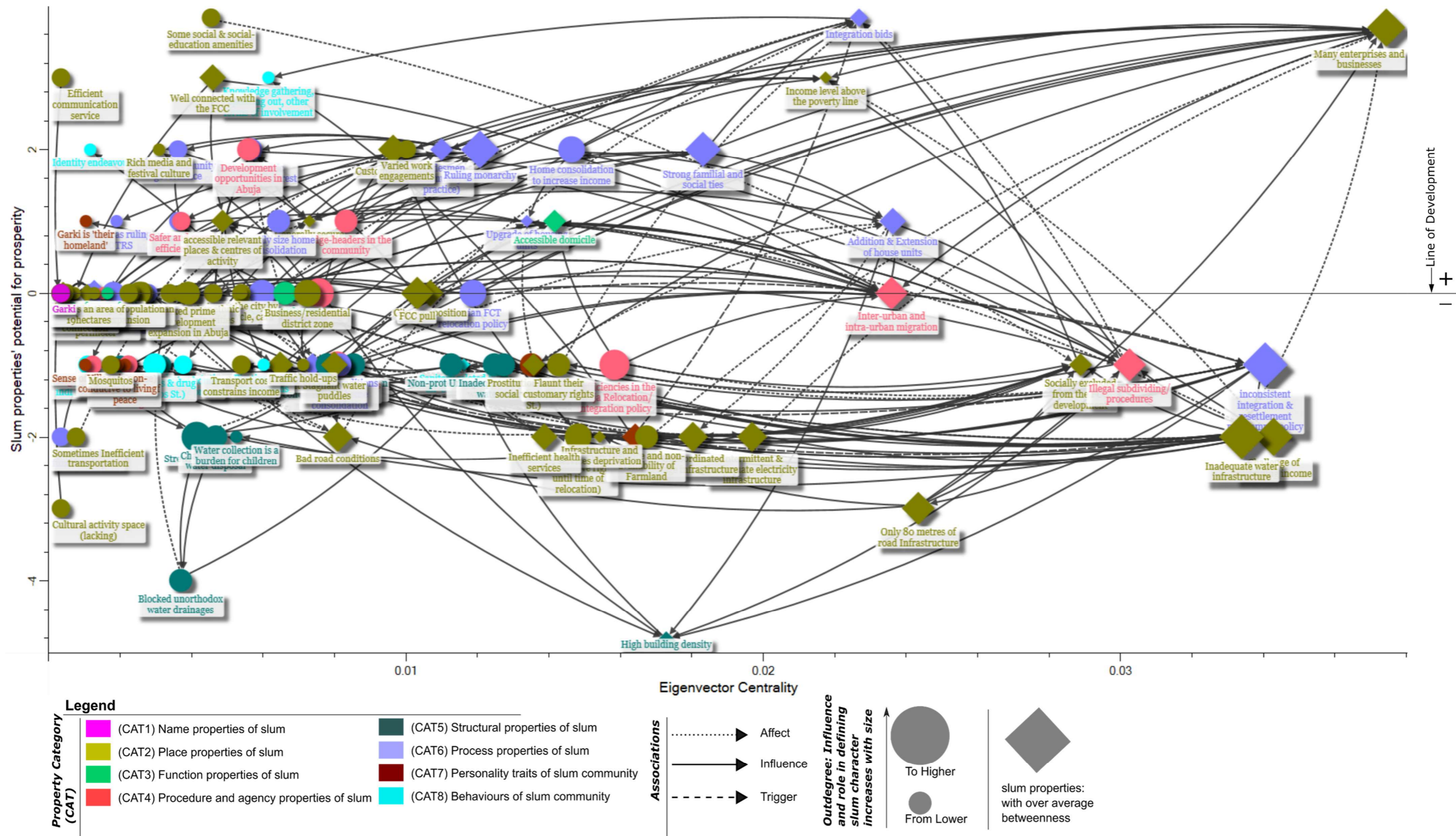


Figure 7.15: The Garki village slum-prosperity-eigenvector-betweenness map: showing comprehensive slum property map with outdegree and with influence in slum character, and how properties potentially enhance or inhibit prosperity, eigenvectors with highest values along the horizontal X-axis, and properties with potential bridge-building capacity (diamond shapes) (here, the number codes for the slum properties are removed to make labels clearer, the lists of properties in table 7.1. can be further consulted). Source: author.

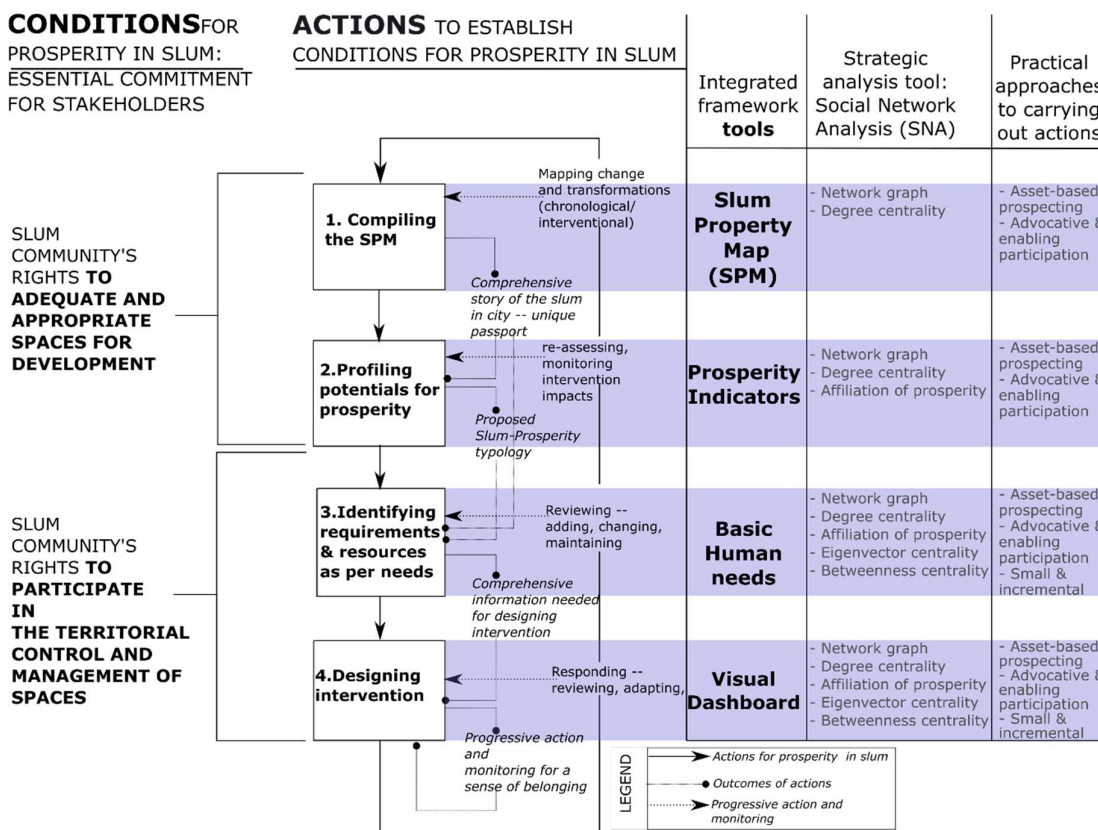
7.3.3.1 Outcomes

The outcomes so far from actions 1, 2, and 3, provide comprehensive information to guide the design of a slum intervention program and effectively pursue prosperity:

- A comprehensive set of contexts – targets of engagement with required ideal spaces and resources to implement them – that are necessary and appropriate for improving the character of the slum and their prosperity typology. These will consider the priorities of slum community, strengths, vulnerabilities, and potential risks, in addition to vibrant avenues for actively and pragmatically realising set targets in coalition with the slum community (see figure 7.12, 7.13, and 7.15).
- Following from this, is an objective framework of possible pathways for engagement that are a first step to designing a contextually specific intervention program for improvement towards prosperity in slum.

However, an effective intervention program should necessarily be the outcome of intense feedback and buy-in processes with slum community involving all outcomes so far. Notably, perceptions of outcomes can vary owing to people's ideology, customs and cultures (including religion), aspirations and how they respond to climates of the place; conducting robust and rational debates, concessions, and consensuses are, however, easier when stakeholders have advanced knowledge (all outcomes of actions so far) of the slum overall.

7.3.4 Action 4: Designing intervention



The outcomes of actions conducted so far constitute a robust framework of engagement to be carried through to implementation, making improvements in slum conditions – initiating the path to development, thriving and prosperity. The pursuit of this path will need to be progressive and include programs set to sustain outcomes of initiatives through life changes and transformations, with the slum community having primary control. In the slum (just like other human communities) relations between people and their environment are continuous, dynamic, and unpredictable²¹⁵, and change is imminent (Ellin, 2013; Habraken, 1998; Hamdi, 2004; Walker and Salt, 2012). Complexities that surround the slum will still exist even though it has been sufficiently defined with outlined targets of intervention. As much as it is essential to have a systematic approach to intervening in slums, it is equally important to be able to deal with local complexities as they occur. This is the minimum that is required for prosperity.

Hence, it is expected that the design of an effective slum improvement program first considers the comprehensive outcomes of action 1-3 so far; second, interactively targets all milieus of development activities – people, their networks and relations, and wider environment (natural and man-made); third, it is set to be flexible and allowed to adapt when needed, and to keep

²¹⁵ Being able to define the slum relative to these changes and properly manage it is a gap that the SPM has sought to fulfil.

delivering small improvements along the way. Essentially, in this pursuit, the slum community is adequately enabled through appropriate activity settings, human capacity building, and rigorous guidance to play an active role in overall planning, design and primary implementation of intervention. In this way, it finds a complementary middle ground between bottom-up initiatives and essential top-down ones. What's more, keeping engagement with slum community alive will serve to maintain the essential 'buy-in' achieved, awarding them better control and responsibility within it and sense of belonging. When the slum community can respond well to changes and challenges, development initiatives stand a better chance of sustaining and therefore engaging prosperity even after intervention has drawn to a close.

In all, for stakeholders, the SPF provides a framework to support (1) progressive pursuit of improvement for prosperity that can be monitored and (2) flexibility and responsiveness to it to fulfil both required conditions for prosperity:

In the first instance, the SPM manual can be applied in a dynamic way to map changes that characterize the nature of the slum and assess impact of intervention on its unique character (action 1). The slum-prosperity map and typology of the slum, along with the comprehensive slum property map, can also be incrementally updated applying the necessary framework tools to assess its relative distance from prosperity (action 2); this will be a valid pointer for re-strategizing or reviewing – adding, changing, or maintaining set course of actions to establish the second condition for prosperity in the slum (action 3 and implementation in 4). These incremental maps of slum-prosperity are essential knowledge bases to be learnt from and used strategically in slum engagement and other similar programs.

In the second instance, actions can be approached on an 'as-needed' basis, or each from its own conceptual angle. If for instance complexities arise within the slum or the city – especially about (4-P₈-CAT₄) structural policies and institutional functions – that can affect the slum community, and it becomes necessary to re-map the slum (action 1), or review eigenvectors, resources, or starting-blocks (action 3), then appropriately review and adapt the slum intervention program. Or, if, for instance, it becomes necessary to re-assess a slum's position in terms of city prosperity due to progression in prosperity research or initiatives, or to posit other relevant prosperity indicators, then the relevant action can be reviewed (action 2). Ultimately, the implementation of a real-time visual dashboard tool (Batty and Hudson-smith, 2014; Few, 2009) capturing all chronological engagement within the SPF – activities, documented outcomes, changes made, re-assessments, revisions, and adaptations with progresses made – can potentially become a platform for advocacy and new partnerships, knowledge extension and a data cache. This concept of a visual dashboard can be as versatile as the human imagination and as advanced as the interactive technology that is

available and accessible. For example, it can be a white board, a computer application, an online digital billboard (like the example in figure 7.16), standard digital billboard, website etc.



Figure 7.16: A example of a real-time dashboard. This one is an online digital dashboard that shows live weather data feeds for London city. Source: (Batty and Hudson-smith, 2014, p. 10).

7.3.4.1 Outcomes

In sum, the SPF provides stakeholders with a myriad of potentialities or possible pathways that they can pursue to improve lives and livelihoods in the slum and enhance prosperity for the slum and city. They can consider the most logical paths to implement and move the slum from a prosperity situation (of despair, for instance) to a more advanced one (of hope, for instance).

7.4 Conclusion

The intention of this chapter was to propose an actionable framework for intervention in slums – the Slum-Prosperity Framework (SPF). The principal objective of the SPF is to commit stakeholders to invest in pathways with which to positively engage slums and move them and the city towards prosperity. It is the culmination of this research that sought to comprehensively define slums through conceptual sets of properties, the Slum Property Map (SPM), and explain the pursuit of prosperity by extending analysis from the Theory of Human Motivation and Needs. The SPF operationalises the path to prosperity – development and thriving – and integrates the SPM along with other framework tools that include indicators for slum prosperity, definition of basic human needs, and an acquired visual dashboard in its conceptual set-up. The implementation of the SPM in the framework is key to its overall operation.

For prosperity in any slum that is the focus of intervention, the SPF streamlines four relevant actions for stakeholder implementation in order to establish conditions that will enable the slum community to develop and thrive. The conditions include having rights to (1) appropriate and adequate spaces for development and (2) to participate in the territorial control and management of their spaces. A strategic social network analysis (SNA) tool and practical approaches for engaging with actions for prosperity form relevant requirements for inclusive and effective implementation of the path to prosperity in the slum. This is because it is important for any slum-prosperity framework to efficiently engage stakeholders in real world environments in view of effective outcomes. A balanced pool of stakeholders is, however, important to the effective implementation of the SPF, as it is dependent on varying forms of analysis and judgements that are based on reasoning and evaluations as much as science. Each proposed action in the SPF is overlapped and interrelated with the succeeding or preceding one in a way that outcomes are fed forward, aligning with the theory that it is based upon. While substantive, the SPF is also not fixed, but rather, a learning space for adaptations, revisions, and re-contextualization when required.

However, the applicability of the SPF for stakeholder program implementation is also important. The thesis further configures the necessary actions for pursuit of prosperity and outlines steps to guide their implementation in an SPF manual; this is proposed in Appendix VI to the thesis. In this manual, consideration was given to an easy-to-use software – NodeXL – for implementing the Social Network Analysis (SNA) as a strategic tool to support all actions. An interface of the program was calibrated for user input; the overall objective is to potentially simplify SNA for stakeholders and overall engagement in the actions for prosperity.

The SPF also benefits from two validations (see methodology section 2.5): (1) a conceptual desktop case study of the Garki village Abuja that is used in this chapter as an example of

how the SPF can be applied. This example shows how, at least theoretically, the SPF can become an effective urban management tool with the necessary rigorous research by and engagement from committed stakeholders. The narrative that captures the Garki village's comprehensive definition and tells its story in the city is documented in the next chapter (section 8.1) as a validation and conclusion of the thesis. Secondly, (2) there are expert opinions obtained from a survey involving select urban professionals. These highlight the SPF's robust nature, contributed to the review of its structure and presentation of functions, and proffer recommendations for improvement. The expert opinions are also presented as part of validation and conclusion of the thesis in the next chapter (section 8.2).

Chapter 8 Charting a new idea of the slum and prosperity: validation, conclusion, and recommendations

'[E]very effort no matter how insignificant contributes to the greater cause'

Rumana Kabir²¹⁶

Introduction

This research has been steered by the general objective of contributing to and augmenting slum and city improvement strategies. Slums and slum populations are an ever-increasing phenomenon in present day cities in Developing Regions. According to all past and current demographic documentations and forecasts, slums are here to stay. Calls to find better and more effective ways of engaging slums without aiding further growth have persisted. Cities in Developing Regions are rightly concerned with maintaining productive enclaves, meeting global urban demands, and maintaining sustainable and smart cities (Chapter 1). For cities, slums are not considered central to these pursuits but, rather a challenge to them. This perception has steered most approaches to slum management, and with prevailing pejorative perceptions, low knowledge and proactive process capacities have contributed to ineffective and sometimes even reverse outcomes that were the opposite of what had been intended. The challenge for cities has always been in determining how to effectively manage slums and their populations, while at the same time, catering to the progress and development of cities.

Slums are complex places but also, nonetheless, geographically, socially, and functionally part of cities' day-to-day growth, despite ongoing challenges; there is potential, to consider and engage slums as vibrant partners on the path to further progress, ones in which they also play a robust and proactive role (chapter 1, appendix I and II). For this thesis, improving slums, maintaining the impacts of ongoing endeavours, and catering to cities' progressions depends on first (a) finding a comprehensive way to define slums (this pursuit has the potential to engage and possibly counter other limiting approaches to their management); and second (b) associating slum improvement with the prosperity of cities and their role in enhancing it – an inclusive, positively focused, appropriately targeted and coordinated approach to slums. This research therefore constituted tasks that were appropriate to such pursuits and considered the most logical but multidimensional methodologies to pursue them (Chapter 2). Approaching slums with the programmatic intention of making them consistently and reliably instrumental to prosperity has not been given due consideration by academia. The methodologies adopted by

²¹⁶ (Hamdi, 2010, p. 193).

this research are pragmatic and constructivist and included (to various degrees) literature review, qualitative content analysis, theoretical analysis and construction, conceptualizations and validations.

One can see how slum definitions have remained multifaceted through an organised history of slums; one which highlights their development, the way they were perceived and the efforts to define them and intervene in pre and post-industrial Developed and Developing Regions (Chapter 3). This research shows that an operative definition for slums needs to overcome three main limitations: that of (a) perceptive differences, (b) complex locational, social, spatial and physical dynamics, and (c) transformations that occur with the passage of time. It also shows that an integrated ontological and cognitive conceptual approach can provide a framework for comprehensively defining slums through the Slum Property Map (SPM) (Chapter 4). In this case, slums can be described through their properties and defined in a way that is standard (non-exclusive/flexible), structured and organised (with respect to all relevant social, spatial and physical contexts and in relation to the city), is also dynamic in application, and can be used as a heuristic. For stakeholders, the SPM together with the proposed manual (Appendix III), can serve as a tool for building essential knowledge about how any slum exists; it can also be used to guide context appropriate action relative to the slum's particular realities and needs. Properly understanding slums is the key to streamlining their improvement in line with their prosperity.

In Chapter 5, it has been illustrated that there is a link between the effects of slum management and the prosperity status of cities. Indeed, slums development, cities development and their structural vitality, which aims at the pursuit of prosperity, share a complex but parallel history. There is the potential to conceive and structure a slum improvement strategy, so that it interactively enhances prospects for prosperity with respect to people, natural and manmade environments, and structures that manage the two. As shown by growing advocacies in published literatures, slums can become prosperity resource partners in their social, spatial, natural, and material dimensions, and their abilities for adaptability (chapter 5, appendix IV). For this thesis, in theory, prosperity can be conceived as a path where development, an efficient existential model for people, is sustained to thriving. This means it is efficiently adapted to people's evolving needs in response to contextual variations of lived spaces and of people (Chapter 6). The proposal here, frames the prosperity path as a relative and dynamic process that is innately tied to people and how they live with and within spaces. When pursued, it can enhance all facets of living that as well integrate and enhance the economy of cities.

The Slum Property Map (SPM) combines with the framework of lived spaces that we use and exist within, and which stands in constant tension with capacities for development or, in

divergence, deprivations. This is the crucial link between the slum and the concept of prosperity. The Slum-Prosperity Framework (SPF) provides a way to operationalise the path to prosperity, while considering the function of spaces, needs, relevant conditions for cities' improvement and prosperity, and the role of slums in the process (Chapter 7, appendix III, appendix V). This engagement, in a way, establishes key 'rights' due to slum communities as members of the urban and as stakeholders to its growth. The SPF together with its implementation manual (Appendix VI), demonstrates actions that stakeholders – urban and design professionals, government officials, Non-Governmental Organisations (NGOs), other civil society, local slum communities etc. – can engage with in order to promote slum's development and thriving, as well as to approach these actions in a strategic and practical way. Hence, the SPM serves as a key tool in the SPF: the SPM helps to build a comprehensive definition of a slum through its descriptive properties, while the SPF helps to identify its relative distance from prosperity together with challenges to be overcome and the potentials to upscale. In this way, the pathways of engagement are responsive to priorities, possibilities, and hurdles for improvement and prosperity overall. In sum, the SPF is not a prescribed path for intervention; rather, it is a set of suggestions to effectively and progressively improve slums in relation to city goals, one that can be used by interested stakeholders who are committed to such activity.

Slum and urban management entail engaging with complex and dynamic interrelations between people within and with lived and natural environments (see Jacobs, 1961). As such, the research here engaged with, explored, and integrated vast amount of information about slums, complex research subjects, theories, concepts, and tools in order to ensure philosophically sound and practical outcomes. In this way, the outcomes can serve as inaugural and transferable frameworks and tools for understanding and engaging with places that will remain complex and are continuously evolving.

This concluding chapter (chapter 8) now summarises and documents the validity of the outcomes of this research, as well as recommendations for its improvement. It is structured into three main sections: the chapter first presents the outcome of the application of the proposed Slum Property Map (SPM) in a desktop case study of the Garki village in Abuja, a recognised slum (Adepoju et al., 2013). The case study tests the concept of the SPM and aims to streamline it for easier application (section 8.1). In the second section (8.2), the chapter summarises the outcomes of this research, its strengths together with its limitations and in relation to research methodologies that helped to develop it. Integrated within these discussions are expert opinions obtained through feedback forms and interviews with relevant urban professionals. The expert opinions serve as a post-conceptualization validation of the logic and usefulness/applicability of the principles and structure, functions, and outcomes of the SPF with integrated SPM. The summary of expert opinions is documented in Appendix VII.

Lastly, the chapter presents a suggestion about changing the term 'slum' (section 8.3). This is a rational position that is borne out of knowledge about historical and current perceptions of slums, the significance of these and how they affect people living there. It also emphasizes the need to approach these places in a more humanistic yet objective way. Also, in line with the focus of this research, changing the term 'slum' can indicate and pave an auspicious path for more inclusive cities.

8.1 The story of Garki village: an introduction

This section contains a narrative that defines the Garki village, Abuja, through sets of descriptive properties, telling its story as it exists in the city. The story of Garki village is the outcome of a desktop case study that implemented the Slum Property Map (SPM) and manual (Chapter 4 and Appendix III). The desktop case study of Garki village was conducted through qualitative content analysis using a variety of information sources. It is considered apt at this stage of research in so far as it allows for a test of the concept (see methodology section 2.5).

The SPM posits a three-step approach to describing and defining slums that was considered for the Garki village; the reader can refer to section 4.2 to 4.4 and Appendix III to the thesis for the outline of the SPM, the manual and how to use it:

First, (1) it was used to comprehensively analyse and compile lists of eight categories of descriptive slum properties that characterize its nature with supporting information and data; it was used to organise these and fill in the slum property map template provided. The property categories with property lists that were compiled included: category 1: **name properties** – compiling **THE GARKI VILLAGE'S NAME AND ITS SIGNIFICANCE**; category 2: **place properties** – compiling **THE GARKI VILLAGE'S GEOGRAPHY, DEMOGRAPHY, TENURE CONDITIONS, and POVERTY CONDITIONS**; category 3: **functional properties** – compiling **PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES FOR THE GARKI VILLAGE**; category 4: **procedures and agency properties** – compiling the **THE GARKI VILLAGE'S ORIGIN** and **FORCES AND DRIVERS OF SLUM FOR THE GARKI VILLAGE**; category 5: **structural properties** – compiling the **FORM OF THE GARKI VILLAGE**; category 6: **process properties** – compiling **AGE OF SETTLEMENT AND EVOLUTION OF THE GARKI VILLAGE**; category 7: **personality traits of slum community** – compiling **PLACE MAP: PERCEPTIONS OF GARKI VILLAGE BY ITS COMMUNITY**; and category 8: **behaviours of slum community** – compiling **HEALTH CONDITIONS and ACTIVITIES OF PEOPLE IN THE GARKI VILLAGE**. While some property lists can be compiled directly, others are compiled through sub-properties (please refer to Appendix III for the comprehensive framework of categories of slum properties). The organised lists of descriptive properties that characterize the Garki village are shown in table 8.1 and schematised in figure 8.1. Each slum property in the list is colour coded in order to reflect the category of slum properties it belongs, and also

numbered in order to reflect the sub-property and/or slum property it represents and its slum property category. For example, the descriptive property highlighting Garki village as (1-P₂-CAT₂) *spatially segregated* in table 8.1, is describing its (1) 'absolute location and space' in order to help compile its (P₂) 'GEOGRAPHY' properties. These are a (CAT₂) 'place' category of properties. These properties are set to provide a comprehensive overview of the slum's character that is unique to it.

Second, (2) it is used to build an interactive map of how the lists of slum properties associated – affect/influence/trigger each other. The SPM manual suggests relevant associations that can occur between the categories of slum properties that should be considered and explored. Since the case study to define Garki village was conducted through qualitative content analysis, the context of Garki village's properties and how they associate are captured as literature review notes. This step also revealed descriptive properties that play stronger roles in defining this particular slum's character, owing to the extents of their direct associations.

Third, (3) it is used to build a narrative of the interactive slum property map and tell its story, defining it. The narrative combines the established properties with all the information and data that contextualize them and how they associate within a hierarchical structure – category 1 to 8. Also, it focuses on how the descriptive properties are affected/influenced/triggered by others (this is one variation of their associations). For the Garki village, the narrative that defines it is structured by ten sub-narratives (sections 8.1.1 to 8.1.10) that are titled to reflect the organised lists of slum properties in categories 1 to 8, together with their colour codes and numbering. This organisation of narratives is true for all lists of properties, excluding those in categories 7 and 8: *personality traits of slum community* and *behaviours of slum community*. As proposed in the SPM (Chapter 4 and Appendix III), the most relevant properties in these categories are those influenced/triggered by the other slum properties in categories 1–6.

So, in each section (sub-narrative) similar lists of properties are introduced with their context, and other descriptive properties that affect/influence/trigger them are highlighted. the *personality traits* and *behaviours of slum community* that are influenced/triggered by the slum properties introduced in the sub-narratives are also highlighted where this applies. In this case, a descriptive property can appear more than once in the overall narrative, and not necessarily under its title of similar properties where it affects/influences/triggers others. Unless the properties that affect/influence/trigger the properties introduced belong to the same lists of properties, the information that contextualise them are not discussed; rather, this information is discussed when the properties are introduced in their own section of titled (property list) sub-narrative, which can be located through their colour and number code.

The considerations that recommended the Garki village as case study area were three-fold: (1) the researcher had undertaken an informal exercise in 2014 to gain a first-hand experience

of the village and conducted informal discussions with some community members (see methodology section 2.1 and Appendix II). In this case, the researcher's previous informal experience will be better informed, and the information (visual and oral) obtained can serve to validate other information from literature.²¹⁷ (2) The settlement has an interesting management history with the Abuja city administration and area council since the early development of the city. Abuja city is a growing urban area, the Federal Capital City (FCC) of the Nigerian nation, and its seat of government. It has been challenged with managing urban and slum growth over the past three to four decades. Also, cities in the African region are dealing with the potential to improve their social, economic, political, and climatic systems, and are generally weak in city prosperity owing to complex urban growth patterns (UN-Habitat, 2015a, 2013a); the story of the Garki village can provide a fresh perspective on slums and urban living and contribute to the related discourses. (3) It is also hoped that the story of the Garki village will contribute to breaching the gap in slum knowledge in sub-Saharan Africa and incite stakeholders to improve knowledge and practical capacities for effective slum management (see section 1.1).

It should be noted, however, that the narratives given in this section to describe and define the Garki village may not be current realities in the village, owing to the case study methodology used. Also, the contextual background – information and data – of the descriptive slum properties may not be as expansive or rich owing to the same.

Table 8.1: The lists of descriptive properties that make up the slum property map of Garki village. This table is also shown in section 7.3.1. Source: author.

Category 1 (CAT ₁): Name properties of slum			
(P ₁ -CAT ₁) THE GARKI VILLAGE'S NAME & ITS SIGNIFICANCE	(P ₁ -CAT ₁) Garki	(P ₁ -CAT ₁) Named by Hausa community	(P ₁ -CAT ₁) Garki comes from 'Gagaraci'
Category 2 (CAT ₂): Place properties of slum			

²¹⁷ This was useful, for example, while analysing the social security description of the settlement. A source described the settlement at large as being insecure with armed robbery and thieving activities being rampant. However, from researcher's experience (and supported by two other sources), only a section of the settlement was experiencing this.

<p>(P₂-CAT₂) THE GARKI VILLAGE'S GEOGRAPHY</p>	<p>(1-P₂-CAT₂) Located in Garki, Abuja</p>	<p>(1-P₂-CAT₂) Covers an area of 19 hectares</p>	<p>(1-P₂-CAT₂) Spatially segregated</p>
	<p>(1-P₂-CAT₂) Urban developments along village perimeter</p>	<p>(2-P₂-CAT₂) Absorbed peri-urban status</p>	<p>(2-P₂-CAT₂) Abuja population expansion</p>
	<p>(2-P₂-CAT₂) accessible relevant places & centres of activity</p>	<p>(2-P₂-CAT₂) Business/residential district zone</p>	<p>(2-P₂-CAT₂) City core position</p>
	<p>(2-P₂-CAT₂) FCC pull</p>	<p>(2-P₂-CAT₂) Access the city by foot, cycle, cars</p>	<p>(2-P₂-CAT₂) Mixed prime development expansion in Abuja</p>
	<p>(2-P₂-CAT₂) Well connected to the FCC</p>	<p>(2-P₂-CAT₂) Sometimes Inefficient transportation</p>	<p>(2-P₂-CAT₂) Transport cost constrains income</p>
	<p>(2-P₂-CAT₂) Traffic hold-ups</p>	<p>(3-P₂-CAT₂) Cultural activity space (lacking)</p>	<p>(3-P₂-CAT₂) Efficient communication service</p>
	<p>(3-P₂-CAT₂) Inefficient health services</p>	<p>(3-P₂-CAT₂) Inadequate water infrastructure</p>	<p>(3-P₂-CAT₂) Bad road conditions</p>
	<p>(3-P₂-CAT₂) Some social & social-education amenities</p>	<p>(3-P₂-CAT₂) Intermittent & inadequate electricity infrastructure</p>	<p>(3-P₂-CAT₂) Only 80 metres of road Infrastructure</p>
	<p>(4-P₂-CAT₂) Predominantly wet Abuja climate</p>	<p>(3-P₂-CAT₂) Navigation: walking, cycling, driving</p>	<p>(3-P₂-CAT₂) Uncoordinated sewage infrastructure</p>
	<p>(4-P₂-CAT₂) Stagnant water puddles</p>	<p>(4-P₂-CAT₂) Mosquitos</p>	<p>(3-P₂-CAT₂) Inadequate Solid waste infrastructure</p>
<p>(P₃-CAT₂) THE GARKI VILLAGE'S DEMOGRAPHY</p>	<p>(1-P₃-CAT₂) Estimated 5000 population</p>	<p>(1-P₃-CAT₂) Distance and non-availability of Farmland</p>	<p>(1-P₃-CAT₂) Extended family structures</p>
	<p>(1-P₃-CAT₂) Gbagyi/Hausa ethnic majority</p>	<p>(1-P₃-CAT₂) Other ethnic minorities</p>	<p>(1-P₃-CAT₂) Rich media and festival culture</p>
	<p>(1-P₃-CAT₂) Varied work engagements</p>	<p>(2-P₃-CAT₂) Many enterprises and businesses</p>	<p>(2-P₃-CAT₂) Mostly informal enterprise</p>
	<p>(2-P₃-CAT₂) Prostitution and other social vices (Lagos St.)</p>		

(P ₄ -CAT ₂) THE GARKI VILLAGE'S TENURE CONDITIONS	(1-P ₄ -CAT ₂) Customary tenure (1-P ₄ -CAT ₂) Flaunt their customary rights	(1-P ₄ -CAT ₂) Insecure tenancy (substantive rights until time of relocation)	(2-P ₄ -CAT ₂) Land vested in the FCT
(P ₅ -CAT ₂) THE GARKI VILLAGE'S POVERTY CONDITIONS	(1-P ₅ -CAT ₂) Challenge of sustaining income (2-P ₅ -CAT ₂) Socio-cultural amenity deprivation (3-P ₅ -CAT ₂) Socially excluded from the FCC development (3-P ₅ -CAT ₂) Participation exclusion	(1-P ₅ -CAT ₂) High cost of living in city (2-P ₅ -CAT ₂) Infrastructure and services deprivation (3-P ₅ -CAT ₂) Spatially excluded (3-P ₅ -CAT ₂) Lagos street security challenge	(1-P ₅ -CAT ₂) Income level above the poverty line (2-P ₅ -CAT ₂) Adequate communication connection (3-P ₅ -CAT ₂) Generally secure community (2-P ₅ -CAT ₂) Adequate access to city
Category 3 (CAT₃): Functional properties of slum			
(P ₆ -CAT ₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES FOR THE GARKI VILLAGE	(P ₆ -CAT ₃) Accessible domicile	(P ₆ -CAT ₃) Preference for the Abuja city-core	(P ₆ -CAT ₃) Native settlement
Category 4 (CAT₄): Procedures and Agency properties of slum			
(P ₇ -CAT ₄) THE GARKI VILLAGE'S ORIGIN OF	(1-P ₇ -CAT ₄) Illegal subdividing/procedures (2-P ₇ -CAT ₄) Urban village	(1-P ₇ -CAT ₄) Planned land/property possession	(1-P ₇ -CAT ₄) Standard settling/procedures

(P₈-CAT₄) FORCES AND DRIVERS OF SLUM FOR THE GARKI VILLAGE	(1-P ₈ -CAT ₄) Inter-urban and intra-urban migration	(1-P ₈ -CAT ₄) Demolition exercises in Abuja	(1-P ₈ -CAT ₄) Development opportunities
	(1-P ₈ -CAT ₄) Bridge-headers in the community	(1-P ₈ -CAT ₄) Safer and more efficient city	(2-P ₈ -CAT ₄) High Abuja rents
	(2-P ₈ -CAT ₄) Poverty as consideration for settling	(2-P ₈ -CAT ₄) Poverty is a consideration for staying	(4-P ₈ -CAT ₄) Inefficiencies in the Abuja Relocation/integration policy
	(4-P ₈ -CAT ₄) Inefficient mass housing policy		

Category 5 (CAT₅): Structural properties of slum

(P₉-CAT₅) THE FORM OF THE GARKI VILLAGE	(1-P ₉ -CAT ₅) Inadequate improved water source	(1-P ₉ -CAT ₅) Limited water aquifer basin	(1-P ₉ -CAT ₅) Non-protected water
	(1-P ₉ -CAT ₅) Unimproved drinking water source	(1-P ₉ -CAT ₅) Water collection is a burden for children	(2-P ₉ -CAT ₅) Blocked unorthodox water drainages
	(2-P ₉ -CAT ₅) Challenging grey water disposal	(2-P ₉ -CAT ₅) Strewn garbage	(3-P ₉ -CAT ₅) Higher population concentration (Lagos St.)
	(3-P ₉ -CAT ₅) High building density	(3-P ₉ -CAT ₅) High occupancies	(3-P ₉ -CAT ₅) High population density
	(4-P ₉ -CAT ₅) irregular winding spatial pattern		

Category 6 (CAT₆): Process properties of slum

(P₁₀-CAT₆) THE AGE AND EVOLUTION OF THE GARKI VILLAGE	(1-P ₁₀ -CAT ₆) Ruling monarchy	(1-P ₁₀ -CAT ₆) Palaces as ruling HQTRS	(1-P ₁₀ -CAT ₆) Traditional power hierarchy and ethos
	(1-P ₁₀ -CAT ₆) Ethnic lines	(1-P ₁₀ -CAT ₆) Socio-economic community of interest	(1-P ₁₀ -CAT ₆) Strong familial and social ties
	(1-P ₁₀ -CAT ₆) Tradesmen (community of practice)	(2-P ₁₀ -CAT ₆) (Historic) traditional building structures	(2-P ₁₀ -CAT ₆) Addition & extension of house units
	(2-P ₁₀ -CAT ₆) Upgrade of housing units	(2-P ₁₀ -CAT ₆) Family size home consolidation	(2-P ₁₀ -CAT ₆) Home consolidation to increase income
	(2-P ₁₀ -CAT ₆) Tenure conditions restrict home consolidation	(2-P ₁₀ -CAT ₆) boundary restricts home expansion	(2-P ₁₀ -CAT ₆) Unattended non-functional spaces

	(3-P ₁₀ -CAT ₆) Nigerian FCT relocation policy	(3-P ₁₀ -CAT ₆) Court action (for human rights)	(3-P ₁₀ -CAT ₆) Cultural demography evolution
	(3-P ₁₀ -CAT ₆) Inconsistent integration & resettlement programme policy	(3-P ₁₀ -CAT ₆) Integration bids	(3-P ₁₀ -CAT ₆) Historical Hausa-Fulani Invasions
	(3-P ₁₀ -CAT ₆) Over two centuries old settlement	(3-P ₁₀ -CAT ₆) Re-settling from hill as Garki evolution	(3-P ₁₀ -CAT ₆) Stable community governance
	(3-P ₁₀ -CAT ₆) Trade and agriculture as Garki evolution		

Category 7 (CAT₇): Personality traits of slum community

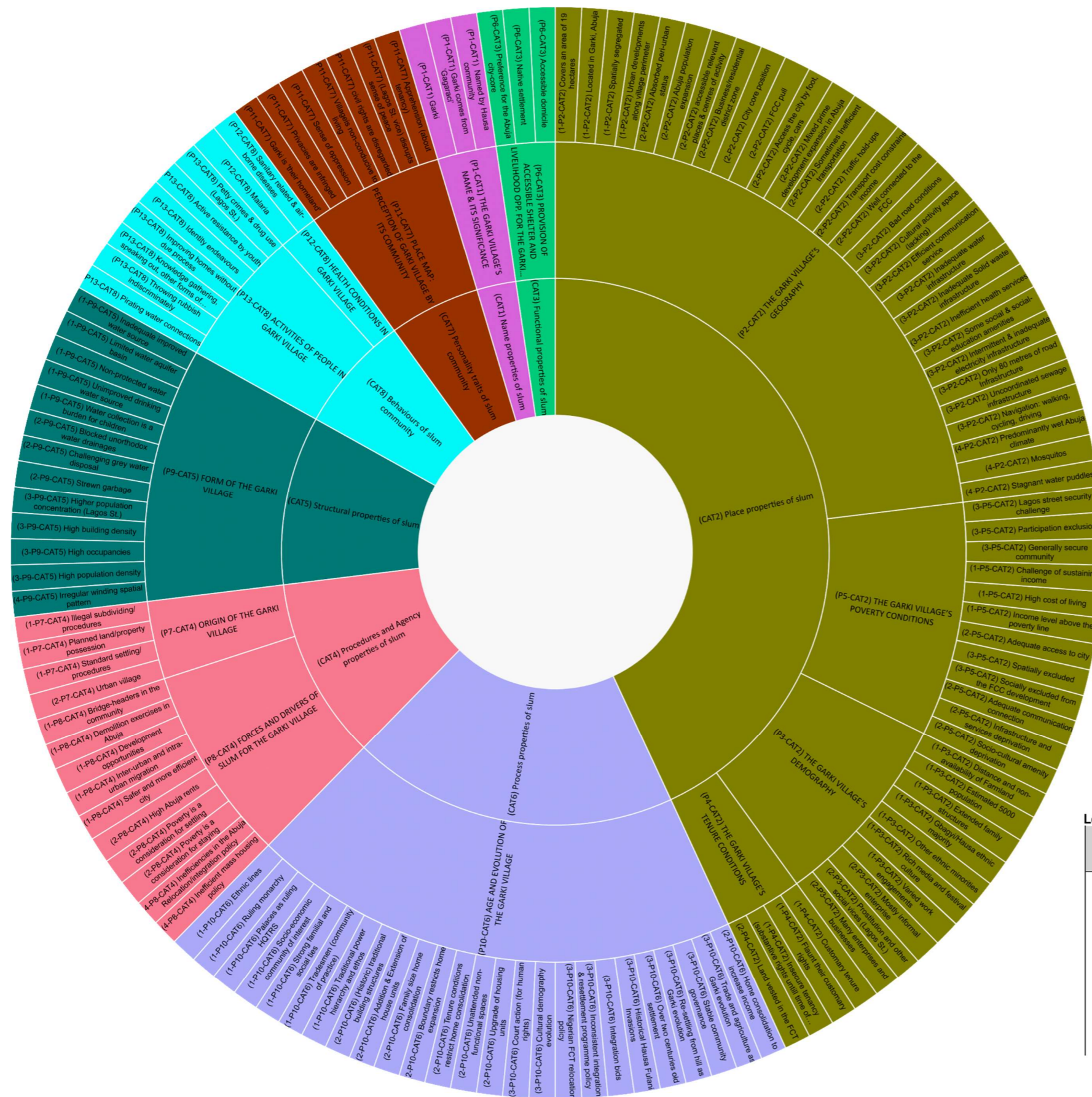
(P ₁₁ -CAT ₇) PLACE MAP: PERCEPTION OF GARKI VILLAGE BY ITS COMMUNITY	(P ₁₁ -CAT ₇) Apprehension (about tenancy)	(P ₁₁ -CAT ₇) (Lagos St. vice) disrupts sense of peace	(P ₁₁ -CAT ₇) Civil rights are disregarded
	(P ₁₁ -CAT ₇) Village is non-conducive to living	(P ₁₁ -CAT ₇) Sense of oppression	(P ₁₁ -CAT ₇) Privacies are infringed
	(P ₁₁ -CAT ₇) Garki is 'their homeland'		

Category 8 (CAT₈): Behaviours of slum community

(P ₁₂ -CAT ₈) HEALTH CONDITIONS IN GARKI VILLAGE	(P ₁₂ -CAT ₈) Sanitary related &/or air-borne diseases	(P ₁₂ -CAT ₈) Malaria	

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(P ₁₃ -CAT ₈) ACTIVITIES OF PEOPLE IN GARKI VILLAGE	(P ₁₃ -CAT ₈) Petty crimes & drug use (Lagos St.)	(P ₁₃ -CAT ₈) Active resistance by youth	(P ₁₃ -CAT ₈) Identity endeavours
	(P ₁₃ -CAT ₈) Knowledge gathering, speaking out and other forms of involvement	(P ₁₃ -CAT ₈) Improving homes without due process	(P ₁₃ -CAT ₈) Pirating water connections
	(P ₁₃ -CAT ₈) Throwing rubbish indiscriminately		



Legend

Colour code	Categories of slum Properties
Yellow	(CAT1) Name properties of slum
Green	(CAT2) Place properties of slum
Red	(CAT3) Functional properties of slum
Blue	(CAT4) Procedure and Agency properties of slum
Purple	(CAT5) Structural properties of slum
Orange	(CAT6) Process properties of slum
Light Blue	(CAT7) Personality traits of slum community
Light Green	(CAT8) Behaviours of slum community

Figure 8.1: A schematic of the lists of slum properties that make up the slum property map of Garki village, comprehensively describing it. This schematic is also presented in section 7.3.1. Source: author.

8.1.1 The Garki village's name and its significance (P₁-Cat₁)

Originally called 'Peyi' (meaning 'hill' in the Gbagyi language), the settlement – (P₁-Cat₁) Garki village was (P₁-Cat₁) named by Hausa invaders during the periods of the 18th to 19th century reign of the Islamic caliphates (Ofeogbu, 2015). This is a relevant part of the village's evolution; the establishment of the Islamic caliphate brought in new cultures. The name (P₁-Cat₁) 'Garki' comes from 'Gagaraci' in Hausa language (a corrupted version of it) (ibid), which translates as unconquerable, impenetrable, or recalcitrant. This meaning is attributed to the indigenous Gbagyi (also called 'Gwari') people's tough demeanour when they held their territory against (3-P₁₀-CAT₆) invasions by Hausas and Fulanis in the periods of the Islamic expansion (Ofeogbu, 2015; Tanko, 2014). Sections of the Hausa tribe later settled in the village.

8.1.2 The Garki village's geography (P₂-CAT₂)

In terms of absolute location and space, the Garki village is (1-P₂-CAT₂) located in Garki Abuja Federal Capital Territory (FCT) of Nigeria, within the Garki district of the Federal Capital City (FCC) (figure 8.2). Abuja overall covers an approximate landmass of 8000 km², while the Garki village covers approximately 0.19 km², or (1-P₂-CAT₂) an area of 19 hectares (Balogun, 2004; Eerd et al., 2008; Jibril, 2009). The village therefore covers about 0.0024% of the city's landmass. It is bordered by residential (police staff) quarters and a major freeway to the south, by major arterial roads to the north and east, and a local collector road to the south-east (figure 8.3). As seen in figure 8.3, the Garki village is (1-P₂-CAT₂) spatially segregated and easily distinguishable from the surrounding Abuja urban spatial structure due to the break or change in buildings and consistency of built-up patterns – an (4-P₉-CAT₅) irregular winding spatial pattern.

There are (1-P₂-CAT₂) urban developments along the village perimeter (both single and multiple storey), that is, along its north-western, northern, north-eastern, and south-eastern perimeters. Some sections of these perimeter developments were part of the village until they were legally allotted to some community members during the implementation of the first phase of an (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy. While some allottees built their homes to serve as domiciles, others sold them to incoming land developers. Some community members that live along the Garki village perimeter feel that their (P₁₁-CAT₇) privacies are infringed because the (1-P₂-CAT₂) urban developments along the village perimeter have unrestricted views into their homes (figure 8.4).

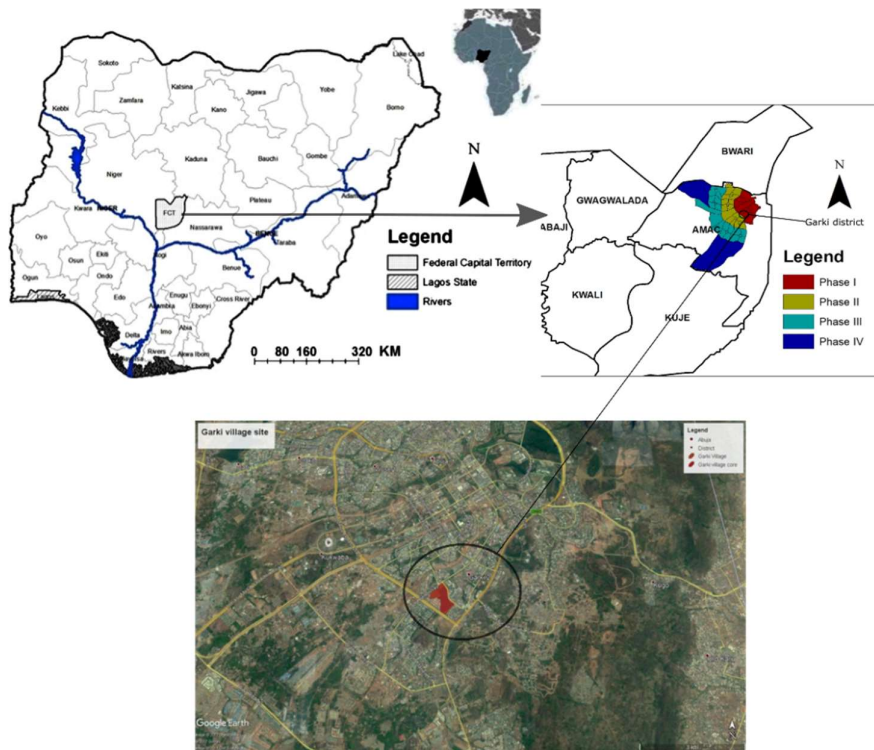


Figure 8.2: Map of Nigeria showing the FCT (above left), expanded (right) to show the FCC and location of Garki village within the Garki district (below). Image source (Abubakar, 2014, pp. 82 & 83) and DigitalGlobe database (12/4/2017). Highlights, links, and site boundary added by the researcher and is consistent with (Adepoju et al., 2014; Zubair et al., 2015).



Figure 8.3: Spatially segregated pattern of Garki village from the Abuja city development. Image source: DigitalGlobe database (12/4/2017), edited by researcher.



Figure 8.4: Home compounds at the village's boundary have had their privacies and comforts infringed.
Source: author.

In the last ten years, especially, the village's relative position, centrality and connectivity have seen rapid changes. The Garki village's position changed from being at the fringe of Abuja's Federal Capital City (FCC) to the (2-P₂-CAT₂) city core of activity and development; as such, it can be described as having an (2-P₂-CAT₂) absorbed peri-urban status (see laquinta and Drescher, 2001) (figure 8.5). This means it is located within the core of activities but still at the periphery of urban development. The change (positional) is due to continuing (2-P₂-CAT₂) mixed-prime developmental expansion (residential, international agencies, multi-corporations, and informal settlements) in the neighbouring Asokoro and Guzape districts. (2-P₂-CAT₂) Abuja's population is rapidly expanding at an approximately 3.75% urbanization rate. New mixed-prime developments are always coming up to accommodate the social, economic, and political expansion that exists parallel to it (Abubakar, 2014; Index Mundi, 2015; Zubair et al., 2015). There are localised (2-P₂-CAT₂) FCC (Federal Capital City) pull factors which influence

these continued demographic and physical expansions, some of which include (amongst others): (1) work and labour opportunities; (2) support services in development expansion; (3) housing investment; (4) businesses and markets expansion; (5) its centrality and perceived safety; (6) ethnic neutrality; (7) economic and international diplomacy expansion; and (8) non-governmental organisations etc. (Abam and Ngah, 2013; Abubakar, 2014; Aliyu, 2016; Jibril, 2015, 2009). Populations that cannot settle in the city do so in slums, contributing to their continuing expansion (ibid).



Figure 8.5: Garki village positional transformation 2002 and 2017. Image source: DigitalGlobe database 31/12/2002, and 12/4/2017, edited by researcher.

The Garki village is located within the (2-P₂-CAT₂) Garki business/residential zone of urban planning and administered by the Abuja Municipal Area Council (AMAC). The districts in Abuja were designed to adopt the neighbourhood units concept (FCDA, 1979). Each district comprises five neighbourhoods with a neighbourhood centre for commercial, leisure,

education, security and support services. Garki village is located on the site mapped out for a neighbourhood centre (Jibril, 2015) (figure 8.6).

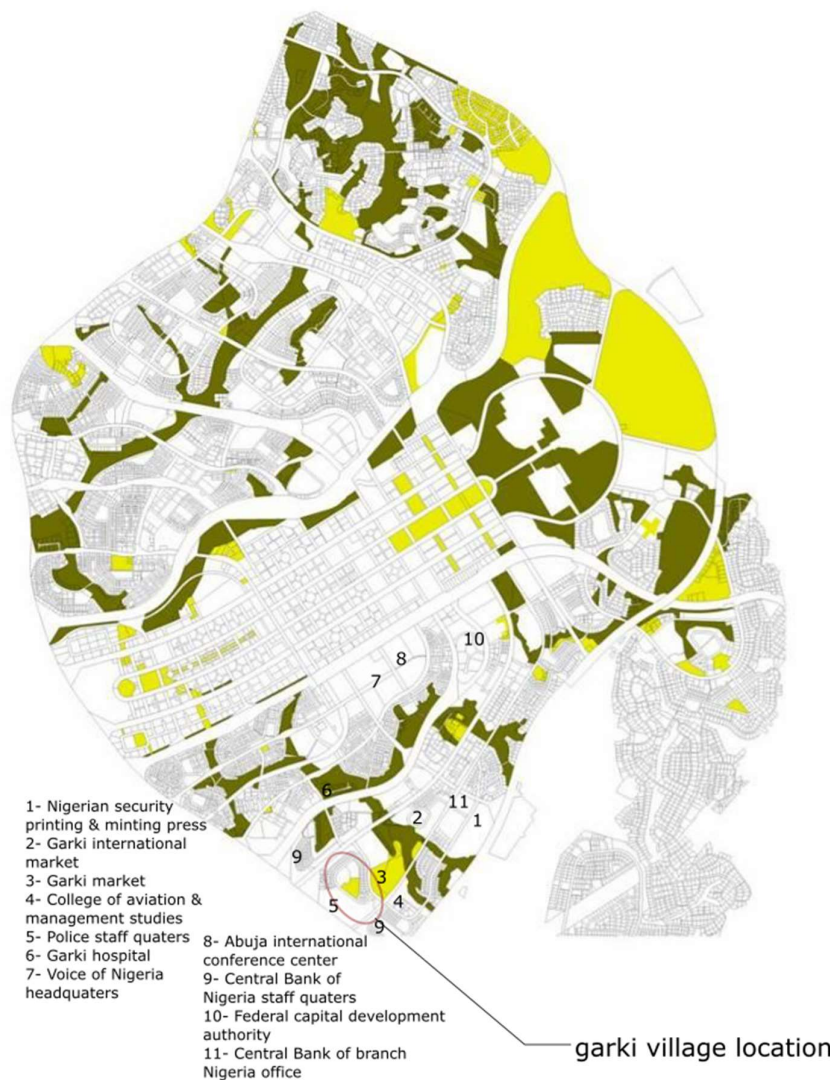


Figure 8.6: The first phase of Abuja urban planning map showing the location of Garki village and some neighbouring activity hubs. Image source: (Jibril, 2015, p. 19). Locations and edits by researcher.

Because of the Garki village's position within the (2-P₂-CAT₂) Garki business/residential zone and the (2-P₂-CAT₂) city core, there are many (2-P₂-CAT₂) accessible relevant places & centres of activity neighbouring it. Some of these include the Garki international market, Garki local market, Garki hospital, Central Bank of Nigeria staff quarters, police staff quarters, and the Abuja International Conference centre, amongst many others (figure 8.6). All these places and institutions are within a 100 to 3000 metre distance from the Garki village. Also adjacent to its borders are several banks, shopping hubs, and a radio station house. One of the reasons that these centres of activity are considered accessible is also due to the fact that the Garki village is (2-P₂-CAT₂) well connected with the FCC. All roads bounding the village are

well finished (in tarmac) and allow for five exit/entry points. Generally, people (2-P₂-CAT₂) access the city by foot, cycle, or cars (Ajimotokan, 2017). With respect to car usages, public transport is more popular due to the costs of running vehicles that sometimes contribute to (1-P₅-CAT₂) challenges of sustaining income.

(2-P₂-CAT₂) Sometimes transportation is inefficient. This is mostly due to fuel scarcity with transport fare hikes, and it affects the ease of access to the (2-P₂-CAT₂) (accessible) relevant places & centres of activity. In this case, (2-P₂-CAT₂) transport costs constrains income for people overall, especially families with children who use public transport to get to school (Abulude, 2017; Omisore, 2014). The presence of these adjacent activities in the business/residential urban zone, in addition to (2-P₃-CAT₂) many enterprise and business that can be found in the Garki village, have caused an increase in vehicular activities. With a lack of order on the bordering arterial and local connector roads, sometimes lengthy vehicular (2-P₂-CAT₂) traffic hold-ups occur, especially at the end of work hours (see Daramola and Aina, 2004).

(3-P₂-CAT₂) Inadequate water infrastructure is a relevant property that describes the Garki village's neighbourhood, infrastructure and amenity characteristic. Only a small section of the village has a pipe borne water infrastructure that was installed during the first phase of an (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy; this infrastructure amounts to only 30% of works necessary and is inefficient, at best (Abeku et al., 2016; Balogun, 2004). Some sections of the community take advantage of the (2-P₂-CAT₂) accessible relevant places & centres of activity, in particular the neighbouring police staff quarters, and are (P₁₃-CAT₈) pirating water connections from there. Within the Garki village, there is also only (3-P₂-CAT₂) intermittent & inadequate electricity infrastructure. Some electricity infrastructure was formally provided, but many are pirated, and the overall supply is unreliable¹⁶¹ (Abeku et al., 2016; Ajimotokan, 2017; Balogun, 2004).

In the village, there is (3-P₂-CAT₂) only 80 metres of road infrastructure that has been built and is finished in tarmac, and this all leads to the chief's palace; the chief's palace road connects to other roads finished over the years, Oka Akoko to Nsukka and Lagos street. This amounts to about 30% of roads infrastructure requirements (ibid). The lack of complete implementation can also be traced to the (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy. In general, un-paved natural ground paths serve as roads within the village, some set out during the first phase of the (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy. There are fifteen major road paths, some 6 meters wide or more (figure

¹⁶¹ The unreliable supply of electricity is a nationwide problem, but conditions are worse for those with sub-standard infrastructure.

8.7), including several marked and non-descript paths (some less than 800 millimetres wide) between buildings and house clusters. The road conditions in the village can therefore be described as (3-P₂-CAT₂) bad (road conditions), other aspects that are influential to this will be further captured in the description of the village's landscape. People generally navigate the village by (3-P₂-CAT₂) walking, cycling, and driving, and (3-P₂-CAT₂) bad road conditions makes it more challenging; the people feel this makes the village (P₁₁-CAT₇) non-conducive to living (Ajimotokan, 2017; John, 2013).



Figure 8.7: Some major roads and paths within Garki with images of sections of it. Image source: DigitalGlobe database (14/11/2017) and Author.

Still yet, with people (P₁₃-CAT₈) throwing rubbish indiscriminately everywhere and generating heaps of trash (Balogun, 2004; Itua et al., 2016), it is surmised that (3-C₂-CAT₂) solid waste infrastructure is lacking, or at best inadequate in the village. The Garki village also has (3-P₂-CAT₂) uncoordinated sewage infrastructure (Adama, 2007; Balogun, 2004). Centralized sewage plans were not properly implemented due to the (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy; from time to time, this is further overstretched within the settlement core by increases in (3-P₉-CAT₅) high building density (ibid). There is, however, (3-P₂-CAT₂) efficient communication service in the village. For those using mobile phones and internet data, measurements (over a certain period) show that outgoing calls, receiving, and download signals were high and optimal with balanced traffic (Kehinde, 2013).

Amenity wise, Garki village is seen to have (3-P₂-CAT₂) some social & social-education amenities that include a community primary school, primary health care and chief's palace

built by the local council; then, a private secondary school, private clinic, a mosque, other palace, informal market; also, several business and artisan hubs, and entertainment outlets and restaurants have been built especially along Lagos and Enugu streets (figure 8.8 and 8.9) (see Abeku et al., 2016; Ajimotokan, 2017; Balogun, 2004). The primary health care (provided by the Abuja Municipal Area Council) can be described as offering (3-P₂-CAT₂) inefficient health services. This is because there are few health workers, and sometimes there are no nurses or only inadequate ones to offer immunizations to children; sometimes also, there are only volunteer workers to tend to laboratory duties (Ajimotokan, 2017; EnviroNews, 2016). The health centre is also ill equipped, a condition that is further worsened by their use of (1-P₉-CAT₅) non-protected water for basic functions owing to (3-P₂-CAT₂) inadequate water infrastructure (ibid) (figure 8.10). This situation in the health centre affects the care and recovery of sick people like those affected by (P₁₂-CAT₈) sanitary related & air-borne diseases and (P₁₂-CAT₈) malaria.

Because the Garki village community generally use the chief's palace as an ad hoc culture centre and there are no earmarked cultural activity or multipurpose spaces, it can be described as (3-P₂-CAT₂) lacking cultural activity spaces; the Chief's palace was not designed for very large congregations or activities (see NTA, 2015).



Figure 8.8: Garki village map showing some of the amenities within the village. Image source: DigitalGlobe database (14/11/2017).



Figure 8.9: Some amenities in Garki village. Clockwise from top: community religious school, community primary health care, primary school, and community mosque. Source: author.



Figure 8.10: A volunteer laboratory technician at Garki health centre cleaning equipment with bought water in a toilet. Source: (EnviroNews, 2016).

The (4-P₂-CAT₂) predominantly wet Abuja climate is somewhat influential to the village's relative landscape and site conditions. The Abuja climate is mild but tropical due to its 840 metre elevation above sea level (Abam and Ngah, 2013; Abubakar, 2014). The dry season

(November to March) is distinctly cooler and less humid, at 12°C to 22°C on average, than the longer wet season (April to October) at up to 40°C average. Average rainfall is between 305 mm to 762 mm. Because of its climate and guinea savannah vegetation and rich soils, Abuja regions are agriculturally productive. However, the wet and humid conditions with (3-P₂-CAT₂) uncoordinated sewage infrastructure increases (4-P₂-CAT₂) stagnant water puddles within the village especially along the road paths making the (3-P₂-CAT₂) bad road conditions worse (Ajimotokan, 2017; Itua et al., 2016). The (4-P₂-CAT₂) stagnant water puddles act as collectors for (2-P₉-CAT₅) strewn garbage, turning fetid. This condition overall promotes (P₁₂-CAT₈) sanitary related diseases and increases (4-P₂-CAT₂) mosquito breeding grounds. (4-P₂-CAT₂) Mosquito species are indigenous to the wet tropical region and cause (P₁₂-CAT₈) malaria disease.

8.1.3 The Garki village's demography (P₃-CAT₂)

The population profile of Garki village is diverse. The settlement has an (1-P₃-CAT₂) estimated 5000 population, and the indigenous (1-P₃-CAT₂) Gbagyi/Hausa people are ethnic majority, capturing a greater percentage of this number (Balogun, 2004; Mallo and Obasanya, 2011; Tanko, 2014). There are, however, (1-P₃-CAT₂) other ethnic minorities owing to continuous (1-P₈-CAT₄) inter-urban and intra-urban migration. These ethnic minorities include other Hausa tribes, Yorubas, Igbos, and tribes from other parts of the country (ibid). This cultural demographic profile can be traced back to the (3-P₁₀-CAT₆) trade and agriculture that is part of the Garki evolution and the (3-P₁₀-CAT₆) historical Hausa-Fulani invasions. In the Garki village, (1-P₃-CAT₂) extended family structures are more common, especially amongst the indigenous Gbagyis and Hausas, with families sharing household clusters (Balogun, 2004).

The Garki village community also has a (1-P₃-CAT₂) rich media and festival culture reminiscent of both Hausa and Gbagyi culture. This is not uncommon to its (2-P₇-CAT₄) urban village character (Kuku, n.d.; NTA, 2015) (figure 8.11). For the Gbagyi especially, this culture includes music, demonstrative art, and iconography like karegu, tumpatu, gunshots etc (ibid). Their relevance and use are, however, slowly eroding with the advancement of cosmopolitan life and is a point of concern for the community; the Garki village's (1-P₁₀-CAT₆) ruling monarchy (a community of culture) strives to preserve them (ibid). In terms of occupations of the people, the community is characterized by (1-P₃-CAT₂) varied work engagements that range from working in public service, private organizations, small scale business, industry and

construction, trading, farming, and artisanship, amongst others (Mallo and Obasanya, 2011; Tanko, 2014).



Figure 8.11: A Gbagyi cultural procession in the Garki village documented for Nigerian national television. Source: (NTA, 2015) screen clipping.

The socio-economic enterprise profile in the community is also interesting. The village is home to (2-P₃-CAT₂) many enterprises and businesses, which employ a relevant part of the community's (1-P₃-CAT₂) varied work engagements. These range from (1) inherited and traditional vocations like leather tanners, iron-smiths, herbalists, butchers, farmers etc.; (2) artisan trades that include tailors, bicycle, car, and motorbike repairs etc.; (3) home based and small shop businesses like fruit and vegetable sales, clothing, sweets, drinks, food etc. (figure 8.12) (ibid; Ajimotokan, 2017; Balogun, 2004; Itua et al., 2016; John, 2013). These enterprises and businesses are, however, (2-P₃-CAT₂) mostly informal enterprises – not duly registered, insured, or taxed. The population from (1-P₈-CAT₄) inter-urban and intra-urban migration are a considerable part of the non-inherited and traditional enterprise set-ups. Sections along (3-P₂-CAT₂) roads Infrastructure, like Lagos street, are especially established with bars and restaurants (ibid). (2-P₃-CAT₂) Prostitution and other social vices (like drugs and narcotics sales) that are practiced by some members (and also non-members) of the community also constitute a segment of the total earning enterprises. These are also concentrated in the Lagos street section. Those engaged in (2-P₃-CAT₂) prostitution and other social vices maintain that they are combating the (1-P₅-CAT₂) challenges of sustaining income (ibid); to the

community, however, these are vices that are felt to (P₁₁-CAT₇) (Lagos St. vice) disrupt their sense of peace.

As a whole, the (2-P₃-CAT₂) many enterprises and businesses in the village, especially inherited enterprises, became popular and enjoyed more vibrant businesses, trade and (higher rate) sales owing to the (3-P₁-CAT₆) FCT (Federal Capital City) relocation policy that brought the seat of government and, with it, teaming populations to Abuja (Ajimotokan, 2017; Balogun, 2004). The vibrancy of these enterprises and businesses also benefit from the village's (2-P₂-CAT₂) city core position and the fact that it is (2-P₂-CAT₂) well connected with the FCC. People from all over the city find it easy to navigate their way to the village and access it through any of the five entry points. These aspects, in addition to roles of (1-P₁₀-CAT₆) tradesmen (community of practice), (1-P₁₀-CAT₆) strong familial and social ties, and the village's (3-P₁₀-CAT₆) ruling monarchy, further contribute to the vibrancy of (2-P₃-CAT₂) enterprises and businesses.

However, certain characteristics of the village makes it difficult for people to conduct enterprises and businesses. These include (ibid): (3-P₂-CAT₂) intermittent & inadequate electricity infrastructure and (3-P₂-CAT₂) inadequate water infrastructure (unless a business has alternative sources of power and water, their work often stops or becomes difficult to conduct); work also becomes difficult because of the inadequate (3-P₂-CAT₂) (only 80 metres of) road infrastructure (dirt roads mean they contend with dust in the dry seasons and mud in the wet season). For the farmers in the community, their difficulty of carrying out work and its productivity can be attributed to (1-P₃-CAT₂) distance and the non-availability of farmland. With the (3-P₁₀-CAT₆) FCT relocation policy and subsequent (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy, local farmlands were relocated to the city fringes (some up to 73 km away) (Balogun, 2004); this makes access and harvest harder and more expensive. Some farmers have been forced to abandon farming and participate in other businesses.



Figure 8.12: Some enterprise and businesses within and about Garki village. From top and left to right: barbers, an iron smith and tool maker, a roadside petty trade, a sweet making home enterprise, businesses along the Nsukka road, petty trade stands in informal market, sewing centre and trade enterprise, and vegetable stands. Source: author.

8.1.4 The Garki village's tenure (P₄-CAT₂)

All (2-P₇-CAT₄) urban villages in Abuja are (2-P₄-CAT₂) land vested in the FCT. The Federal Republic of Nigeria Land-Use Act of 1978 gives the state powers to take over said customary and leasehold – overriding private ownership (FCDA, 1979). With the (3-P₁₀-CAT₆) FCT relocation policy, this power was implemented in the case of the Garki village community. The

Republic awarded them rights and control of property as (1-P₄-CAT₂) **customary tenure**, and the Garki village community retained their rights to stay and use properties only as inherited from their forefathers. These tenure rights were furthermore made (1-P₄-CAT₂) **substantive rights until the time of relocation** (Eerd et al., 2008; LeVan and Olubowale, 2014). These rights are **insecure** as they are only valid in view of being moved to somewhere else, and they are not recognised as fully legal rights. At the same time, the Garki village community's access to housing is limited and dictated by the (3-P₁₀-CAT₆) **inconsistent integration & resettlement programme policy** overall (ibid). What's more, they are living in constant (P₁₁-CAT₇) **apprehension about tenancy** as there is the possibility of bulldozers rolling into the village at any time, as has happened in the past (Itua et al., 2016).

Some community members, however, believe that their (1-P₄-CAT₂) **customary tenure** gives them unrestricted powers over their properties and are (P₁₃-CAT₈) **improving their homes without due process** (LeVan and Olubowale, 2014); not everyone feels the same though (ibid). For the authorities, community members (1-P₄-CAT₂) **flaunt their customary rights** and jeopardise what tenure they have by these activities and using (1-P₇-CAT₄) **illegal subdividing/procedures** to build, add, or sell land/properties through (informal) negotiations, property-use agreements, or royalty collections (ibid). This sometimes leads to instances of intimidation in which the village community are bullied by land speculators (ibid). However, the system has not furnished their (1-P₄-CAT₂) **customary tenure** with an efficient, consistent and legitimate means of buying/renting of land or third-party agreement platforms (LeVan and Olubowale, 2014; Okeke, 2011).

8.1.5 The Garki village's poverty conditions (P₅-CAT₂)

In terms of people's incomes, it is reported that the potential to generate incomes exist for the Garki village community, especially from their (1-P₃-CAT₂) **varied work engagements** and the (2-P₃-CAT₂) **enterprises and businesses** they conduct (irrespective of their informal nature). For many, these incomes can supersede ₦2,000.00/day (Ajimotokan, 2017; Balogun, 2004). This rate represents an (1-P₅-CAT₂) **income level above the poverty line** of \$1.25/day. It is estimated that the informal sector in Abuja contributes more than 40% of the city's daily income (Mallo and Obasanya, 2011). However, some people note that the Garki villages daily earned income is dependent on business being good for the day (Ajimotokan, 2017); this means that the income is conditional. Another source of income includes earnings from (1-P₇-CAT₄) **illegal subdividing/procedures**; the monies brought in by land/property sales/rents helps to counter the (1-P₅-CAT₂) **challenge of sustaining income**. For the Garki community, the (1-P₅-CAT₂) **challenge of sustaining income that is earned to cater to family needs and daily responsibilities** is a daily reality they live with and it also affects their overall (1-P₅-CAT₂)

income levels (above the poverty line). The (1-P₅-CAT₂) challenge of sustaining income is influenced by many factors in addition to the inconsistency of earnings, as discussed further.

Abuja is characterized by the (1-P₅-CAT₂) high cost of living in the city, one that is more than other states in the nation. Basic domestic goods and professional services cost more in Abuja; the (2-P₈-CAT₄) high Abuja rents are another well-known factor (see Balogun, 2004; Itua et al., 2016). People there spend more daily and many people struggle to make the income to cover their needs. Also, people engaged in (2-P₃-CAT₂) mostly informal enterprise are dependent on the availability of work and the consistency of pay, which is not regulated nor standardized (Balogun, 2004; Itua et al., 2016). Other aspects that contribute to the (1-P₅-CAT₂) challenge of sustaining income include (a) (2-P₂-CAT₂) transport costs that constrains income, (b) the substantial cost of compensating for the (1-P₉-CAT₅) inadequate and improved water and (1-P₉-CAT₅) unimproved drinking water source (due to (3-P₂-CAT₂) inadequate water infrastructure), (c) cost of compensating for the (3-P₂-CAT₂) intermittent & inadequate electricity infrastructure, and (d) cost of compensating for the extended (1-P₃-CAT₂) distance and non-availability of farmland (Ajimotokan, 2017; Balogun, 2004; Omisore, 2014).

The Garki village can be described in terms of several deprivations related to non-income poverty, which captures the extent of the lack of basic resources, social and physical services. The village shows an (2-P₅-CAT₂) infrastructure and services deprivation due to (3-P₂-CAT₂) inadequate water infrastructure, (3-P₂-CAT₂) intermittent & inadequate electricity infrastructure, (3-P₂-CAT₂) uncoordinated sewage infrastructure, (3-P₂-CAT₂) inadequate solid waste infrastructure, and (3-P₂-CAT₂) inefficient health services. Access to available, affordable and reliable health services is especially relevant to determining poverty conditions (Gulyani and Bassett, 2010; The World Bank, 2016). Some of this deprivation is also a consequence of the inadequate (3-P₂-CAT₂) (only 80 metres of) road Infrastructure. Also, the Garki village can be described as a community with (2-P₅-CAT₂) socio-cultural amenity deprivation because they are lacking in (3-P₂-CAT₂) cultural activity spaces (multipurpose or not). However, the fact that they have (3-P₂-CAT₂) some social & social-education amenities mitigates the extents of this particular form of deprivation.

For the Garki village community, there is a general perception that they are (3-P₅-CAT₂) socially excluded from the FCC development, as they are unable to participate equally and enjoy its benefits generally because of the above-mentioned deprivations (Ajimotokan, 2017). Other reasons include their (1-P₄-CAT₂) insecure tenancy (substantive rights till relocation), and the overall (4-P₈-CAT₄) inefficiencies in the Abuja relocation/integration policy that influence people to seek out slum living. According to a community member, 'There is no planning here because it is a village for the common people of Nigeria' (ibid). They feel that the city does not award them much consideration. In other words, the Abuja city administration

is not fulfilling its responsibility towards them, which translates into a (P₁₁-CAT₇) disregard for their civil rights. This has prompted the community to engage in (P₁₃-CAT₈) knowledge gathering, speaking out and other forms of involvement. They use online, newspaper articles, and meetings to relay their (1) living conditions, and (2) make a stand for their common rights and requirements, while (3) highlighting their citizenship (Akinbade, 2013; Gusah, 2012).

Furthermore, because they are (1-P₂-CAT₂) spatially segregated from the city, the community also consider themselves (3-P₅-CAT₂) spatially excluded and disregarded by the Federal Government (Agande and Jannah, 2016; Balogun, 2004; Itua et al., 2016; Mallo and Obasanya, 2011). This is another reason they consider that their (P₁₁-CAT₇) civil rights are disregarded. The general cry is that they are surrounded and hidden by building types and roads they are unable to access. What's more, the residents of (1-P₂-CAT₂) houses (urban development) that are along the village perimeter sometimes discharge excess waste and overhead waters into their homes (figure 8.13). All of these can be characterized as (3-P₅-CAT₂) participation exclusion, as they have no control over their situation, nor can they change it. For the people who live in Garki, there is a (P₁₁-CAT₇) sense of being oppressed. This, in addition to perceptions that their (P₁₁-CAT₇) civil rights are being disregarded, has become further motivation for (P₁₃-CAT₈) knowledge gathering, speaking out speaking out and other forms of involvement (ibid).

The village, however, has certain adequacies, which serves to mitigate their relative exclusions. These include having (2-P₅-CAT₂) adequate communication connection due to an (3-P₂-CAT₂) efficient communication service and because they are (2-P₂-CAT₂) well connected to the FCC.



Figure 8.13: Home compounds at the village's boundary have excess waters – as for example from the overhead water tank shown in the image above – being discharged into their homes from surrounding housing developments. Source: author.

In terms of security, the settlement is a relatively (3-P₅-CAT₂) **secure community**, especially the village core (Ajimotokan, 2017). A study by Adepoju et al. (2014) shows that the level of security in the village is much better than in adjacent areas (figure 8.14). This is highly influenced by their (1-P₁₀-CAT₆) **ruling monarchy structure** with (3-P₁₀-CAT₆) **stable community governance**, (1-P₁₀-CAT₆) **strong familial and social ties**, and the formation of a (1-P₁₀-CAT₆) **socio-economic community of interest** (Mallo and Obasanya, 2011; NTA, 2015; Tanko, 2014). Garki's (3-P₅-CAT₂) **secure community** is, however, affected by a (3-P₅-CAT₂) **Lagos street security challenge** due to the presence of (2-P₃-CAT₂) **prostitution and other social vices**, including the (P₁₃; CAT₈) **petty thievery & drug abuse** concentrated there. It is also hypothesized that the rise in this security challenge is caused by continuing (1-P₈-CAT₄)

demolition exercises in Abuja that displace people from other slum areas, making them seek alternative avenues for earning in the Lagos Street axis (Mallo and Obasanya, 2011).

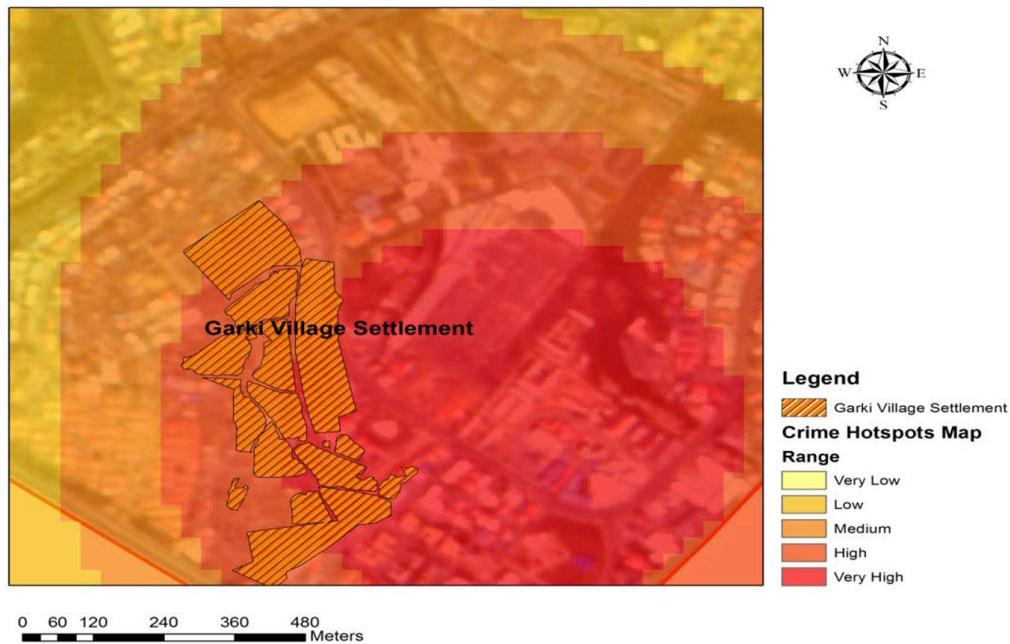


Figure 8.14: A crime hotspot map showing the security signature of Garki village which is medium.

Source: (Adepoju et al., 2014, p. 9).

8.1.6 Provision of accessible shelter and livelihood opportunities for the Garki village (P₆-CAT₃)

For many members of the indigenous and (1-P₈-CAT₄) inter-urban and intra-urban migrant population, the Garki village is a source of (P₆-CAT₃) accessible domicile. A place where they can have somewhere to stay, and which is relatively affordable. The (1-P₈-CAT₄) demolition exercises in Abuja and (4-P₈-CAT₄) inefficiencies in the Abuja Relocation/integration policy, and (4-P₈-CAT₄) inefficient mass housing policies all contribute to this consideration (Abeku et al., 2016; Abubakar, 2014; Itua et al., 2016). For many also, (2-P₈-CAT₄) poverty is a consideration for settling and staying. Furthermore, (2-P₈-CAT₄) high Abuja rents are another factor that recommends the choice of the Garki village as (P₆-CAT₃) accessible domicile (ibid; Adama, 2007). People are also generally hopeful of getting a place to stay due to the (1-P₇-CAT₄) illegal subdividing/procedures for building or extending residences that have persisted in Garki village (ibid).

A (P₆-CAT₃) preference for the Abuja city-core is also another reason that people choose to stay in the Garki village (Abeku et al., 2016). Rather than move to or settle in more affordable rents outside the FCC (Federal Capital City), people decide to stay close to the vast social and

economic (1-P₈-CAT₄) development opportunities in the city and (2-P₂-CAT₂) accessible relevant places & centres of activity. For a great percentage of the population, however, it is the fact that the Garki village is their (P₆-CAT₃) native settlement, home to ancestors and current family, that makes them stay (Mallo and Obasanya, 2011); this is influenced by their (1-P₁₀-CAT₆) strong familial and social ties. There is a sense of ownership and a perception of (P₁₁-CAT₇) Garki as 'their homeland'; like other indigenous settlements, they feel that they have ceded much of their land and want to hold on to what is left of it (Gusah, 2012).

8.1.7 The Garki village's origin (P₇-CAT₄)

Garki village can be characterized as an (2-P₇-CAT₄) urban village slum in terms of origins by the type of built context. It is an (3-P₁₀-CAT₆) over two centuries old settlement which was subsumed into the Federal Capital City (FCC) urban structure due to the implementation of the (3-P₁₀-CAT₆) FCT relocation policy; it is also one of the few remaining pockets of indigenous land within the city (Eerd et al., 2008; Gusah, 2012). There are two main ways the village continues to grow and provide (P₆-CAT₃) accessible domicile for those considering such an option (Adama, 2007; Balogun, 2004; LeVan and Olubowale, 2014; Okeke, 2011): (1) the first is through (1-P₇-CAT₄) standard settling/procedures – seeking and obtaining legal building and land planning approval using their (1-P₄-CAT₂) customary tenure rights. These are not very efficiently administered and often coincide with inconsistent property rights regimes (ibid).

The second way is through (2) (1-P₇-CAT₄) illegal subdividing/procedures – sale, extension, addition, subdivision and development of land and properties through inefficient, non-regulated or standardized (as such illegal) procedures that (1-P₄-CAT₂) violate their customary rights. (1-P₇-CAT₄) Illegal subdividing/procedures arose especially after the village received new albeit inadequate infrastructure development – (3-P₂-CAT₂) only 80 metres road infrastructure and (3-P₂-CAT₂) intermittent & inadequate electricity infrastructure at the initial implementation phase of the (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy (Adama, 2007; Balogun, 2004). With continuing (1-P₈-CAT₄) inter-urban and intra-urban migration bringing people to seek opportunities in the city ((2-P₂-CAT₂) FCC pull), and relative assurance for (P₆-CAT₃) accessible domicile, the activity still thrives, despite continuous warnings by the FCT administration. This has resulted in the continued fragmentation of the settlement into smaller land parcels (Balogun, 2004). However, the (1-P₇-CAT₄) illegal subdividing/procedures to build and extend land/properties are not carried out in a spontaneous manner; they are generally (1-P₇-CAT₄) planned to a degree of informal regulation of land acquisition and development processes (ibid) (see origin matrix in table 8.2, and section 8.1.4). Over time, the (2-P₁₀-CAT₆) addition & extension of house units is another common push for (1-P₇-CAT₄) illegal subdividing/procedures to build/develop land/homes. The

(2-P₁₀-CAT₆) addition & extension of housing units is also accomplished through (1-P₇-CAT₄) standard settling/procedures (LeVan and Olubowale, 2014).

Table 8.2: A matrix of Garki village's origins. Source: author.

		Origin by activities of land occupation		
		Informal settling/procedures	<i>Illegal subdividing/procedures</i>	Standardized settling/procedures
		Spontaneous* /planned*	Spontaneous* /planned*	
Origin by type of built context	Urban village		✓	✓

*The manner that land/building occupation and processes can occur

8.1.8 Forces and drivers of slum for the Garki village (P₈-CAT₄)

(1-P₈-CAT₄) Inter-urban and intra-urban migration brings an influx of populations who consider the Garki village as a source of (P₆-CAT₃) accessible domicile. This is one of the factors responsible for the continued expansion of the Garki village (Adediran et al., 2013; Balogun, 2004; LeVan and Olubowale, 2014; Mallo and Obasanya, 2011). The Abuja population in 2011 was 1.6 million and in 2015 was still growing at a rate of 35% annual growth (Abeku et al., 2016). Some of the main causes of migration include perceived (1-P₈-CAT₄) development opportunities offered by the FCC – owing to (2-P₂-CAT₂) FCC pull factors. People strive to access opportunities for economic growth through service provision, formal and informal engagement and investment opportunities in Abuja (ibid). Hence, the fact that the Garki village is (2-P₂-CAT₂) well connected to FCC and the (2-P₃-CAT₂) many enterprises and businesses there also drives migration (Ajimotokan, 2017; Balogun, 2004; Itua et al., 2016; John, 2013).

Another cause of (1-P₈-CAT₄) inter-urban and intra-urban migration is (1-P₈-CAT₄) demolition exercises of other slum and developments considered to be illegal around the city by the Development Control Department in Abuja (ibid; Mallo and Obasanya, 2011); this is further

supported by community members who continue with (1-P₇-CAT₄) illegal subdividing/procedures to provide shelter opportunities (LeVan and Olubowale, 2014). In addition, populations are also displaced to Garki by general (4-P₈-CAT₄) inefficiencies in Abuja relocation/integration policy for managing Abuja indigenous lands through non-comprehensive or systematic social, infrastructural, and financial planning (Abubakar, 2013; Essein et al., n.d.; Itua et al., 2016; Jibril, 2009). Other factors that influence (1-P₈-CAT₄) inter-urban and intra-urban migration to Garki include a general belief that Abuja is a (1-P₈-CAT₄) safer and more efficient city than other states and hinterlands. There is a notable inconsistency and inadequate social and economic investment in rural areas by the Nigerian government (Abubakar, 2013; Abubakar, 2014; Negedu, 2014). Also, in the Garki village, there are (1-P₈-CAT₄) bridge-headers in the community that are always willing to accommodate and support extended family members to forge livelihoods in the city; they hold (1-P₁₀-CAT₆) strong familial and social ties (Mallo and Obasanya, 2011; NTA, 2015; Tanko, 2014).

A further driver of growth for the Garki village relates to (2-P₈-CAT₄) poverty that is associated with lack of jobs, low paying jobs, low overall income making people choose to settle there. This is influenced also by the inability to afford (2-P₈-CAT₄) high Abuja rents in the more standard sections of the city (Abeku et al., 2016; Daramola and Aina, 2004; Itua et al., 2016). (Itua et al., 2016). For some community members, (2-P₈-CAT₄) poverty is also a consideration for staying in the village due to the (1-P₅-CAT₂) challenge of sustaining income and of course (2-P₈-CAT₄) high Abuja rents. As much as they would like to move their families elsewhere, they cannot afford to do so and barely afford their rents. Rents, even in the city fringes, can cost as much as ₦600,000 or more for a 2 bedroom-flat; some have been known to pay up to ₦80,000 per-annum for a 1 bedroom apartment alone (Abeku et al., 2016; Itua et al., 2016).

Another institutional factor that continues to drive slum growth includes an (4-P₈-CAT₄) inefficient mass housing policy that allows people to consider places like Garki village for (P₆-CAT₃) accessible domicile (ibid; Abubakar, 2014). People decry that there are no open options for them to access subsidized housing, as it is generally run by a public-private capitalist system (ibid).

8.1.9 Form of the Garki village (P₉-CAT₅)

This narrative focuses on the physical form of the Garki village by first describing the availability and quality of water for the slum community. There are three main (1-P₉-CAT₅) improved water sources in the village – those that do not unnecessarily cause danger to health: (1) 30% of households have household water pipe connections from the (3-P₂-CAT₂) inadequate water infrastructure; a certain number of households also have household water pipe connections from (2) (P₁₃-CAT₈) pirating water connections from neighbouring estates; (3) then, there are boreholes with public standpipes (see Balogun, 2004) (figure 8.15) which

were provided by the Abuja Municipal Area Council (AMAC). These sources are, however, (1-P₉-CAT₅) inadequate improved water sources, since water connections service few homes, and the boreholes do not give homes intermediate (water points shared by only a few buildings in a compound) or optimal (water points in each and every home) access to water. The (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy, which led to (3-P₂-CAT₂) inadequate water infrastructure, is therefore partly responsible for the village's water situation.



Figure 8.15: One of the village's boreholes with standpipe points. Source: author.

The village is located in a (1-P₉-CAT₅) limited water aquifer¹⁶² basin (figure 8.16), making boreholes' water levels responsive to seasonal changes (Abam and Ngah, 2013). The water yield is low at an average depth of 42.2 meters, due to the bedrocks (ibid). People that use boreholes fetch and transport it to their homes in gallon containers or buy water from cart-vendors who trade in water per litre. The gallon containers are not considered contamination free as water supply and storage tools; they harbour algae and other contaminants unless very frequently cleaned. Hence, the community are using a (1-P₉-CAT₅) non-protected water source, making them vulnerable to (P₁₂-CAT₈) sanitary related diseases associated with lack of water quality. (1-P₉-CAT₅) Water collection is a burden for children most of all as they are the ones generally sent to fetch water using 25 litre gallon containers and can be seen lining up at points for long periods (figure 8.17).

¹⁶² The layer of water under the ground.

For drinking, people generally resort to buying sachet water (Ajimotokan, 2017) (figure 8.18), which is an (1-P₉-CAT₅) unimproved drinking water source. Sachet water is water sealed in (about 500 ml) plastic bags; its production is inefficiently regulated in the country with poor hygiene levels, and as such microbial levels are improperly monitored (The Guardian, 2015; WSMP, 2008). Consuming this water can cause adverse health conditions that are (P₁₂-CAT₈) sanitary related – especially typhoid (Mallo and Obasanya, 2011); however, due to the (1-P₅-CAT₂) challenges of sustaining income, it is the community’s most affordable option (ibid).



Figure 8.16: Map of global fresh water resource distribution with a translucent red overlay showing the location of Nigeria. Source: (TWAS, 2002).



Figure 8.17: Children waiting to collect water at a water point in the Garki village. Source: author.



Figure 8.18: An example of sachet water. Source (Nwaeze, 2016).

In terms of sanitary conditions, there is a general (2-P₉-CAT₅) (challenge of) grey water¹⁶³ disposal in Garki village. This is mainly because they have an (3-P₂-CAT₂) uncoordinated sewage infrastructure and inadequate (3-P₂-CAT₂) (only 80 metres) road Infrastructure. Discharge waters remain stagnant and unattended in homes and are also directly/indirectly channelled onto road paths (figure 8.19) (Ajimotokan, 2017; Itua et al., 2016; John, 2013). The village is also characterized by (2-P₉-CAT₅) strewn garbage on road paths, foot paths, between buildings and shopping areas. This garbage concentrates in (2-P₁₀-CAT₆) unattended porous spaces (Balogun, 2004), thus, highlighting the (3-P₂-CAT₂) inadequate solid waste infrastructure. Refuse collection is inefficient despite claims to the contrary by the Abuja Environmental Protection Agency (Agande and Jannah, 2016; Itua et al., 2016; John, 2013). Roads act as collector points for this garbage and natural debris (Ajimotokan, 2017), collecting in (4-P₂-CAT₂) stagnant water puddles and (2-P₉-CAT₅) blocking unorthodox water drainages constructed for grey and rainwater (figure 8.20). Collected waters turn fetid with decomposing waste. These conditions would appear to contribute to people's perception that the (P₁₁-CAT₇) village is non-conducive to living (Ajimotokan, 2017; John, 2013).

¹⁶³ Grey water is waste water from general household and sanitary use that is free from fecal matter (excluding toilet waste water).



Figure 8.19: Household grey water forming open gutters in housing compounds. Source: (Image on left) (Itua et al., 2016), author.



Figure 8.20: A section of Garki village showing debris collected in unorthodox drainages and stagnant water. Source: author.

(2-P₉-CAT₅) Blocked unorthodox water drainages increase risks of (P₁₂-CAT₈) malaria and the spread of (P₁₂-CAT₈) sanitary related &/or air airborne diseases, which are exacerbated by poor ventilation. In a study, the institutional records at Abuja's Garki hospital indicated cases of diseases related to sanitation and poor ventilation like typhoid, malaria, and cholera as common diseases for patients that are from the Garki village axis: up to 27% of scabies, ringworm, chicken pox, and measles cases were attributed to these patients (Mallo and Obasanya, 2011).

In relation to population density, the Garki village can be described as having a (3-P₉-CAT₅) high population density – 26,000 persons per km² – when calculated using an estimated population of 5000 persons (see section 8.1.3) per 19 hectares.¹⁶⁴ The village's population density is higher than the Abuja city average which is 2,700 persons per km² (Demographia, 2016). However, it is much lower than other slum settlements that develop on land real estate, for example Dharavi with 296,000 persons per km². This density profile is generally influenced by population increase due to continuing (1-P₈-CAT₄) inter-urban and intra-urban migration. During daylight working hours, weekends, and night-time, however, there is a (3-P₉-CAT₅) higher population concentration, especially on the Lagos Street axis. The (2-P₃-CAT₂) many enterprises and businesses – restaurants bars, and roadside shops, together with associated (2-P₃-CAT₂) prostitution and other social vices are an ongoing attraction for shoppers, and the relaxation and fun-seeking Abuja populace (Agande and Jannah, 2016; Ajimotokan, 2017; Itua et al., 2016). This increased population density during these periods provide miscreants with the opportunity for (P₁₃-CAT₈) petty crimes & drug use (Agande and Jannah, 2016). Other properties associated with (3-P₉-CAT₅) high population density are the village's (3-P₉-CAT₅) high building density (Balogun, 2004) and (3-P₉-CAT₅) high occupancies (Itua et al., 2016; Roberts et al., 2010). These further raise the risks of the spread of (P₁₂-CAT₈) sanitary related &/or air borne disease.

The village's (3-P₉-CAT₅) high building density is clearly visible from analysis of satellite imagery, with some building sections about 1 metre or less apart (figure 8.21 and 8.22). Because the village's (2-P₁₀-CAT₆) boundaries restrict expansion, the (1-P₇-CAT₄) illegal subdividing/procedures with (2-P₁₀-CAT₆) addition & extension of house units is influential to densifying the (2-P₇-CAT₄) urban village's already organic building pattern (Balogun, 2004). A study in 2002 showed that the number of buildings and rooms per compound increased substantially after the first phase of the (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy in 1996. There were no longer housing compounds with 1–5 rooms, and over 50% were having 16-20 rooms (figure 8.23) (ibid). (3-P₉-CAT₅) High occupancies also increased after this period in the village. One can find 8–10 persons per household (note not compound) in the Garki village, with entire families sharing a room (Itua et al., 2016; Roberts et al., 2010).

Lastly, the spatial pattern of the Garki village's form can be described as an (4-P₉-CAT₅) irregular winding spatial pattern. This assessment is made after tracing some of the road paths

¹⁶⁴ For Roberts et al. (2010), the village has a density of approximately 500persons per km², this, however, is much lower than the area population.

identified from the village's DigitalGlobe database map. Figure 8.21 explicitly shows that apart from the main named streets, there appear to be no apparent ordered structure to road paths.



Figure 8.21: The Garki Village map highlighting its high building density in comparison to surrounding city. Source: DigitalGlobe database (12/4/2017), path highlights added by author.



Figure 8.22: A section of buildings that are built with little distance apart. Source: author.

Numbers Of Rooms In Compound	Pre-Integration No	%	Post Integration NO	%
1-5 Rooms	94	67	-	-
6-15 Rooms	42	30	62	44
16-20 Rooms	4	2.9	78	55.1
Sample Total	140	100	140	100

Figure 8.23: Change in number of rooms per compound in the Garki village between 1996 and 2002.

Source: (Balogun, 2004, p. LVI).

8.1.10 Age and evolution of the Garki village (P₁₀-CAT₆)

Garki village has a rich history. It is an (3-P₁₀-CAT₆) over two centuries old settlement that has been in existence before the creation of the Nigerian nation in 1914 (Tanko, 2014). It is a socially consolidated set-up (UN-Habitat, 2003a). The earliest records of settlement in the entire Abuja region dates back to the Nok culture of 500 to 200 BC (LeVan and Olubowale, 2014). Between the 18th and 19th centuries, there was mass population movement during the reign of the northern Islamic Fulani caliphates (ibid). (3-P₁₀-CAT₆) Historical Hausa-Fulani invasions were documented during these periods, with the Hausas and Fulanis continuously, but unsuccessfully, raiding and trying to invade the pre-dominant Gbagyi region (Ofeogbu, 2015). In addition to this tumultuous background, (3-P₁₀-CAT₆) trade and agriculture practices are also well documented. The Gbagyis were predominantly farmers, whilst the Hausa that came into the region were farmers, but most of all ardent traders of various designations (Tanko, 2014). These trading services, which were needed in the region, included cobblers, leather workers and tanners, blacksmiths, animal traders and butchers etc. They also participated in the trans-Saharan and subsequent colonial trades in cotton, groundnut, fruits, seeds, etc. (ibid); thereafter, some Hausas settled at the base of the Gbagyi's 'Peyi' (hill) settlement in 1807 (figure 8.24) (Kuku, n.d.; Tanko, 2014).

During the colonial reign in 1913, the Gbagyi tribe on the 'Peyi' (hill) were (3-P₁₀-CAT₆) re-settled from the hill to join the Hausas at the base in order to make governance easier for the district officer (Tanko, 2014). The Garki-Hausa now generally occupy the southern sections of the settlement, while the Garki-Gbagyi/Gwari occupy the north, with settling immigrants interspersed. With its historical evolutions, muted (1-P₁₀-CAT₆) ethnic lines exist as to which is

the dominant tribe in the village between the (1-P₃-CAT₂) Gbagyi and Hausa ethnic majority. For kuku (n.d.), the Hausas' mispronunciation of 'Gbagyi' as 'Gwari' (which means 'yam' in Gbagyi language) further defines the social tensions between the two groups. Further influencing (1-P₁₀-CAT₆) ethnic lines is also the Government's implementation of the (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy that stems from the (3-P₁₀-CAT₆) Federal Capital Territory (FCT) relocation policy. In the process, greater rights and supremacy were/are awarded to the Gbagyi tribes in the Abuja villages (Eerd et al., 2008). An outcome of this situation are (P₁₃-CAT₈) identity endeavours by the Hausa community in the Garki village focused on sensitizing the wider public (generally through literary medium) about the Hausa community's rich lineage in the village (see Abdullahi, 2010;¹⁶⁵ Tanko, 2014).



Figure 8.24: The 'Peyi' (hill) from which the indigenous Gbagyi were relocated to consolidate the Garki village shown in the background. Source: author.

The (3-P₁₀-CAT₆) FCT relocation policy that outlined and implemented the movement of the Nigerian Federal Capital City from Lagos to Abuja city was set out in the Federal Capital Territory decree of 1976 (FCDA, 1979; Ofeogbu, 2015). In essence, to geographically define, design and build a city (in phases – see figure 8.2) on virgin land free of encumbrances. (2-P₄-CAT₂) Lands were vested in the FCT and names of original villages were generally retained for planned Abuja districts and seen as elemental to its identity (Ofeogbu, 2015). The main objective then was to counter challenges experienced in Lagos and have a centrally located, accessible, affordable, traffic free city, one that is socially and culturally neutral, and climatically conducive to habitation (ibid). The first problem started in 1979 when the

¹⁶⁵ See also other blogposts by this author and in the 'Aminiya Newspaper).

indigenous population (including those in the Garki village) were highly under-estimated and the government could not afford the ₦200 million needed to compensate/relocate/resettle them to other states. This triggered a change in policy in 1984 to one of integration, with the Garki village as a test area (Owei, 2007), thus, mapping the beginning of the (3-P₁₀-CAT₆) **inconsistent integration & resettlement programme policy**. The next paragraph captures some of this history.

The initial attempt at integration, which started in 1996, was only 40% implemented and characterized by lack of social participation, funding, infrastructure planning, and evident corruption (Balogun, 2004; Mallo and Obasanya, 2011). This was seen to be generally influenced by overall (4-P₈-CAT₄) **inefficiencies in Abuja relocation/integration policy** for Abuja villages (ibid; Abubakar, 2013; Jibril, 2009). A 2005 change in policy to maintain the Abuja (2-P₂-CAT₂) **business/residential district zoning** and resettle Garki village faced the same challenges, including non-transparency, perceived fraud, and the improper allocation of resettlement houses (ibid; Okeke, 2011). For officials, this policy change was partly influenced by community members (1-P₄-CAT₂) **flaunting their customary rights** with (1-P₇-CAT₄) **illegal subdividing/procedures** (Balogun, 2004). For the authorities, these events contribute to the (3-P₁₀-CAT₆) **inconsistencies in integration & resettlement policy** and the (4-P₈-CAT₄) **inefficient relocation/integration policies** for the city overall (Okeke, 2011). At present the Garki village program is being re-designed for partial resettlement and integration (see Adebowale, 2013).

For the Garki community, these inconsistencies trigger a degree of (P₁₁-CAT₇) **apprehension (about tenancy)**, as from past experience, government bulldozers can roll in at any time (Itua et al., 2016); one such time, youths organized (P₁₃-CAT₈) **active resistance** to forcefully stop the marking of houses and demolition (Agbo, 2010). The community considers their (P₁₁-CAT₇) **civil rights to be disregarded** because they are treated unfairly despite being indigenous settlers (Akinbade, 2013; Gusah, 2012; Okeke, 2011). Owing to this perception of rights and being (3-P₅-CAT₂) **socially and (3-P₅-CAT₂) spatially excluded from FCC development**, (3-P₁₀-CAT₆) **integration bids** to stay in their rightful native geography, ancestral homes, and social relations are common and ongoing (Balogun, 2004; COHRE and SERAC, 2008; Eerd et al., 2008). As such, these (3-P₁₀-CAT₆) **integration bids** are also influenced by the fact that the community members consider Garki to be their (P₆-CAT₃) **native settlement**. In addition, they also want to stay within (1-P₁₀-CAT₆) **strong familial and social ties** and the Abuja (2-P₂-CAT₂) **city core**. The (3-P₁₀-CAT₆) **integration bids** also commonly involve (P₁₃-CAT₈) **knowledge gathering, speaking out and other forms of involvement** to highlight their perceptions and requirements. For example, they would like to see the Department of Resettlement and Compensation re-structured (Adebowale, 2013; Akinbade, 2013). Due to the perception that their (P₁₁-CAT₇) **civil rights are being disregarded** by the (3-P₁₀-CAT₆) **inconsistent integration & resettlement programme policy**, a former FCT senator, initiated a (3-P₁₀-CAT₆) **court action**

in 2010,¹⁶⁶ suing the FCT administration (Okeke, 2011). The (3-P₁₀-CAT₆) court action did, however, seem to slow down talks between the Garki village community and the FCT administration about courses of action that were suitable to both parties.

The Garki village community's (1-P₁₀-CAT₆) strong familial and social ties (like other villages) are influenced by its age ((3-P₁₀-CAT₆) over two centuries old settlement) and (1-P₃-CAT₂) extended family structures (Balogun, 2004; COHRE and SERAC, 2008; Eerd et al., 2008; Tanko, 2014). In relation to social structures and organization, there are two main interrelated cultural lineage and leadership structures that reflect the village's (1-P₃-CAT₂) Gbagyi/Hausa ethnic majority. The Hausa community have a *Sarkin-Hausawa* (presently) under the aegis of the *Sa-Peyi* of the Gbagyi community (figure 8.25). Both are 'Dakaci' (district head and overseer) of their sectors with the same subordinate structure that includes *Magajin-Gari* (vizier and adviser), *Galadima*, *Madawaki*, *Wakili* etc. They have assigned (1-P₁₀-CAT₆) palaces as ruling headquarters to operate from (figure 8.26), and oversee affairs ranging from community and environmental management, land disputes, marriage disputes, divorce, discipline, debts and counselling etc. Other supporting leadership include the (1-P₁₀-CAT₆) tradesmen (community of practice) associated to the village's (2-P₃-CAT₂) many enterprises and businesses and its (3-P₁₀-CAT₆) trade and agriculture (evolution) (Tanko, 2014). These tradesmen leaders include: *Sarkin-Aska*' – for barbers and healers, *Sarkin-Dukawa* (*Baduku*) – for leather tanners and cobblers, *Sarkin-Makera*' – for blacksmiths, *Sarkin-Pawa*' – for butchers, *Koli* – for traditional medicines men, and *Sarkin-Noma* – for farmers (figure 8.27). Each of these leaders try to maintain order within their purview.

The Garki village community also maintain a (1-P₁₀-CAT₆) traditional power hierarchy and ethos associated with their (1-P₁₀-CAT₆) ruling monarchy structure. In times of need, subordinate leaders are consulted, who then consult with those of higher rank; all initiatives are carried out with the permission of the monarchs who delegate or oversee implementation (ibid). (1-P₁₀-CAT₆) Ethnic lines can considerably have a negative effect on (1-P₁₀-CAT₆) traditional power hierarchy and ethos. However, the village's (1-P₁₀-CAT₆) ruling monarchy has encouraged the formation of a (1-P₁₀-CAT₆) socio-economic community of interest with traditional leadership structure from (1-P₃-CAT₂) other ethnic minorities (Mallo and Obasanya, 2011; NTA, 2015). This homogeneity, along with a consistent focus on initiating progress for all (NTA, 2015), positively affects (1-P₁₀-CAT₆) ethnic lines, seeming to lessen them. With continuing (1-P₈-CAT₄) inter-urban and intra-urban migration, the village has and continues to undergo a (3-P₁₀-CAT₆) cultural demography evolution. This notwithstanding, the community have found that maintaining a (3-P₁₀-CAT₆) stable community governance with their traditional

¹⁶⁶ This date is assumed owing to discussions in Okeke (2011).

(1-P₁₀-CAT₆) ruling monarchy is best placed for tackling social and economic challenges and enhancing social and economic vitality (Tanko, 2014).



Figure 8.25 A portrait of Garki village monarchs – *Sarkin-Hausawa* (left) and *Sa-Peyi* of Gbagyi. Source: author.



Figure 8.26 The palaces of *Sarkin-Hausawa* (above) and *Sa-Peyi* of Garki (below, built by the Abuja municipal area council). Source: author.



Figure 8.27: Two trade leaders at their stations – ‘*Bakudu*’ (above), and ‘*Sarkin-Aska*’ (below). Source; author.

Spatial consolidation in Garki village, that is the way in which the community have sought to change and adapt their dwelling compounds over the years, also reveals interesting characteristics. (1-P₈-CAT₄) *Inter-urban and intra-urban migration* and (1-P₁₀-CAT₆) *strong familial and social ties* are quite influential to how the Garki village’s spaces have consolidated. (2-P₁₀-CAT₆) *Addition & extension of house units* are common and continued even after the implementation of the (3-P₁₀-CAT₆) *FCT relocation policy* that established Abuja as the nation’s capital (Balogun, 2004). Before this time most buildings were constructed of ‘daube’ mud blocks. However, recent consolidations are generally done with concrete, sandcrete blocks, mud blocks (still), zinc sheets, and plywood (figure 8.28 - 8.30). The (2-P₁₀-CAT₆) *upgrade of housing units* is also part of dwelling consolidation (ibid) and generally done with concrete and sandcrete block and/or cement plaster, depending on people’s income

(figure 8.28 & 8.31). The (1-P₅-CAT₂) challenge of sustaining income sometimes makes this difficult. Impressively, some people have sought to retain and maintain some aspects of their (2-P₁₀-CAT₆) (historic) traditional building structures in the process of dwelling consolidation (figure 8.32). Factors that influence the above forms of dwelling consolidation include (2-P₁₀-CAT₆) family size home consolidation – births, marriages, and the growth of kids etc., and (2-P₁₀-CAT₆) consolidation to increase income – from tenants/speculators, spaces for enterprise, accommodating workers, storage etc. (Balogun, 2004; LeVan and Olubowale, 2014).

Dwelling consolidation, however, comes with certain challenges. First, the Garki village's (2-P₁₀-CAT₆) boundary restricts home expansion into the existing area as there is no provision for expansion in all directions. Second, their (2-P₁₀-CAT₆) tenure conditions restrict home consolidation: with their (1-P₄-CAT₂) insecure tenancy (substantive rights until time of relocation), there is lack of incentive to invest vast amounts of money for dwelling consolidation (LeVan and Olubowale, 2014). Also, with the (3-P₂-CAT₂) bad road conditions, people are uncertain about attracting tenants and wary of spending money to consolidate homes only to have to maintain facades and grounds after each rainy season. Balogun (2004) further notes that there are (2-P₁₀-CAT₆) unattended porous spaces between home compounds (figure 8.33) that need to be creatively used. These are subject to abuse by people who (P₁₃-CAT₈) throw rubbish indiscriminately and have become repositories for (2-P₉-CAT₅) strewn garbage as no one assumes responsibility for them. This is a challenge to the Garki village's image and that for the community overall. For John (2013), however, the Garki village is a place where, irrespective of challenges, people seek to live life simply and to the fullest.



Figure 8.28: Recent building addition constructed of sandcrete block (on right). Source: author.



Figure 8.29: Building addition (on left) constructed from plywood to accommodate family growth, while the main building (on right) was incrementally upgraded to sandcrete structure. Source; author.

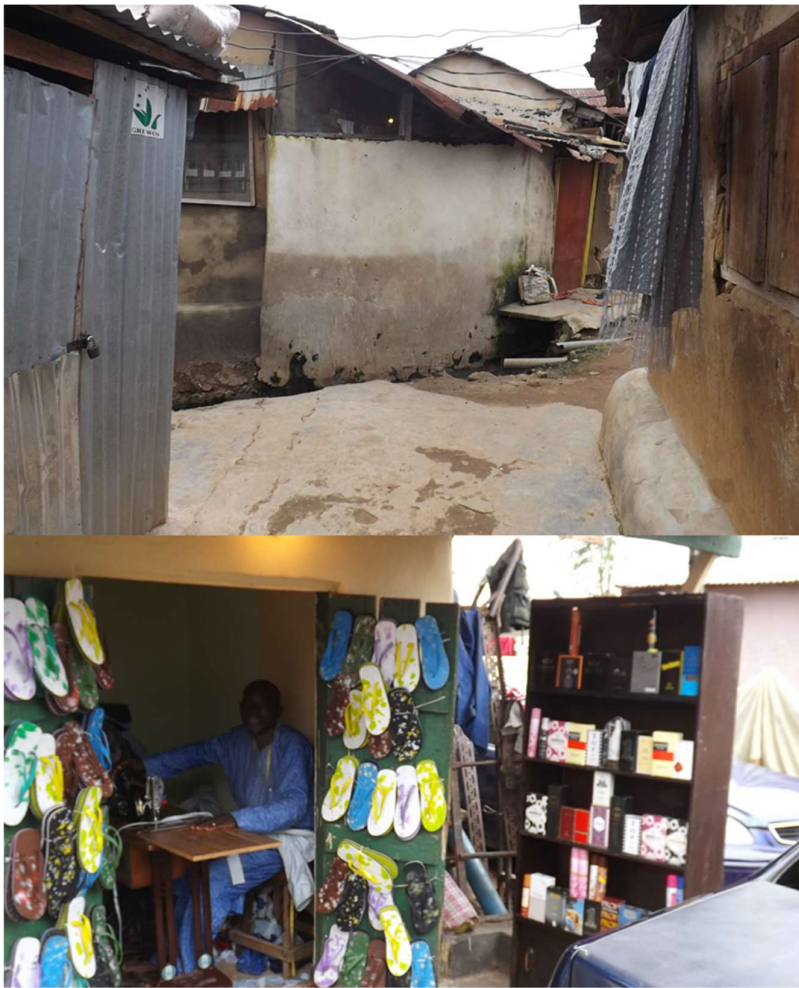


Figure 8.30: Building extensions done to accommodate tenants (above), and space for enterprise (below). Source: author.



Figure 8.31: This building was upgraded from a 'daube' mud block with cement plaster. Source: author.



Figure 8.32: A house extension (sandcrete block construction) that creatively retains a traditional mud 'daube' grain silo in its design. Source: author.



Figure 8.33: A flock of animals have found a conducive resting place in one of the spaces between housing compounds. Source: author.

8.1.11 Conclusion

The objective of this section (8.1) was to relate the outcome of the implementation of the Slum Property Map (SPM) framework with applicable manual (Chapter 4 and Appendix III) and develop the slum property map of Garki village, Abuja, through a desktop case study. 'The story of Garki village' shows how interesting and interrelating facts about a slum can be built to define it out of the tools provided within the framework. The SPM is proposed as a key tool in the Slum-Prosperity Framework (SPF), which in turn is proposed as a comprehensive actionable framework for slum intervention and enhancing prospects for prosperity in the slum and city (Chapter 7). The Garki village's slum property map is used as an example to show how the SPF can apply.

The case study is set out to demonstrate the concept for the SPM's development and its proposed procedure for defining slums, which include (see section 4.4 and Appendix III): (1) analysing and compiling relevant lists of eight categories of properties that describe the Garki village with information and data that contextualize them. These lists of properties will unbiasedly capture the essential character of the slum needed to comprehensively describe and define it; (2) building an interactive map of how the properties affect/influence/trigger each other to define the Garki village's character in a way that considers and subsequently highlights properties that are key role players in such character; (3) building a narrative to relay the contextual and complex slum property map of the village, in a manner that prioritises relevant properties that help to comprehend this complex character as well as carry out intervention.

The lists of descriptive properties capture relevant contexts about the city and how these relate to the Garki village, at the same time, they narrow down the focus to its own localised character (table 7.1 and 8.1, and figure 8.1). The Garki village properties compiled show how the SPM can be standardized (to any slum irrespective of differences): for example, what to look for – proposed in the SPM manual – to comprehensively describe slums' (4-P₂-CAT₂) **relative landscape and site conditions** to compile its **GEOGRAPHY** properties includes analysing and describing typical (and challenging) climatic phenomena (typhoons, cyclones, flooding etc.) However, since these types of phenomena are not common to the region or that urban area, it was not necessary to pursue such analysis. The case study also shows that it is a structured framework (considering all necessary characteristics in an organised way): the lists of properties that describe the Garki village provide a rich set of information (to a certain degree),¹⁶⁷ not only about the physical character of the village but also its people and how the

¹⁶⁷ This is because information is limited to those obtained from literature and supported by the researcher's previous informal experience alone.

two relate. For example, it describes how it is (2-P₂-CAT₂) well connected with the Federal Capital City (FCC); how the people stay there because of this and because they consider the village to be their (P₆-CAT₃) native settlement; and how at certain times of the day there is a (3-P₉-CAT₅) higher population concentration in Lagos Street etc. The lists of properties highlight certain aspects that can be considered positive assets to the community, and others that are negative challenges. The SPM can also be applied in a dynamic way.

The narratives in the above sections also capture the interactive character profile of the Garki village, including how and why links are meaningful due to the combination of context; meanings that would be lost otherwise. For example, the (3-P₉-CAT₅) higher population concentration in Lagos Street generally occurs during working hours, night-time and throughout weekends; and this higher population concentration is influenced by the concentration of certain types of (2-P₃-CAT₂) enterprises and businesses along that axis. The narratives also highlight the properties that seem to have some degree of influence on the character of the village due to the extent that they affect/influence/trigger others. The (3-P₁₀-CAT₆) inconsistent integration & resettlement programme policy of Garki village, for instance, is mentioned quite consistently in the narratives as an influence on other properties. It is one of the lists of properties that describes the Garki village's (P₁₀-CAT₆) AGE OF SETTLEMENT AND EVOLUTION, which is a process category of properties (category 6). As posited in the proposal of the SPM, process properties of slums can assert some influence in defining their character. However, other categories of properties posited to have high degree of influence in any slum property map, like structural properties – FORM OF THE GARKI VILLAGE, did not show substantial high influence in the Garki village slum property map. Perhaps this is due to the limited descriptions obtained from literature content analysis. For the Garki village, the network diagram of its slum property map (figure 7.8) is a relevant visual aspect that can be read in parallel with the narratives. It traces all relevant associations for each descriptive property, including reciprocal ones.

The contexts of slum properties, the associations between them and their influential roles are key information in the functionality of the SPF and, in general form the basis of analysis to analyse and logically identify and establish essential paths for action in any slum. That is to say that they constitute a heuristic. A comprehensive slum definition is essential and a first action for stakeholders to implement other proposed actions in the SPF as shown by examples of Garki village profile used to show how it can apply (section 7.3.1 to 7.3.4 and figures 7.8, 7.10 to 7.13 and 7.15). The narrative will, therefore, form a vibrant source of information for consultative and (when updated) reference material during and beyond a course of intervention.

By communicating the lists of properties of the Garki village in the hierarchy set out (section 8.1.1-8.1.10), the narrative systematically introduces relevant characteristics to help one cohere it and are also key to improving conditions in it. At the same time, it relays how the lists of properties associate with others and their roles in such associations. However, while one can look up any descriptive property in their own sub-narrative to understand its context, it is through appreciating how it features in the entire narrative that its role in defining the village can be comprehended. Notably, while each sub-narrative provides relevant overviews about the slum, its nature will be best comprehended as a whole – compilation of all narratives. Also, no apparent hierarchy is imposed in relation to how the sub-properties (see Chapter 4 and appendix III), through which lists of properties can be compiled, are introduced in the narrative. For example, the researcher found it clearer to introduce properties that capture the short history of Garki village first – (3-P₁₀-CAT₆) *history and defining events* – before discussing properties that describe its (1-P₁₀-CAT₆) *social consolidation and established social structures* and (2-P₁₀-CAT₆) *spatial consolidation of place*. A limitation, however, is that the complete narrative is quite extensive and does not make for quick reading overall.

In all, the SPM is a useful framework and tool for describing and defining the complex nature of slums and envisaging possibilities for effective improvement and enhancing prospects for prosperity through implementation of the SPF. The SPF received relevant notes by urban professionals who have also recognised the potential for its further advancement, as discussed in the next section 8.2.

8.2 Conclusions and recommendations with expert opinions

This thesis, with relevant proposals – the Slum Property Map (SPM) that is integrated within the Slum-Prosperity Framework (SPF) and the theory for prosperity that helped conceive it – is, at this stage of work, considered robust in view of the research methods and procedures undertaken. The SPM can also be implemented as a standalone tool and preliminary to intervention as well as a tool to compare and contrast between slums and monitor their progress. After conceptualizing the research tasks, an investigation was carried out with urban professionals, also experts, (see methodology section 2.5) who provided their relevant opinions in order to validate the logic (with one group) and usefulness/applicability (with a second group) of the Slum-Prosperity Framework (SPF). The summary of expert opinions is presented in Appendix VII under headings 1-9 and organised as charts showing relevant ‘feedbacks’, ‘recommendations’ and ‘other comments’ for each heading; these are lettered starting from ‘a’. In this section (8.2), reference to the expert opinions will highlight its heading (1-9); where only one or more of the feedbacks, recommendations, or comments are referenced, their relevant alphabetical letterings are annexed to the numbered heading. In all, the opinions provided by the urban professionals relate not only to the SPF, but also to the

research focus, methods and procedures, limitations, and recommendations for improvement and further work.

The aims of this research were to fulfil the potential for a comprehensive way of defining slums to effectively intervene and contribute to a re-interpretation of slums as prospective role players in cities' prosperity. This was novel and set to enhance an inclusive, positively focused, appropriately targeted, and coordinated approach to slum and urban management. The experts consulted tendered opinions that support this research endeavour (Appendix VII: 3(h), 4(c), 5(h & i), 8(g), 9(d)): slums are part of cities and in many ways – for example, provision of cheap labour – support the prosperity of cities.

The thesis shows that the aspects that give complexity to slums are not a limitation to their character; rather, they can serve to capture what they are and, therefore, allow them to be identified and comprehensively defined in the broader complexity of the city. The SPM, with application manual is developed to be generally applicable to all slums irrespective of differences, a standardized framework. It guides stakeholders to uniquely describe any slum – based on eight categories of descriptive properties – through its conceptual and systematic framework. It is a structured framework. As shown in section 8.1.1 to 8.1.11 (the story of Garki village), slum descriptions will include the physical, socially related, and spatial characteristics of the slum, as well as people's experiences, interactions, attitudes, and priorities relative to their conditions and to any planned intervention program. In addition, the SPM also looks at how the varying characteristics of the slum interact; it helps to portray (in a structured manner) how they affect/influence/trigger each other and those that are key players in the process, with all information and data that contextualize them. In all, it helps compile an interactive slum property map of any slum, which will have ontological significance relative to how it exists and within the wider city context, and how this existence is cognitively perceived, organised and adequately represented. It can be applied in a dynamic way to capture changes also.

The SPM, therefore, allows for context specific approach to any slum's intervention from inception to implementation, and to consider effects and impacts of activities. Over the years, the need to upgrade slums relative to their communities' requirements is becoming more prominent, guiding upgrade plans. Of note, however, any slum's requirements will be in response to its basic characteristics and, as shown in this thesis, these are interactive and subject to change also. Hence, even where requirements are relayed to and grasped by a management team, the contexts within which they exist will be key towards any effective outcome. As such, the SPM can offer a more advance framework of definition for slums to the traditional approaches for profiling slums prior to or during upgrade, as seen in Davidson and Payne (1986) and UN-Habitat (2014a) for instance.

The SPM manual is structured to provide stakeholders with (1) background information and knowledge on the lists of properties that will be compiled, (2) instructions on what to look for to compile them, (3) how to capture them (relative to the property type) and (4) interactively map them in partnership with slum community. The aim of this streamlined approach is to make the SPM simpler to apply and to provide relevant information that will allow for a rigorous slum definition. The comprehensive nature of the SPM manual also makes the SPM a didactic framework; users can learn a lot about slums from it and in applying it, and in this way, advance their own processes tailored to their requirements. An attempt was made to simplify instructions in the manual and keep them to a minimum. Applicability to a wide spectrum of stakeholders is important and key to slum practice and to the application of the SPM (see section 1.2, 1.3, 7.2, and appendix III). However, with a suggestion for adequate representation by those with expertise in urban and slum analysis. As noted by expert opinion 2(a) in Appendix VII, this is important to the efficiency of slum analysis. In all, expert opinions consider the principles and functions, structure and outcomes of the SPM with its application manual as a logical, useful and applicable proposal (Appendix VII: 1, 2, 3(g & i)). This research sought to limit bias in carrying out the necessary steps to defining slums through the SPM and application manual. In addition to reviewing the sociological and perceptual evolution of slums and following an integrated ontological and cognitive conceptual approach to developing the above, the research explored, analysed, and interpreted relevant information from a multitude and wide range of literature sources about slums.

Practically implementing the SPM manual, however, remains a substantial task and requires some level of financial, expertise, and time commitment. Expert opinions highlight that stakeholders can run the risk of over analysing before even beginning to engage with slums (Appendix VII: 2(i)). As much as this can be true, there is also the risk of not understanding slums, with too little, redundant, insufficient, un-substantiated, or non-robust information, leading to ineffective responses. So, both risks need to be taken into account and justified by the stakeholders involved in the practical study or work in slums. Also, secondary sourced data should ideally support what is garnered in real field settings. Other sources of bias in the SPM's application can be further noted: as it is set to be standard to all slums, the selection of context specific information, considered relevant to the description of a slum of interest by stakeholders can present a bias. Another source of bias can result from the local communities or persons who will be providing knowledge and experienced-based information about the slum. They may be unwilling to provide genuine responses, or these may be non-comprehensive. Furthermore, where the SPM is implemented as a stand-alone tool, there is the issue of establishing which conditions are good or bad by stakeholders, especially for descriptions that do not have objective thresholds of measure/comparison. The testing of the SPM through a desktop case study carried out solely by the researcher is a limitation.

Still, the SPM is proposed not only as a comprehensive and applicable framework that fulfils a key gap in urban management, which requires a sound conceptual approach, but also as a robust inaugural framework. One that supports continued advancement, philosophically and practically, in the improvement of cities, globally. Hence, the approach and methodology used in the development and validation of the SPM is, at this stage of work, considered as robust. For this thesis, the SPF stands as an activity framework for analysing, understanding, and assessing conditions in slums that have been comprehensively compiled, strategizing and implementing improvement in line with cities' goals.

The principle on which the SPF is built, just like the SPM, is that in order to deal with the complex issue of prosperity and the role slums play in it, it is necessary to define it in a comprehensive and operative manner. The theory for prosperity was reached by first identifying the suitability of such a method and then the study of theories and concepts that could help form an idea of prosperity. These include the theory of Human Motivation to Fulfil Needs, concepts of space and space production, dynamic sustainability and resilience. The research identified facts and meanings that bound them and synthesized summarizations into a theoretical framework. This thesis establishes prosperity as a needs-centred goal pursuit that engages with the path of development and thriving. For this thesis, this pursuit is universal, relative, dynamic, and contextually based on the quality of our lived spaces, which, for any slum, can be approached through its slum property map.

To fulfil its principal function (see introduction to this chapter), the SPF conceptualizes the necessary conditions for development and thriving in slums and outlines actions for stakeholders to engage any slum with these aims in mind. The SPF with integrated SPM, and its application through the SPF manual, is considered as a logical, useful, and applicable framework for slum intervention by expert opinions due to its structure, functions and expected outcomes (Appendix VII: 1-9) that include the following:

- The proposal for implementation of the actions for prosperity in the slum, by stakeholders, via a combination of framework tools: (1) the SPM to help define the slum comprehensively; (2) the framework of indicators for prosperity, to help assess and proffer a slum-prosperity classification (typology) with potentials for improvement; and (3) the definition framework of basic human needs, to help identify pathways of engagement that are receptive to needs and in association with slum communities strengths and assets. For stakeholders engaged in the actions, these pathways will be cognizant of risks and vulnerabilities, they will not only be identified based on context specific requirements of slum, but also on targets of engagement that will lead to most effective and impactful positive outcomes for slum and city improvement and prosperity.

- The proposal for the use of Social Network Analysis (SNA) tools and the calibration of (a simpler than most) SNA software – NodeXL – to support stakeholders in the representation of complex facts, logical analysis, summarizations, and decisions.
- The suggestion of ways to approach the implementation of actions for prosperity that include asset-based prospecting, advocative and enabling participation, and locally partnered, small and incremental pursuits.
- The fact that the framework structure is systematic yet flexible so as to support progressive engagement and monitoring by a broad spectrum of stakeholders.

Another aspect that makes the SPF with integrated SPM robust, is that some of the recommendations for a comprehensive framework proffered by the experts had, at the time of the investigation, already been considered and conceived within the framework. They include the following:

- Highlighting the importance of capturing migrant demography in the information needed to characterise slums in the SPM and include this in suggestions tendered (Appendix VII: 1(i)).
- Suggesting relevant methodologies for obtaining information and data to describe slums, and their organisation and representation in the SPM (see Appendix VII: 2(g & h)).
- Suggesting the use of useful assistive (technological and non-technological) tools in the processes of gathering relevant information to describe and define the slum while applying the SPM (see Appendix VII: 3(g)).
- Highlighting the objective of each activity with outcomes in the SPF (see Appendix VII: 3(d)).
- Simplifying the context of indicators for prosperity in the framework of indicators for prosperity that is proposed as a tool in the SPF, so that they can be easily understood and used accordingly (see Appendix VII: 3(e)).
- Also, incorporating feedback mechanisms with slum community within the framework activities in the SPF (see Appendix VII: 3(f)).
- Developing the SPM to help describe slums in relation to the social, economic, and political contexts of cities (see Appendix VII: 5(e)).
- Developing the SPF based on a theoretical framework in view of a robust and comprehensive framework for practice (Appendix VII: 5(a & d), 8(d)).
- Being strategic in carrying out actions for prosperity in slums (see Appendix VII: 6(e)).
- Investigating both the logic and usefulness/applicability of the SPF while testing it, indicating the suitability of the procedure (see Appendix VII: 8(e)).

- Recognising and noting the research's potential to incite and contribute to more research and knowledge acquisition regarding slums in sub-Saharan Africa (see Appendix VII: 9(d)).
- Developing the SPF as a flexible framework that can be used to progressively input and monitor changes to both slums, cities, and to update and improve the proposed framework tools (see Appendix VII: 9(g & h)).

Still yet, the research took steps to further strengthen the SPF, with integrated SPM relative to the specific recommendations provided by experts. These steps include the following:

- Ensuring the definitions for the categories of slum properties to describe slums proposed in the SPM are as simplified as possible, revising both language and structure and presentation of the framework, so stakeholders can easily grasp them (Appendix VII: 1(f)).
- Highlighting how being aware of the ethical implications of engaging with the slum community is important (Appendix VII: 2(f)).
- Also highlighting the importance of understanding how variations and oscillations in cities economic and political structures are associated with the character of slums and can affect their management, not only in the proposal for defining slums (the SPM) but also the SPF and its manual (Appendix VII: 5(e), 9(g & h)).
- Presenting Social Network Analysis (SNA) as an assistive 'tool' rather than 'analysis method' in the SPF proposal and thesis so as to encourage stakeholder implementation (Appendix VII: 7(d)).

As shown by the above highlights of the SPF, it differs from, and can potentially advance other proposed slum improvement manuals that have programs generally pre-defined towards (one or a combination of) housing, infrastructure, tenure, sanitation and site upgrades, with other financial, institutional, and social mechanisms – like the 'Urban Projects Manual'¹⁶⁸ (Davidson and Payne, 1986) and the UN-Habitat's (2014a) 'practical guide to designing, planning, and executing citywide slum upgrading programmes.' These aspects, can however, become useful in the further advancement of work for the SPF, and will be referred to later in the chapter.

Relative progresses in slum management (especially housing, tenure, and representation) are still being recorded with programmes like the Participatory Slum Upgrade Programme (PSUP) by the UN-Habitat and the Kenya Slum Upgrading Programme (KENSUP) (Anderson and Mwelu, n.d.; Economic and Social Rights Centre, 2015; UN-Habitat, 2018) in Africa, amongst

¹⁶⁸ There is a newer (2000) revised edition of this manual. However, this researcher was unable to access it online and in the library.

others. Non-governmental organisations (NGO) are also becoming more prominent as active stakeholders in the organization, promotion, empowerment, and direct involvement in slum improvement – for example the Huairou commission for women¹⁶⁹ and Practical Action.¹⁷⁰ There is also growing advocacy on the need to understand slums in order to intervene amongst these institutions. However, as reported in the 2016 and 2017 Sustainable Development Goals (SDGs) progress reports, the growth of slum populations is still a challenge with the need for more socially inclusive cities (United Nations, 2018; United Nations Department of Economic and social Affairs, n.d.).

If the urban agenda is to reconcile urban/slum improvement with the complex natures of slums (see section 1.1-1.1.2 and 3.2-3.4) and meet the Sustainable Development Goal 11¹⁷¹ targets for 2030, then more creative yet standardized approaches to slum intervention, like the one offered by the SPF, will be key. An approach that is conceived, designed, and implemented based on a comprehensive knowledge of a slum and aspects, in whatever context – social, subjective, physical etc. – that are not only central to its existence but will trigger improvement exponentially and in a manner that the community can accommodate and responsively sustain. What's more, stakeholder's abilities to capture feedback, agree or debate decisions, and hold up consensus with slum community becomes easier and efficient when they have (and can maintain) comprehensive sets of facts both about the slum and on the most effective paths of action (as posited in chapter 7). In addition, because the SPF is based on the proposed theorization for prosperity, as a ubiquitous goal that is universally applicable, the SPF can be applied and/or calibrated to other non-slum agenda.

All in all, the SPF presents an inaugural and comprehensive engagement platform for slum improvement in line with a vital urban outlook – prosperity. However, all commitments and actions in the SPF are, at the moment, theoretical and conceptual: they have been developed through research without the practical input of urban professionals and stakeholders to slum improvement. As such, its testing through an expert opinion investigation is a limitation; however, for the SPF, as for the SPM, having a robust conceptual base is key to overcome the gaps in research and support transferability and advancement (see methodology section 2.6). There is the potential to further improve and advance outcomes of the research overall.

¹⁶⁹ See <https://huairou.org/>.

¹⁷⁰ See <https://practicalaction.org/>.

¹⁷¹ Sustainable Development Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

8.2.1 Future work and improvement to add to the research outcomes

For both the SPF and SPM, there is a potential to test them and enhance their efficiency through a real programmatic application to include organised and structured improvements based on collaborative inputs. This can be from a broad spectrum of actors in both research and practical experience on slums. Experts suggested this next step also in order to enhance the applicability of the SPF (Appendix VII: 9(a & c)). The following sections 8.2.1.1-8.2.1.3, are an overview of recommendations for improvement of the research, including, where relevant, expert opinions that support them. The recommendations are propositional. They may differ or change, but essentially maintain a focus of contributing to slum and city improvement with continued work and practical improvement on the SPF. The reader can refer to Chapter 4 and Appendix III concerning the SPM and Chapter 6 and 7 with Appendix V and VI concerning the theory for prosperity and the SPF.

8.2.1.1 The Slum Property Map (SPM)

The ambition for future research is to simplify and streamline the structure of the SPM, most essentially the SPM manual, without compromising its conceptual framework and rigorous nature; the next steps towards this will include:

- To further refine what to look for and assessment thresholds for compiling descriptive slum properties and information and data that contextualize them. Also, to ascertain which additional support information, knowledge, theories, examples, and useful links provided in the manual to help comprehensively define slums are more applicable than others and better relate to slums' characters (especially origin of slums) and to intervention.
- To determine more streamlined and conclusive ways of obtaining and putting together information with data that are smart, inexpensive, and non-time-consuming, including protocols for identifying and maintaining information on dynamic (migratory) slum demography. This step may imply different methods of engagement with slum community, where capital and social resources are more limited (see Appendix VII: 3(h)).
- To explore a better and perhaps simpler model for understanding the way properties that describe the slum associate – affecting/influencing/triggering each other. As noted in the thesis and by expert opinion (Appendix VII: 2(d)), the way descriptive properties interrelate to define the slum is complex and seeking to capture such links can be complicated. This will involve consultation with experts as well as technical programming skills.

- To develop a more succinct way of narrating the story that captures the definition of the slum in the city, while still retaining its conceptual and hierarchical structure.
- To work in collaboration with practitioners, whose approach to slum has formed relevant reference material in the development of the SPM owing to some engagement in slums. Their experience and acquired knowledge will be beneficial towards advancing the SPM's usefulness in practice, and in turn, they might find the SPM a useful tool for comparison and benchmarking. This is also a quality control step.
- To identify and suggest the use of new assistive technological tools and applications for appropriately capturing descriptive information and data on slums that improve on suggestions within the SPM manual; this is also a relevant expert recommendation (Appendix VII: 3(g)). These types of tools for urban and field research are continuously being developed and updated, and are becoming more accessible, like drone technology, digital mapping technology etc.

8.2.1.2 Theory on the pursuit of prosperity

The proposed theory for what it means to prosper with proposed definition is substantive; when validated it can become a strategic link to forming a grounded theory (see Creswell, 2009; Trochim, 2006; Udo-akang, 2012) in addition to a definition. A definition is widely accepted, while a conceptualization is an individual viewpoint (Elshater, 2014). Further work on the Slum-Prosperity Framework (SPF) and validation in real-life setting can contribute to this. However, there is the potential for other applications:

- The theoretical framework for prosperity can be applied to other life contexts, not only slums or slum research.
- Prosperity is relative to people and their changing needs in response to spaces. There is the potential to adapt and standardize the model in relation to changes in needs and with time, therefore centering around specific groups, or periods and in relation to certain slum or urban social, physical, environmental etc. context.
- Overall, the universality of the concept as shown in the thesis is an indication that it can be standardized in the academic structure of urban disciplines, for example, architecture and urban design. All life disciplines are projections of our human nature and livelihood activities in relation to ourselves, other social interrelations, the natural and physical environment and other organisms within it. Space appropriation is concerned with all these dimensions including the abstract. Hence,

we can adequately observe the process of prosperity in an urban discipline context.

8.2.1.3 The Slum-Prosperity Framework (SPF)

The ambition, here, is to also further simplify the SPF with integrated SPM and make them versatile and applicable to different contexts and circumstances; in this way, the idea is to offer a method to gain, analyse, organise and operationalise information which is inclusive, realistic and meaningful to those that live in slums as well. In addition to recommendations for improving the SPM (section 8.2.1.1), the next steps to improving the SPF will include:

- Simplifying and calibrating the SPF actions 1-4 with steps to establish conditions of prosperity in the slum for efficient programmatic implementation with stakeholders – learning from practice, re-viewing, and refining them. This next step is especially relevant to actions 3 – identifying requirements and resources as per needs, and 4 – designing intervention.
- For action 3, the next steps can include: (1) how to expand on the basic human needs and concepts of ideal required spaces that will ensure these needs are met with the most appropriate resources; (2) how to simply factor for the varying types of associations of affect/influence/trigger between properties that describe the slum's space whilst debating on requirements and resources to improve it; and (3) how to conceive and structure relevant patterns/themes from the proposed framework of indicators for prosperity and the basic human needs, so that they can be more efficient in their application as logical analysis support tools.
- For action 4, the next steps can include: first (1) designing specific programmatic steps for responsiveness to complexities and in awarding slum community control and responsibility for this action. In this way, an organic platform of engagement for people within and in relation to their spaces will be created. One that is streamlined, innovative, creative, and standard to the objective of the framework, enabling them to thrive. While designing programmatic responses to the improvement of identified aspects in the slum, the architectural scheme for site development and mechanisms for streamlining and strategizing on institutional and participatory frameworks proposed in the urban/slum upgrade manuals by Davidson and Payne (1986) and the UN-Habitat (2014a) can be useful. Second, (2) developing the most effective visual dashboard tool to support progressive engagement and monitoring, and for a flexible and responsive framework – a versatile notepad, digital application, or webpage perhaps. Third, (3) structuring the SPF engagement for different stakeholder groups – leaders, community,

professionals etc. and even facilitators – as this may differ per societal role, slum character, or even communal set-up. In this way, the SPF can also calibrate for who uses and benefits from the framework, the targets of investigation for these users in relation to set objectives, the expectations from each group and accountability etc. (see Appendix VII: 2(e)). It is also worth considering the integration of project management concepts and procedures within the SPF framework, in addition to stakeholder training in the use and adaptation of Social Network Analysis (SNA) and SPF actions.

- Further developing the proposed approaches to carrying out actions for prosperity by stakeholders into guided instructions.
- There is also considerable potential to pursue proper initiatives to integrate the SPF within and from the phase II of the Participatory Slum Upgrading Program (PSUP) of the UN-Habitat. Principles that the PSUP strives to uphold also include approaches to slums that are integrative to city, addresses poverty, essentially participative with stakeholder and local community, and strive to understand slum contexts and challenges within the urban. The second phase of the PSUP is focused on understanding slum conditions in order to develop citywide slum strategies. Particularly, experts consider that pursuing this work progress can be beneficial for the PSUP (Appendix VII: 9(e & f)). This step may also advance the objectives of the City Prosperity Initiative of the UN-Habitat at the local level of participating cities with slums – a way to improve slum conditions and cities' prosperity overall.

In all, this research work offers a thesis and proof of concepts regarding slums and their management that can be approached through prosperity pursuit. The ideas proposed are strong, but with potential for refinement. Implementing the improvements recommended in this section will, however, be a substantial task on its own, but all worth pursuing, perhaps in collaboration with the UN-Habitat. Of note, also, is the SPF's potential to provide slum communities with a worthy cause of engagement in view of local and city-wide contribution, and in this way also bolster global security. In the context of the current upsurge in global terrorism that target the most vulnerable societies and foment the reclamation of rights or dignity (see Nielsen, 2017 for example), inclusive approaches to urban and slum management are therefore not a compromise. For this thesis, such forms of engagement can also benefit from novel and more objective form of recognition for slums, which is proposed in the next section.

8.3 A final note: a recommendation to substitute the term 'slum'

This thesis centres on 'slums', for, at the moment, this is a general and politically accepted term in global urban discourse. However, from the analysis of the perceptions of slums and their history in Chapters 1 and 3, it is evident that pejorative perceptions of slums persist today irrespective of efforts to highlight this limitation. Not only that, but as shown by the brief analysis on the significance of name of the slum (Appendix III), the use of the term affects people in slums socially and personally.

Jacobson (2007, p. 8), for example, relates the story of Tank Ranchlod, an elder of the Dharavi potters who wanted to meet with architect Mukesh Mehta. Mehta was a city official who had been consolidating plans to update Dharavi for 9 years at that point. Ranchlod wanted to voice his consternation at being regarded as a slum dweller! 'How dare anyone claim that Kumbharwada is "a slum" in need of rehabilitation? Kumbharwada is home to working people, men and women who have always made their way.'

In another example, the *Abahlali* slum community in KwaZulu-Natal, wrote to their council: 'The Bill uses the word "slum" in a way that makes it sound like the places where poor people live are a problem that must be cleared away because there is something wrong with poor people...' (Robertson, 2014).

The use of the term 'slum' does not just reflect poor and degraded living conditions but also creates a stereotype of all people living there as being defective (Gilbert, 2007). This thesis upholds Gilbert's (ibid) argument that such an emotive term should not be used to refer to places, which no matter the challenges is considered home, avenues for livelihood by fellow people, and can potentially contribute to cities' progress (see section 5.5 and Appendix VII: 5(g & h)). There is some dignity to having built up and consolidated a home from next to nothing or sustained a degrading place to provide domicile. Indeed, in an informal engagement in the bustling Garki village, Abuja, the researcher did not have the courage to use the term 'slum' in connection with the place (see section 1.2, 2.1, and Appendix II).

This thesis is inclined to suggest a new term of address for slums that reflects the aims of this research. Instead of 'slum', why not 'SINOR' – an acronym for Settlements in Need of Revitalization? This term steps away from the debated slum to an objective form of address. Revitalization is centred on imbuing vitality, vigour, or new life in order to make something develop and grow. As such, 'SINOR' describes these places as communities of people, without diverting attention away from the fact that, in some way, they require certain intervention to improve wellbeing. A comprehensive and context specific definition should be what identifies each slum, highlighting its unique character to guide proper intervention.

Appendices to the thesis

Appendix I. Synopsis of informal discussions with seven urban professionals in Abuja to corroborate research argument

This section is a brief documentation of informal discussions the researcher had with seven urban professionals in Abuja city to help provide first-hand insights to corroborate research arguments formed through literature review (see methodology section 2.1). The researcher used a semi-structured list of relevant topics to guide the discussions with professionals, whilst still taking cue from other relevant research related topics hinted by professionals. Much thanks and appreciations to these persons for making time to support endeavours towards strengthening research arguments and design of the research. Many interesting dimensions of urbanization, slum development and management (especially with regards Abuja) were discussed, for this research, they include:

1. Urbanization and slum development.
2. The challenges of managing slums (especially with regards Abuja city).
3. How they would define a slum.
4. Slums' potentials to contribute to city development.
5. City prosperity, the city prosperity initiative by the UN-Habitat, and feasibility of upgrading slums and including them in the pursuit of prosperity.

In this section, the urban professionals are tagged urban-professional1 – 7 to make the discussions clearer and engaging.

1. On the issue of urbanization and slum development: *urban-professional1* draws attention to how city population growth is tied to easy moneys and opportunities provided by ongoing strengthening of democracies. People settle or build fast in the city to start making returns. For *urban-professional5*, the pull towards the potential to provide labour and services, and social security is high for people that migrate to cities. These aspects are further highlighted by *urban-professional2* and 6. *Urban-professional3* further notes that cities (with much reference to Abuja) are very expensive to obtain homes or rent for the average person. To give an example, *urban-professional4* advices me to go look at Garki village – there are migrant population sleeping everywhere, in wheel barrows and next to their trading wares. The

continuous city population growth and movement of people, *urban-professional1* notes, is continuous and cannot be stopped. The biggest problem for Nigeria in managing these populations according to *urban-professional7* is the lack of forward planning, (especially) access to land. Slums are part of the solution to housing the poor, one just needs to consider them as assets.

2. On the challenges of managing slums: there was a consensus on the need to make management programs (of the FCT) more efficient, especially in terms of mass housing, and regulating housing prices, by all professionals. *Urban-professional4* and *5* discuss how the many complex forms of tenure between the indigenous people of the FCT, the FCT itself and the incoming migrants that buy land illegally from the indigenes are a challenge. For *urban-professional4* and *urban-professional6*, the government is somewhat ineffective in delivering an all-inclusive city on one hand, whilst on the other, people are taking what they can, this was unacceptable. *Urban-professional5* further suggests that it is important to look closely at the places that are slums, they are not all the same. Some are actually traditional abodes of the people, and the city and its infrastructure are what becomes foreign to their culture and socio-economic status. There are also social diffusions between the indigenes and the migrants that increase slum density. For *urban-professional7*, the institutions and policies in sub-Saharan Africa are sometimes bottlenecks to proper slum management.

3. On how they understand and would define a slum: *urban-professional1, 2, 5* and *6* all associate slums as places where infrastructure, roads, sanitation and waste, water, schools, and buildings are of very low quality or non-existent. To these characteristics, *urban-professional7* adds that tenure is an issue. *Urban-professional5* also points out that apart from the buildings, it is necessary to consider their socio-economic status, their ownership of assets and how crime builds up. For *urban-professional2* low quality of life is a multiplier effect of lack of infrastructure. Other characters of slums according to *urban-professional3* and *6* are the illegality and lack of standardization in these places, and the fact that they are usually located in outskirts of cities like Abuja.

4. On the prospect that slums can potentially contribute to city growth: *urban-professional1, 3* and *5* consider that this is feasible especially if the approach to intervention is strategic and serves to involve the people in the process. If one considers the villages and slum settlements closely, they point out, close-knit social relations and influential leaderships, and home innovation will become obvious. The city system, the above persons point out, has not always been fair to those at a disadvantage and this needs to change – policies and programs should be designed to serve the people not the other way around. To engage in strategic best practice, it is necessary to have comprehensive information about places, to have review programs in place, and processes that will allow people to participate and know that they can take charge of their situations. For *urban-professional5* this was especially important in the

programs and improvement of management capacities. Slum management, *urban-professional*3 notes, should essentially be built on the platform of operational research otherwise it will fail – halfway through programs stakeholders realise that there are things that should have been initially done and have to start over. For *urban-professional*4, however, owing to his work experience, the potential to include slums in city development is low.

5. On City prosperity, their awareness of the city prosperity initiative by the UN-Habitat, and feasibility of upgrading slums and including them in the pursuit of prosperity: *urban-professionals* 3 and 6 were only just aware of the city prosperity initiative by the UN-Habitat, their mandates are not, however involved in the initiative; *urban-professional*7 was, however, aware of and knowledgeable on the initiative as he was an UN-Habitat official. Its implementation was not part of his official mandate, however. He asserts, owing to vast experience in the field, that fostering inclusive cities should include marrying housing improvement programs to the entire city economy and overlying policies. It is essential for program approaches to consider what it wants to achieve, how and when, strengths it can work with, opportunities, threats....., and what will happen when these change. The effect of prosperity is a two-way thing for the people and the city. For *urban-professionals*6, however, owing to work experience, in Abuja, the potential to include slums in the city is low. This professional, however, considers that the rich and poor both depend on each other in the city, and there is a 50-50 chance that slums can be included in city plans if the process is politically motivated.

Appendix II. Synopsis of the experience of Garki village Abuja and informal discussions with residents to corroborate research argument

This section is a brief documentation of the researcher's experience in Garki village Abuja and informal discussions with eight community members (prominent family heads) in the village that helped to provide first-hand knowledge to corroborate research arguments and design of research (see methodology section 2.1). A community member acted as usher and intermediary with the Garki village community. This person was introduced to the researcher by one of the professionals involved in informal discussions (see appendix I), who was also a former resident of the place as he was part of an initial management team in 1992. The main objective of the visit and discussions include:

1. First-hand experience of their homes and surroundings.
2. Insights into the community's social dynamics, and their perceptions of the settlement.
3. Insight into the challenges they face, especially with regards city management.

Much thanks and appreciation to these people for insights into their lives, even if it was for a limited time each.

1. First-hand experience of the Garki village homes and surroundings: this was oxymoronic – a mix of positive potential and negative challenges. Going through one of the footpaths into the village – a non-descript pathway between two high end development fences – the community member and usher sought to highlight their rich traditional lineage, and leadership set up. The pathway was wide and ravaged by rainwater that had tried to find its way to lower ground due to lack of drainage; the path opened into a whole new world. The first impress is a beehive of activity: the bustle of people and children going about various activities, shops attached to fences and doorways, mobile and established stands (shops) selling items from vegetables to clothing, children lined up at a borehole water point with 25liter plastic gallons waiting to fetch water, excited about the ongoing interest in their activity and eager to pose for the camera. All roads and passages that the researcher traversed, except for one section of road, were unfinished and dirt. The site layout was irregular with mostly linked vernacular buildings, there were also modern storey buildings. Their homes were generally traditional household clusters set within family compounds that accommodate parents, grandparents, other children and their expanding families, incoming relatives, and sometimes tenants also. This layout of homes reflects the community's social character.

2. Insights into the community's social dynamics, and their perceptions of the settlement: observations and inquiries into these aspects were quite informative. The village ward for that section of Garki village had instructed that one of the community leaders become ward and guide for the period of engagement in the village. This person then introduced the researcher to seven other prominent family heads in the village meeting them in their homes and work places. They consistently drew attention to the vast trade and traditional enterprise within their village – women run home enterprises, leather tanners, traders, blacksmiths, and tailors. Businesses were mostly family run and many of the youth are involved with the civil service. Being within their families and social networks was very important to them, not only for social security and support, but also for economic endeavours. The extent of social organization was evident in the way people frequently sought audience with the researcher's guide (on the phone and in person) to attend to pressing matters – drainage clearance, moneys to be disbursed, and even to inquire about the researcher's wellbeing and satisfaction with people's receptions. In all, the Garki village community come through as a proud people who love their home and are striving hard to maintain their culture and livelihoods amidst the urbanizing Abuja city.

3. Insight into the challenges they face, especially with regards city management: to a certain degree, the researcher learnt some of the prominent challenges the Garki village community face in their living conditions. These challenges include (a) limited essential infrastructure, (b) tenure arrangements that sometimes affects their consideration to upgrade homes, and (c) difficulty in maintaining earnings from their works due to high living costs. Community members also consider that they have not been treated fairly by the city administration in terms of how they should be managed and tending to their exact needs. They were, however, quite eager to become involved in the processes. The main points of concern for most, was for the Abuja administration to consider their social relations and networks in the management plans as well as award them equal rights as citizens of the territory. There was a general perception that Abuja has continued to exclude them in its urbanization, and it made them unhappy.

Overall, in three days of engagement, the researcher met interesting people, and learnt a lot about the village. In addition, it was also inferred that social, spatial, and environmental perceptions of place is as much about what persons consider are appropriate and relevant to them, as it is about the characteristics of these dimensions of the place. This aspect may be side-lined by those with authority to engage with slums.

Appendix III. The Slum Property Map (SPM) manual

'Whenever action is required, it is necessary to identify the target population. So, what is [the] slum?'

Alan Gilbert, 2007⁶⁷

Introduction

The SPM manual is an instruction and information manual proposed to systematically guide users to define slums and as first-step to effective intervention to improve them. The SPM follows an integrated ontological and cognitive approach to comprehensively describe slums through sets of properties and define them, and it is proposed as: (1) a non-exclusive framework that can be standard to defining slums, (2) a structured framework to consider all socially related, physical, spatial contexts of slums and in relation to cities they exist, (3) a dynamic framework to describe slums whenever needed, and (4) a heuristic framework to consider how different contexts of slums interact to map their character and make clear effects and impacts of action in it. In all, for any slum that is the focus of analysis, the SPM guides users to develop a slum property map that provides a comprehensive overview of its character and how it exists in reality. Sectional endnotes are used throughout the manual.

Potential users of the SPM manual: the stakeholders

The manual is intended for use by any governmental and non-governmental organization, civil representatives and persons, local communities, institutions, professionals and professional bodies etc. that are or consider themselves to be stakeholders in any targeted or programmatic approach to understanding slums for improvement. For any slum that is the target of analysis, the slum community or a representative population of it are also a vital part of the stakeholder team. In addition to being active participants in the implementation of the manual, which is essential,¹ they bring in local perspectives, knowledge and expertise. For the effective implementation of this manual, it is also suggested that the stakeholder team include in their ranks those with capacities and competencies in urban, social, and slum/urban analysis, research, and/or practice.

Instructions on how to use the SPM manual

The SPM proposes three steps for stakeholders to implement and comprehensively describe and define any slum that is the focus of analysis:

⁶⁷ (Gilbert, 2007, p. 699).

(1) Comprehensively analyse and compile descriptive properties

The first step is to gather all necessary information (with data) about the slum and describe it through eight proposed categories of slum properties, these are outlined below. The lists of properties that make up the categories include those can be analysed and compiled directly, and those that are analysed, and therefore organised through sub-properties. To aid in identification, ease of referencing, and application, they are colour coded, numbered in parenthesis, and set with distinguishing lettering formats as follows: categories of slum properties are numbered (CAT₁₋₈) and use sentence case lettering; slum properties that make up categories are numbered (P₁₋₁₃) with their category number (CAT₁₋₈) and use UPPERCASE LETTERING; sub-properties that help describe properties are numbered from '1' with their property number (P₁₋₁₃) and category number (CAT₁₋₈) and use *italics lettering*:

Property Category 1 (CAT₁): Name properties of slum

SLUM PROPERTIES: (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE

Property Category 2 (CAT₂): Place properties of slum

SLUM PROPERTIES: (P₂-CAT₂) GEOGRAPHY:

Sub-properties (1-P₂-CAT₂) Absolute location and space
(2-P₂-CAT₂) Relative position, centrality and connectivity
(3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity
(4-P₂-CAT₂) Relative landscape and site conditions

SLUM PROPERTIES: (P₃-CAT₂) DEMOGRAPHY:

Sub-properties (1-P₃-CAT₂) Population profile
(2-P₃-CAT₂) Socio-economic enterprise

SLUM PROPERTIES: (P₄-CAT₂) TENURE CONDITIONS:

Sub-properties (1-P₄-CAT₂) Tenure security
(2-P₄-CAT₂) Tenancy and ownership

SLUM PROPERTIES: (P₅-CAT₂) POVERTY CONDITIONS:

Sub-properties (1-P₅-CAT₂) Income poverty
(2-P₅-CAT₂) Non-income poverty
(3-P₅-CAT₂) Social exclusion

Property Category 3 (CAT₃): Functional properties of slum

SLUM PROPERTIES: (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES

Property Category 4 (CAT₄): Procedures and Agency properties of slum

SLUM PROPERTIES: (P₇-CAT₄) ORIGIN OF SLUM:

Sub-properties (1-P₇-CAT₄) Origin by procedures of land/building occupation
(2-P₇-CAT₄) Origin by type of built context

SLUM PROPERTIES: (P₈-CAT₄) FORCES AND DRIVERS OF SLUM:

Sub-properties (1-P₈-CAT₄) Migration
(2-P₈-CAT₄) Poverty

(3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings
(4-P₈-CAT₄) Structural policies and institutional functions
(5-P₈-CAT₄) Social and cultural pathology

Property Category 5 (CAT₅): Structural properties of slum
SLUM PROPERTIES: (P₉-CAT₅) FORM OF THE SLUM:

Sub-properties *(1-P₉-CAT₅) Safe water*
 (2-P₉-CAT₅) Sanitary conditions
 (3-P₉-CAT₅) Density
 (4-P₉-CAT₅) Spatial patterns
 (5-P₉-CAT₅) Building forms and durability

Property Category 6 (CAT₆): Process properties of slum
SLUM PROPERTIES: (P₁₀-CAT₆) AGE OF SETTLEMENT AND EVOLUTION:

Sub-properties *(1-P₁₀-CAT₆) Social consolidation and established social structures*
 (2-P₁₀-CAT₆) Spatial consolidation of place
 (3-P₁₀-CAT₆) History and defining events

Property Category 7 (CAT₇): Personality traits of slum community
SLUM PROPERTIES: (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY

Property Category 8 (CAT₈): Behaviours of slum community
SLUM PROPERTIES: (P₁₂-CAT₈) HEALTH CONDITIONS
 (P₁₃-CAT₈) ACTIVITIES OF PEOPLE

(2) Build an interactive map of descriptive properties

The second step is to analyse and establish explicit associations between the properties that describe the slum and map how they interact to define it using:

- **Affect:** when a descriptive slum property makes or causes a difference to or has an effect on another one. Naturally, to affect has a somewhat timely or instance characteristic attached to it. For example, when heavy rains affect the way people can navigate around a settlement – it is at the moments and aftermaths of rain that their movement is affected.
- **Influence:** when a descriptive slum property steers the development of another or has the power to affect the way another develops. Influence has a character that involves some sort of continuity of affect that is consistent or representative to how the influenced thing develops.
- **Trigger:** when a descriptive slum property causes another to manifest. Trigger has some instantaneous character to it also, and it can be referred to in the past tense or an expected occurrence in the future. For the SPM, however, the focus is to document properties that have been the cause of another coming to existence.²

Properties that can associate in either or more of the above ways are in theory tags/anchors to each other. It is the implementation of this step that will help develop a slum property map, and also highlight slum properties that perform a stronger role in defining the slum character owing to the extent of their direct associations.

The first (1) and second (2) steps of defining slums are generally investigative. Hence, stakeholders should consult the relevant section – **Slum Property Map framework to define slums** – and implement all guidance and investigation notes that are provided for each category of slum properties in sub-sections. The sub-sections are introduced with quoted passages found to appropriately summarise each category of slum properties' relevance to the character of slums; the notes are then presented in tabular form and structured about the headings shown below:

Property Category (CAT _n)	
<i>'Quote'</i>	
(P _n -CAT _n) SLUM PROPERTIES THAT MAKE UP CATEGORY	
Property category and role	<p>This cell will highlight the relevant role of the category of slum properties towards providing a comprehensive description that characterizes the nature of slums as they exist in the real world. It will also highlight the degree of influence that the category of slum properties potentially hold over the way properties interact to define the slum; this can range from 'high' to 'very low'.</p> <p>This information also allows the SPM to be used in a flexible way and to further improve it: first, (1) stakeholders can consider describing only those categories of properties that are applicable to the slum of interest. Second, (2) stakeholders can consider describing only categories of properties that capture a relevant overview of interest of the slum. In such cases, we, we suggest that stakeholders also consider the degree of influence that all categories of properties hold in defining slums character, and especially seek to capture those that are strong role players for effective action in a slum. Third (3) stakeholders can develop other context specific slum properties that can provide the relevant description of slums and further characterize them.</p>
Definition	<p>This cell will define the aspect(s) of slums which slum properties that make up a category will describe and appropriately represent. When sub-properties are proposed to help compile slum properties, each are presented as a sub-section in the table separated by a dark banded row, and also defined as shown below. Otherwise, the next heading in the table, 'what for' is presented.</p>
(n-P _n -CAT _n) sub-property	

Definition

This cell will define the slum aspect(s) that sub-properties of slums will help describe.

What for

This cell will highlight why the slum properties/sub-properties are essential to forming a comprehensive description and definition of slums and for intervention.

Some useful information

This cell presents important background information and additional knowledge about the context of properties and in relation to Developing Region slums which has been gathered from literature. This useful information also helps stakeholders in several ways by highlighting: (1) the conditions that slums are and why certain aspects are necessary to look at to investigate and describe them and in the wider context of effective intervention, (2) how the context of properties can interact with others in the way they are portrayed in slums, and therefore why certain associations between properties in the category and others can exist and are necessary to explore. Endnotes are used to document cited references, additional knowledge and information, and examples.

What to look for

These are a list of slum context-specific and useful suggestions of what to look for to describe and compile the properties of the slum. Where necessary, thresholds of analysis and examples (within the table or in endnotes) that show how particular descriptions can be found in some slums are provided to guide the investigation and profiling of the properties.

The lists of what to look for are not proposed as exhaustive, they are practical lines of inquiry relative to the properties' role in defining slum, their definition, background information, and knowledge about aspects of slums they describe. In this way, also, stakeholders can (and are encouraged to) to 'fill in' and form other context specific aspects to look for and profile properties, and/or consider only those aspects of inquiry that are applicable to the slum of interest.³ Notably, the characteristic contexts of slums that most of the properties capture are wide concepts, which (on their own) have been and still are the subject of streamlined research and practice. The SPM has sought to provide simple suggestions for describing them. Web links, references, and additional notes provided within endnotes can be considered for more in-depth exploration of properties when necessary.

The presentation of the categories of slum properties – from CAT₁ to CAT₈ – in this manual does not impose an approach to carrying out investigations, stakeholders can design their own work schedule. However, stakeholders are encouraged to maintain the conceptual organisation of categories of properties presented in this manual during investigation to describe them and their representation and compilation. This endeavour maintains a framework of knowledge about a slum's character that can be clearly communicated, referenced, consulted, and perhaps further analysed. Hence, at the end of this manual, a blank template is inserted for stakeholders to fill in with analysed slum properties⁴ – a portfolio of the

comprehensive character of the slum. Stakeholders can choose to append information and data that contextualise the slum properties, or links to digital or manual files.

During investigations, the slum properties within categories are captured as either objective or inferred 'types' relative to the aspect(s) of slums that they describe and how these are perceived – experienced and interpreted. This cell will highlight whether a slum property is basically objective or inferred to guide on appropriate methods of investigation:

Objective properties: Objective properties will capture grounding appearances in the slum that can be seen, heard, smelled etc., and can therefore be measured relative to some observed criteria. It should be considered that their perception will require physical measurements (visual and other sensory sampling, observations etc.) and interpretation (measured data, images, physical evidence etc.). Some objective descriptions can be obtained from already documented urban/research and demographic survey data. Understandably, data on slums can be rare and even where registered can also be illegal. Hence, random sampling, and transect walks and diagramming (Hamdi, 2010, 2004; Sanoff, 2000) are useful ways of gathering objective data also. Where applicable, suggestion of useful references and help links that can guide objective information gathering in slums are made in endnotes. With advances in technology over the years, computer and software tools that support objective analyses and interpretation of information are vast. Effort has been made, where applicable, to suggest software that are efficient, simple to grasp, and reduce the overt need for expensive specialty services. It is, however, suggested that stakeholders explore the use of other helpful soft and hard-ware tools that they consider will be effective to their goals.

Notably, objective properties can be further supported or clarified through inference, this is noted where it applies for the slum properties.

Inferred properties: Inferred properties will capture knowledge and experience-based descriptions of the slum – information that can be garnered from those who live in the slum or are associated with it – that are logically evaluated to capture a character of the slum. These properties should be investigated through qualitative surveys and consultations (forums, workshops, one-on-one discussions etc.) that can include semi-structured and structured questionnaires, interviews (formal and informal) and discussions with the slum community – leaders, elders, householders, women, children – and those involved with them – organizations, administrators etc.⁵

In describing slum properties using quantitative and qualitative research, and where resources might be limited, the focus can be to involve a slum population sample that is large enough to represent the slum and uncover essential information needed, but not too large to make it repetitive (Mason, 2010). Creswell (2009) and Flick (2008) are valuable sources on research design and methodology, and websites like the UN-Habitat (unhabitat.org/), World Bank (worldbank.org/), Slum Dwellers International (knowyourcity.info/), and Cities Alliance (citiesalliance.org/) are useful links for additional resources and information about slum involvement. The analysis can also include qualitative content analysis of literature –

documented knowledge in reports, demographic surveys, other research etc., both as a source of information and to validate information obtained from qualitative surveys.

Notably, slum properties that are inferred can also be supported or further clarified by objective descriptions, this is noted where it applies for all proposed slum properties.

On a final note, in social science practice, maps (two and three dimensional) are a powerful tool that can be used to represent physical and environmental descriptions and attribute associated quantitative and qualitative data. The development and use of maps is highly encouraged. Besides, a comprehensive slum map can provide a framework of recognition that substantiates the slums presence in the city (Arputham, 2016; Birch, 2014), especially where documentations are uploaded to mapping portals like OSM.⁶

Here also, we recommend that stakeholders document the appropriate methods implemented to analyse slum properties in the slum property map template as a source of knowledge, reference to guide other novel work, and to improve engagement in slums.

Information in this cell will assist in building an interactive slum property map – step (2)

For slum properties/sub properties that will be compiled, this cell suggests three variations of associations with potential tags/anchors (properties, sub-properties, and categories of properties) that stakeholders should explore (using appropriate methods), establish where they occur, and properly document. These associations can be complex, and are not proposed as exhaustive, but likely and practical associations based on the role that properties play in defining slums, contexts they capture and how these are associated with other contexts of slum, examples analysed from literature, and a desktop case study. Stakeholders can and are encouraged to consider other associations where necessary and relative to slum contexts. The colour coding, categorical numbering and lettering formats of the Categories of slum properties are maintained for easy identification and referencing:

First, stakeholders are encouraged to explore (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY, and (P₁₂-CAT₈) HEALTH CONDITIONS and (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are influenced/triggered⁷ by the properties of slum that are compiled. These categories of properties will essentially capture subjective and physiological aspects of people, and what they do. For effective action in slums, it is important to describe them in relation to conditions that people live, so that even when they are responsible for change, the origin of it will be clear. An extended line is used to separate this section from other suggested tags/anchors.

Second, stakeholders are encouraged to explore how slum properties are affected/influenced/triggered by potential tags/anchors. These properties are listed according to Categories of slum properties they are a part of, e.g. (P₉-CAT₅) FORM OF THE SLUM. Where the tags/anchors are properties described through sub-properties which can all potentially affect/influence/trigger the slum properties being discussed, only their main property is noted, e.g. (P₂-CAT₂) GEOGRAPHY. Otherwise, the sub-properties that are considered relevant tags/anchors are listed with a colon to the main property they help describe to (e.g. (P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) Population profile. Where a section

is discussing a sub-property that describes a main property and the potential tags/anchors are other similar sub-properties, they are listed without referring to the main property.

Third, stakeholders are encouraged to explore how slum properties being discussed affect/influence/trigger other potential tags/anchors. These are also listed following the same listing principle discussed in the previous (second) paragraph.

To avoid complexity, it is suggested that the most direct connections should be considered whilst establishing associations between properties that describe the slum, and from it, other subsidiary associations. For example, assuming the slum is described as having some form of perceived tenure security (describing *(1-P₄-CAT₂) Tenure security*) which encourages other people to migrate into slum (describing *(1-P₈-CAT₄) Migration*) and conduct informal activities to settle in it (describing *(1-P₇-CAT₄) origin by procedures of land/building occupation*). Then, the direct link will be between condition of tenure security and migration and this links to the procedures of land/building occupation.

The sequence of cell headings – definition, what for, some useful information.... – are repeated in the table where slum properties are described through more than one sub-property, all separated by a dark banded row.

Stakeholders should then proceed to the next step in defining the slum.

(3) Build a narrative that defines the slum and tells its story

The third step for stakeholders is to combine the results from the first step – all descriptive properties of slum organised within relevant Categories with information and data that contextualize them, and the second – how the properties of the slum affect/influence/trigger each other, into a narrative that provides context specific overviews of how the slum exists, develops, and functions for its inhabitants. Towards this the following is suggested:

- The narrative should be structured following the hierarchy that the categories of slum properties to describe the slum are presented in the manual – category 1 (CAT₁) to category 8 (CAT₈). This structuring will help provide a coherent picture of slum properties and, therefore, their comprehension and prioritise relevant information for intervention in the slum.
- For each category of slum properties, the narrative can be built to focus on a variation of the associations that have been established to other sub-properties/properties/categories of properties. For example, the narrative can only focus on how properties are affected/influenced/triggered by others, in this way even when they affect/influence/trigger others it will be captured in their own narrative. This approach will make the definition of the slum clearer and remove overlaps in the narrative.

The conceptual diagram III. 1 below can also be consulted to assist in carrying out steps to define slums.

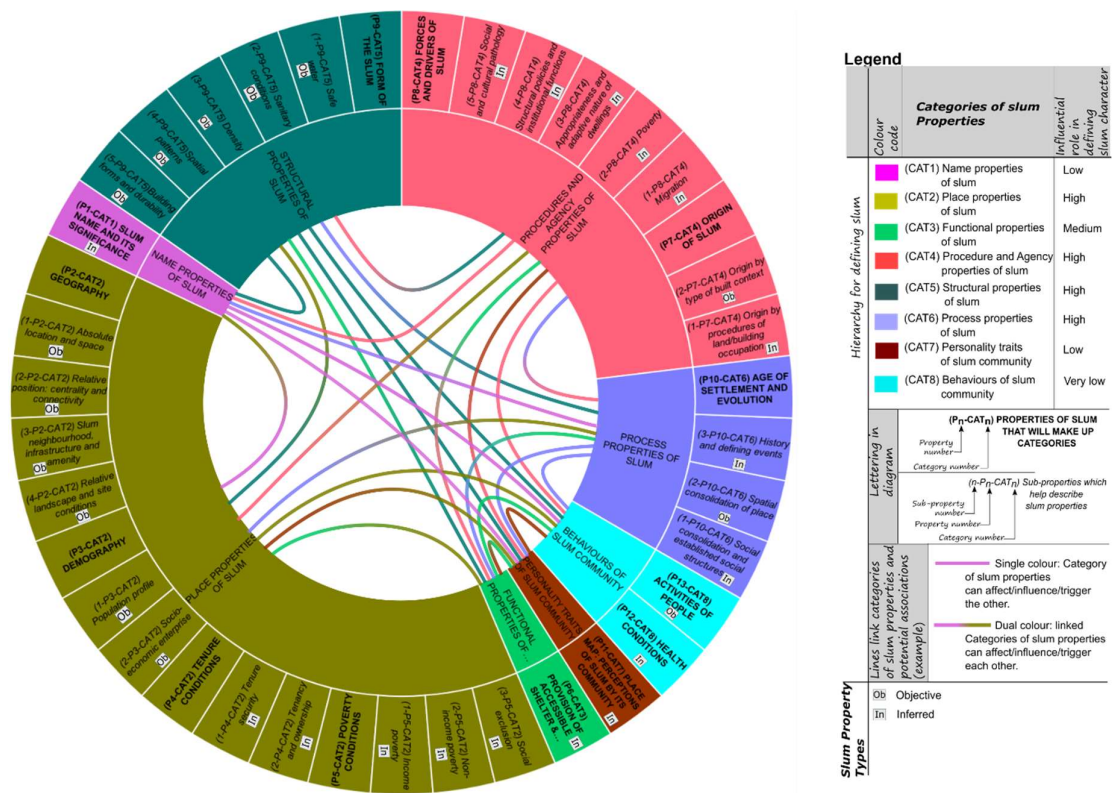


Figure III.1: Slum Property Map: a framework to comprehensively describe and define slums

Endnotes

- ¹ See (Adoko and Sliuzas, 2016; Hamdi, 2010; Lemma et al., 2006). Whilst engaging slum communities and other stakeholders, the simplest approaches for analysis and data representation should be sought, even when complicated technological tools are used.
- ² (see Cambridge Dictionary, 2016; Collins Dictionary, 2014).
- ³ In which case, slums do not have to be described through all the properties, or variable aspects of inquiry, but what applies to their unique contexts.
- ⁴ Stakeholders can add rows as required, print-out and use, or implement in the digital environment.
- ⁵ Content analysis methods – structuring and coding – can be used to organize information obtained for clearer descriptions.
- ⁶ Open Street Mapping. See <https://www.openstreetmap.org/#map=71-7.884/110.468>.
- ⁷ In this way they become the response/outcome of other properties.

Slum Property Map framework to define slums

Category 1 (CAT₁): Name properties of slum

Who will honour the city without a name[?]

If so many are dead [...]

Czeslaw Milosz, 2010¹

(P₁-CAT₁) SLUM NAME & ITS SIGNIFICANCE

Property category	<p>The slum name is a holonym² that by reference sets all information about it in our semantic memory, function, or truth about it – an identity of it. The name properties of slum potentially hold a 'low' influence in any slum property map.</p>
Definition	<p>The name of the slum, any meanings of the name and general descriptive elements that are ascribed to the meaning that makes it a significant aspect of the people and/or environment of the slum, and its effects on them.</p>
What for	<p>A unique characteristic of a slum and a way of identifying it. Also, exploring its origin and meaning can contribute to a better understanding of the physical and social profiles of it, its effects on the quality of life of people, and award the stakeholder a more intimate relationship with the slum and its community.</p>
Some useful information	<p>While there are slums that take on a name of the place where they are located, there are many with assigned names that have meanings peculiar to them; this can reflect unique aspects of people and place.³</p> <p>Sometimes, the name of slums plays a vital role in their general perception – pejorative ones, and challenges to continued social exclusion, inadequate, and unsatisfactory slum management (related to the lack of proper definition). The slum name, in this regard, does not only widen the gap of understanding between city and slum residents, but also the gap with others who seek to engage in intervention.⁴</p> <p>To the people living there, the slum represents a step away from homelessness, and a place of hope to tackle poverty and maintain livelihoods. However, there are instances whereby using the address of a slum deprives people living there of access to social and economic opportunities in the city.⁵</p> <p>There are situations also where people are ashamed of their address, and do not want to be associated with it. The meanings and perceptions attributed to slums' names can affect communities not only socially and people feel insulted,⁶ but also psychologically.⁷</p>
What to look for	<ol style="list-style-type: none"> 1. The given name of the slum. <ol style="list-style-type: none"> a. The causal-historical origin of slum name. <ul style="list-style-type: none"> o The source of the slum name and origin, who were responsible for it.

- Meanings of it according to slum community and according to the wider city.
- Context of the slum/wider city that the meaning is attributed to – physical, environmental, social, political etc.

b. Any negative social challenges, or in contrast, progress to the slum community due to the name of the slum.

Examples of names of slums and causal historical origins are discussed in the box below to guide stakeholders on how this property can manifest.

It can be a general one used to refer to slums, like katchi Abadi, describing informal settlements in Karachi. Or, it can be a name locally unique to a slum, like Dharavi, or a geographical address relative to wider city. some examples include:

Dharavi means the doors to the island of Mumbai.⁸ It means that Dharavi is positioned within a relevant part of the city.

Kumbarwada, a sub-sector of Dharavi, is named after the community of potters that have settled there.⁹

Obunga, a slum in Kisumu, Kenya was named after the flower that used to grow in its central flowing river by the original settlers.¹⁰

In Thailand, Chumchon Aai-aat, means crowded community due to recognised high densities.¹¹

Nanapeth for example is named after Nana Phadnavis, a former influential minister of the Maratha empire in the eighteenth century.¹²

In Sri Lanka there is a slum named Polwatta, meaning coconut garden, by its community, and another called cinnamon garden.¹³ These are interesting disguises that reveal not only how the slum communities see their home and would like to be regarded, but also the extent of *(1-P₁₀-CAT₆) Social consolidation and established social structures.*

Property type

Inferred

Property tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by slum name & its significance.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃; CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by the slum name and the **(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY** of it, both positive (that improves their identity), and negative (that deepens negative challenges they face), and whether these mediate (if at all) between name property and other property tags/anchors.

- Notable positive behaviours: renaming by slum population: civil action for a new name,¹⁴ slum tourism.¹⁵ These are interesting activities that reveal not only how the slum communities would like to be regarded, but also the extent of *(1-P₁₀-CAT₆) Social consolidation and established social structures*.
- Notable negative behaviours: social vices and crime.¹⁶

Consider whether the following affect/influence/trigger the name of the slum:

- *(P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE, (P₅-CAT₂) POVERTY.*
- *(P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM*
- *(P₉-CAT₆) THE FORM OF THE SLUM.*
- *(P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.*

Consider whether the name of the slum affects/influences/triggers the following:

- *(P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) Population profile; (P₅-CAT₂) POVERTY*
- *(P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION: (1-P₁₀-CAT₆) Social consolidation and established social structures, (3-P₁₀-CAT₆) History and defining events.*

Endnotes

¹ Read more at <https://www.poemhunter.com/czeslaw-milosz/poems/>.

² A holonym is a word used to describe or name the 'whole' of which other words or properties are parts of. An example given by The Free Dictionary (2016) is: 'hat' as the holonym for 'brim' and 'crown'.

³ According to (Neuwirth, 2005, p. 212), for Brooklyn during the 1800s, 'every nook of the neighbourhood had a different name. [...] There was Slab City (growing up to 10,000 residents), so called because its residents stole boards from a local saw mill to make their homes; Tinkersville, because it was home to many metal smiths; Phoenix Park, because it rose on the borough's ash heaps [...]'.
⁴ See (Gilbert, 2007).

⁵ See (Gilbert, 2007; K'Akumu and Olima, 2007). Employers or other service providers become wary when presented with home addresses of slums, especially if those areas have been stereotyped as seedbeds of crime, or other negative contexts.

⁶ (Jacobson, 2007).

⁷ (UN-Habitat, 2003a).

⁸ (Fernando, 2009; Ramakrishna, 2014).

⁹ (Fernando, 2009; Ramakrishna, 2014).

¹⁰ (Jacobson, 2007; Robertson, 2014).

¹¹ (Karanja, 2010).

¹² (Wood, 2007).

¹³ (Wikipedia contributors, 2013).

¹⁴ (Wood, 2007).

¹⁴ (see Robertson, 2014).

¹⁵ An emerging trend to portray a more positive image of slums by the communities in the guise of slum tourism (Dovey and King, 2012), and cultural dissemination (Eckstein, 1990). The transformation, teaching, and ongoing promotion of the Passinho dance culture by the favela community in Rio de Janeiro, for example, was borne purely from efforts geared at a more dignified image of the favela (Cronin, 2016).

¹⁶ Behaviours that tend toward crime for instance, and are menace to society can, however, substantiate a negative image of a slum – a situation found in the favelas of Rio de Janeiro (Neuwirth, 2005).

Category 2 (CAT2): Place properties of slum

'Slums are part of [the] whole city [...]'

Eugenie Birch, 2014¹

(P₂-CAT₂) GEOGRAPHY

Property category and role	<p>Place properties of slum describe the many layers of physical, social, and spatial settings within which slums exist, which cannot experience change without all else changing – a contextual frame for other properties of slums and conditions they capture. Place properties of slums potentially hold 'high' influence in any slum property map.</p>
Definition	<p>The geography of the slum can be defined as the model representation of it – physical, and spatial (both natural and man-made) – as a location within the city, and how it relates to the city, its immediate vicinity, and itself.</p> <p>There are three properties in this cluster: absolute location and space, relative position, centrality and connectivity, slum neighbourhood, infrastructure and amenity, and relative landscape and site conditions.</p>
<p style="text-align: right;"><i>(1-P₂-CAT₂) Absolute location and space</i></p>	
Definition	<p>The absolute location² and space of the slum describes the place where it exists within the city and wider geography of the earth and captures its local spatial structure within the city and in its boundary. These are represented in the form of visual maps, plans and other visual representations within an acceptable scale.</p>
What for	<p>Absolute location and space provides a literal and visual model of the slum in its location and all that is contained within it. This is a unique property, as that location and space is occupied by no other except it;³ and in terms of reference, the exact place where it can be found in the city, and which is the focus of intervention.</p>
Some useful information	<p>The slum boundary, here, is used to mean the limits of the slum area containing the building(s),⁴ and the land they occupy.</p> <p>While some slums can be easily distinguishable from the wider city geography (for instance dense makeshift settlements with irregular patterns),⁵ others have a spatial pattern the same or comparable to wider city geography,⁶ or attached to other buildings that makes establishing boundaries difficult.⁷</p> <p>Identifying and establishing slum boundaries can, therefore, indicate whether it is spatially segregated – with a clear boundary, demarcation, or a break in spatial consistency, or integrated – without a clear boundary, demarcation, or a break in spatial</p>

pattern consistency – to the city spatial structure.⁸ Spatial segregation is a contributing factor for social exclusion as well.⁹

What to look for

1. The location of the slum – state, city, locality, street.
2. The site distinct extent and boundary of the slum spatial structure within the city's.¹⁰
See figure III.2 as example.
 - a. Area it occupies – including land and built properties.¹¹
 - b. Geography that borders its site perimeter – for example in the figure III.2 below, the slum is bordered on all sides by major roads.
3. Whether it can be described as spatially segregated – with a clear boundary, demarcation, break in spatial pattern consistency, or integrated – without a clear boundary, demarcation, break in spatial pattern consistency to the city spatial structure.

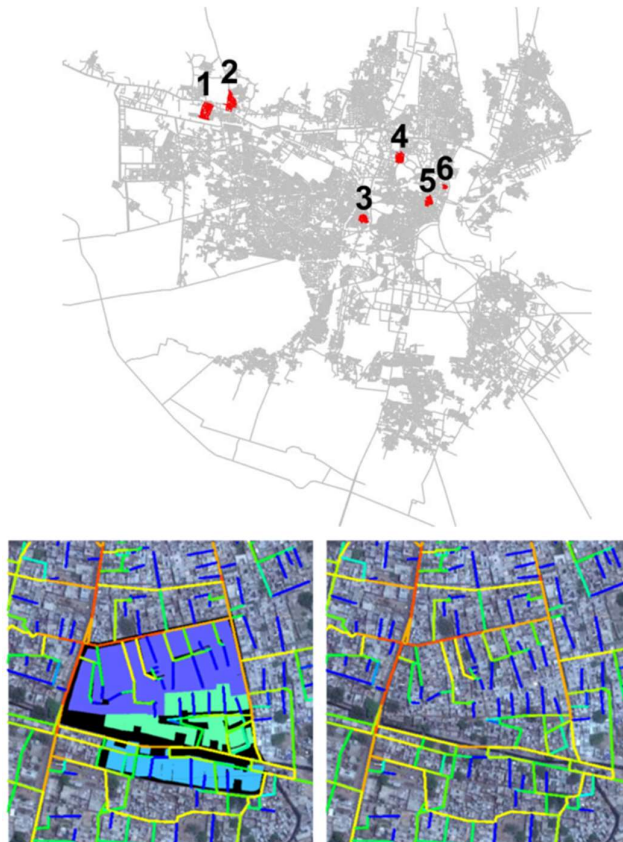


Figure III.2: Top: six distinct slums shown on the map of Agra city, India. Below: the boundary of Gokulpura (slum number 3) is outlined on the left, its spatial structure, as seen on the right, does not show a clear demarcation from the wider local structure.¹²

Property
type

Objective

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are influenced/triggered by properties of absolute location and space of the slum.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃; CAT₈) ACTIVITIES OF PEOPLE that are influenced/triggered by properties of absolute location and space and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between absolute location and space of the slum and other property tags/anchors

Connect to the following and whether they affect/influence/trigger the absolute location and space of the slum:

- (4-P₂-CAT₂) *Relative landscape and site conditions*; (P₃-CAT₂) **DEMOGRAPHY**
- (P₇-CAT₄) **THE ORIGIN OF SLUMS.**
- (P₉-CAT₅) **THE FORM OF THE SLUM:** (4-P₉-CAT₅) *Spatial patterns*, (5-P₉-CAT₅) *Building forms and durability*

Connect to the following properties and whether absolute location and space affects/influences/triggers them:

- (P₁-CAT₁) **SLUM NAME & ITS SIGNIFICANCE**
- (2-P₂-CAT₂) *Relative position, centrality and connectivity*, (3-P₂-CAT₂) *Slum neighbourhood, infrastructure and amenity*; (P₃-CAT₂) **DEMOGRAPHY**, (P₄-CAT₂) **TENURE CONDITIONS**; (P₅-CAT₂) **POVERTY CONDITIONS.**
- (P₆-CAT₃) **PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.**
- (P₇-CAT₄) **THE ORIGIN OF SLUMS.**
- (P₁₀-CAT₆) **THE AGE OF SETTLEMENT AND EVOLUTION.**

(2-P₂-CAT₂) *Relative position, centrality and connectivity*

Slum position:¹³ centrality and connectedness describe the slum's position relative to the wider context of city's social, economic activities, and facilities – opportunities for livelihood – and access to these.

This property provides context for how the slum and its inhabitants are placed in the geography of things in the city – physical, social, economic, which is influential to many aspects of life and pursuit of livelihood in the slum as well. Understanding this property of the slum will also allow for designing practical intervention strategies in a manner consistent with planning objectives of locale, and for keeping track of changes and progress.

Slum development and location is linked to opportunities that the city offers people settling or living there, and proximity to facilities that contextualize these opportunities and supporting amenities.^{14, 15}

Several studies and theorizations show that proximity to these opportunities are a major derivative for slums (especially those that originate on undeveloped land and slum estates). Slum location and changes to it with time in the city is concurrent with expansions due to economic progress,^{16,17, 18} and this can be concurrent with social and spatial consolidation¹⁹ as well as tenure conditions (becoming insecure, or sometimes more secure).²⁰

This property is linked to the distribution of cities spatial structure, which at different scales and patterns is defined by land use^{21,22} in relation to natural, social- cultural,²³ and economic/political dynamics. In addition to regulating use, land use zones in the city are symbolic of many aspects that include social and economic opportunities, amenity, and even land values.²⁴

Conditions can be quite different therefore depending on a slum's positions and proximity to centres of opportunity. It can impact on livelihood patterns and may even contribute to further slum development (especially when slums are relocated to city peripheries through standard settlement).²⁵

Transportation, and transportation or circulation corridors – streets, roads etc. – are key to connectivity and access to the city and centres of activity; the presence of, and conditions of these transport services is a key factor to how efficiently the people can access centres of activity and support. For the slum, the efficiency of circulation is not only relevant in terms of having a defined spatial structure and connection with access to city,²⁶ but also for ingress of services, and inflow of other urban activities.²⁷

1. The factor(s) that is the 'pull' for slum population to the city – resource, specialization, industry, other social, economic, political structure of city etc.
 - a. Whether the 'pull factor to the city still exists for the slum community.
2. The position of the slum in the city: where the slum is located in the clustering of urban form and activities of the city.²⁸
 - a. Whether it is located within the core of the city – in city centres or areas of high clustering of urban form and activities (guide: figure III.3).

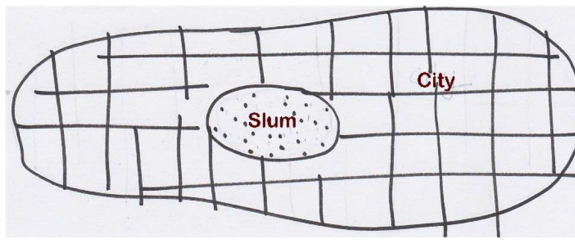


Figure III.3: A slum within the core of the city.

- b. Whether it is located at the fringe of the city – at the edge, or suburb of the city's clustering of urban form and activities (guide: figure III.4).

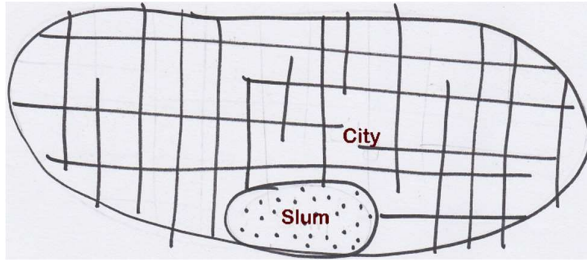


Figure III.4: A slum at the fringe of the city.

- c. Whether it is located at the periphery of the city – proximal to the cluster of urban form, but not a part of it (guide: figure III.5).



Figure III.5: A slum at the periphery of the city.

3. Whether this position of the slum spatial form in the city has changed with time and in relation to city expansion or growth – expanded, reduced in size, subsumed, or excluded etc.

- a. Physical, social, and environmental factors that contributed to changes in slum position.

4. The land use zone/sector(s) it is located within.²⁹

- a. The pattern of land use zone or sector and spatial distributions in the slum area, if positioned on more than one type of land use zone/sector.
- b. Any relevant institutions, facilities, outlets, or places that are neighbouring the slum.
- c. Whether there are any physical, social, or environmental constraints to slum community, and city and planning in terms of locating in the land use zone.

- d. Whether there are any physical, social, or environmental benefits to slum community, and city and planning in terms of locating in the land use zone (relate to 5.).
5. Slum community's access to the city: access and efficiency of access to economic and social activities and their facilities in the city.³⁰
- a. Distance from the slum to relevant points of activity in the wider city³¹ – city centre, nearest market, nearest school, nearest hospital or employment institution etc. (relate this with city 'pull factor' also).
6. Slum community's access to the city: the description of types of transportation/circulation corridors.
- a. Transportation/circulation corridors that connects the slum to the city, or not.
 - b. Type of transportation/circulation corridor – road (whether local, district, arterial, collector, highway etc.), bridge, waterways etc.³²
 - c. Whether paved or unpaved – type of material (mud, tarmac, gravel, stones, paving bricks etc.).
 - d. The length or distance of transportation/circulation into the slum.
7. The 'all-weather' condition of the types of transportation/circulation – e.g. potholes, dips in road, parts washed away etc.
- a. Within the slum: challenges of navigating within the slum to get to the city.
8. Other commuting challenges related to travel:
- a. Between the slum and city, e.g. road congestion, road blocks, or encumbrances, blocked water way etc.
9. Modes of travel prevalently used by slum community to the city – public transport, bicycles, rickshaws, cars etc.³³
10. Public transport points within and accessible to the slum community.³⁴
- a. Whether these link to relevant points of activity in the city.
 - b. Whether public transport is efficient – running times, vehicle conditions etc.
11. Average travel times to relevant points of activity, and major points of commute (for the people).
12. Average travel costs.
- a. Whether costs of commute, on average, constrain income for community.

Objective, however, information about 1, 3a, 4c, 4d, 8a, 9, 11, and 12 can necessarily be inferred.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by slum's relative position, centrality and connectivity.

(CP₂-CAT₈) HEALTH CONDITIONS, (P₁₃; CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by slum's relative position, centrality and connectivity and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between slum's relative position, centrality and connectivity and other property tags/anchors.

Consider whether the following affect/influence/trigger relative position, centrality and connectedness:

- (1-P₂-CAT₂) Absolute location and space, (3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity, (4-P₂-CAT₂) Relative landscape and site conditions; (P₃-CAT₂) DEMOGRAPHY; (6-P₃-CAT₂) Population profile; (P₄-CAT₂) TENURE CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM
- (P₉-CAT₅) THE FORM OF THE SLUM
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION: (1-P₁₀-CAT₆) Social consolidation and established social structures, (2-P₁₀-CAT₆) Spatial consolidation of place.

Consider whether the slum's relative position, centrality and connectivity affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME & ITS SIGNIFICANCE
- (3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₇-CAT₄) THE ORIGIN OF SLUMS: (1-P₇-CAT₄) Origin by procedures of land/building occupation; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-P₈-CAT₄) Migration, (2-P₈-CAT₄) Poverty.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

	(3-P ₂ -CAT ₂) Slum neighbourhood, infrastructure and amenity
Definition	<p>This is the form of the slum in context. The neighbourhood³⁵ of the slum is the perceived extent of spaces, within which the slum community live, containing accessible amenity and social and economic activities. Amenity are a key factor of infrastructure also, which can be defined as the fundamental services and facilities that the slum (or any functioning body (country, city, area etc.)) requires for it to function properly and effectively and support social living.³⁶</p>
What for	<p>Conducive living spaces, and infrastructure and amenity are an essential aspect of urban development for the slum (as for all urban in fact), they are necessary to make dwelling there functional. These functions are decisive to quality of life and livelihood, as well as endeavours towards such. Plus, capturing these provides a strategy framework, and for the slum, a recognition of its presence in the city.³⁷</p>
Some useful information	<p>This property narrows down the description of the slum in the city to its local geography, the immediate environment of people within the boundaries of the slum – its local spatial structure. The focus is to capture this and describe the infrastructure and amenity in it, which categorically are key components of urban spatial structure.</p> <p>In general, Developing Regions have not kept up with infrastructure availability and needs of planned city areas, much less in slums.^{38, 39}</p> <p>Categorizations of types of infrastructure (of which amenities are a part of) are varied, and the facilities and services that describes them can be many, and vary relative to government policies, needs, requirements, level of technology, time.⁴⁰ Most prominent are hard/economic/bio-physical – those facilities that directly affect the development of goods⁴¹ and distribution to grow economies;⁴² and soft/social/social-educational are those facilities and institutions (and organizational structure) required for human development to support hard infrastructure in facilitating development.⁴³</p> <p>In describing slum, the infrastructure targets proposed as essential are those that generally support basic livelihood. It is important to understand their accessibility -- availability, and affordability, efficiency, and adequacy in the slum.⁴⁴</p> <p>The availability of the basic infrastructure in slums can vary considerably from a complete lack of to having some basic infrastructure – either provided as standard, slum community organizations, or even stakeholder intervention or political patronage.⁴⁵ It can also be a strong incentive for tenure security and investment in homes.^{46, 47}</p> <p>Also, spatial structure of slum (where it is irregular) and densities can constrain efforts at infrastructure maintenance and investment, even by the slum community.⁴⁸</p> <p>Water and sanitation are crucial aspects of slum that can (in poor conditions) increase vulnerabilities.⁴⁹</p>

1. The slum map (annotated) – two and three-dimensional local spatial structure of the slum.

- a. All the natural forms
- b. All built forms and facades
- c. All circulation.
- d. Other spaces.
 - Using technical maps and images: (1) drawn site maps,⁵⁰ (2) moderate to very high-resolution satellite images and/or aerial pictures.
 - Using low-cost maps: (1) field maps,⁵¹ and (2) mental maps and images⁵² (in field and participatory mapping) – and to validate and have more robust and accurate data. See figure III.6 as guide.

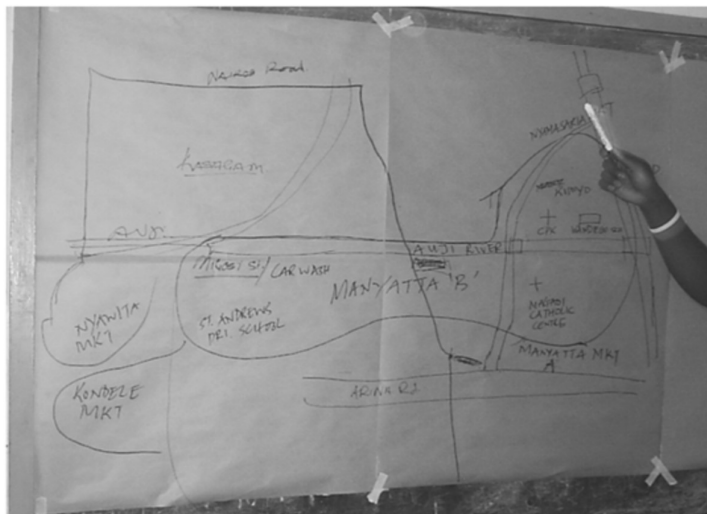
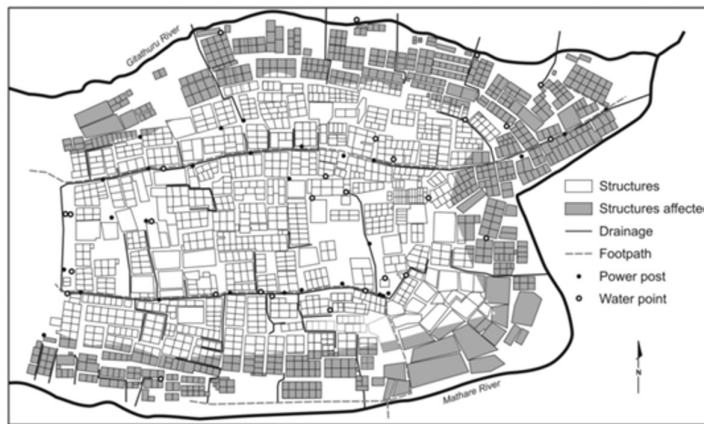


Figure III.6: (Above) slum map of Mathare 4b, Nairobi developed from field work.⁵³ (Below) mental map of Kisumu, Nairobi drawn by community members (after a walk around settlement boundaries).⁵⁴

2. On the map, the availability, and annotation and documentation of the following in the slum:⁵⁵

- a. All residential buildings and shelter types, including makeshift and those without shelter – e.g. sleeping on the streets.

Refer to *(5-P₉-CAT₅) Building forms and durability* to describe the degree to which housing and shelter, and other spaces function for the slum

- b. All infrastructure in the slum for:
 - o Energy or power, communication.
 - o Transport and roads (including street lighting, sanitary drains, and public transport points).
 - o Water.
 - o Sanitation.
- c. All amenities in the slum:⁵⁶
 - o Food (sources of – markets etc.), education, health, communication (phones, internet connection), social and community amenities, cultural, leisure, institutions, schools, employment related etc., spaces (including circulation spaces).
- d. Any organizations involved in the provision of infrastructure and amenities, and the processes.
- e. Maintenance structures and any use or maintenance conditions related to them.

3. For energy, power, and communication where available:

- a. Whether they are available to all slum population.
- b. Whether they are reliable and efficient.
- c. Other challenges experienced due to them.

4. For transport corridors in the slum: Type of transportation/circulation corridor – road, bridge, waterways etc.

- a. Whether paved or unpaved – type of material (mud, tarmac, gravel, stones, paving bricks etc.).
- b. The width.
- c. The length or distance of transportation/circulation within slum.
- d. Modes of travel prevalently used within the slum and commuting challenges.
- e. The 'all weather' condition of the types of transportation/circulation corridors.
- f. Efficiency: whether transport corridor supports efficient movement within the slum.

5. Refer to *(P₉-CAT₅) THE FORM OF THE SLUM: (1-P₉-CAT₅) Safe water, and (2-P₉-CAT₅) Sanitary conditions* to describe the functionality of water and sanitation infrastructure, which is linked to their conditions.

6. For all amenities identified in the slum: whether they are available to use for all population, and efficient at providing service.

- a. For all open community spaces: their uses should be documented and whether these uses are multifunctional.

Objective, although information about 2d, 2e, 3b, 3c, 6 and 6a will necessarily be inferred.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are influenced/triggered by description of slum neighbourhood, infrastructure and amenity.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃; CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by description of slum neighbourhood, infrastructure and amenity and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between description of slum neighbourhood, infrastructure and amenity and other property tags/anchors.

Consider whether the following affect/influence/trigger the description of slum neighbourhood, infrastructure and amenity:

- (1-P₂-CAT₂) Absolute space and location, (2-P₂; CAT₂) Relative position, centrality and connectivity, (4-P₂-CAT₂) Relative landscape and site conditions,
- (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS: (1-P₅-CAT₂) Income poverty.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-C₈-CAT₄) Migration, (4-P₈-CAT₄) Structural policies and institutional functions.
- (P₉-CAT₅) THE FORM OF THE SLUM
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether slum neighbourhood, infrastructure and amenity affect/influence/trigger the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE.

(a) (2-P₂-CAT₂) Relative position, centrality and connectivity, (4-P₂-CAT₂) Relative landscape and site conditions; (P₃; CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.

- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF: (1-P₈-CAT₄) Migration
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.

- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

	(4-P ₂ -CAT ₂) <i>Relative landscape and site conditions</i>
Definition	This is the description of the natural biophysical coverage of the land where the slum is located and attributes, and related environmental and climatic character of place. ⁵⁷
What for	This property provides an understanding of physical geography of the slum landscape, including how it influences or affects the development of the physical and social properties of the slum. It also highlights vulnerabilities of slum community due to natural environmental and potential points of geography that can become a setting for further development of the slum.
Some useful information	<p>The development of the form of the slum (and for urban spaces in fact) is determined by the natural physical geography of place.⁵⁸ In slums, (because form of the slum can develop informally, and spontaneously) the character of the landscape can also influence conditions of tenure, poverty, and even how it originates to function as dwellings.⁵⁹</p> <p>Globally, slum development on landscapes that are undesirable or marginal and vulnerable are common⁶⁰ – the effects on health are more adverse, especially in relation to descriptions of (5-P₃-CAT₅) <i>Building forms and durability</i>.⁶¹</p> <p>The natural character of the land – e.g. flood plain, valley, naturally occurring phenomena, and naturally occurring fauna – can be a source of marginality, diseases, and indicate risks.⁶²</p> <p>Human activity (in the development of buildings and urban patterns) can further cause environmental degradation thereby increasing marginal site conditions and vulnerabilities.^{63, 64}</p> <p>Sometimes the way that slums develop relative to the natural character of landscape highlights creative innovation (though somewhat unorthodox) in the development of place.⁶⁵</p> <p>In slums, how people respond to natural characters of place and vulnerabilities it poses can provide useful information and descriptions and can even chart a path for place improvement.⁶⁶</p>
What to look for	<p>1. The types (or categories) of landscape cover of the slum site, and borders, and mapping them – lake, river, artificial water body, natural terrestrial ground (and type of vegetation), cultivated ground, bare ground etc.^{67, 68}</p> <ol style="list-style-type: none"> The topography of the land (slope and orientation) – flat land, or hill, valley. Outline or measurement of topography (on landscapes that are not flat terrain).

2. Description of representative climate of place – rain, temperature, wind and humidity.
3. The typical undesirable conditions of landscape phenomena in the slum that can increase vulnerability in the slum and patterns – flooding, landslides, severe erosion etc.
 - a. Sections of the landscape that are susceptible to these environmental conditions.
 - b. Sections of landscape that are considered dangerous for habitation as they are unsafe.
 - c. Sections of the landscape that are in a state of degradation⁶⁹ – water, land, vegetation (and in relation to animal life), and considered dangerous and unsafe for dwelling and habitation.
 - d. Effects on landscape and ground cover, air or water quality.
 - e. Activities of people that contribute to further environmental degradation and furthers marginality.
4. The typical undesirable local climatic and environmental phenomena that can increase vulnerability in the slum – typhoon, cyclones, ongoing famine, air pollution (and sources) etc.
5. The typical undesirable conditions in local fauna that can increase vulnerability in the slum – mosquitos, snakes, wildlife etc.

Objective, however, information about 3, 3a - e, 4 and 5 can be inferred when not in occurrence.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by relative landscape and site conditions.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by relative landscape and site conditions and the **(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY** of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between description of relative landscape and site conditions and other property tags/anchors.

Consider whether the following affect/influence/trigger relative landscape and site conditions:

- *(1-P₂-CAT₂) Absolute location and space, (3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity; (P₃-CAT₂) DEMOGRAPHY; (P₅-CAT₂) POVERTY CONDITIONS: (1-P₅-CAT₂) Income poverty.*
- **(P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.**

- (P₇-CAT₄) THE ORIGIN OF SLUMS: (1-P₇-CAT₄) *Origin by activities of land occupation*; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-P₈-CAT₄) *Migration*, (2-P₈-CAT₄) *Poverty*, (3-P₈-CAT₄) *Appropriateness and adaptive nature of dwellings*, (5-P₈-CAT₄) *Social and cultural pathology*.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION – (2-P₁₀-CAT₆) *Spatial consolidation of place*.

Consider whether relative landscape and site conditions affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE
- (2-P₂-CAT₂) *Relative position, centrality and connectivity*, (3-P₂-CAT₂) *Slum neighbourhood, infrastructure and amenity*; (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE CONDITION; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Endnotes

¹ (Birch, 2014).

² Location originated from the Latin *locare*, meaning 'to see' (Oxford living Dictionaries, 2016b).

³ (Jackendoff, 1983; in Cordier and Tijus, 2001).

⁴ A slum can develop within a single built property real estate, for example the 'slum tower' in Caracas, Venezuela.

⁵ See (P₉-CAT₅) THE FORM OF THE SLUM.

⁶ (See Kohli et al., 2012; Parham, 2012). Gokulpura slum in Agra, India is an example.

⁷ It is therefore important to establish slum boundaries on the field or from established sources.

⁸ (Parham, 2012).

⁹ (K'Akumu and Olima, 2007; Levitas et al., 2007; Parham, 2012).

¹⁰ At this stage, cartographic maps like google maps, or other is effective at capturing this information. However, free web map portals like Google and yahoo are not always updated frequently, hence images might necessarily need to be obtained at a cost (under license) from relevant platforms like ESRI or TerraServer, or military databases.

¹⁰ ArcGIS software, an ESRI application is a highly functional and efficient software for spatial analysis, which also allows for input of any associated information about aspects of geographical space, and export to AutoCAD programs or other modelling software for further representation.

¹¹ This can be calculated in a GIS environment, otherwise a simple guide on measuring land areas on maps can be found here:

<http://hrsbstaff.ednet.ns.ca/dawsonrj/Can%20Geo/Classnotes%202%20Determine%20the%20distance%20on%20a%20map.htm>

¹² (Parham, 2012, pp. 14, 16).

¹³ The term position portrays both contexts of the term – where something is placed, and the relevance or presence in relation to something (someone, or a situation) (Oxford Living Dictionaries, 2016c).

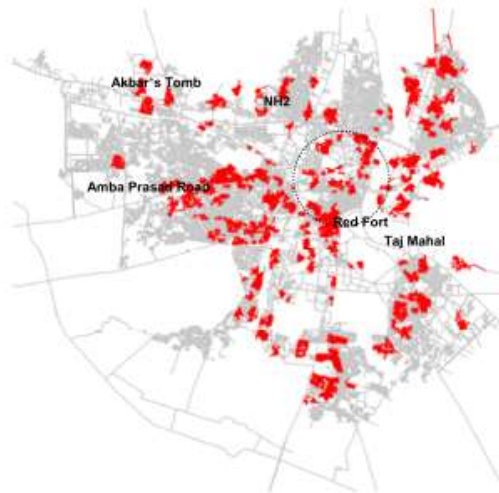
¹⁴ It was (Davis, 2006), who first proposed a concept of slums as being either located in the core of cities' spatial structure or at its periphery. Despite instigating a continuing rhetoric, on the relevance of describing slums with more than physical attributes (of location) (Cuthbert, 2011; Gilbert, 2007), Davis' profiling is symbolic of the basic slum 'pull' to the city – livelihood opportunities and somewhere to settle relative to income capacities and access to amenities (Turner, 1968).

¹⁵ Ease of travel to minimise expenditures is a crucial factor for slums communities (Gulyani and Bassett, 2010; UN-Habitat, 2003a).

¹⁶ (Agnihotri, 1994).

¹⁷ As cities expand, slums similarly experience dimensions of change relative to cities' ongoing dynamics (See Aggarwal and Haglund, n.d.; Agnihotri, 1994; Epstein, 2008; UN-Habitat, 2003a).

¹⁸ In Agra, India, for example, the slums (shown in red in the figure below) are concentrated at centres of activity. They expand along routes of high value economic activity and tourism potential presented by the cities' historic sites-Taj Mahal,



red fort and the Akbar's tomb (Agnihotri, 1994). Image source:

(Parham, 2012, p. 12).

¹⁹ (Iaquinta and Drescher, 2001).

²⁰ Sometimes when slums are located in a place that is obvious and centrally located in terms of activity or other context, it can become an incentive for improvement by authorities (see Cities Alliance, 2016; Fernandez, 2011).

²¹ See (Cowan, 2005; Harris and Ullman, 1945; Henderson, 2004) more on city formation.

²² Contravention of land use standards is one of general attributes used to designate slum (Arimah, 2010a, 2010b; Brown et al., 2014; UN-Habitat, 2003a). Knowing the type of land use will provide an understanding of the type of contravention and a general overview of opportunities in terms of employment and amenity, tenure and income (See Gulyani and Bassett, 2010; Kohli et al., 2012).

²³ As sometimes culture and ethnicity is evident in the way people locate in the city and slum (see Parham, 2012).

²⁴ If for example a slum is located in the centre of a city and on high value land, or land prices rise, the slum becomes less condoned by the city administration or ownership (Adelekan, 2009; Davis, 2006; Gusah, 2012). The dynamics sometimes change, however, when slums are pushed out or located at peripheries (Fernandez, 2011; Turner, 1968). (Erman and Eken, 2004; Lindsey, 2012), note that positions of slum in the city are not only physical but social and political.

-
- ²⁵ See (P₈-CAT₄) FORCES AND DRIVERS OF SLUM.
- ²⁶ In many instances people locate and settle informally along transport routes (Leitão, 2008; Neuwirth, 2005).
- ²⁷ (Cordier and Tijus, 2001; Cuthbert, 2011; Gulyani and Bassett, 2010; Hamdi, 2004).
- ²⁸ The two dimensional filling capacity of clusters of urban form in space is known as an urban fractal (Batty et al., 2004; Torrens, 2008).
- ²⁹ Land use type(s) can be analysed from zoning ordinances or maps, master plans, or information from relevant institutions. Cities, relative to their urban structure, use varying designations of land use terms to reflect land use zones/sectors. Generally, they include central business districts (CBD), and variations of high socio-economic residential sectors, low socio-economic residential sectors, manufacturing and industry, agricultural, and outlying business districts.
- ³⁰ When circulation corridors and connections exist and are efficient, the slum can be described as 'well connected', otherwise, it is 'not well connected'.
- ³¹ For a more comprehensive analysis, and if the capacity exists, an urban centrality analysis of local closeness and betweenness centrality can be conducted. Centrality is used to describe how places are perceived cognitively and geographically in terms of prominence relative to other places (see (Porta et al., 2013, 2011, 2006b, 2006c; Porta and Renne, 2005); and at <http://www.placelogic.org.uk/insights/what-is-the-multi-centralisty-assessment.html>).
- ³² See https://en.wikipedia.org/wiki/Hierarchy_of_roads#Collectors.
- ³³ It is shown that poor and slum communities are more reliant on public transportation, non-motorized transport and walking (see Fernandez, 2011; Rode and LSE Cities, 2015). However, they could also have access to other modes of travel.
- ³⁴ There are some efficient mapping tools that can be used in a GIS environment to analyse movement distances and time; some can be sourced at <https://www.freemaptools.com/>, & https://developers.arcgis.com/javascript/3/jssamples/analysis_connectoriginstodestinatons.html.
- ³⁵ The neighbourhood is a complex and evolving concept (Berk, 2010; Kallus and Law-Yone, 2000), many theories, principles, and practical applications of neighbourhood have been proposed. For more reading see (Birch, 1980; De Chaira and Koppelman, 1929; Perry, 1927; UN Habitat, 2015).
- ³⁶ (Jennings, 2013; Mehta, 2015; Mulligan, 2013; UN-Habitat, 2003a).
- ³⁷ (Arputham, 2016a; Birch, 2014).
- ³⁸ (Foster and Briceño-Garmendia, 2010; Mehta, 2015; UN-Habitat, 2013b, 2007a, 2003a).
- ³⁹ Peripheral and marginal locations are generally more vulnerable to lack of infrastructure (Davis, 2006; Gulyani and Bassett, 2010).
- ⁴⁰ (Mehta, 2015; Mulligan, 2013; Niskanen, 1991; Pieterse, 2014).
- ⁴¹ Notably, infrastructure is distinct from goods: tangible and intangible items that can be harnessed and used by people in their daily livelihood functions (Milgate, n.d.) and can be supplied and distributed by infrastructure.
- ⁴² Examples are water, transport and roads (including foot paths, street light) infrastructure.
- ⁴³ These group can include health, education, food etc.
- ⁴⁴ This is because while a slum could have some form of basic infrastructure, the facilities could be degraded, inadequate for the population, inefficient in its function, or too dear for the poor to use and maintain (Gulyani and Bassett, 2010).
- ⁴⁵ (see Mathenge, 2013). In some instances, slum communities (over time) organize toward some form of infrastructure, though sometimes pirated.
- ⁴⁶ (Gulyani and Bassett, 2010).
- ⁴⁷ On the reverse, insecure tenure can dissuade stakeholders from investing in slum infrastructure.

⁴⁸ (Fernandez, 2011; Gulyani and Bassett, 2010).

⁴⁹ (UN-Habitat, 2003a).

⁵⁰ This could be developed or obtained from official repositories, or portals like Open Source Map (OSM). The use of site maps can be efficient for certain slums that originate as slum estates (see (2-P₇-CAT₄) Origin by type of built context) or are formal build constructions (see (5-P₉-CAT₅) Building forms and durability).

⁵¹ There are simple tools and software that are easy to work with and do not require professional or specialist knowledge for slum mapping – pen, paper, notebooks camera, and (mobile) applications, other low-cost digital GPS measurement devices etc. allowing for input into GIS software. For more see <http://www.ppgis.net/about-pgis/> and <http://www.mapkibera.org/work/tools/#mapping>.

Sometimes field mapping tends to make spatial documentation somewhat limited (especially in large areas), due to the number of people needed for intricate profiling (Engstrom et al., 2015; Karlsson, 2012). Nonetheless, this thesis argues that it provides a more detailed and realistic character of place.

⁵² Both field mapping and mental mapping are an avenue to validating, adding context, capturing three-dimensional spaces to site maps, and community engagement and assessment of people's capacities (Lemma et al., 2006) (see Adoko and Sliuzas, 2016; Engstrom et al., 2015; Hamdi, 2010; Karanja, 2010).

⁵³ Source: (Karanja, 2010, p. 223).

⁵⁴ Source: (ibid p. 227).

⁵⁵ To be more effective in carrying out analysis and documenting them in a rigorous manner, the slum map can be divided into (virtual) work sectors that can be slum sector divisions, a group of buildings, family compounds or even rooms and numbered accordingly (see Desgropes and Taupin, 2011a).

⁵⁶ If a slum has any one, more, or all basic facilities, it can be profiled as having some basic infrastructure.

⁵⁷ For more on physical landscape geography see (EUROSTAT, 2011; Gregorio and Jansen, 2000).

⁵⁸ For example, whilst the somewhat flat terrain of Kibera allows for horizontal individual forms (Schreibkraft, 2000), in favela Rocinha (Brazil) buildings are generally multi-storey houses (sometimes several levels) and terraces constructed to follow the slope of the valleys they are located in (Leitão, 2008) (figures below).



Source: (Schreibkraft, 2000), (Stankuns, 2008) respectively

⁵⁹ Slums have been known to develop on geographies that 'hide' them from authorities (Fernandez, 2011); for example, the irregular steep topography of a creek valley (which restricted formal housing) was what prompted the initial development of the Parasiopolis slum of Sao Paulo (Karlsson, 2012). Or, sometimes slums develop on obvious terrains to make their presence known (for examples on hills) and demand some form of intervention (Fernandez, 2011).

⁶⁰ (Gulyani and Bassett, 2010; UN-Habitat, 2003a).

⁶¹ (See Lukeman et al., 2014; Ramin, 2009; UN-Habitat, 2003a). Marginal site conditions can lead to structural instability of buildings, increasing vulnerability in slums.

⁶² Rocinha, Brazil, for example, is prone to landslides that is further exacerbated by the high rainfall occurrence experienced in the region (Leitão, 2008).

⁶³ See (4-P₉-CAT₅) Spatial patterns, (5-P₉-CAT₅) Building forms and durability.

⁶⁴ (Adelekan, 2009).

⁶⁵ An example is the Makoko slum community in Lagos (known as the ‘Venice of Africa’), and their stilt homes that have survived for decades (The economist, 2012; Wikipedia contributors, 2017d).

⁶⁶ In Parasiopolis, Sao Paulo, a general idea for upgrade by the municipality was formed by closely analysing how the slum community used the creek that ran through the site (Karlsson, 2012).

⁶⁷ A standard land cover classification system can be referred to for more detail when required. A relevant source of data and resources include:

http://www.glc.org/dat_0_en.jsp.

Presently, the organization has completed land cover data base for several regions of Asia, Africa, USA, and Middle East.

⁶⁸ In describing the landscape and site conditions of the slum, it is especially relevant to work with the slum community on a participatory mapping process. Those who live in it, the information they provide will not only make it more robust but also add clarity. In Anu Sharma’s engagement in Rhotak (Delhi) (Hamdi, 2010, p. 63), a topographic profile of flood-prone areas generated in a participatory workshop fairly matched the area’s urban survey profile.

⁶⁹ Environmental degradation is the deterioration and depletion of the quality of natural soils and ground cover, vegetation, water, and air due to abuse through excessive or inappropriate use and exploitation, or environmental occurrences (Collins Dictionary, 2014; Merriam-Webster Dictionary, 2017).

(P₃-CAT₂) DEMOGRAPHY

Property category and role	Place properties of slum describe the many layers of physical, social, and spatial settings within which slums exist, which cannot experience change without all else changing – a contextual frame for other properties of slums and conditions they capture. Place properties of slums potentially hold ‘high’ influence in any slum property map.
Definition	The demography of the slum captures the social geography, about the people (and their characteristics) and their life. ¹ Two demography properties are proposed in this cluster: population profile, and socio-economic enterprise.
Definition	<i>(1-P₃-CAT₂) Population profile</i> Population profile is the breakdown of characteristics that define a number of people, as they are, and can as well indicate their life and death situations, livelihood and work or economic engagements, ideals, needs, and aspirations. ²
What for	The people are those that inhabit the slum and make it a settlement, and whose quality of lives that intervention seeks to improve in correlation with the environment that they live in. Inarguably, knowing the number of people that make up the slum and understanding the

social, cultural, and economic contexts that characterize them and in relation to environment of the slum is an essential endeavour.³ This property will provide insight on how these characteristics of people influence space use, livelihood patterns, behaviour patterns, and perceptions (of both space and needs), space use, and intricate social dynamics that are unique to the slum.⁴ These are information that can be used to assess viability, potentialities, and possible risks of intervention programs.⁵

These descriptions will therefore be related to all other descriptions of the slum.

Population profile data generally include understanding the size of the population,⁶ economic engagement, diversities and changes in culture that include language, race and ethnicity, religion, and political engagement.⁷ These are all relevant information to describing slum population, including other aspects like assets (material capital) and family structure.⁸

Migration profile in relation to geography and cultures in slums are quite influential to population size patterns and family structures leading to substantial diversity (see *(1-P₈-CAT₄) Migration*).⁹

Issues on the quality of life of people, most especially organic or metabolic health¹⁰ that are intrinsic (or caused by internal factors) to people are also a relevant population profile, also, health conditions due to extrinsic factors related to slum properties (including population profile – economic engagement, religion etc.). These are studied as behaviours (see section *(P₁₂-CAT₃) HEALTH CONDITIONS*).

However, patterns of health can be objectively captured and documented relative to the population pattern.

1. The population profile of the slum.
 - a. The slum population in numbers.¹¹
2. Descriptive data of the current slum population.
 - a. Family structure – the average, and if the capacity exists, precise family compositions and number – grandparents, parents, and children, gender, and age range.
 - b. Marital status or union of families.
 - c. Cultural profile of ethnicity and place of origin, language, and religion.
 - d. Cultural and traditional practices that are part of the life of the population, including art, music, etc.
 - e. Whether there are any differentiations, tensions, or collaborations, associated with the ethnic and cultural descriptions of the people.
 - f. Education – primary, secondary, and tertiary (completion and progression).

- g. Work engagement status of family members, including the children¹² – formal employment/informal work.¹³(relate to *(2-P₃-CAT₂) Socio-economic enterprise* also).
 - h. Earnings relative to work engagement.
 - i. Types of works that are preferred by people.
 - j. Assets of substantial value used in their work engagement or obtained – work earnings/inheritance.
 - k. Political patronage or engagement in the city.
 - l. Any challenges or benefits experienced by the population relative to conducting or sustaining their work engagements.
 - m. How long families have been settled there, and why (relate to *(1-P₈-CAT₄) Migration*).¹⁴
3. Demographic patterns.
- a. The distribution of population profiles (2 above) and the number of people for each.
 - b. The distribution of population profile (2 above) on the slum map – *(1-P₂-CAT₂) Absolute space and location*. Figure III.7 is an example of a creative way to capture this.
 - c. Patterns of *(P₁₂-CAT₈) HEALTH CONDITIONS*. Please refer to relative section and document general types of health conditions and number of people affected.

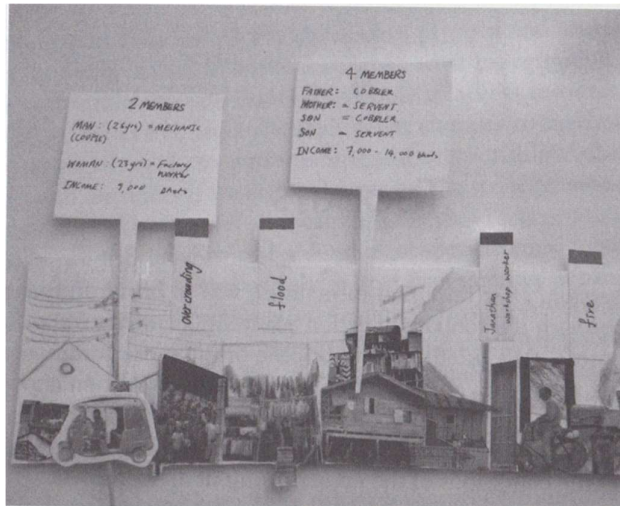


Figure III.7: Presenting information about the people in the slum community using images of place.¹⁵

Property type

Objective, however, information about 2a - 2m can be inferred from people and counted.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by dimensions of their population profile.

(P₁₂-CAT₈) HEALTH CONDITIONS, (C₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by dimensions of their population profile and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the negative challenges they face), and whether it mediates (if at all) between population profile and other property tags/anchors.

Consider whether the following affect/influence/trigger change in population profile of the slum:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE.
- (P₃-CAT₂) DEMOGRAPHY: (2-P₃-CAT₂) *Socio-economic enterprise*; (P₂-CAT₂) GEOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS: (1-P₅-CAT₂) *Income poverty*.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether the population profile affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE.
- (P₂-CAT₂) GEOGRAPHY; (3-P₃-CAT₂) *Socio-economic enterprise*; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-P₈-CAT₄) *Migration*, (3-P₈-CAT₄) *Appropriateness and adaptive nature of homes*, (5-P₈-CAT₄) *Social and cultural pathology*.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

What for

The anthropologist, Lisa Peattie once reflected that while she saw poverty all around in the Latin American *barrio* she had chosen to live, no one looked malnourished. It then dawned on her that '[i]n addition to economy that featured in the gross national product, there was a vast unofficial, invisible and unrecorded economy of a multitude of tiny enterprises and occupations amongst the city's unrecorded population [...].'¹⁷ Capturing socio-economic enterprise provides information about the lifestyles, livelihood endeavours and patterns, and vocations of people in the slum, as well as a wealth of material and social capital that can be used to support intervention.

Some useful information

The socio-economic enterprise that people engage in slums are an intrinsic aspect of communities, which can highlight how they deal with all dimensions of poverty; enterprises can constitute a major source of income and social stability for communities that are less likely to own income generating assets, like land etc.¹⁸.

Many positive aspects of slum communities discussed in the research literature are the robust social capital and economic enterprise people engage in.¹⁹ Hamdi (2010a, p. 21), for instance, narrates how, in one slum, informal and agricultural enterprise can be found in every available space that can be modified to accommodate them: 'in front rooms and back rooms, under stairs and under landings, on roofs and forecourts, in streets and alleys.'

Historically, enterprise was a defining character of many slums in 18th and 19th century Europe and America.²⁰

In slums, enterprise is not limited to inculcating financial value, but social ones as well, which can include childcare, capacity building like local piggy-banks, tourism, religious etc.

Enterprise in slums can be both informal and formally recognised. Informal enterprise in slums is regarded as a vulnerable aspect of slum, as it is seen to allow them to subsist, but does not give much opportunity for progression or contribution to city development.²¹

Both economic and social enterprise in slums can sometimes extend beyond their borders to other slums, parts of the city, and even global,²² and lauded as models that can be learnt from.²³

Slums are communities that to a certain extent rely a lot on themselves and social relations that can be built in their daily engagements. Hence, socio-economic enterprise is highly reliant and can be defined by social structures of place.

Sometimes expanding avenue for enterprise can cause further deterioration of space or environment.²⁴ Other times, economic enterprise can be socially non- progressive and even considered a vice,²⁵ and can as well be connected to social structures of place.²⁶

What to look for

1. The socio-economic enterprise to be found in the slum.
 - a. Undertakings that people do with the objective of inculcating value, both social and economic (or financial).
 - b. Types of enterprise, which can include:

- o Business enterprise - involving commercial activities with financial outputs.
 - o Social enterprise - those that are non-profit and focused on improving community.
 - o Agricultural enterprise- involving plant or animal production
 - o Industry- economic activities that involve the making and production of goods, and items including small scale home-based setups (e.g., sewing)
 - o And services – intangible enterprise that are not based on physical goods, but human or support resources.
- c. Whether these are large scale enterprise, or small scale.
 - d. Whether these are home-based or in organized set-ups and spaces/buildings.
 - e. Whether the enterprises are formally registered or informal.
 - f. Whether those that are financially focused use registered financial institutions or are associated to other related institutions or regulatory bodies, and details.
 - g. Whether it is considered as socially non-progressive or a vice to the slum community and the demography involved.²⁷
 - h. Whether the reach of enterprises extend to other slums, parts of the city or globally.
2. The constraints that they face in sustaining enterprise – physical and environmental, social, and spatial.
 3. Patterns of enterprise ('1') in slum.
 - a. The number of types of enterprise, and which ones are more prominent (in proportions of).
 - b. Where possible, the spatial distribution of enterprise points in the slum – relate to *(1-P₂-CAT₂) Absolute space and location.*

Property type

Objective, however, information about 1a – h can be further inferred to make it comprehensive, whilst 2 will necessarily be inferred.

Property tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by dimensions of socio-economic enterprise in the slum.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by socio-economic enterprise and the **(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY** attached to it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between socio-economic enterprise and other property tags/anchors.

Consider whether the following affect/influence/trigger socio-economic enterprise in the slum:

- (P₂-CAT₂) GEOGRAPHY: (4-P₂-CAT₂) *Relative landscape and site conditions*, (2-P₂-CAT₂) *Relative position, centrality and connectivity*; (P₃-CAT₂) DEMOGRAPHY: (6-P₃-CAT₂) *Population profile*; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS: (1-P₅-CAT₂) *Income poverty*.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether the socio-economic enterprise in the slum affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE.
- (P₂-CAT₂) GEOGRAPHY: (4-P₂-CAT₂) *Relative landscape and site conditions*; DEMOGRAPHY: (6-P₃-CAT₂) *Population profile*; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈; CAT₄) FORCES AND DRIVERS OF SLUM: (1-P₈-CAT₄) *Migration*, (3-P₈-CAT₄) *Appropriateness and adaptive nature of homes*,
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Endnotes

¹ (Bhrolcháin, 2001).

² (See Gloucestershire County Council, 2017; Wigan Council, 2011).

³ (See Hamdi, 2010).

⁴ (See Beguy et al., 2010; Broch-Due, 1995; Carpenter et al., 2004; Hamdi, 2010; Manzo, 2005).

⁵ Historically, we learned of the early Eko slums of Lagos, where no effort was made by authorities to understand the people's culture. The intervention steps taken had a lasting impact on social relations between authorities and the slums communities (Bigon, 2008). cultural demarcations and religious inclinations are influential to the use of space and intercatations, as seen is Dharavi and Geeta-Nagar respectively (Jacobson, 2007; Neuwirth, 2005).

⁶ General demographic focus, in human geography, is on life and death events due to their contextual consistency in life (Marx Planck Institute, 2016). The SPM does not, however, consider these to be vital information for context and intervention but rather, health challenges and its effects that are outcome of slum conditions (which may include death and life events).

⁷ (Alvarez and Et.al, n.d.; Marx Planck Institute, 2016).

⁸ (See Hamdi, 2010).

⁹ (Beguy et al., 2010). In slums, population patterns can be related to economic opportunities - when other opportunities present themselves people move.

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- ¹⁰ (See Khanna, 2011).
- ¹¹ Sometimes, demographic health surveys and migration surveys capture slum data and can be used to draw population profiles (see (Kyobutungi et al., 2008), or, demographic and participatory survey methods like that applied by (Karanja, 2010) can be quite effective.
- ¹² A common aspect of poverty in slums is children having to work and/or earn money through enterprise at a very young age.
- ¹³ Formal works are those that are duly registered and documented, insured and taxed.
- ¹⁴ This will also provide an overview relative to whether the slum is actually serving its purpose in providing a ladder up to the standard city and what it has to offer.
- ¹⁵ Source: Supitcha Tovovich in (Hamdi, 2010).
- ¹⁶ See (Collins Dictionary, 2014; Oxford living Dictionaries, 2016a).
- ¹⁷ (Hamdi, 2004, p. xiii).
- ¹⁸ (McGreevy, 1994 in; Abubakar, 2013).
- ¹⁹ (Hamdi, 2010, 2004; Hernandez and Kellett, 2010; UN-Habitat, 2003a).
- ²⁰ (Neuwirth' 2005).
- ²¹ Even though 85% of new jobs in the Developing Regions are borne from the informal economy, they are usually not standardized and low paid, making people vulnerable to forms of poverty (UN-Habitat, 2016a).
- ²² Some examples include: a local womens piggy bank (Hamdi, 2004), dharavi's booming textile, manufacturing, and pottery industry that are worth millions etc. (Bhide, 2013; Echanove and Srivastava, 2010; Hahn, 2012; "India," 2017; Jacobson, 2007).
- ²³ (Ayuma, 2009; Kaye, 2013; Tare, 2013).
- ²⁴ (see Cronin, 2013).
- ²⁵ Social vices are those practices or habits that are considered immoral, sinful, criminal, rude (Wikipedia contributors, 2017e), or a taboo. These considerations can be relative to cultural (religion, ethnicity etc.) and social contexts and can therefore vary. Examples include, prostitution, drug trade, smuggling etc.
- ²⁶ See (Felbab-Brown, 2011; Leitão, 2008; Marris, 1979; Marx and Charlton, 2003; Mathenge, 2013; Neuwirth, 2005).
- ²⁷ Where culture and social contexts serve to complicate issues in determining whether an enterprise is a social challenge or not, one can consider whether the enterprise is harmful to the progress of the slum socially and economically, and how they are perceived in the wider society.

(P₄-CAT₂) TENURE CONDITIONS

Property
category and role

Place properties of slum describe the many layers of physical, social, and spatial settings within which slums exist, which cannot experience change without all else changing – a contextual frame for other properties of slums and conditions they capture. Place properties of slums potentially hold 'high' influence in any slum property map.

Definition	<p>Tenure can be described as the complex relation of rules and regulations that govern the use, control, and ownership of land¹ or property by individuals or groups.² There are a wide range and many variations of tenure that are determined by the way societies allocate land and conduct public life management, and can be more complex than just arrangements, legal or otherwise;³ Finding appropriate ways to approach it can therefore be tricky, hence two sub-properties are proposed to compile tenure properties: tenure security and ownership and tenancy.</p>
Definition	<p style="text-align: right;"><i>(1-P₄-CAT₂) Tenure security</i></p> <p>The concept of secure tenure is when individuals or groups have substantial rights to protection from being evicted from land or property (in their use and control) and can range from subjective appreciation or perception to full legal conditions.⁴</p>
What for	<p>Tenure is a vital aspect of people's quality of life, and the will and capacity to invest in place (including community-based initiatives),^{5, 6} and its many variations in slums can also increase the vulnerability of residents. Moreover, tenure security is considered as a vital element towards poverty reduction and sustainable shelter solutions to achieve the millennium development goals.^{7, 8} Understanding tenure security conditions is therefore essential towards proposing sustainable arrangements for households that are in sync with other social and economic contexts (relative to city and slum and its people).</p>
Some useful information	<p>Lack of secure tenure is considered synonymous with slums, especially those with informal and illegal origins.⁹ Due to reasons that are internal to the slum dweller,¹⁰ and other forces and drivers of slum, it becomes an available option where tenure can be negotiated and is affordable, though not necessarily conducive.</p> <p>Conditions of tenure security can be complex in slums – both in those that originate informally or illegally, and those that are of standard origins.¹¹ Social relations and other social context, the form of the slum,¹² its location, landscape and environmental conditions¹³ can all play a role in determining tenure security conditions.</p> <p>There are two general criteria for secure tenure: (1) legal tenure rights and (2) perceived or de facto tenure.¹⁴</p> <p>Tenure rights involves legal processes that are enforceable, allowing for use, occupancy, development, lease, sell, mortgage and inheritance of property or land, with proof and evidence of documentation;¹⁵ sometimes the many forms of enforcement and/or financial and regulatory requirements are not always clearly understood by the slum community.¹⁶</p>

Whilst de facto or perceived tenure, as per the term are varying (socially as well as environmentally related) situations or conditions of land use that are seen and recognized as reflecting secure tenure. In this regard, slum communities,¹⁷ local and state authorities sometimes set their own criteria.^{18, 19}

It is possible in any one slum to find varying forms of perceived tenure, and yet be insecure due to another aspect of it.²⁰ Or, have high perceived security of tenure, but without actual rights, or, lack security of tenure, but have a host of actual rights over land or property. Or, have tenure conditions that are not defined for singular household, but a collective one.²¹

Hence, it is also important to describe tenure, enough to adequately represent the entire slum settlement, including different tenure situations and population mix involved.²²

It is also necessary to understand prevailing arrangements between people, and people and the state that define forms of tenure or lack of – housing market, cultural and social (including length of stay relative to migration), economic, political, historical, etc. (other properties or external reasons, either related forces and drivers of slum growth or not), relative to the dynamics of land or property,²³ and those relative to *(2-P₄-CAT₂) ownership*.

1. Tenure right that form tenure security:²⁴ Whether stay in or use and control of land and/or property by the slum community is represented by processes or evidence of legal and enforceable transaction

- a. Legal evidence: Title deeds, tenure agreement that is enforceable and awarded through formal agreements, tenure agreement that is enforceable and awarded through informal agreements, formal rental contracts, collective tenure,²⁵ customary tenure (such as chieftaincy institutions managed by a flexible regulatory process), tax payment documents – municipality, property etc.
- b. The occupation of land or property complies with land use and zoning regulations.
- c. Types of rights contained by legal evidence relative to legal process and evidence that can include the following: rights of residence, rights to construct, or rights to ownership etc.
- d. Whether rights are due to Inheritance.²⁶
- e. Patterns of legal tenure right in slum:²⁷
- f. The number/distribution of households, buildings, or land that fall under different variations of legal evidence and type of rights (above).
- g. The spatial distribution of households with types of tenure rights in the slum.

- h. Housing markets – informal housing markets, institutions (within the slum, private, non-governmental, global, and/or local and state) and agencies (including third parties) involved in the provision of legal rights.
 - i. Arrangements within the slum community and between the slum and local or state institutions that define legal right.
 - j. Whether any form(s) of activity by the slum community are seen to jeopardise conditions of tenure.
 - k. Social, political, cultural, physical, historical, and external conditions of restraint that are related to maintaining rights (including disputes).
 - l. The extents or types of control towards change and consolidation of homes awarded by type of tenure right.
2. Whether one or more social, and /or physical conditions in the slum reflects perceived or de facto tenure security (the reverse of which will describe insecure tenure), which can include:
- a. Shared ownership under the umbrella group organizations, e.g. community trust organizations, right of commons.
 - b. Proviso insurance that investment on land and their effects will not be confiscated or demolished – at least in the next five years.
 - c. Regulated negotiated secure arrangements between community and, politicians, public authorities, public or private stakeholders, civil society organizations, landlords/ownership of land etc.
 - d. The provision of infrastructure by public or private authorities (this also confers some form of de facto security of tenure).
 - e. Non-history of evictions and slum is not under threat of same as governments or land owners have turned a blind eye to their existence.
 - f. Non-history of evictions from residences and there is no threat of such.
 - g. Occupation of land or property is tolerated by government or owning party (a sort of de facto assurance to stay) and there is no threat of eviction.
 - h. Slum community are not at risk of losing homes due to environmental factors or site conditions.
 - i. Slum community are settled in a standard relocation area.
 - j. Slum community can maintain and effectively service (in terms of related fees, taxes, processes etc.) legal tenure rights (where applicable).
 - k. Whether de facto tenure is inherited.
 - l. The pattern of perceived tenure security in the slum:
 - m. The number households, or groups of, that experience these forms of perceived tenure.
 - n. The spatial distribution of households with perceived tenure in the slum.

- o. Housing markets, including informal housing markets, institutions (within the slum and/or local and state) and agencies (including third parties) involved in perceived tenure security conditions.
- p. Arrangements within the slum community and between the slum and local or state institutions that define perceived tenure.
- q. Whether any form(s) of activity by the slum community are seen to jeopardise conditions of tenure.
- r. Social—political, cultural, physical, historical, and external conditions of restraint that are related perceived tenure, where insecure (including disputes), and the same type of contexts that support tenure arrangements where it is secure.
- s. The extents or types of control with regards change and consolidation of homes awarded by type of tenure security.

Inferred, distribution of slum population's tenure conditions can be shown on objective slum maps.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY are affected/influenced/triggered by tenure security conditions.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by tenure security conditions and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between tenure security and other property tags/anchors.

- Notable activities – those that slum communities engage in to campaign and negotiate towards securing tenure through private bodies and politicking.
- Notable activity – slum community organizing for group tenure.²⁸

Consider whether the following affect/influence/trigger tenure security conditions:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) *Population profile*; (2-P₄-CAT₂) *ownership and tenancy*; (P₅-CAT₂) POVERTY CONDITIONS: (1-P₅-CAT₂) *Income poverty*.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether conditions of tenure security affects/influences/triggers the following:

- (P₂-CAT₂) GEOGRAPHY: (2-P₂-CAT₂) Relative position, centrality and connectivity; (P₃-CAT₂) DEMOGRAPHY; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM – (1-P₈-CAT₄) Migration, (2-P₈-CAT₄) Poverty.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

		<i>(2-P₄-CAT₂) Ownership and tenancy</i>
Definition		In the concept of land or building tenure, ownership is when a party (person, persons, organization etc.) own legal rights over its use, control, and transfer ²⁹ – a container for all legal or de facto rights to land holding. A tenant ³⁰ is a person that enters a rental agreement (whether a legal signed lease or oral agreement) with the ownership or those in power over a land or building.
What for		Ownership, either legal or de facto can determine the level of tenure security that people enjoy in slums, ³¹ and those that are tenants are generally more vulnerable. Home ownerships (just like tenure security) are a poverty alleviation strategy and incentive to invest in place also. ^{32, 33} It is essential to understand the complex forms of ownership and tenancy, and associated social and economic, sometimes even political contexts.
Some useful information		<p>Land ownership and its devices have been a preoccupation of man for many centuries as it is a vital human asset and development resource.³⁴ There are various forms of legal ownership in developing countries defined by the rights they capture.³⁵ Just as in arrangements of tenure, local and customary, state, and informal land markets can determine ownership of lands and property.</p> <p>Depending on the slum geography, ownership of land or property can be multiple, or due to other external issues, can form in layers of ownership claims.³⁶</p> <p>Many types of de facto ownerships that come with some informally regulated transfer of land or property, or perceived tenure security are common in slums³⁷ – a person can become a de facto owner and even a landlord. This form of ownership can be complex and multi-layered influenced by demography and geography of place.³⁸</p>

There are situations whereby legal ownership can be constraining for the slum community, making them vulnerable.³⁹

The value of land or building is an aspect of ownership that affects tenure security and plays a vital role in negotiating necessary actions; the location and proximity to city centres, amenity and neighbourhood, size of land, and time are other dimensions of ownership and value that can affect slums.⁴⁰

For many in slums, renting is a promising housing option⁴¹ as they do not have to spend a lot to buy homes, nor large monies to rent elsewhere. Without any overriding tenancy regulations, tenants can become vulnerable to expulsion and exploitation.⁴² With absentee-landlords also quite common in slums, tenants' welfares are not always looked out for. Physical, social, and geographical contexts can also affect relations between landlords and tenants – sometimes making them more vulnerable, other times becoming an avenue for social capital.

Just as with ownership, in slums, several categories of tenants can also exist in the same place.⁴³

1. The ownership of the land or property where slum is located.
 - a. The party that owns the land or property (e.g. property that has become slum).
 - b. Type of rights held by the ownership party: state or public ownership, leaseholds, private ownership etc.
 - c. The ownership patterns:
 - o Single or multiple – where land or parts of the property falls under the different ownership patterns, and details.
 - o Single or multi-layered – where there are varying claims to the land or property, with details and dynamics involved.
 - d. The value of land (high, medium, low value),⁴⁴ and where necessary aspects of location and geography, neighbourhood, and other external social and physical contexts that make it so.
 - e. Whether ownership is directly involved in tenure security arrangements with slum community.
 - f. Arrangements between ownership and slum community and any (public and private) agencies involved.
 - g. Relate these to conditions of tenure security.
2. Legal owners of homes in the slum.
 - a. Associate this to types of legal rights held and analysis in *(1-P₄-CAT₂) Tenure security*.
 - b. Housing values (high, medium, low value).⁴⁵

- c. Whether there are aspects of their ownership that are constraining socially and economically.
 - d. Whether owners reside in the slum or not; and if they are landlords.
 - e. Patterns of legal ownership of homes in slums.
 - o Whether there are homes with different people having/claiming ownership, and the details.
 - o Number of people/households that are owners in the slum.
3. The De facto owners of homes in the slum.
- a. Associate this to types of perceived tenure conditions ((1-P₄-CAT₂) *Tenure security*) held that led to de facto ownership.
 - b. Whether there are aspects of their ownership that are constraining socially and economically.
 - c. Whether the owners reside in the slum or not.
 - d. Patterns of de facto ownership of homes in slums.
 - o Whether there are homes with different people having/claiming de facto ownership, and the details.
 - o The number of people/households that are de facto owners.
4. The people that are tenants in the slum.
- a. Types of tenancy arrangements in place and associated housing markets.
 - b. Whether there are aspects of their tenancy and relations between them and ownership (and other properties of slum especially housing conditions) that are constraining socially and economically.
 - o Whether they can afford their tenancy.
5. The number of people/households that are tenants in the slum, and distribution of those who can afford their tenancies and those who cannot.

Property type

Inferred, however, information about 5 will involve objective analysis.

Property tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by ownership and tenancy descriptions.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by ownership and tenancy and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between ownership and tenancy, and other property tags/anchors.

Consider whether the following affect/influence/trigger ownership and tenancy in the slum:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₅-CAT₂) POVERTY CONDITIONS
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether ownership and tenancy in the slum affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE
- (P₃-CAT₂) DEMOGRAPHY; (8-P₄-CAT₂) *Tenure security*.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Endnotes

¹ Land here includes land and land resources.

² (FAO, 2002; Payne and Durand-Iasserve, 2012).

³ (UN-Habitat et al., 2016).

⁴ (Payne and Durand-Iasserve, 2012; UN-Habitat, 2002).

⁵ Secure tenure enough to ensure slum community are able to invest in place and pursue livelihood activities without the fear of loosing both (Gulyani and Bassett, 2010; Hamdi, 2004; Neuwirth, 2005; UN-Habitat, 2003a).

⁶ It is in this regard also that several criticisms were levelled at the Millennium Development Goal's rationale to focus on provision of legal titles to place to improve access to capital, a neoliberal approach. In reality, eligibility criteria for finance include land or property, income and employment, and Davis (2006) notes that situations like these only worsens matters for the poor, as they pay fees and taxes, and eke out a living at the same time.

⁷ See Millennium Development Goals target 11.

⁸ In fact, one of the early attempts to capture slum growth was conducted using a secure tenancy index (UN-Habitat, 2003a).

⁹ For people that settle in slums, the availability and affordability with hopes of ownership of place are part of what defines choice of place (Davis, 2006; Turner, 1968; UN-Habitat, 2003a).

¹⁰ These include social and economic contexts, like lack of assets, capital etc. (see Srinivas, 2015).

¹¹ Standardization of settlement does not always translate into tenure security for those residing there, there are usually many layers of local or city jurisdiction or regulations associated with it (see Cronin, 2013). It is important to investigate tenure security in slums that are settled owing to standardized processes also (1-P₇-CAT₄) Origin by procedures of land/building occupation).

¹² Sometimes, investment in housing is used by slum communities to secure tenure from presiding bodies. An example is seen in Amman Jordan (Razzaz, 1993), and Sao Paulo (Fernandez, 2011). Similarly, cities generally do not consider investment in slum infrastructure when tenure is insecure (Gulyani and Bassett, 2010).

¹³ Sometimes environmental disasters like floods increases tenure insecurity, or, a more central location can make communities more vulnerable to displacement.

¹⁴, Arguments indicate that in slums perceived tenure security, stability and control are more acceptable than legal rights. See endnote 5.

¹⁵ (Nakamura, 2016; UN-Habitat, 2003a).

¹⁶ (Hernandez and Kellett, 2010; Neuwirth, 2005). In certain instances where slum communities are unable to maintain their tenure (provided for them) or its regularity is not strong or strict, it can lead to insecurity and gentrification (see (Siegel, 2014).

¹⁷ Jha et al. (2007) note that some form of informal enforceable land and housing transactions exist in slums – neighbours and community leaders serve as witnesses, and peer pressure enforces transfer of properties.

¹⁸ Ibid.

¹⁹ (Agunbiade, Elijah M & Agbola, 2009; Cities Alliance, n.d.).

²⁰ The Makoko community in Lagos had some perceived notion of security as they have been existing for over one hundred years after originating as an urban village. However, since 1995, they are constantly experiencing demolitions and under the threat of eviction (Ogunlesi, 2016; The economist, 2012) – their tenure is insecure.

²¹ Here, with one type of overriding arrangement between ownership or persons in power and the slum community (UN-Habitat et al., 2016).

²² For example, the Gecekondus of Turkey have a substantial proportion of the settlements with secure tenure and legal status (obtained through politicking and clientelism) (Erman and Eken, 2004).

²³ For example, the Tanzania-Bondeni settlement in Kenya gained secure tenure through the award of group ownerships using the community land trust mode (CLT) (Bassett, 2005) – hence, secure tenure.

²⁴ Aspects of inquiry were generally analysed from the following literature (Abubakar, 2013; Agunbiade, Elijah M & Agbola, 2009; Bassett, 2005; Durand-Lasserve and Selod, 2009; Gulyani and Bassett, 2010; Patel, 2011; Payne and Durand-lasserve, 2012; UN Habitat, 2002; UN-Habitat, 2003b; UN-Habitat et al., 2016).

²⁵ This type of tenure is generally associated with slums that are socially consolidated.

²⁶ This type can be found in urban villages for example (see (2-P₇-CAT₄) Origin by type of built context).

²⁷ Pattern distributions can be mapped on the slum map.

²⁸ See endnote 23.

²⁹ (Payne and Durand-lasserve, 2012).

³⁰ Tenant is the present participle for '*tenir*', which is the French verb that means 'to hold' (ibid; Wikipedia contributors, 2017).

³¹ In a Manila cemetery, the ownership allows people (including those that provide cheap service in it) to stay there, a growing slum with over a 100 people (Lee, 2012).

³² (Field, 2005).

³³ The wide ranging titling program in slums initiated in accordance with de Soto's theories in Peru and other places in Africa for instance (see (Bassett, 2005; Field, 2005).

³⁴ See (Feder, 1987; Lee, 2012; Montaner Larson, 2009; Wikipedia contributors, 2017).

³⁵ These can include: state ownerships, land grants and leaseholds, collective and communal ownership, private ownership, and farm tenancies (Kuhmen, Frithjof, 1982; Lee, 2012).

³⁶ From both private and public bodies, and can include legal disputes etc. (Bassett, 2005; UN-Habitat et al., 2016).

³⁷ (Leitão, 2008; Nakamura, 2016; Neuwirth, 2005).

³⁸ For instance, in Rocinha, Brazil, a person owns his property that is of course built on an incline, he sells his roof rights to another person who sells to the next person. At the end of the day, there are several users of the same area of land with multiple types of ownership (Leitão, 2008; Neuwirth, 2005). This type of situation can also be found in Kibera.

³⁹ This is because rules, regulations and responsibilities are attributes of legal ownership, aspects that slum community have little control about, making it hard to maintain tenure (see endnote 16).

⁴⁰ The value of the land and/or property is an aspect of ownership because land and property are aspects of human territorial assets, is considered one of the most fundamental aspects of modern economic geography (Akhtar, 2004; Albouy and Ehrlich, 2014), and a decisive factor in urban expansion (Ahlfeldt and Wendland, 2013; Draçi et al., 2014). This is because it is reflective of dynamics like type of land sector and proximity to employment opportunities, environment, neighbouring properties (e.g. slums or green park), residential and commercial viability (centres of robust activity), and amenity (Williams, 2013).

It would then be expected that slums, which are located in high end land sectors and close to employment opportunities will be located on valuable land and more liable to expulsion (more than those at the periphery and without access to amenity and work opportunities) (see endnote 23). However, apart from proximity to centres of activity, land parcel size, and time/period are also strong predictive (increasing) functions of land value making it non-uniform and complex, and can profile differently inter-city and intra-cities. (Akhtar, 2004; Albouy and Ehrlich, 2014; Colwell and Munneke, 1997; Colwell and Sirmans, 2012)

⁴¹ (Gilbert, 2008).

⁴² Tenants in slums can be subject to sudden price changes, new charges, or change in rules as the owner/landlord sees fit – a landlord can increase rents just for installation or improvements to toilets (see Chattaraj, 2016; Satterthwaite et al., 2015).

⁴³ In Kolkata slums for instance, a tenant can sublet a room or room space to another who then sublets to another.... (Payne and Durand-Iasserve, 2012).

⁴⁴ For Rode (2010) and Vickers (n.d.) evaluating the value of lands/buildings in slums, can be done by obtaining expert (professional valuer(s)) view; the exact cost of land/buildings is not essential here.

⁴⁵ However, while expert panel view can be effective for more standard forms of buildings, it will not be so for others like shacks for instance, and a qualitative survey will be more effective (Rode, 2010).

Property category and role	<p>Place properties of slum describe the many layers of physical, social, and spatial settings within which slums exist, which cannot experience change without all else changing – a contextual frame for other properties of slums and conditions they capture. Place properties of slums potentially hold 'high' influence in any slum property map.</p>
Definition	<p>Poverty is a multidimensional concept and is best captured in real life investigation. It can be absolute – when people are lacking in income and resources, basic necessities and conditions to support life, most especially food; or relative – where they lack the minimum or average amount of income or resources to maintain average standards of living (in comparison to general standards in the wider community, city, or country).¹ Three important sub-properties are proposed to compile poverty properties: income poverty, non-income poverty, and social exclusion.²</p>
<i>(1-P₅-CAT₂) Income poverty</i>	
Definition	<p>Income poverty is the general assessment of people living below the established (and current) currency mark that is the global poverty line/threshold per day.³</p>
What for	<p>To understand and documenting the extent of income poverty and people's level of deprivation of it in the slum. Deprivation of income can have a vast negative effect on quality of life of people, and their capacities to improve self and surroundings. Improving poverty targets is vital for economic and social sustainability of cities.⁴</p>
Some useful information	<p>When viewed in the narrowest sense of income, poverty is still a large-scale problem to both Developed and Developing Worlds. The world bank estimates that about 767 million people are living on less than the poverty line per day;⁵ whilst the United Nations conceive that about 836 million people still live in poverty worldwide, and every 1 in 5 persons in Developing Regions is living on less than the poverty line. This proportion of urban poor in Developing Regions, according to the World Bank is unacceptably high.⁶</p> <p>It is however, a more persistent challenge in slums, and a defining aspect of it even in historical contexts, not just a force that drives people to slums but as a daily reality they live with.⁷</p> <p>In assessing income poverty, it should be considered that lack of money is more a symptom of poverty that a cause of it,⁸ as sometimes people lack the capacity to turn their earned incomes into resources that can be used to increase their assets – due to lack of market information, support, knowledge, exploitation and lack of standardization made worse by corruption. The outcome is that the security of their much-earned income becomes unstable and cycle of poverty that they are living in persists, making them poorer.⁹</p>

What to look for

Furthermore, there are different and complex social, environmental, and locational dimensions that create bias in the interpretation of income poverty¹⁰ – income or the lack of it can be relative to people’s ideals and/or culture, it can change due to naturally occurring or human initiated phenomena, the timing of year, or type of social or economic practice during that time, and even change in location.¹¹

Income poverty and challenges that people in slums face in securing their incomes is also an incentive for creative strategies and activities in slums to counter them.¹²

1. The average level of income that people in the slum live on per day and whether above/below the poverty line of \$1.25.
 - a. The number of people that are living on \$1.25 or less than per day in the slum – relate to *(1-P₃-CAT₂) Population profile*.¹³
2. The challenges that people face whilst earning their incomes and in maintaining such incomes.
 - a. Whether income levels are related to accessing services (non-income poverty).
 - b. What they do to insure and secure such incomes.
 - o Use of banks, piggy-bank organizations, government or private services etc.
 - c. Any financial organizations or processes that they are involved with to obtain, manage and/or secure incomes.
 - o Formal and informal organizations, piggy-bank set-ups etc.
3. Whether people consider themselves to be poor or not – relate this to ideals and culture.
 - a. In terms of income.
 - b. In terms of necessities (e.g. clothing, books, shoes, toys for children etc) that are needed daily.
4. Whether income levels are related to certain social, historical, natural or environmental events.
5. Whether income levels change with the timing of the year, and/or type of economic engagement, and/or economic practice that is based on locational changes (and how it is related to social and cultural practices, and ideals).
6. Whether they are able to contribute to city development – taxes, service charges etc.

Property type

Inferred, however, information about 1a will be objectively captured.

Property tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by income poverty.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by income poverty and the **(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY** of it, both positive (that improves

their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between income poverty and other property tags/anchors.

- Notable health conditions which their spread and lack of management is influenced by income poverty, for example the challenge of HIV.¹⁴
- Notable activities are the forming of financial community initiatives.¹⁵
- Notable activities that relate to enterprise (picking through waste to recycle etc).¹⁶
- Notable negative behaviours: social vices and crime.

Consider whether the following affect/influence/trigger income poverty conditions:

- (P₂-CAT₂) GEOGRAPHY: (2-P₂-CAT₂) *Relative position, centrality and connectivity*, (3-P₂-CAT₂) *Slum neighbourhood, infrastructure and amenity*, (4-P₂-CAT₂) *Relative landscape and site conditions*; (P₃-CAT₂) DEMOGRAPHY; (C₄-CAT₂) TENURE CONDITIONS; (2-P₅-CAT₂) *Non-income poverty*, and (3-P₅-CAT₂) *Social exclusion*.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (3-P₈-CAT₄) *Appropriateness and adaptive nature of dwellings*, (4-P₈-CAT₄) *Structural policies and institutional functions*, (5-P₈-CAT₄) *Social and cultural pathology*
- (P₉-CAT₅) THE FORM OF THE SLUM.¹⁷
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether income poverty conditions affects/influences/triggers the following:

- (P₂-CAT₂) GEOGRAPHY: (2-P₂-CAT₂) *Relative position, centrality and connectivity*, (3-P₂-CAT₂) *Slum neighbourhood, infrastructure and amenity*, (4-P₂-CAT₂) *Relative landscape and site conditions*; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈; CAT₄) FORCES AND DRIVERS OF SLUM: (2-P₈-CAT₄) *Poverty*
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

(2-P₅-CAT₂) *Non-income poverty*

Definition

This is the lack of access to sustenance resources, and basic social and physical services; It is a vital aspect of inequality.¹⁸

The inability to access life-supporting components, and the conditions slum communities live in due to this lack, are in themselves an indication of poverty that need to be understood, as it can have substantial impact on quality of life, and most worrying, mortality.¹⁹

Sustenance is concerned with provision of food and water, and employment, whilst the basic for services in the slum are food, water supply, health, sanitation (solid waste collection, sewerage collection, storm water drainage), housing and shelter (and related maintenance), and education services.²⁰ Others that are equally important include, energy, street lighting, communication – phones and internet connection, and public transportation, and social, cultural and leisure services and spaces.

In slums access to these is concerned with availability as well as reliability and affordability. Non-income poverty is therefore a culmination of other characteristics of slum that describe lack of access.

Non-income poverty, the most basic of which is regarding food – hunger or food deprivation, is a global challenge²¹ and a reference for slums that dates back many decades. The deprivation of sustenance and services manifest as food poor and malnutrition poor, and sanitation poor, education poor etc. These forms of deprivation have been on a decline globally since 1990, but present levels, especially in slums remain an essential point of concern.²²

In terms of food sustenance, availability and affordability (to acquire daily requirements for nourishment) will define access and overriding contexts like regional food security should be considered whilst describing slums.²³

Forms of non-income deprivation in slums are in certain instances also determined by demographic profiles of people – ethnicity, socio-economic status, and even gender,²⁴ therefore also relative.

1. Whether the slum community are deprived in terms of food sustenance – to establish food deprivation or not.
 - a. The availability of food – food stores, markets etc. (*relate to (3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity*).
 - b. The efficiency of food facilities.
 - c. The conditions of regional food security and whether that affects food availability.
 - d. Costs spent on food daily
 - e. Whether they can afford to buy their daily nourishment requirements – of evenly balanced meals (2100 to 2400 calories per day).²⁵
 - f. Whether they consider themselves as food deprived or not.
 - g. How many people in the slum are food poor and/or consider themselves to be.
2. Whether the slum community are deprived in terms of life support and services.
 - a. Housing and shelter – to establish housing and shelter deprivation or not:
 - o Whether they have shelter security, *relate to (1-P₄-CAT₂) tenure security*.

- Whether the conditions of tenure are effective for the slum community (including arrangements with *(2-P₄-CAT₂) Ownership and tenancy conditions*) – relative to needs and economically.
 - Whether they can afford to maintain their tenancy conditions.
 - Whether people are without shelter – sleeping on streets etc., relate to *(3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity*.
 - Whether durability of buildings is considered not to fulfil shelter conditions – buildings that do not provide the basic requirements of protection against weather and ground conditions, relate to *(5-C₉-CAT₅) Building forms and durability*.
- b. Employment and work in relation to *(1-P₃-CAT₂) Population profile* – to establish employment deprivation or not:
- Whether those aged 18 and above have access to formal²⁶ work opportunity or formally registered enterprise when required.
 - Whether there are children under 13 involved in work to earn, which is difficult, demanding, and may be considered as hazardous.²⁷
 - Whether women that are aged 18 and over above have access to formal work opportunity or formally registered enterprise when required.
 - The degree to which socio-economic enterprise in the slum is formally registered, relate to *(2-P₃-CAT₂) socio-economic enterprise*.
- c. Education in relation to *(1-P₃-CAT₂) Population profile*– to establish education deprivation or not:
- Whether school age children can access schooling.
 - Whether school age children that are female can access schooling.
 - Whether those that attend school can afford to go every day.
 - Whether for those that attend school the schools are effective, and children actually progress to tertiary.
 - Whether the schools are affordable for family members.
- d. Infrastructure (economic facilities and other amenities) and services – to establish relative infrastructure and amenity, service, deprivation or not:
- Whether the essential infrastructure necessary to support living are accessible (available, reliable, affordable, adequate), relate to *(3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity, and (1-P₉-CAT₅) Safe water, (2-P₉-CAT₅) Sanitary conditions, (5-P₉-CAT₅) Building forms and durability*.
 - Whether slum is well connected to other parts of the urban through efficient forms of transport, relate to *(2-P₂-CAT₂) Relative position, centrality and connectivity*.

	<ul style="list-style-type: none"> o Whether slum community are well connected through tools that promote communication and knowledge – phones, internet, computers. <p>3. In general:</p> <ul style="list-style-type: none"> a. Whether demographic factors – gender, culture and ethnicity, and socio-economic status play a role in all forms of deprivation. b. What households really need or want but cannot access (afford or use effectively).
Property type	<p>Inferred</p>
Property tags/anchors	<p>(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by non-income poverty.</p> <p>(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by non-income poverty and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between slum’s non-income poverty and other property tags/anchors.</p> <hr/> <p>Consider whether the following affect/influence/trigger non-income poverty:</p> <ul style="list-style-type: none"> • (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE. • (P₂-CAT₂) GEOGRAPHY; (P₃; CAT₂) DEMOGRAPHY; (P₄; CAT₂) TENURE CONDITIONS; (1-P₅-CAT₂) <i>Income poverty</i> • (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES. • (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM • (P₉-CAT₅) THE FORM OF THE SLUM. <p>Consider whether non-income poverty affects/influences/triggers the following:</p> <ul style="list-style-type: none"> • (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE. <p style="text-align: right;"><i>(3-P₅-CAT₂) Social exclusion</i></p>
Definition	<p>This is also known as power poverty. Social exclusion describes situations whereby people are excluded in the city (partly or wholly) socially and spatially and lack the power or control to influence change (for better) in their conditions by virtue of the income and non-income poverty conditions, or as a result of discrimination, or other constraints.²⁸ To exclude means to deny someone access or remove them from consideration.²⁹</p>

As with income and non-income poverty, social exclusion highlights conditions of vulnerability that people in slums live with, but even more so as it places them at risk of suffering in situations that they are unable to change, and therefore needs to be understood.

This aspect of poverty highlights social and spatial constraints that enforces separation of populations with a certain disadvantage, and it represents marginalisation and vulnerability as well as failings of city systems and institutions at social inclusion.³⁰ It is also considered as an aspect of inequality.

Descriptions of social exclusion are multidimensional (location, gender, age, cultural background etc.) and complex (involving measures), vary between institutions, and generally inclusive of non-income poverty aspects³¹ it is considered more of a 'process' than a 'state'. Hence exclusion due to poverty conditions or discrimination is more representative of a social impact on people.

With regards slums, we may consider this property in four contexts:³²

(1) resources and services, relative to all contexts of non-income poverty.

(2) Spatial exclusion – related and rarely separated from physical segregation and is also represented as the pushing out of people to edges of urban enclaves and/or the use of physical demarcations.

(3) Participation exclusion – people are exposed to conditions (in their homes, health, the environment etc.) that causes them discomfort or endangers their lives, but are unable to curb it, move away from it, or participate in decision making to manage it and allow for improvement.

(4) Wellbeing – concerned with quality of health, social relations, surrounding environment, and security (crime, harm, and criminalisation).

It is important to also identify where discrimination is influencing social exclusion: when the outer society considers them as undesirable elements that do not contribute to the development of the city,³³ due to their illegality or informality, or activities that are considered a menace, or sometimes even due to cultural or religious bias,³⁴ or pejorative discourse that stereotype slum populations within social and literary circles.³⁵

When governments turn a blind eye to the problems of the slum community on these grounds conditions of poverty are further substantiated.

Social exclusion can impact on people socially as well as subjectively.

1. Whether the slum community are or consider themselves as excluded (denied access or removed from consideration) in terms of resource and service access.

- a. The aspects of *(1-P₅-CAT₂) Non-income poverty* that are seen to socially separate people from the wider city.
- b. What aspects are seen to influence exclusion – the poverty conditions, other properties of slum, discrimination from wider society (relate this to descriptions in all slum property categories), others.

- c. Whether slum community are discriminated in terms of culture and religion.
 - d. Whether people desire to leave the slum owing to this.
2. Whether the slum community are or consider themselves to be spatially excluded.
- a. In terms of their (P₂-CAT₂) GEOGRAPHY.
 - b. In terms of the (P₉-CAT₅) THE FORM OF THE SLUM.
 - c. Demarcations by wall or other physical form.
 - d. What aspects are seen to influence exclusion – the poverty conditions, other properties of slum, discrimination (relate this to related descriptions in all slum property categories), others.
3. Whether the slum community are or consider themselves socially excluded from participation.
- a. In relation to any description of the slum from amongst all Categories of slum properties.
 - b. Whether they participate in economic, social and cultural, political activities, education and skills within the wider city.
 - c. Whether they participate to influence change in their living conditions (P₂-CAT₂) GEOGRAPHY, (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE CONDITIONS; (1-P₅-CAT₂) Income poverty, (2-C₅-CAT₂) Non-income poverty, (P₉; CAT₅) THE FORM OF THE SLUM.
 - d. What aspects are seen to influence exclusion from participation – the poverty conditions, other properties of slum, discrimination (relate this to related descriptions in all slum property categories), others.
 - e. Whether there are other government regulations or policies that are oppressive to their wellbeing or excludes them from participating in the urban.
4. In general, whether slum community are or consider themselves generally healthy.
5. Whether slum community are or consider themselves satisfied with life.
6. Whether slum community are or consider themselves satisfied with their surroundings.
7. Whether slum community are or consider themselves satisfied with the security of their place, persons, and environment.

Property
type

Inferred

Property
tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by social exclusion.

(P₁₂-CAT₈) HEALTH CONDITIONS, (C₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by social exclusion and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves

their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between slum's non-income poverty and other property tags/anchors.

Consider whether the following affect/influence/trigger social exclusion.

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE.
- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE; (1-P₅-CAT₂) *Income poverty*, (2-P₅-CAT₂) *Non-income poverty*.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.
- (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY.
- (P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃; CAT₈) ACTIVITIES OF PEOPLE.

Endnotes:

¹ (EAPN, 2015; Jha, 2008; Srinivas, n.d.; UN-ESCAP, 2000).

² A slum data exercise conducted by the UN-Habitat (2003a) was consistent with urban poverty data in Asia and Sub-Saharan Africa. Also, comparative analysis between composite index of Human development Index (HDI) that measures multidimensional non-poverty conditions and slum population growth was inverse (ibid: 24).

³ See (World Bank, 2001); <http://www.worldbank.org/en/topic/poverty/overview>.

⁴ The first Millennium Development goal (now Sustainable Development Goals) is focused on the eradication of poverty and hunger by 2030, and reducing, at least by half, those living on less than \$1.25 a day – <http://www.un.org/sustainabledevelopment/poverty/>.

⁵ The most current estimates were compiled in 2013. More information can be found at <http://www.worldbank.org/en/topic/poverty/overview>.

⁶ (see Worldbank.org).

⁷ The reference to poverty in describing slums can be dated back to narrations of 15th century Europe (Neuwirth, 2005), see also (United Nations Population Division, 1969).

⁸ (Srinivas, n.d.; UN-ESCAP, 2000).

⁹ The poor are exposed to exploitation by both formal and informal money institutions, middlemen, or other business partners. Chattaraj (2016) narrates the story of a local Dharavi entrepreneur who had to forfeit a deposit he made on a workshop space because the seth (this means landlord in Hindi) decided he would not condone a late payment. He had lost both workshop space and a hard-earned income, and could not enforce a return on either.

¹⁰ (Broch-Due, 1995).

¹¹ Broch-due (ibid), gives the example of the pastoral farmers who leave their hinterlands to settle in slums and search for work or beg during times of scarce rainfall. Their income levels at these times are low, the situation however changes when seasons change and they go back to their agrarian livelihoods.

¹² See (Baud et al., 2008; Fernando, 2009; Hamdi, 2004).

¹³ See <http://www.un.org/sustainabledevelopment/poverty/>. \$1.25 poverty threshold is used here because the use of \$1.90 as a threshold for assessing poverty by the World Bank has been criticised for not taking into consideration the higher cost of living in urban areas (see poverty.org).

¹⁴ See (Kilcullen et al., 2015)

¹⁵ See (Hamdi, 2004).

¹⁶ (ibid; Kaye, 2013).

¹⁷ Access to amenities, water, sanitation, and endeavours to maintain building structures can all affect the capacity of people to maintain their income levels.

¹⁸ See <http://www.worldbank.org/en/publication/poverty-and-shared-prosperity>.

¹⁹ (Bassanesi et al., 2013).

²⁰ See <http://www.worldbank.org/en/country/uganda/brief/uganda-poverty-assessment-2016-fact-sheet>, <http://www.worldbank.org/en/topic/poverty/publication/ethiopia-poverty-assessment>, and <http://www.un.org/sustainabledevelopment/poverty/>, and (Gulyani and Bassett, 2010),

²¹ See <http://www.worldbank.org/en/topic/poverty/overview>.

²² (see Worlbnak.org) and (De and Nag, 2016).

²³ See (Bombay Urban Industrial League for Development, 2010; Faye et al., 2011); and <http://www.worldbank.org/en/topic/poverty/overview>.

²⁴ Ibid.

²⁵ This will require a general assessment of daily nourishments by stakeholders and should include servings of carbohydrates, fats, proteins mainly, and minerals, vitamins, and fibre (see http://www.bbc.co.uk/schools/gcsebitesize/science/ocr_gateway_pre_2011/ourselves/1_Whats_for_lunch1.shtml).

For more on methods for describing food deprivation see (Bombay Urban Industrial League for Development, 2010)

²⁶ Formal works and enterprise are those that are duly registered and documented, insured and taxed.

²⁷ See (ILO, n.d.). Children in the age range of 10 and below are seen as the most vulnerable (see http://voices.worlded.org/learn_more.htm#child_labor), however, 13 years is seen as the morally conducive age for children to start part time work (see <https://www.gov.uk/child-employment/minimum-ages-children-can-work>), although there are geographic differentiations globally.

²⁸ (Adaman and Ardiç, 2008; Bassanesi et al., 2013; Kaya and Zengel, 2005; Levitas et al., 2007; Srinivas, n.d.; UN-ESCAP, 2000).

Vulnerability is commonly associated with poverty. This is when people are placed at risk of suffering in a situation they have little or no control or power (see Merriam Webster Dictionary).

²⁹ (Oxford living Dictionaries, 2016a).

³⁰ (Adaman and Ardiç, 2008; Levitas et al., 2007; Seeliger and Turok, 2013).

³¹ (Levitas et al., 2007).

³² (Adaman and Ardiç, 2008; Echanove and Srivastava, 2010; UN-Habitat, 2013a).

The UN-Habitat (2013a, p. 86) notes that, '[i]n São Paulo, even as municipal authorities strive to integrate favelas, informal settlements and rehabilitated urban neighbourhoods into a more inclusive city, wealthy Paulistanos resist the process and gravitate to more exclusive walled enclaves.' This segregation is obvious in most Developing Countries.

³³ (Levitas et al., 2007).

³⁴ (Ibid; K'Akumu and Olima, 2007).

³⁵ (Adaman and Ardiç, 2008)

Category 3 (CAT₃): Functional properties of slum

When their grandfathers and great grandfathers arrived in Sydney, they went, naturally, to Shanty Town, not because they were dirty or lazy, [...], but because they were poor.'

Ruth Park (1948)¹

(P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES

Property category and role	<p>The function of the slum captures its purpose and usefulness to the people who live there and how these are fulfilled in relation to physical and social contexts of slums and wider city. Functional properties of slum potentially hold 'medium' influence in any slum property map.</p>
Definition	<p>The slum provides relatively available and affordable domicile for those who choose to inhabit it, owing to an inability to afford or gain access² to standard city domiciles, and provide access to livelihood opportunities in cities.³</p>
What for	<p>Understanding the slum's purpose allows one to deduce how its distinctive characteristics – social and physical, interact to serve the people that are residing there. This property can also be used to assess whether living in the slum has served its purpose of supporting and enabling the slum community progression in terms of living and livelihood opportunities in the city.</p>
Some useful information	<p>The consideration for a home in the city is generally a trade-off between what is considered as a necessary action to maintain livelihoods – movement to or staying in the city to pursue the opportunities that it offers, and what is needed – shelter (which is a basic human need).⁴ This consideration is inevitably relative to different dynamics of adequacy and utility, availability, and affordability; availability and affordability usually take on parallel precedence.⁵</p> <p>This property is therefore a background to the development (and other properties) of the slum.</p> <p>Sometimes, however, the conditions and contexts that people in the slum live can jeopardise its role in providing affordable domicile and access to opportunities.⁶</p> <p>The condition of (and changes to) slum properties can therefore indicate to what degree the slum is fulfilling its function of providing relatively available and affordable domicile to those inhabiting it or not.</p> <p>It should also be considered that in addition to allowing people to keep affordances low and maximize opportunities that cities offer, the role that domiciles/dwellings play</p>

towards dweller fulfilment/satisfaction is important⁷ – that which comes with the building, use and personalization of homes.

The function of the slum can therefore include or transcend (relative to contexts and conditions they live in, and its processes) from being an avenue for primal shelter to a place where one identifies with (for other reasons), and the provision of relatively available and accessible domicile does not apply anymore, or both.

1. Whether the slum community consider the slum as a source of relatively accessible domicile, in their efforts to maintain livelihoods – relate to (P₈-CAT₄)

FORCES AND DRIVERS OF SLUM

- a. Whether they are staying in the slum because they cannot afford other places.
 - b. Whether they are staying in slum because they cannot gain access to other places (cost is not an issue).
 - c. Whether they are staying in the slum owing to both lack of availability and affordability.
 - d. Population pattern: the number of people in the slum for whom the above variations of considerations to stay in the slum apply.
2. Whether people are staying in the slum due to other reasons (of choice).
- a. Whether they are staying in the slum solely as a ladder into the city – those that are providential.
 - b. Or, because they derive fulfilment in developing and staying there – relate to (P₁₁; CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY.
 - c. The reason of choice to leave or stay.
3. Where there are different migrant groups in slum ((1-P₈-CAT₄) Migration), one may consider inquiry '1.' And '2.' Relative to migrant groups.
4. Whether people are still (able) to access domiciles and settle in the slum – relate to (P₇-CAT₄) THE ORIGIN OF SLUMS.

5. Whether the description of other properties (category 1 to 8) of slum constrains people's affordances to keep costs of dwellings and pursuing livelihood activities low, or in general are a limitation to maintaining shelters and access to livelihood – making them difficult.

Inferred

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by the provision of relatively accessible domicile.

(P₁₂-CAT₈) HEALTH CONDITIONS, (C₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by the provision of relatively accessible domicile and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY attached to it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between slums position in the provision of relatively accessible domicile and other property tags/anchors.

Consider whether the following affect/influence/trigger the slums position in the provision of relatively accessible domicile:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₈-CAT₄) FORCES AND DRIVERS OF SLUM
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.
- (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY.

Consider whether the slums position in the provision of relatively accessible domicile affects/influence/triggers change the following:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Endnotes

¹ (UN-Habitat, 2003a, p. 108).

² Accessibility has to do with both availability and affordability.

³ (Agyeman and Warner, 2002; Davis, 2006; Glaeser, 2011; Leitão, 2008; Payne, 2008; Turner, 1968; UN-Habitat, 2003a).

⁴ Ibid.

⁵ (UN-Habitat, 2003a).

⁶ In certain instances, people can spend more to stay in the slum and maintain livelihoods than their counterparts in other more standard parts of the city (see (P₄-CAT₂) TENURE CONDITIONS, (P₅-CAT₂) POVERTY CONDITIONS, (P₉-CAT₅) FORM OF THE SLUM).

⁷ (See Turner and fichter, 1972; Turner, 1976). This concept is related to place identity and responsibility (see (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY and (3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings.

Category 4 (CAT₄): Procedures and Agency properties of slum

'[...] Dharavi was left to the poor people and the new immigrants [...]. They flattened the hillocks of trash and built on the new land.'

Robert Neuwirth, 2005¹

(P₇-CAT₄) ORIGIN OF SLUM

Property category and role	Procedures and agency properties in slum, capture how slums are developed, transformed, and used by inhabitants to fulfil, their purpose and become what they are, and agencies that are responsible or influential to this development – how they originate. Procedures and agency properties in slum potentially hold 'high' influence in any slum property map.
Definition	The origin of slums (or of all objects) ² means the point where it begins, starts, or is derived. For slums, it is how they become homes for those that cannot afford or access such in the standard city. There are two interrelated sub-properties that help compile origin of slums: origin by procedures of land/building occupation, and by type of built context.
(1-P₇-CAT₄) Origin by procedures of land/building occupation	
Definition	As per the term, this describes the way people occupy or settle in a place – land or built property – that become their dwellings or homes, and it relates to the presiding arrangements of rights to settle between them and those that have power or ownership over place.
What for	These properties are also a unique aspect of slums – a bridge between agencies, and contexts that slums exist (especially tenure), the purpose it fulfils for its inhabitants, and the physical and social dynamics that define the slum – presenting vital knowledge in the narrative of slums; ³ and in terms of continuing slum expansion, how it happens and the powers responsible or influential to it. Moreover, this can be its distinguishing characteristic between a slum and the wider city. ⁴
Some useful information	<p>The procedures of land/building occupation are vitally linked to the origin by built contexts because the activities are carried out on the types of built contexts that develop into slum. This framework separates them to give origins of slums clarity, because even though they are linked, they portray two different concepts of how slums start. These however need to be interpreted together to have a comprehensive origin of a slum.</p> <p>This framework proposes three types of activities of land occupation that describes how slums start: (1) informal settling on land/building(s) by people, (2) illegal subdividing/procedures</p>

of land/building(s) by owners or those with power over, and (3) standardized settling of people into developed land/buildings.

In Developing Regions, slums generally start from informal settling and illegal subdividing,⁵ and history has generally focused on them, as some have been in existence since the 19th century.

The types of activities of land occupation can be encouraged by geography⁶ and demography of people. These can be linked to conditions of tenure security and ownership and overlying social and political external factors associated with arrangements of occupation. These might change as settlements grow and become more consolidated and can become rather complex. It is still necessary to analyse existing types of tenure security and ownership in slums.

It is possible to find variations of these three types of activities of land occupation in a slum's spatial geography (with associated types of origins by built context) as it continues to grow.⁷

Types of slum occupation are associated with the manner that land/building occupation to use as dwellings took place and related activities – as a spontaneous or planned occupation and possession of it.⁸

This framework posits that it is necessary to understand the activities of land occupation that a slum originates from initially, and (in current discourse) how people are continuing to settle in the slum with types of land possession.

1. The types of procedures of land/building occupation from which a slum initially developed.
 - a. Whether it started from activities of:
 - Informal settling.
 - Illegal subdividing.
 - Standardized settling.

The table below provides an overview of each type for easy comparison.

Table III.1: Description of types of slum origin by activities of land occupation.

Procedures of land/building occupation	Description
Informal settling/procedures ⁹	This involves people ¹⁰ occupying and developing land/building(s) (and land-uses) without the explicit permission of ownership or those with power over it – an autonomous approach to land appropriation. The land/building occupation is therefore done without legal rights to do so or securing tenure. ^{11, 12}
Illegal subdividing/procedures	This involves people occupying and developing land/building(s) that is generally subdivided to them owing to some form of recognized arrangement or transaction

between them and those with power or ownership over it.¹³ The transactions, however, can be illegitimate or unregistered, may contravene land-use/zoning, and/or development control regulations.^{14, 15, 16}

Standardized settling/procedures	This involves people occupying developed land/building(s) owing to some form of legally (or otherwise) regulated and administratively registered process within the urban system. ¹⁷ Arrangements for security of tenure are usually a part of the process. ^{18, 19}
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- b. Initial ownership of land or those involved with power over it (where it has changed with time).
 - c. Presiding arrangements between slum community and those with ownership or power over land or property for type of activity identified (relate to (P₄; CAT₂))
- TENURE CONDITIONS.**

2. The manner in which land/building was occupied, where procedures of land/building occupation are informal or illegal – spontaneous, or planned.²⁰

The table below provides an overview of each type for easy comparison.

Table III.2: The diverse ways that land occupation can take place, with their descriptions.

Manner of land occupation	Description
Spontaneous	This type is conducted in an instantaneous and autonomous manner without any form of organization towards it. ²¹
Planned	This type is carried out in an organized fashion (with people and in the organization of spatial structure) and planned well in advance. ²²

- a. In case of planned land possession, the people that are involved and influential or in charge of it.
- b. The arrangements in place.

3. The types of procedures of land/building occupation that defines how people continue to settle in the slum.

- a. Repeat as per above, and whether one or more of the types of origins by activities of land occupation and the manner of land occupation can be found in the slum.

Property type	Inferred
Property tags/anchors	<p>(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by origin by activities of land occupation.</p> <p>(P₁₂-CAT₈) HEALTH CONDITIONS, (C₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by origin by activities of land occupation and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between origin by activities of land occupation and other property tags/anchors.</p> <hr/> <p>Consider whether the following affect/influence/trigger origin by activities of land occupation:</p> <ul style="list-style-type: none"> • (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) <i>Population profile</i>; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS: (1-P₅-CAT₂) <i>Income poverty</i> • (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES. • (2-P₇-CAT₄) <i>Origin by type of built context</i>; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM. • (P₉-CAT₅) THE FORM OF THE SLUM: (4-P₉-CAT₅) <i>Spatial patterns</i>, (5-P₉-CAT₅) <i>Building forms and durability</i>. • (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION <p>Consider whether origin by activities of land occupation affects/influences/triggers the following:</p> <ul style="list-style-type: none"> • (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE. • (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) <i>Population profile</i>; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS. • (P₉-CAT₅) THE FORM OF THE SLUM. • (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION
Definition	<p>(2-P₇-CAT₄) <i>Origin by type of built context</i></p> <p>This describes the types of built contexts within which slums start and further develop, and built contexts where activities are carried out to develop slum or further expand it.</p>

What for

This property is a unique aspect of slums also that does not change or transform into another type and may necessarily be used to classify them. In association with origins by procedures of land/building occupation, it provides a comprehensive origin of slum and how it is currently expanding/growing.

Some useful information

Iteratively, most poor and low-income earners opt for the best affordable way of dwelling in the city that will meet basic needs and allow access to income generation and social amenities. Whilst some make a conscious effort to occupy and develop place. Others find themselves in shelter contexts that inadvertently develop into slum. This framework proposes five classes of slum origins by type of built context that can describe slums: (1) Informal estates/settlements on vacant land/spaces, (2) slum estates, (3) urban villages, (4) refugee camps, (5) re-housing estates.²³

These are generally used to classify slums globally, though often used interchangeably.²⁴

As noted earlier, these are linked to the types of origin by activities of land occupation that can occur relative to them (as will be shown in the next cell). It is possible, with the passage of time, to find one or more types of the above origin by built contexts and associated activities of land occupation existing in a slum.²⁵

It is by mapping types of origin by built contexts to activities of land occupation and the manner of land occupation that a comprehensive picture of slum origins can be defined and equally mapped to its spatial structure, and to show the current way the slum is growing; this will be linked to types of tenure conditions. It is suggested that the initial origin of slum should be understood, then how it has currently developed.

It is still essential, for a comprehensive definition of slums to describe both associated tenure conditions and building forms and durability in the slum.

What to look for

1. The type(s) of built context within which the slum started, relate each to (P₄-CAT₂) TENURE and (P₁-CAT₂) GEOGRAPHY.

- a. Whether it started from:
 - o Informal estates/settlements on vacant land/spaces.
 - Original land-use and ownership.
 - o Slum estate.
 - Original intended use of estate, ownership, and reasons why estate was left to deteriorate.
 - o Urban village.
 - Reasons why it became slum.
 - o Refugee camp.
 - Governing organization involved in its administration.
 - Administration structure – dwelling and population control.
 - o Re-housing estate.

- Governing organization, administration, and/or project developer.
 - Administration structure.
- b. The table below provides an overview of each description for easy comparison.

Table III.3: Descriptions of origins of slum by type of built context.

Types of origin by built context	Description
Informal estates/settlements on vacant land/spaces	This describes land(s) and other spaces that are undeveloped and free of any encumbrance, where conscious efforts were made (individually, collectively, or mass development) to develop dwellings (and dwelling surroundings) on them, which are informal. ²⁶ These can include wide expanse of land, roadsides, under bridges, rooftops of buildings, around other buildings or estates etc. ²⁷ (example, figure III.8).
Slum estate ²⁸	This describes housing estate(s) (mass-built or individual) that were constructed formally for other use or as public housing, industry, or private housing that were unfinished, that with the passage of time and a combination of factors deteriorate or become informally or illegally settled into to become slums. ²⁹ Those constructed during colonial eras are known as old-colonial estates ³⁰ (example, figure III.9).
Urban village	This describes places that were originally villages which became subsumed into the city spatial structure due to urban expansion. With population growth and continued unregulated settling (to a certain degree), ³¹ they become slum (example, figure III.10).
Refugee camp	This describes places that were originally built (and still are) as refugee camps to accommodate populations categorized as refugees, which have deteriorated and with continued expansion are considered as slums ³² (example, figure III.11).
Re-housing estate ³³	This describes formal housing estates that were originally built to re-house slum communities from other locations – as a management strategy for upgrading slums – and have deteriorated into slums. ³⁴ (example, figure III.12).



Figure III.8: A section of Rocinha in Brazil, which originated on undeveloped land through spontaneous informal activities.³⁵



Figure III.9: (Left) Dolphin estate in Lagos – a recent slum estate,³⁶ (right) a slum estate in Girgaon, Mumbai, both built during colonial times.³⁷



Figure III.10: Garki village (outlined in black) has been subsumed into Abuja urban structure, and with continued settling, and deterioration is now considered slum.³⁸



Figure III.11: The Zaatari refugee camp, considered slum: (left) when it first opened,³⁹ and (right) recent image.⁴⁰



Figure III.12: Nanapeth re-housing project in Pune, India is deteriorating into slum.⁴¹

2. How these built contexts are associated with types of activities of land occupation and the manner it was carried out.

- The possible ways that distinct types of origin by built context of slums can manifest from activities of land occupation are shown in the matrix table below.⁴²

Table III.4: The matrix of possible ways in which slums' origin by type of built context and origin by procedures of land/building occupation can manifest.

	Origin by procedures of land/building occupation		
	Informal settling/procedures	Illegal subdividing/procedures	Standardized settling/procedures
	Spontaneous/planned*	Spontaneous/planned*	

Origin by type of built context	Informal settlement/estate on vacant land/spaces	✓	✓	
	Slum estate	✓	✓	✓
	Urban village	✓	✓	✓
	Refugee camp		✓	✓
	Re-housing estate			✓

*The manner that land/building occupation and processes can occur.

3. The current Pattern of slum origins: distribution of slum origins – by activities and manner of occupation, and by type of built context – in the slum spatial geography. An example is shown in figure III.13 using an image.

- a. Pattern: the origins by activity and built context that is more prevalent in the slum spatial structure.



Figure III.13: Nanapeth re-housing estate in Pune, India showing the pattern of origins in the place. The estate (settled through a standardized process) is in the background, whilst the area highlighted (yellow) is an informal settlement from spontaneous informal settling.

Objective, however, information about 1 will be inferred from past occurrence.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by origin by type of built context.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by origin by type of built context and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between origin by type of built context and other property tags/anchors.

Consider whether the following affect/influence/trigger origin by type of built context:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) *Population profile*; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS: (1-P₅-CAT₂) *Income poverty*.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₈-CAT₄) FORCES AND DRIVERS OF SLUM
- (P₉-CAT₅) THE FORM OF THE SLUM: (5-P₉-CAT₅) *Building forms and durability*.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION

Consider whether origin by type of built context affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE.
- (P₂-CAT₂) GEOGRAPHY: (2-P₂-CAT₂) *Relative position, centrality and connectivity*, (3-P₂; CAT₂) *Slum neighbourhood, infrastructure and amenity*, (4-P₂; CAT₂) *Relative landscape and site conditions*; (P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) *Population profile*; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Endnotes

¹ (Neuwirth, 2005, p. 121).

² (See Collins Dictionary, 2014).

³ Describing a person's origin for instance – coming into being, place, and ancestry, forms a relevant aspect of biographical and historical data; for objects, how it starts is important when one needs to solve a problem relative to it.

⁴ See (Cordier and Tijus, 2001).

⁵ (Davis, 2006; Hamdi, 2010; UN-Habitat, 2013a, 2003a). This is so especially owing to the explosive manner informal settling into vacant land became rampant in the mid-20th century.

⁶ (See Karlsson, 2012; Leitão, 2008; Turner, 1969).

⁷ This can be either as the slum has consolidated, the way people are occupying it has changed or it has grown to include another variation of land occupation. One might, for instance, find people settling informally in a slum that was originally subdivided and leased. Similarly, a place that originated through a standard process can have informal settling going on within it or vice versa (see (Cronin, 2013; Erman and Eken, 2004; Leitão, 2008; Lonardon, 2016)).

⁸ Land/building property possession means taking it over for use to fulfil the basic need for survival (Proudhon, 1970; in Neuwirth, 2005).

⁹ This is also popularly known as squatting.

¹⁰ Either in large or small populations and can happen peacefully or violently.

¹¹ (UN-Habitat, 2013a, 2003a).

¹² ¹² Dharavi, for example, originated in this manner (Neuwirth, 2005).

¹³ Just like informal settlement, different forms of tenure arrangements can exist relative to the processes of settling. Sometimes illegal settlers even assume themselves to be de facto owners (Berger, 2006; Gulyani and Bassett, 2010).

¹⁴ ¹⁴ Dwellings developed from this are therefore informal (UN-Habitat, 2007c, 2003a).

¹⁵ Generally, illegal subdivisions thrive in cities where corruption is rife, or, the system have taken a nonchalant attitude towards the slum development (UN-Habitat, 2003a).

¹⁶ The origin of Kibera, in Nairobi for example (Ekdale, 2011; Neuwirth, 2005).

¹⁷ (See Hamdi, 2010; Turner, 1968; UN-Habitat, 2003a).

Non-contentious customary institutions that are legally recognized in the civil system can sometimes also organize regulated settling in slums (Eerd et al., 2008).

¹⁸ These arrangements could sometimes become complex and not in the best interest of the slum community (see Cronin, 2013; UNCHR, 2012).

¹⁹ The Al-Zaatari refugee camp is an example of standardized settling (Rodgers et al., 2013), another is the re-housing of slum communities in Pune India (Cronin, 2013).

²⁰ (Berner and Phillips, 2005; Davis, 2006; Fernandez, 2011; Hernandez and Kellett, 2010; Olortegui G., 2001; UN-Habitat, 2003a).

²¹ These are generally associated with spatial forms that develop in an organic and irregular pattern (Fernandez, 2011), and can develop both makeshift and houses of permanent materials.

²² This is usually organized with people that have experienced it before or share the same need. Social power structures in the process, tenure or land occupation arrangements, and plot divisions are usually planned from the outset, e.g. Santa Rosa slum in Peru (ibid). This type of occupation is generally associated with regular spatial layouts of slums and buildings that are built from permanent materials.

²³ These descriptions were generally analysed from literature that include (Davis, 2006; Hamdi, 2010; UN-Habitat, 2013a, 2003a), see also (Neuwirth, 2005; Satterthwaite, 2016).

²⁴ Magalhães and Nacif Xavier (2003) and UN-Habitat (2003a) note that the variations in character of these slum classes makes it hard to see a clear boundary while categorizing them.

For example, the urban village slums of Abuja (Gusah, 2012), and Kampung kali code, Indonesia (Seftyono, 2012, 2010), are also referred to as informal settlements in literature.

²⁵ Expanse of land around a slum estate for example can be informally occupied (Cronin, 2013), or a refugee camp having informal settlement on free site spaces (Ledwith, 2014), or informal settlement on undeveloped spaces in an urban village.

²⁶ See (5-P₉-CAT₅) Building forms and durability.

²⁷ Buildings that are developed can include both makeshift houses, permanent houses, and blocks.

²⁸ Historically, slum estates were one of the first type of places to be designated 'slum' in the Developed World during late 19th century; they were generally tenements in old city centres for the poor as 'they were willing to do with less space and shared amenities' (UN-Habitat 2003a, p. 80).

²⁹ The reasons for deterioration of these estates are varied and could be a combination of factors that include lack of maintenance and negligence, shortcomings in the architectural designs, sub-standard construction, lack of infrastructure, human use and overcrowding etc.

³⁰ These old-colonial residences were developed by industries, private, and government (usually colonial governments then) bodies to house workers – industry and administration. Housing types can be varied and include blocks, tenements, or houses.

³¹ When these villages become part of the city, they become easily accessible places to settle for migrants and work seekers. Situations can vary relative to locale and city. Generally, however, urban villages are still subject to customary laws or not fully incorporated into urban plans or on the contrary re-zoned to another use. About 20% of slum growth in Developing Regions are subsumed villages (UN-Habitat, 2013a).

³² Refugee camps are a new urban form with no historical referents (Cuthbert, 2011), and are usually sited at the periphery of cities to house thousands of people. These can deteriorate socially and physically owing to reasons that can range from inefficiencies in the form of the slum to divisions in demography (Hamdi, 2010; Ledwith, 2014; Rodgers et al., 2013).

³³ Re-housing estates are also considered as slum estates (UN-Habitat, 2003a). However, because they are purpose built to resolve slums and improve the lives of those inhabiting it, the fact that they have become slum makes their case unique and should form part of the slum narrative.

³⁴ The reasons for deterioration can vary also and will be related to place contexts and forces and drivers.

³⁵ Source: (Leitão, 2008, p. 161).

³⁶ Source: (Hammond, 2014).

³⁷ Source: (Shetty et al., 2007, p. 43).

³⁸ Image source: (Google map, 2017).

³⁹ Source: (Ledwith, 2014, p. 25).

⁴⁰ Source: (Mercy Corps, 2013).

⁴¹ Source: (Cronin, 2013, p. 127).

⁴² These possible associations are posited owing to the summations made in the analysis of types of 'origin by activities of land occupation' and types of 'origins by type of built contexts'.

(P₈-CAT₄) FORCES AND DRIVERS OF SLUM

Property category role	<p>Procedures and agency properties in slum, capture how slums are developed, transformed, and used by inhabitants to fulfil, their purpose and become what they are, and agencies that are responsible or influential to this development – how they originate. Procedures and agency properties in slum potentially hold 'high' influence in any slum property map.</p>
Definition	<p>Forces and drivers can be defined as the decisive factors that causes slums to happen or develop and make them progress or grow stronger. These are ever-present contexts to slum growth that need to be understood in principle to highlight links to other properties or further clarify them, or between slum and the city that need to be looked at more precisely and may be addressed as part of the wider framework of intervention.¹ Sub-properties to compile these properties include: migration, poverty, appropriateness and adaptive nature of home, structural policies and institutional functions, and social and cultural pathology.</p>
<p style="text-align: right;"><i>(1-P₈-CAT₄) Migration</i></p>	
Definition	<p>Migration is the movement of people from one place to another with the intention of settling in the slum on a temporary or permanent basis.²</p>
What for	<p>Understanding whether migration is a force that spurred a slums development provides vital information on its origin as well as its social demography. As a driver of a slums continuing development, it provides context to the challenges that the people face, and some of the dynamics that are associated with the slum demography, geography, tenure, poverty, the form of the slum, and its social and spatial evolution.</p>
Some useful information	<p>A factor that causes and continues to expand slum development is no doubt rural to urban, urban to urban, and intra urban movements in pursuit of livelihood development opportunities (figure III.14).³ Rural to urban Migration is more prevalent in Developing Regions.⁴</p>

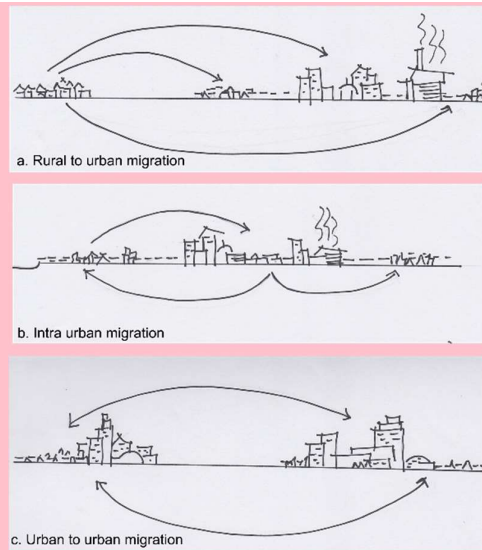


Figure III.14: Patterns of slum migration.⁵

Migration has been a definitive slum driver for a long time, in historical contexts, people moved to cities in search of employment and trade, settling or developing slums to have places to stay.⁶

Causes of migration are however, essential contexts of it. Poverty spread by socio-economic disadvantage and reduced access to social and capital resources is a major cause of migration into slums.⁷ Other more social 'pushes' include strife due to religious, ethnic, civil intolerance and oppressive democratic systems,⁸ natural disasters like famine, flood, or earthquakes etc.,⁹ and lack of tenure security due to evictions or gentrification,¹⁰ or other forms of oppressive tenure practice that force people to leave their rural lands.¹¹

Social capital and agency are also a relevant context of slum migration; in certain instances, early slum settlers become 'bridge-headers' that facilitate other people to come, sometimes adapting homes to accommodate them and earn income.¹² Other times they act a 'gatekeepers' discouraging newcomers.¹³

Migration also affects people's identities – known assets, spaces, social relations – that they try to recreate relative to needs and aspirations.¹⁴ It also brings in new cultures, behaviours and identities, and investment in place, which become generic as length of stay increases.¹⁵

1. Whether migration was responsible in the slum origin, and the type of migration – rural to urban, inter and intra urban.

a. Causes of migration and demography of migration population.¹⁶

2. Whether migration is mainly responsible for the continuing growth of the slum.

a. Length of stay of slum population and group them (and how much of slum population for each):

o Those that transit between the slum and other places or city at different times of the week – transitional.

What to look for

- Less than 6 months – short term residents;
 - 6 months to 3 years – migrant;
 - 3 years to 9 years – non-migrant;
 - over 10 years – long term residents.¹⁷
- b. Of these population, whether entire families are together, or some have sought to move -up to other places.
- c. The places where short term and migrant residents come from.
- Causes of migration for short term and migrant residents¹⁸ in general, and can include: poverty (and search for work), forms of strife¹⁹ (ethnic, civil, religious, political oppression) natural disaster (like flooding, famine etc.), forms of insecure tenure, on-going cultural practice etc.²⁰
- d. The role of social capital in continuing in-migration:
- Whether 'bridge headers'²¹ in the slum communities encourage and accommodate in-migration, or;
 - whether 'gatekeepers'²² prevent in-migration and exclude new communities.
3. Whether there is social integration between migrant population and existing population – in general, sharing resources, community engagement, culture, religion, economic engagements and enterprise, safety and security.

Inferred

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by migration.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by migration and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between migration property and other property tags/anchors.

Consider whether the following affect/influence/trigger migration patterns:

- (P₂-CAT₂) GEOGRAPHY;²³ (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings, (4-P₈-CAT₄) Structural policies and institutional functions.²⁴

- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION: (1-P₁₀-CAT₆) *Social consolidation and established social structures.*²⁵

Consider whether migration and changes affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE
- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) *population profile;*²⁶ (P₄-CAT₂) TENURE CONDITIONS
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.²⁷
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

(2-P₈-CAT₄) *Poverty*

Definition

See (P₅-CAT₂) **POVERTY CONDITIONS** for the definition of poverty; in this regard, however, it is proposed as a leading force and driver of continuing slum development.

What for

Poverty, where it influences people to continue staying in the slum or contributes to its continued degradation of slums is a vital aspect of the people that should be precisely understood. Moreover, Information on Urban poverty is used as a primary tool towards engaging in the management of slums.²⁸

Some useful information

Scenarios of poverty are infinite in slums.²⁹ For most slum population, poverty is not just a reality that they live with, but also a factor that prevents them from maintaining living or moving into the standard city housing system – driving further slum growth.³⁰

The slum becomes a permanent residence that hosts generations of families for decades, expanding to accommodate both internal populations and immigrants.

Poverty, overall has declined over the last two decades,³¹ and studies show that people living in urban slums are generally better off than their rural counterparts.³² It is, however, still a challenge that many live with.³³ This is because there are usually other more complex social, spatial, and even natural structures of constraint that deepen forms of poverty, and can include: use of informal services and lack of standardization (including tenure), lack of resource or market information, knowledge and support, distances from sources of work, managing marginal conditions or natural disasters etc.³⁴ For those who have been resettled poverty can remain a prevailing issue when they are too far from work and amenities, unable to pursue forms of enterprise, maintain and service their tenancy etc. This can cause to gentrification and further slum growth.³⁵

As much as poverty is a challenge, however, it also drives people to engage in all forms of economic and social enterprise.³⁶

What to look for

1. Whether deepening conditions of poverty is responsible for conditions that lead to (P₇-CAT₄) THE ORIGIN OF SLUMS.

2. Also, whether poverty prevents people from moving out of the slum and improving their living standards (and home and surroundings) ³⁷ relate to (P₅-CAT₂) POVERTY CONDITIONS: (1-P₅-CAT₂) Income poverty, (2-P₅-CAT₂) Non-income poverty.

For both inquiry 1 and 2:

- a. Aspects of the people and the slum that are responsible for the deepening forms of poverty.³⁸
- b. The proportion of people to whom poverty is a prevailing consideration to stay.
- c. The proportion of people to whom poverty is a prevailing challenge in improving homes and surroundings.

Property type

Inferred

Property tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by poverty as a slum driver.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by poverty as a slum driver and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between poverty as a slum driver and other property tags/anchors.³⁹

Consider whether the following affect/influence/trigger poverty as a driver of slum growth:

- (P₅-CAT₂) POVERTY; (P₂-CAT₂) GEOGRAPHY: (2-P₂-CAT₂) Relative position, centrality and connectivity, (3-C₂-CAT₂) Slum neighbourhood, infrastructure and amenity, (4-P₂; CAT₂) Relative landscape and site conditions; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS.
- (3-P₈-CAT₄) appropriateness and adaptive nature of homes,⁴⁰ (4-P₈-CAT₄) structural policies and institutional functions, (5-P₈-CAT₄) social and cultural pathology.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION: (1-P₁₀; CAT₆) Social consolidation and established social structures

Consider whether poverty as a driver of slum growth affects/influences/triggers the following:

- (P₃-CAT₂) DEMOGRAPHY.⁴¹

- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-C₈-CAT₄) migration.⁴²
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

(3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings

Definition

Something is deemed to be appropriate when it suits or seems right to an intended or particular situation, occasion, or context.⁴³ Similarly, a dwelling or residence and its surroundings becomes appropriate to users when it is physically suitable in form and structure to their material, practical (which includes environmental), social-cultural (and ideals), and psychological requirements – becoming ‘homes’.⁴⁴

What for

Analysing this property provides insights into the suitability of people’s dwellings in supporting their daily living and livelihoods. When spaces do not transcend into homes for slum communities it may influence further slum development or conditions that challenge quality of life – socially, physically, and productively, cementing the urban poor stereotype.⁴⁵ In which case, it may be necessary to explore slum’s geography, demography, its form and the social structures in place.

Some useful information

When dwellings and surroundings shift from being such, to become homes they capture certain dimensions of people’s lives: (1) a gravitational point that orders daily patterns, (2) identity obtained through use, self-expression, and personalization, generating a sense of connection – a place where one is content.⁴⁶ Connections to place does not only lead to increased psychological investments in a place, but productive ones as well.⁴⁷

In slums, constraints of space, materials, resources – both human and capital, and knowledge capacities can inhibit people’s capacity to develop and adapt dwellings that suit needed requirements. Or, when dwellings provided for people in the event of slum intervention are not ideal to the people’s social life (including social relations), culture, psychological and practical needs.⁴⁸

For a majority of the population in these places, it is also important that their residences fulfil practical enterprise functions as well, or at the least allow for informal social interactions towards such.⁴⁹ Constraints to suitability of dwellings can range from the function and arrangement of spaces,⁵⁰ the use of materials, building forms, environmental considerations etc.⁵¹

People, however, (naturally) tend to exert control (within their capacities) to modify or organize (adapt) spaces to suit.⁵² Custom provided spaces do not lend themselves easily to modification or improvement,⁵³ and in this way, leads to ‘under-housing’,⁵⁴ the disruption of structures and deteriorating of spaces – socially and physically.

When people cannot seem to 'break in' and modify or organize spaces to their requirements (socially and physically), it has been observed that people vote to liquidate or rent and return to slums.⁵⁵

Analysing people's connection or attachment to place is a broad concept, however, by simply understanding whether dwellings suit people's requirements or not, more in-depth studies can be done.

1. Whether dwellings or residences in the slum are physically suitable to people's living and livelihood requirements, and therefore appropriate and adaptive to such requirements.

- a. Whether dwellings and spaces (with functions and use of materials) are ideal to their culture.
 - If not, the various spaces that do not reflect this ideal.
- b. Whether dwellings and spaces (with functions) allows for their social livelihoods and relationships within the community, whilst still fulfilling the need for privacy.
 - The aspects of their social living and relations that are compromised (where dwellings do not allow for this).
- c. Whether dwellings and spaces (with functions and use of materials) allows for practical everyday needs (including environmental shelter requirements) and economic enterprise where necessary.
- d. Whether dwellings and spaces (with functions and use of materials) allows for easy adaptation when necessary to fulfil needed requirements.
 - What people have done in their attempt to organise their spaces to suit their requirements.
 - Whether these adaptations (if observed in the slum setting) are causing further deterioration and challenges to form.
- e. Whether physical conditions in the slum are due to people's lack of consideration for it as spaces that they are responsible for.
 - Aspects to explore include: the function of spaces, people's involvement in its development, and in its administration, and social dynamics at play.
- f. In general, whether they consider the dwellings that they have as temporary and would rather not invest in its development.
- g. For slum communities that have been re-settled: whether procedures of settling or rehabilitation were non-inclusive⁵⁶ and dependency inducing, restrictive, and inconsiderate to peoples' social-cultural and physical requirements.

Inferred. However, aspects of homes and physical spaces that relate to responses can be objectively captured.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃; CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by the appropriateness and adaptive nature of dwelling as a slum driver, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between it and other property tags/anchors.

Consider whether the following affect/influence/trigger people's considerations for the appropriateness and adaptive nature of their dwelling, where it is a slum driver:

- (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY: (1) meanings and experiences attached to the slum, evoked by these experiences, and stories behind them relative to: (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE, (P₂-CAT₂) GEOGRAPHY, (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE CONDITIONS, (P₇-CAT₄) THE ORIGIN OF SLUMS, (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY: (2) A general overview of perceptions of place.
- (4-P₈-CAT₄) *Structural policies and institutional functions.*
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether people's considerations for the appropriateness and adaptive nature of their dwelling affects/influence/triggers the following:

- (4-P₂-CAT₂) *Relative landscape and site conditions;* (P₃-CAT₂) DEMOGRAPHY; (P₅-CAT₂) POVERTY CONDITIONS: (3-P₅-CAT₂) *Social exclusion.*
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (1-P₈-CAT₄) *Migration*
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

(4-P₈-CAT₄) *Structural policies and institutional functions*

Plans, courses, and principles of action implemented by governing bodies, and related institutional functions that can facilitate people settling in slums, and/or present as challenges to improving living conditions or moving out of it.

There are many external policies and actions of states in Developing Regions that can exacerbate slum development or impede efforts at intervention. Knowing them can enable stakeholders to take them into consideration in designing intervention – either to counter them or find creative approaches to engaging with local powers in the wider city.

Developing regions are experiencing several challenges in governance that transcend from the regional to state and local council administration that can lead to inefficiencies in general urban management, and the maintenance of pro-poor policies.⁵⁷

Some of the more common factors that relate to structural policies and institutional functions of cities, which can influence slum development and worsen living conditions for the poor include:

- Nonchalant government attitude and lack of political will to engage, benevolently and proactively in the improvement of slum and slum communities.⁵⁸
- Institutions directly involved with the urban management of cities (and slum communities) have weak development control (which include corruption) and are without a defined manifesto of functions – creating overlapping functions and making them inefficient at proper management.⁵⁹
- Institutions directly overseeing slum areas presume some predisposition or willingness on the part of slum community to concede to certain requirements or terms that further constrain livelihood conditions, even if in the process of intervention.⁶⁰
- Implemented actions and plans that limit local governments' capacities to spend and improve deprived areas.⁶¹
- Implemented actions and plans that favour private markets (both in employment/industry/services generation and support, and housing), thereby raising the employment bar, and restricting or removing the role of social housing markets in the provision of housing.⁶²
- Exclusionary urban land use zoning patterns and regulations that do not consider forms of use (and income generation) for the low-income earners⁶³ with some still conforming to colonial urban practices.⁶⁴

In general, however, issues between city administrations and slum community that further cause a challenge can be varied, unique to contexts and many, and should form aspects of inquiry.

1. Whether there are courses of action implemented and taken, principles of engagement, or plans for action in both urban and slum management that can be considered as directly influencing movement into the slum, and/or inhibiting efforts at improving livelihoods, moving into the city, and contributing to poverty (Consider the list of courses of action in the above cell as well):

- a. Consider these in relation to:

- Urban management control and engagement.
 - In land administration and zoning patterns.
 - Access to housing and work.
 - Interests of governing body or other related organizations in slum intervention.
- b. Whether these courses, principles, or plans for action are associated with any description of the slum.
2. Whether there is any government stance, policies, regulations, and/or riding jurisdictions regarding slums (directly) and slum management that are seen to influence slum, inhibit efforts at livelihood or contribute to poverty.

Inferred.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by structural policies and institutional functions as forces and drivers of slum.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by structural policies and institutional functions as forces and drivers of slum and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between structural policies and institutional functions as forces and drivers of slum and other property tags/anchors.

Consider whether structural policies and institutional functions as forces and drivers of slum affect/influence/trigger the following:

- (P₂-CAT₂) GEOGRAPHY: (1-P₂-CAT₂) Absolute location and space, (2-P₂-CAT₂) Relative position, centrality and connectivity, (3-P₂-CAT₂) Slum neighbourhood, infrastructure and amenity; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (1-P₈-CAT₄) Migration, (2-P₈-CAT₄) Poverty, (3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings, (5-P₈-CAT₄) Social and cultural pathology.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

(5-P₈-CAT₄) Social and cultural pathology

Definition

Social and cultural pathologies can be described as a social deficiency or dysfunction in people's attitudes and behaviours that substantiate a culture of poverty/vulnerability – whereby the incentive and motivation to improve one's condition is lacking or low – in families within the slum community.

What for

This concept is linked to human needs and endeavours towards livelihoods and can be a strong advocate against self and place improvement and may even become elucidatory whereby criminal/social vice activities are found in certain slums (even though, as pointed out subsequently, structural causes of disadvantage in the slum are stronger than behavioural and cultural causes). It is important that efforts towards understanding the slum to properly intervene is met with equal amount of zeal from the slum community, otherwise, intervention will need to consider addressing this as a factor in its design.

Some useful information

Some research argue that the persistence of poverty and slum conditions can also be attributed to people's behavioural and social/cultural deficiencies that make them less inclined towards self and place improvement.⁶⁵ These deficiencies can transcend other more structural⁶⁶ causes of poverty and disadvantage, and ostensibly make people less economically viable than others.

In social anthropology, evidence shows that social and cultural pathologies of people in disadvantaged positions are generally the impacts of historical and substantive structural factors in the governing systems (common to Developing Regions) that influence their conditions, and poor work ethics that does not incentivize nor encourage the full realization of people's potentials – a reaction to their existential situations.⁶⁷ These deficiencies are then reinforced and sustained as a way of life and inadvertently passed down to generations,⁶⁸ staying in the same cycle of poverty.

Its effects include family breakdowns, criminal activities, nonchalant behaviour to health and education etc.

However, interpreting and addressing social-cultural causes of poverty should be considered alongside the structural causes, as they are stronger and overwhelm behavioural/culture variables in defining socio-economic spatial differentiations in the urban fabric.

What to look for

1. Whether people in the slum are less inclined or motivated to challenge their conditions of poverty and strive towards improvement of self and place.

- a. Whether they consider the slum a representation of themselves and that it is futile to try and improve it as external forces are against them.
 - o External and internal (social, cultural, economic) forces that are perceived to define such consideration.
- b. Whether people's attitudes and activities that they do in relation to slum descriptions can be considered as nonchalant towards improving place.

- If evident, what properties are associated to these attitudes and activities.

Property
type

Inferred

Property tags/anchors

Consider whether the following affect/influence/trigger social and cultural pathology in the slum community:

- (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (2-P₈-CAT₄) Poverty, (4-P₈; CAT₄) Structural policies and institutional functions
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.
- (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY ((2) A general overview of perceptions of place).
- (P₁₃-CAT₈) ACTIVITIES OF PEOPLE

Consider whether social and cultural pathology in the slum community affects/influences/triggers the following:

- (P₂-CAT₂) GEOGRAPHY: (2-P₂-CAT₂) Relative position, centrality and connectivity, (4-P₂-CAT₂) Relative landscape and site conditions; (P₃-CAT₂) DEMOGRAPHY: (1-P₃-CAT₂) Population profile; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS
- (2-P₈-CAT₄) Poverty
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION

Endnotes

¹ (Angotti, 2006; Berner and Phillips, 2005; Fox, 2013, 2008; Gulyani and Bassett, 2010)

² (Kurekova, 2011; Oxford Dictionaries, 1991).

³ (Hutchinson, 2010; Jedwab et al., 2014; Turner, 1968; UN-Habitat, 2003a). Generally, Developing Region countries are challenged in terms of policies that meet globalization and population growth with the needed technological, social service,

and industrial advancement (UN-Habitat, 2016d). Neoclassical theories that places migratory considerations on economic benefits (Kurekova, 2011; Todaro and Smith, 2006) applies in the case of slum growth just as it does for city or urban growth (Arimah, 2010a).

⁴ The UN-habitat (2013a), noted that 33% of an annual migration population of 1.3 million in Developing Regions settle in slums. The 'pull-push' factor in migration theory, is highly relevant in terms of slum growth (Mabogunje, 1970), and related to the new economics theory of migration (see Kurekova, 2011).

⁵ Source: Author (adapted from Turner, 1968).

⁶ See (Neuwirth, 2005).

⁷ (Glaeser, 2013; Hamdi, 2004; UN-Habitat, 2003a). A consensus, is that the neoliberal policies of free trade and privatization, and the International Monetary Fund (IMF) restructuring with structural adjustment programs initiated in the late '70s and '80s are to blame for the increases in poverty (ibid; Davis, 2006). This is still the case in many countries like DR Congo and Sierra Leone having income poverty measures (alone) as high as 77% and 52% of populations respectively (UNDP, 2016).

⁸ (UN-Habitat, 2003a; K'Akumu and Olima, 2007).

⁹ See (Luhar, 2014; UN-Habitat, 2015a).

¹⁰ (Agunbiade, Elijah M & Agbola, 2009; Gusah, 2012; UN-Habitat, 2003a).

¹¹ See (Adelekan, 2009; Alagbe, 2006; Davis, 2006a; Gusah, 2015; McCarthy, 2005). An example of tenure policies that force people to leave rural hinterlands is the enclosure of common lands for private or political market gain (see (Lee and Webster, 2006).

¹² See (Abubakar, 2016; Haas, 2010; Mahuob, 2013; Turner, 1968).

¹³ His can be in the form of stalling and exempting new communities, especially when an upgrade is proposed (Epstein, 2008; Patel, 2011).

¹⁴ See (Cronin, 2013; Hamdi, 2010).

¹⁵ (Kurekova, 2011).

¹⁶ Dharavi, for example, is substantially formed by poor communities that moved from rural areas to Mumbai (Jacobson, 2007; Nijman, 2010).

¹⁷ See (Beguy et al., 2010; Zulu et al., 2011).

¹⁸ This is because these class of the population are seen as the most vulnerable relative to the cause of movement (ibid).

¹⁹ Zataari, for example is settled by people fleeing the Syrian civil war (Rodgers et al., 2013).

²⁰ An example is the expulsion of factory residents from the city center that settled in Dharavi (Nijman, 2010).

²¹ Rocinha for example expanded as information spread that the land was possibly not owned by anyone, or was government land (Leitão, 2008). In the continuing development of Rocinha, buildings can go up to six storeys high as floors are added to accommodate family members or new comers.

²² Meanwhile, Zwelisha community in Durban began to exclude new members from coming in when an upgrade program was initiated (Patel, 2013).

²³ One can refer to (laquinta and Drescher, 2001; Turner, 1968) for more on migration patterns to slums and slum position in the city.

²⁴ Because migration into slums is associated with ease of access to homes.

²⁵ Here, when it plays a role in how people settle, and whether they act as bridge-headers or gatekeepers.

²⁶ Nyanya, Abuja for example, migration still plays a vital role in its population growth (Abubakar, 2013), similarly in Al-Zaatari refugee camp in Jordan (Rodgers et al., 2013).

-
- ²⁷ For example the Rocinha slum in Rio de Janeiro (Leitão, 2008).
- ²⁸ (UN-Habitat, 2003a).
- ²⁹ *ibid.*
- ³⁰ (Luhar, 2014; Neuwirth, 2005; UN-Habitat, 2013a, 2003b, 2003a).
- ³¹ (The World Bank, 2016).
- ³² (Alkire et al., 2014; Leitão, 2008; Turok and Borel-Saladin, 2016). The analysis of these authors was not based on cities exclusively, however, the relationship analysis was made using country data. The annualized average urban multidimensional poverty index (MPI) reduction between 2003 and 2013 was just 0.005.
- ³³ (Baud et al., 2008; Neuwirth, 2005).
- ³⁴ See (Baud et al., 2008).
- ³⁵ (Hamdi, 2010; Hernandez et al., 2010; Taher and Ibrahim, 2014).
- ³⁶ See (Hamdi, 2010).
- ³⁷ For example, analyses shows that poverty is preventing people from moving out of the Colbot slum in Freetown, Sierra Leon (Noland, 2015).
- ³⁸ In the example of the Colbot slum given above, consistent increase in rents by unregulated landlords makes it hard for residents to save their incomes ((Noland, 2015).
- ³⁹ For example, activities that people are engaged in to counter poverty, and it will mediate between poverty conditions, poverty as a slum driver, and enterprise in place (Hamdi, 2010).
- ⁴⁰ When their homes do not support spaces for enterprise endeavours etc.
- ⁴¹ In the example of the Colbot slum given above, the people engage in different forms of enterprise and fishing. See also (Hamdi, 2010).
- ⁴² When people move from slum to slum due to poverty.
- ⁴³ (Cambridge Dictionary, 2016b; Oxford living Dictionaries, 2016b).
- ⁴⁴ (Gifford, 2002).
- ⁴⁵ (Cronin, 2013; Echanove and Srivastava, 2010; Hamdi, 2010; Taher and Ibrahim, 2014).
- ⁴⁶ The original term used by Gifford (2002) is 'warmth' to describe a symbolic and interpersonal feeling that grows when one considers a place as a home. The concept of 'home' is an aspect of the concept of 'place' also.
- ⁴⁷ (Akbar Jamel, 1988; Brown, 1987; Hamdi, 2010).
- ⁴⁸ When slum upgrade or resettlement does not resolve the problem of spatial and physical challenges experienced in slums before intervention, it is assumed the average slum settler is recalcitrant or will not conform to city standards; little consideration is given to the fact that settling in a domicile is also, to a great degree dependent on people's behaviours and culture (Cronin, 2013; Echanove and Srivastava, 2010; Hamdi, 2010; Taher and Ibrahim, 2014; see also Kamel and Abdel-Hadi, 2012).
- ⁴⁹ (Echanove and Srivastava, 2010; Patel, 2013; Shmulovich, 2014).
- ⁵⁰ Sometimes regimented and constraining domiciliary layouts (Hamdi, 2010).
- ⁵¹ (See Alcantara, 2012; Hamdi, 2010b; Suditu and Vâlceanu, 2013).
- ⁵² So they try – an out kitchen shed, a communal kitchen, an awning to extend space, an attached informal shed etc.— (Cronin, 2013; Hamdi, 2010).
- ⁵³ This constrains the population in making a connection to place and people (Hamdi, 2010; UN-Habitat, 2003a).

⁵⁴ Emery (1963, p. 268) refers to situations where people are provided with dwellings that suit their requirements less than what they previously had or built for themselves as a state of 'under-housing' rather than adequate housing.

⁵⁵ (Echanove and Srivastava, 2010; Taher and Ibrahim, 2014). In 2008, a study of rehabilitation projects in India showed that buildings begin to deteriorate only after a few years (Echanove and Srivastava, 2010), becoming just as bad as the slums they had been removed from. (See also Cronin, 2013).

⁵⁶ This disallows people from participating and having some sense of responsibility in the development of their homes. According to Hamdi (2010) situations like this are socially discriminative and oppressive.

⁵⁷ (UN-Habitat, 2013a).

⁵⁸ (Fox, 2008; Hamdi, 2010a, 2004a; Njoh, 2003; Stren and White, 1989) (see also chapter 3).

⁵⁹ (Neuwirth, 2005; UN-Habitat, 2013a, 2003a).

⁶⁰ (Carpenter et al., 2004; Neuwirth, 2005).

⁶¹ The decentralization of governments and giving local councils autonomy, for instance. This includes councils having to generate own revenues, in this case, they will tend to spend on places that generate higher revenues (see UN-habitat, 2003a).

⁶² (Davis, 2006; de Soto, 2000; Fox, 2008; Hamdi, 2004; K'Akumu and Olima, 2007; The World Bank, 2009).

⁶³ Sometimes, slum communities decry that housing standards set by local authorities are hard to attain leading them to informality (Agbola and Morufu, 2001).

⁶⁴ (Agbola and Morufu, 2001; Fox, 2008; K'Akumu and Olima, 2007; UN-Habitat, 2003a).

⁶⁵ Pawson et al. (2012) studies the causes of poverty in the disadvantaged slum communities in Australia, and how this can be associated with social and cultural pathologies. Whilst Jordan (2004) expands the theory further as it relates to places of social disadvantage with focus on America and American history.

⁶⁶ Other external forces and drivers of poverty and slum conditions.

⁶⁷ (Jordan, 2004; Pawson et al., 2012).

⁶⁸ Because of its effects on children.

Category 5 (CAT₅): Structural properties of slum

Rocinha [...] a city that is rising like a 21st-century renaissance hill town

Robert Neuwirth, 2007¹

(P₉-CAT₅) FORM OF THE SLUM

Property category and role	Structural properties of slum capture the composition of parts that make up a slum – arrangements, quantities, qualities, relations of portion to whole and/or individual to the collective, material or matter in relation to form and unity imposed by it – the physical image of it. Structural properties of slum potentially hold 'high' influence in any slum property map.
Definition	The form of the slum describes the nature of the physical spaces, forms, and facilities of the slum. These are iconic to slums image and perceptions overall, and their management and maintenance are a vital aspect of slum intervention (conditions of form impact on habitation within them). ² There are five sub-properties that help compile form of the slum: safe water, sanitary conditions, density, the pattern of spaces, and building forms and durability.
<i>(1-P₉-CAT₅) Safe water</i>	
Definition	Safe water and safe water access are essentially linked. Safe water (both drinking and domestic use) is that which does not cause danger to health when used and is accessible – available to get without undue effort, sufficient for family use, and affordable. ³
What for	Water is a staple for living and conducting livelihood activities. Constraints in terms of safe water (quality and access) is considered a defining property and challenge in slums. ⁴ Understanding the condition of safe water will reveal how it supports living and livelihood for those living there, and in relation to dealing with vulnerabilities. Moreover, the right to access and use water that is safe is considered as a birth right, just like clean air. ⁵
Some useful information	<p>The right to safe water and increasing its access is an urgent global agenda within the millennium development goals. This agenda has been unable to keep up with growing number of slum dwellers despite relative degree of successes.⁶</p> <p>The effects to using unsafe water in slums is generally quite severe and affects people in many ways (health-wise and productively, and morally), because it is an essential commodity. It is not uncommon to find people scooping water from drains, or shallow wells.⁷</p> <p>Sometimes also, digging deep wells in slums without a requisite knowledge of the land topography and its relation to pit latrines, or chemical contaminants, can lead to water contamination. Geography, peoples' practices and sanitary conditions, density profiles, and spatial patterns can increase chances of water contamination in slums and lead to increased vulnerabilities.⁸</p>

Vulnerabilities are further increased when people, especially women and children, travel long distances to fetch water,⁹ or join long queues spending time away from studies.

Sometimes these women and children are exposed to violence and theft along walk routes to water points, or while in queues to collect water. Other instances, the long commutes to water point increases risks of disease spread.¹⁰

Endeavours to get water in the slum can also lead to exploitation – vendors or water organizers charging exorbitant fees for it.¹¹

Two general descriptions are proposed as essential to capture safe water properties in slums: the degree to which water is deemed safe – its quality, and its access.

Assessing sources of water and their protection and acceptability¹² are simple ways of describing water quality as the more standard procedures can be tedious (where only simple measures are needed in this case).¹³

An aspect to consider in terms of water availability is the slum location's natural water resource conditions – whether stressed or not.¹⁴

1. Quality of water used in the slum – the degree to which it is safe in terms of source, protection (from contamination – especially faecal matter), and acceptability.^{15, 16}
 - a. Sources of water: whether sources of water are from an improved source that include:¹⁷
 - Household connection.
 - Public standpipe.
 - Borehole.
 - Rainwater.
 - Wells that are deep and not shallow.¹⁸
 - Springs.
 - Bottled water (that is used for drinking purposes alone).
 - b. The uses of water from sources – for drinking, for domestic use, which includes toilets and washing or sanitary use.
 - c. Protection: whether water sources are protected from contamination and during delivery.
 - Whether water sources are protected from contamination.
 - Consider sources of contamination – ground geography and toilet locations, slum density and toilet locations, human practices like open defecation, animal excesses etc., environmental hazards like flooding, or other marginal site conditions like chemical contamination etc.
 - Water infrastructure for delivering household connection, public standpipe, borehole, and wells is/are in good condition and not exposed to contamination (example, figure III.15).



Figure III.15: A protected water well. Source: (UnitingWorld, n.d.).

- Water infrastructure for collecting and delivering water are enclosed and protected from contamination, and this *excludes* cart or vendor provided water in gallons, drums or tanks, and tanker truck supplied water.
 - For those that have home connections, a description of how the connections are done, and whether they compromise safety, and durability of buildings and infrastructure.
- d. Protection: whether water is protected from contamination during storage.
- Safely designed enclosed storage containers or tanks that restrict extraneous contamination like hand or container dipping (example, figure III.16).¹⁹



Figure III.16: A large water tank that is well covered and with a tap to restrict dipping.²⁰

- e. Human judgement.
 - Whether water is tasteless (when tasted), colourless (when visually observed), and odourless (when smelled).
- f. Whether sources of water and protections are acceptable by urban standards.

- g. Patterns of safe water quality in the slum: the number of people using the varying types of water sources (where there are more than one), protected water, and that which is acceptable, and those that are not, in the slum.

2. Access to water that is used in the slum:

- a. Whether water is easy to get:²¹
 - o The households in the slum with optimal access to household water connection – water point in homes.²²
 - o The households in the slum with intermediate access to water points when it is shared by a group of buildings in a shared compound.
 - o Households in the slum that have basic access to public water point within 200 meters distance, and a fetching time of 30 minutes round trip.
 - o Households in the slum that lack access to water points and the nearest accessible is more than 200 meters away and with a fetching time that is more than 30 minutes round trip.
 - o The ease or not of taking water from sources into dwellings.
- b. Whether area where slum is located is stressed or not in terms of natural water resource – abundant, limited, prone to shortage, scarce, or stressed.
 - o The map (figure III.17) can be referred to document this relative to the location of the slum.

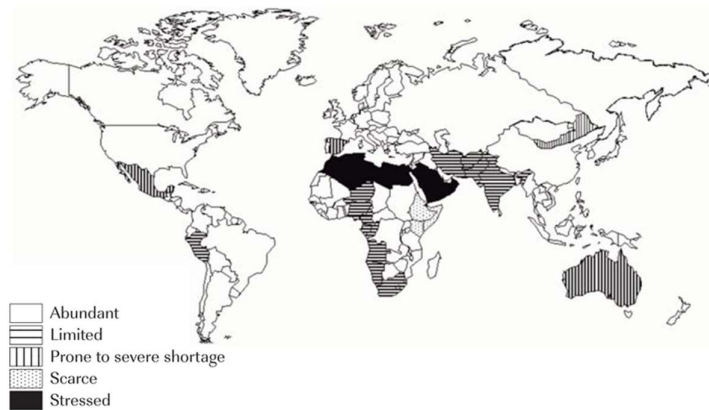


Figure III.17: Map of global fresh water resource distribution.²³

- c. Whether water accessed is reliable or enough for use.
 - o Whether water accessed is providing the basic requirement of 50 litres per capita per day (per person) for drinking and domestic (including hygiene, food, and home).²⁴
 - The volume of water used by members of households can be approximated per type of water source, water storage (if applicable), frequency of water supply and use.
- d. Whether water is affordable.

Property type	<ul style="list-style-type: none"> o Whether the average incomes spent on water by households is less than 3% of basic income (the reverse indicates financial constraints or hardship).²⁵ e. Patterns of water access in the slum: the number of people that find water is easy to get, reliable or enough for use, and affordable, and those that do not. f. Any organizations involved in water provision (community or otherwise), conditions and dynamics involved. <p>Objective, however, information about 1b, 1e, 1f, 2d and 2f will necessarily be inferred.</p>
	<p>(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by safe water quality.</p> <p>(P₁₂-CAT₈) HEALTH CONDITIONS, and (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by safe water quality and access and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between safe water quality and access and other property tags/anchors.</p> <hr/> <p>Consider whether the following affect/influence/trigger safe water descriptions in the slum:</p> <ul style="list-style-type: none"> • (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS. • (P₇-CAT₄) THE ORIGIN OF SLUMS. • (2-P₉-CAT₅) Sanitary conditions, (3-P₉-CAT₅) Density, (4-P₉-CAT₅) Spatial patterns, (5-P₉-CAT₅) Building forms and durability • (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION. <p>Consider whether safe water descriptions affects/influences/triggers the following:</p> <ul style="list-style-type: none"> • (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE; (P₅-CAT₂) POVERTY. • (2-P₉-CAT₅) Sanitary conditions. (5-P₉-CAT₅) Building forms and durability • (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.
Definition	<p style="text-align: right;"><i>(2-P₉-CAT₅) Sanitary conditions</i></p> <p>Sanitary condition can be described as the state of sanitation in an area. Sanitation is concerned with the protection of people from hazards of waste.²⁶</p>

What for

Some useful information

Sanitation concept is not just a term to describe a condition, but dynamically related to infrastructure, and people's habitation of their environment and their daily living. Productions of wastes, especially human waste, are aspects that people deal with daily. Their effect when conditions are poor can impact on people physiologically, and psychologically, and the environment also.²⁷

Globally, sanitation policy and practice are treated in the same vein as water provision because on the one hand, water is an essential factor for hygiene (an aspect of sanitary conditions). On the other hand, if water is contaminated by sanitary wastes, it becomes unsafe.²⁸

Wastes that are of primary concern to urban sanitation (and in slums as well) are: human waste – faecal, sewage, household domestic waste, and other wastes – solid waste, industrial waste (including hazardous toxic and chemical waste), and storm water drainage.²⁹

In slums, the condition of these wastes, which is generally poor, is a defining character as well as a point of concern regarding the effect on people's lives.³⁰

Unavailability of toilets can be a challenge in slums, and people resort to varying degrees of unsustainable but desperate practice to relieve self and dispose waste, and some that can place them at risk from climatic and environmental occurrences and other urban activities.³¹

Constraints in terms of use for hygiene (privacy, high densities, reliability when needed, and social vices like harassment etc.) and lack of management where toilets are shared or not enough are also challenges to slums.³²

Affordability of toilet use where it requires payment, can further constrain livelihoods and quality of life especially for women, mothers caring for children, and children.

Just like other social practices, hygiene practices can also be socially (education also), and/or culturally defined or influenced, and it is important to understand where these contexts affect sanitary conditions in the slum.³³

In terms of other wastes, availability of waste infrastructure, management and maintenance can be a point of concern, and solid waste (especially) can be a prominent part of slum spaces.

Sometimes, however, the presence of waste in slums (solid and solid industrial waste especially) becomes an incentive for recycling activities that can lead to enterprise.³⁴

To properly describe sanitary conditions for both human waste and other wastes in slums, it is important to understand availability and access, usage, and maintenance.

What to look for

1. The sanitary conditions for human waste to support good health:³⁵ conditions of, and access in the slum.³⁶
 - a. Households with (toilets) pour flush latrine, simple pit latrine with slab, or ventilated improved latrine, composting toilet.

- b. Households that use shared or communal (toilets) pour flush latrine, simple pit latrine, or ventilated improved latrine.
 - c. Whether toilets are well built and durable.
 - d. Whether toilet facilities have water supply, hand washing and cleaning facilities.
 - e. Whether toilet facilities are well served with electricity or alternative lighting.
 - f. Whether toilet facilities are safe to use for all ages and sexes and maintain privacy.
 - g. Whether toilet facilities can be used by those with impaired mobility or disability.
 - h. Whether toilet facilities provide access to separate bathroom or are enclosed.
 - i. Whether toilets are environmentally sound – easy to clean, keep disease carrying pests at bay.
 - j. Whether toilet facilities are connected to public sewer, or a septic system, or other sustainable form of waste disposal.
 - o If they are connected, how were these connections done, and whether they further compromise safety, health, and environmental protection.
 - k. Whether toilet facilities are available for use when needed.
 - l. Whether toilet facilities are not far from home.
 - m. Whether toilets facilities have an ideal use density of 1 household per facility;³⁷ a maximum density of 5 households per facility;³⁸ or a basic density (and in situations of emergency), of 20 persons per toilet.³⁹
 - n. Whether households spend an ideal amount of \$3 to \$4 per month to use and maintain toilets.⁴⁰
2. Hygiene practice in slums.
- a. Whether people use toilet facilities properly.
 - b. Whether there are cultural or social ideals that influence hygiene practice.
 - c. Other unhygienic practices that can contribute to poor sanitary conditions – open defecation, human waste disposal etc.
 - d. How domestic grey water is disposed of.
3. The sanitary conditions for other waste to support good health.
- a. Solid waste strewn about – any form of garbage, refuse, or sludge from waste water that results (or discarded) from community activities⁴¹ (example, figure III.18).
 - b. Access to disposal infrastructure.⁴²
 - o Household refuse collectors in slum, and whether households have a minimal of 100litre refuse collectors per 10 households.
 - o Whether waste is collected to a waste burial site that is covered, prevents rodents and vectors from breeding, prevents accidents and access by children, and also leachate into ground water.

- c. Maintenance and waste disposal practice in slum.
 - o Whether these wastes are properly collected and removed from living environment daily or not (Waste heaps are not good sanitary practice).
 - o Whether waste disposal facilities are well maintained (where available).



Figure III.18: A slum in Dakar strewn with solid wastes forming solid waste heaps.⁴³

3. Industrial waste.

- a. Whether slum is exposed to industrial waste from industries, in the neighbourhood or from industrial enterprise in the slum.
- b. Whether these wastes are properly collected and removed from living environment daily or not.

4. Surface water and rain water drainage

- a. Whether slum has access to rain water drain.
- b. Conditions of waste water drainage and whether effective at disposal⁴⁴ – whether blocked by solid waste, debris etc.

5. For each of these sanitary conditions in general.

- a. How the facilities were provided and any organization (in the slum or other) associated with it.
- b. Maintenance structure (if any) and conditions involved.

Property
type

Objective, however, information about 1k, 1n, 2a, 2b, 5a, 5b will necessarily be inferred.

Property
tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by sanitary conditions.

(P₁₂-CAT₈) HEALTH CONDITIONS, and (C₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by sanitary conditions and the (P₁₁-CAT₇) PLACE MAP:

PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between sanitary conditions and other property tags/anchors.

Consider whether the following affect/influence/trigger sanitary conditions in slum:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (3-P₈-CAT₄) *Appropriateness and adaptive nature of homes*, (4-P₈-CAT₄) *Structural policies and institutional functions*.
- (1-P₉-CAT₅) *Safe water*, (3-P₉-CAT₅) *Density*, (5-P₉-CAT₅) *Building forms and durability*.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether sanitary conditions in slum affect/influence/trigger the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE
- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE, (P₅-CAT₂) POVERTY.
- (1-P₉-CAT₅) *Safe water*, (5-P₉-CAT₅) *Building forms and durability*.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

	<i>(3-P₉-CAT₅) Density</i>
Definition	Density is a complex concept that describes the degree of aggregation of an entity over an area or space. ⁴⁵ In the description of slums two types of density apply: that which is physical density and perceived density, as will be discussed in information cell. ^{46, 47}
What for	Densities in slums could grow quite substantially with unregulated settling – both building and people – in the bid to pursue livelihoods. ⁴⁸ It is necessary to have a clear understanding of both types of slum densities in terms of action to ensure sustainable densities – allowing for access for fire management and other hazard reduction, infrastructure etc., without infringing on use of private space and what is ideal and acceptable to people (psychologically and socially).
Some useful information	<p>Density standards are put in place to ensure safety, healthy living, physical and social organization, and are used to chart sustainable population patterns globally.^{49, 50} There is no standard measure of density, only ones that are generally used more than others.</p> <p>Densities are relative (to urban contexts and standards) concepts that also change with time with variations in tolerances and preferences between locales/cities. Densities higher than city standards are decisive characters used to delineate slum areas from the wider city.^{51, 52} The types of physical densities are all interrelated as they are aspects of people's</p>

habitation of space. They, however, need to be captured separately to have a clear perception of density patterns in slums (or any urban space, in fact), and include:

(1) Population densities:⁵³ this, in Developing Regions has seen substantial rise along with urban population rise in the past decades, and is evident in comparative analysis.⁵⁴ There are no parallel patterns between concentrations of high population densities and concentrations of slum populations.⁵⁵ However, on a comparative map analysis, areas with highest urban densities also have some of the highest slum populations – sections of Asia and Africa.⁵⁶

Certain studies discuss strict density control standards being responsible for continued slum development.⁵⁷

The greatest point of concern for high population density in slums is to health and quality of life in general. These are intensely felt especially when water and sanitation infrastructure are constrained or lacking, further challenging their access and livelihood overall.⁵⁸ The effects are usually higher where building densities and occupancy/overcrowding are high.

(2) Building densities: such in slums higher than wider local densities are popularly used to define slums, is a factor for spatial segregations,⁵⁹ and can have a high impact on health⁶⁰ – spread of diseases and epidemics, increase vulnerability to fire outbreaks, heighten the risks of natural hazards like flooding and landslides,⁶¹ and challenge infrastructure upgrades by both slum community and other stakeholders (increasing vulnerability to exploitation).

High building densities can also complicate tenure arrangements in slums, and efforts to standardize it.⁶²

On a more positive context, high building densities in slums can reflect innovation in building techniques, multi-functional use of space (functional densities), influence development of organic and socially cohesive communities, and green communities that use minimal amount of energy.⁶³

Reasons for building high densities in slums can include factors like: forming social bonds, re-inventing vernacular settings of places of origin, or to accommodate different functional environments, in addition to space and financial constraints.⁶⁴

(3) Overcrowding/occupancy densities: this is one of 10 key indicators for assessing progress on global shelter⁶⁵ because sustainable room occupancy is considered important to maintaining human safety, security, privacy, necessary domestic functions, storage, mobility, social wellbeing, educational development, and health.⁶⁶ Guidance on data collection for it however remains a challenge due to variations in standards.⁶⁷ Nonetheless there are several proposed standards for room occupancies by urban and research organizations. Most prevalent measures are square meters per person and persons per bedroom.

It is not uncommon to find a family (or combination of) of over 6 people sharing a room less than 10 square meter in slums.⁶⁸ Effects of overcrowding on children, their

mental, social health and mortality has been widely analysed, in addition to increased vulnerability to disease spread and social constraints in general.⁶⁹

These three dimensions of physical densities need to be captured and interpreted together to have a clear grasp of density descriptions in slums (even though they should be measured differently).⁷⁰

Because they are a relative concept as well as dynamic, it is important to relate with the wider urban contexts and standards⁷¹ to objectively assess physical densities in slums. In this way densities are described generally as well as within local contexts.

All physical density should be understood relative to types of slum origin, geography, and building forms.

Perceived (or perceptions of) density, is however relevant to all forms of physical density. Conditions of physical density, though antecedent, is not usually enough to cause feelings of crowding, until it is cognitively perceived as such and leads to psychological stress. This is subjective and dependent on a person's mental and cognitive attributes, social and cultural norms and their needs.⁷²

There are two contexts to perceived density

- (1) social – relationship between individuals in the same environment evoked by the number of people and rhythm of activity, and
- (2) spatial – relationship between individuals and given environment evoked by the space measures, openness, and space complexity, space between buildings, variety in building façade, and its layout.⁷³

Perceived density could explain why some people in the slum spend decades living in crowded conditions without choosing otherwise, even when they can afford to.⁷⁴

1. Population density: the proportion of people or households per unit area of place (slum boundary extents)⁷⁵ – relate to *(1-P₂-CAT₂) Absolute space and location of the slum and (1-P₃-CAT₂) Population profile.*

- a. Whether slum density is higher than wider urban/city average population density – if yes, population density is high, otherwise, standard.
 - o Consult any latest edition of Demographia for urban densities, it can be found at <http://www.demographia.com>.⁷⁶
- b. Whether slum population density is higher than surrounding locale – if yes, population density is high, otherwise standard.⁷⁷
 - o Floor to area ratio (FAR) for development and persons standards.
- c. Places in the slum where people congregate (day/night) more than others, and types of activities they engage in.⁷⁸
- d. Patterns: whether there are areas with higher population density than others overall.

2. Building density: the proportion of buildings constructed per site area in the slum.

- a. Visual assessment: whether settlement has a higher proportion of buildings constructed per site area that is distinguishable from surrounding urban setting using high quality aerial picture, site maps, satellite map image analysis; other pictorial; and/or Consultation of relevant document(s) – if yes, building density is high, otherwise, standard. (example, figure III.19).
- b. Physical measure: distance between buildings in slum – an average consistency of 1.2 meters or less is high density,⁷⁹ otherwise standard.
 - o Whether building density in slum is comparable to prescribed standard – distance between building, setback, site coverage – for urban area – if yes, standard, otherwise, building density is high.
- c. The arrangement and function of buildings and spaces in relation to landscape and how it contributes to density description – relate to *(4-P₂-CAT₂) Relative landscape and site conditions* and *(5-P₉-CAT₅) Building forms and durability*.
- d. Whether building forms and facades are consistent – relate to *(5-P₉-CAT₅) Building forms and durability*.



Figure III.19: Examples of building per site area assessment – building density – using aerial picture and site maps in slums. Upper-left is Dharavi, Mumbai⁸⁰ – high building density, upper-right is Haji Kasam Chawl, Mumbai⁸¹ – standard building density, lower-left is Kibera, Nairobi⁸² – high building density, lower-right is Rocinha, Brazil⁸³ – high building density.

3. Occupancy density or overcrowding: on average, the number of persons per bedroom and the minimum area (square meter) per person in a room.

- a. Using the range provided in the table below: whether occupancy measures in slum is high – if higher than provided range, occupancy density is high or overcrowded.

Table III.5: Standards for number of persons per room and minimum area per person in a room.⁸⁴

Room Area (m ²)	Number of persons	Area (m ²) per person in room
	More than 2 persons	4 or more
11 to 12	2 persons	
9 to 10	1.5 persons	
7 to 9	1 person	
5 to 7	0.5 person	
Under 5	Nil	

- b. The separation of sexes, ages, and people in relationships for room occupancies:⁸⁵
 - o An entire family sharing a room – overcrowded.
 - o More than one couple (in a relationship) found sharing a room – overcrowded.
 - o In general, more than 1 Persons of different sexes over the age of 10 sharing a room – overcrowded.
 - o More than 1 households or family sharing toilet and kitchen facilities⁸⁶-- overcrowded.
- c. The common types of dwelling – single rooms, apartments etc., relate to *(5-P₉-CAT₅) Building forms and durability*.

In table I.6, the SPM examines density settings of some of the more populous slums in the regions of high slum population – Africa, Asia, and Latin America, as a threshold of comparison where one wishes to qualify densities relative to other high slum densities and their origin.

- 4. Perceived density in slum:
 - a. High population densities: in general, whether people are overwhelmed by the number of people and levels of activity in the slum.
 - b. High building densities: in general, whether people consider proximity to neighbours is constraining (too close for comfort) physically and mentally.
 - c. Overcrowding: in general, whether people sharing rooms are known (family/friends), or a practical arrangement (rental etc.).
 - d. Whether people consider their living conditions as acceptable or constraining physically and emotionally.

Table III.6: Thresholds for comparison of physical densities relative to some of the more populous and high-density slums.⁸⁷

Region and city	Slum	Urban (city) density (2016) (persons/km ²)	Slum density (persons/km ²)	Average occupancy density in slum (persons/room)	Origin by type of built context
Southern Asia (Mumbai)	Dharavi	26, 000	296, 000 ⁸⁸	7	Informal estates/settlements on vacant land/spaces
Southern Asia (Dhaka)	Slum in Chittagong	44, 100	255, 100	NA	Informal estates/settlements on vacant land/spaces
Southern Asia (Mumbai)	Haji Kasam <i>Chawl</i>	26, 000	635, 970	6	Slum estate (500 room chawl)
Middle Africa (Nairobi)	Kibera	8, 500	129, 000	3.2	Informal estates/settlements on vacant land/spaces
Latin America (Rio de Janeiro)	Rocinha	5, 800	67, 300	NA	Informal estates/settlements on vacant land/spaces

Property type

Objective, however, information about 4a – 4d will be necessarily inferred.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by density conditions.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by density conditions and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between density conditions and other property tags/anchors.

Consider whether the following affect/influence/trigger density descriptions and patterns in the slum:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-P₈-CAT₄) Migration, (3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings, (4-P₈-CAT₄) Structural policies and institutional functions
- (4-P₉-CAT₅) Spatial patterns, (5-P₉-CAT₅) Building forms and durability
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether density description and patterns affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE
- (P₂-CAT₂) GEOGRAPHY (C₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE, CONDITIONS (P₅-CAT₂) POVERTY CONDITIONS.
- (1-P₉-CAT₅) Safe water, (2-P₉; CAT₅) Sanitary conditions, (5-P₉-CAT₅) Building forms and durability.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Definition	<p>(4-P₉-CAT₅) Spatial pattern</p> <p>Spatial pattern of the slum describes the organizational configuration of space forms (or spatial structure) of the slum – of movement passages, natural and built features, spaces between them, and open spaces.⁸⁹</p>
What for	<p>This property is a vital architectural and geographical character of it⁹⁰ that will also show how spaces inform unique interrelation of people and associated social, cultural, economic, with the geographical and physical; it is this character of place that will inform physical planning to manage densities and housing lots, infrastructure, and access for basic circulation, services and emergencies.</p>

The slum spatial structure (and of all urban space in fact) is the outcome of human agencies, and the interaction of factors that are social, cultural, material, economic, (and political), and of natural geography; in slums, this list can extend to constraints of resources and informality. The organization and configuration of spaces serve both as an outcome of human interaction as well as a medium for it.⁹¹

Some spatial patterns of slums are lauded as organic and contemporary settings that can be learnt from.⁹²

Configurations and organizations of space in slums is vastly used to describe them, and, in most cases, how they contravene zoning standards also.⁹³

This framework proposes certain types of spatial patterns that can develop in slums as guide to forming descriptions, which include:⁹⁴ *regular grid pattern, irregular grid pattern, irregular or winding patterns adapted to the terrain and topography, radial spatial patterns, and central corridor.*

The types of patterns can present different challenges and/or positives to other slum properties like infrastructure, tenure arrangements, sanitation etc. In the description of spatial patterns, some related social, economic, and environmental contexts/challenges generally attributed to slums are also posited in endnotes.

Slums can show one or a combination of these spatial patterns. This property is generally associated with slums that are on expanse of land real estate, rather than slums that develop on or within single (or a combination of) building property real estate. However, their configuration (plan) within the city is also important.

It should be noted that no two slums will have the same type of spatial form, as it will reflect the unique geography and location of place.

1. The spatial pattern: organizational configuration of spatial structure of the slum – tracing and analysing the circulation of movement passages and spaces, and the arrangement of natural and built forms within them using slum map or site plan – relate to *(2-P₂-CAT₂) Absolute space and location.*

- a. Whether the organizational configuration of spatial structure of the slum shows one or more of the following properties below.
 - o Regular grid pattern:⁹⁵ with parallel and transversal circulation (streets etc.) of uniform dimensions that form a regular, orthogonal, or checkerboard pattern, with regular of plots and/or buildings. This pattern can be found on variations of landscape topography⁹⁶ -- both regular and steep (examples, figure III.20).

Generally associated with all types of slum origins by built context.

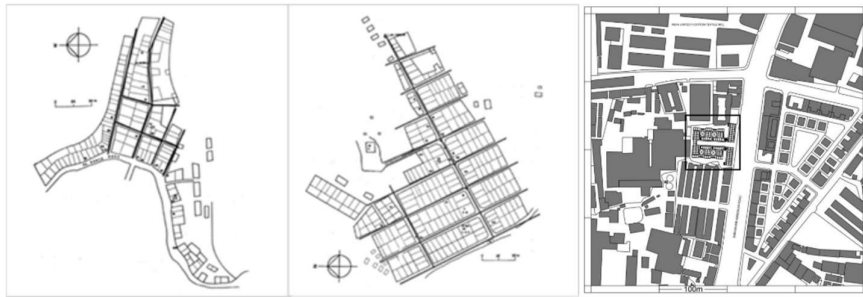


Figure III.20: Examples of regular grid slum patterns. Santa Rosa slum in Lima⁹⁷ (right), and Tarma Chico slum in Lima⁹⁸ (middle) with a more orthogonal outline, and Haji Kasam Chawl, Mumbai⁹⁹ (left) built to standard.

- Irregular grid pattern: with circulation and arrangement of forms that are irregular or not particularly laid out in orthogonal configurations, yet formed within grids or blocks, with non-uniform street dimensions and greater interaction between spaces (example, Figure III.21).

Generally associated with origin by built context that are informal estate/settlement, urban villages, and refugee camps.

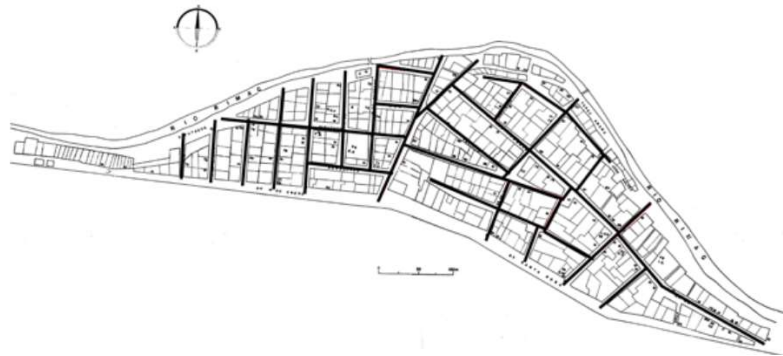


Figure III.21: Irregular spatial pattern in Dos de Mayo et Primero de Mayo in Lima.¹⁰⁰ Some sections of the slum, on the left form a regular grid pattern, the greater percentage of space, on the right, forms an irregular pattern.

- Irregular or irregular winding pattern adapted to the terrain: with circulation passages, about conglomeration of buildings, that are irregular or winding (and can be complex) and formed in response to needed movement and the landscape terrain or topography. Passages can be as long or wide as the terrain or spaces allow. These types of patterns are considered organic (example, figure III.22).¹⁰¹

Generally associated with origin by built context that are informal estate/settlement, urban villages, and refugee camps.



Figure III.22: Cerro El Agustino slum in Lima, Peru, showing winding passages adapted to the terrain.¹⁰²

- Radial pattern: where configuration of circulation passages and forms have a radial organization defined by primary access passages in the slum, even when passages are regular, irregular, or formed to the terrain or topography. This can develop on variations of topography – slopes, flat land, or hill heads etc., and is seen as organic also (example, figure III.23).¹⁰³

Generally associated with origin by built context that are informal estate/settlement, urban villages, and refugee camps



Figure III.23: An aerial image and site map of Vila Natal slum, Salvador de Bahia, Brazil, in 2002, showing a radial pattern.¹⁰⁴

- Central-corridor pattern: with a multitude of (usually smaller, narrow, sometimes inaccessible) lateral passages between buildings that converge traffic to a central axial corridor. This corridor can be winding or straight, and generally serves as a pivotal point of activity and movement¹⁰⁵ (example, figure III.24).

Generally associated with origin by built context that are informal estate/settlement, urban villages, and refugee camps.

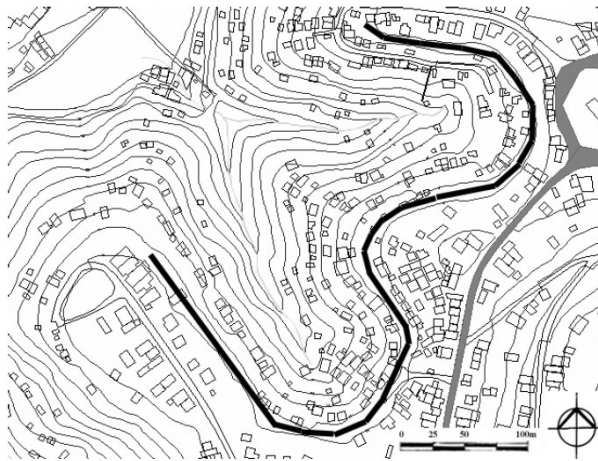


Figure III.24: Mamede slum in Salvador de Bahia, Brazil, with a winding central passage (street) where all other lateral passages (generally spaces between buildings) converge.¹⁰⁶

- a. Activities that can be found along circulation routes.
- b. Whether these routes have multifunctional uses, and at what times/occasions.
- c. Whether circulation of movement passages and spaces are planned to urban standards by local or city council.
- d. Whether buildings are arranged in compounds¹⁰⁷ of many households, or singular buildings.

Property
type

Objective, however, information about 1b can be inferred.

Property tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by types of spatial pattern.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by types of spatial pattern and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between the types of spatial pattern and other property tags/anchors.

Consider whether the following affect/influence/trigger types of spatial patterns in the slum:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-P₈-CAT₄) Migration, (3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings, (4-P₈-CAT₄) Structural policies and institutional functions.

- (5-P₉-CAT₅) *Building forms and durability.*
- (P₁₀-CAT₆) **THE AGE OF SETTLEMENT AND EVOLUTION.**

Consider whether the types of spatial patterns in the slum affects/influences/triggers the following:

- (P₂-CAT₂) **GEOGRAPHY:** (2-P₂-CAT₂) *Relative position, centrality and connectivity,* (3-P₂-CAT₂) *Slum neighbourhood, infrastructure and amenity,* (4-P₂-CAT₂) *Relative landscape and site conditions;* (P₃-CAT₂) **DEMOGRAPHY;** (P₄-CAT₂) **TENURE CONDITIONS;** (P₅-CAT₂) **POVERTY CONDITIONS.**
- (P₇-CAT₄) **THE ORIGIN OF SLUMS –** (1-P₇-CAT₄) *By procedures of land/building occupation.*
- (1-P₉-CAT₅) *Safe water,* (2-P₉-CAT₅) *Sanitary conditions,* (3-P₉-CAT₅) *Density,* (5-P₉-CAT₅) *Building forms and durability.*
- (P₁₀-CAT₆) **THE AGE OF SETTLEMENT AND EVOLUTION.**

		<i>(5-C₉-CAT₅) Building forms and durability</i>
Definition		<p>This describes the buildings within which people live in the slum, its parts and composition, materials, conditions of the buildings, which are associated with building durability.</p> <p>Simply, building durability captures the ability of buildings to withstand use and resist external forces, and be of appropriate design to fulfil the basic function of shelter, security and comfort.¹⁰⁸</p>
What for		<p>The building forms in slums are iconic to their image (generally poor), it is important to relay these simply. This property will also highlight conditions that people live in and the sometimes innovative and creative (but unorthodox) solutions to housing.¹⁰⁹ Properly designed buildings are most fundamental to the provision of the basic need for shelter to the slum community;¹¹⁰ this will provide information towards proper and acceptable approaches to ensuring buildings support people's habitation. What's more, adequate and safe housing is an important indicator of global sustainable development.¹¹¹</p>
Some useful information		<p>Housing is considered an inalienable and basic human right, however, meeting standard global housing demands is a global challenge, an aspect that is intensified in slums.¹¹²</p> <p>Housing in slums can vary and include the unconventional because of the way slums originate, sometimes illegally or informally, and the contexts of livelihood there (especially poverty and tenure insecurity) and are generally a trade-off between affordability and adequacy.¹¹³</p> <p>Slum housing can be defined by the relative landscape of place, and amenities, as well as other social aspects of tenure security and finance available to people.¹¹⁴</p>

Housing quality or durability is formed from assessments that include meeting set standards of design and use (and quality of internal environments), materials, construction and its processes.¹¹⁵ Measuring this property in slums is generally problematic as standards vary between regions and locales.¹¹⁶ Appropriate standards (especially regarding building materials) change with time policy improvement, and technology, so also personal preferences.

Furthermore, building material might be considered as temporary and non-durable in urban standard convention, but when combined with certain building construction methods – e.g. traditional, can be considered as durable relative to skill and site conditions.¹¹⁷ It is therefore important to understand construction processes in slums (and innovation),¹¹⁸ as well as a knowledge of standards,¹¹⁹ and ground conditions relative to building and material use.¹²⁰

Building process in slums can enrich their narrative,¹²¹ a source of knowledge that can be further learnt and improved on in the search for what is acceptable, affordable, and/or ideal for the people that can also be standardized.

1. The building typology in the slum.
 - a. Whether buildings are one or more of the following:
 - Buildings that are houses – any form or unit of construction built to serve as a dwelling or for livelihood related activities with individual or paired access at entrance level.¹²²
 - Buildings that are blocks¹²³ – free standing building with many individual units for dwelling or livelihood activities, and in scale ranges from 3 levels, with high rises having 5 levels or more.
 - b. Residential building type for houses or blocks – example, makeshift/improvised, huts, stilt houses, tenements etc.¹²⁴
 - c. Description of typology pattern and configuration, which will vary relative to terrain and topography (relate to *(3-P₂-CAT₂) Relative landscape and site conditions*), and can include one or more of the following configurations:
 - For types that are houses – whether individual, attached, attached houses around a courtyard, row, row houses within a courtyard, folded row, stepped row houses, stacked. (figure III.25 as guide).

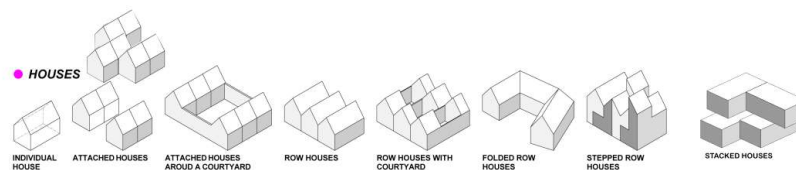


Figure III.25: General pattern and configuration of house forms.¹²⁵

- For types that are blocks – linear, parallel, L-shaped, U-shaped, linear with courtyard, superposed block, perforated parallel block, fishbone arrangement, L-shaped against party wall, parallel against party wall, and grouped (figure III.26 as guide).

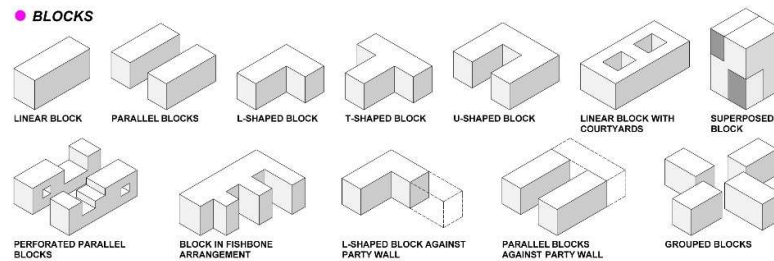


Figure III.26: General pattern and configuration of blocks.¹²⁶

The Nanapeth re-housing is used in an example in figure III.27 below.



Figure III.27: The re-housing slum estate is characterized by buildings typologies that are houses and blocks. The houses are makeshift and attached row, and the blocks are linear tenement blocks.

- The general shape of buildings – circular, square, rectangular etc.
- Whether building forms can be considered as innovative (by stakeholders), and what makes them so.
- Building component/parts: whether they have roof, walls, floors, and foundation.¹²⁷
- Building footprint and size:
 - The number of dwelling units in buildings.

- The Shape – whether rectangle, circular etc.
 - The Perimeter and area.
 - Number of storeys/floors and/or average headroom heights.
 - Plan and arrangement of spaces that people live within.
 - Function of spaces and use, both interior and exterior.
 - Whether they consider buildings and spaces to serve their purposes.
 - Whether building interiors contribute/not to internal air pollution.
- e. Building materials that floor, roof, walls, foundations are made of.
- Building material type – temporary (vulnerable to degradation, deterioration, or fire and do not set permanently in place, e.g. plastic, cardboard, palm fronds, thatch, wood, poor iron/zinc sheets), or permanent (materials that set permanently in place e.g. stone, burnt brick, concrete).¹²⁸
 - Whether more than one type of material is used for the different building components – roof, walls, floor, and foundations – and what they are.

2. Condition and state of repair or dilapidation¹²⁹ -- e.g. broken windows, parts of wall falling off, rotting and decaying wood/palm fronds etc.

- Residents practices in building maintenance and constraints to it.
- a. Structural integrity – whether building frame (walls, roof, and foundations) are vulnerable to collapse, and do not adequately support building use.
- Whether they can withstand elements of weather and environmental conditions — relate to *(3-P₂-CAT₂) Relative landscape and site conditions*.

3. Building construction process, which can include one of the following: standard – conventionally built by expert, licenced, and guaranteed practitioners; unskilled self-built – unorthodox and without technical skills; skilled self-built – skilled builders, but owners assume the role of builders (sometimes) architect and supervisor; skilled indigenous – skilled builders with indigenous building techniques; and unskilled indigenous.

- a. How and where building materials were sourced.
- b. Financing methods used to source materials.
- c. Type of technology used in construction, and general skills used. And how they were attained.
- d. People engaged in the actual construction.
- e. How building construction was steered by the slum landscape, or not.
- f. Highlight of innovations (considered as much by stakeholders) relative to building construction.

4. Building standardization: whether buildings are formal (fulfilling the following) – built on land for its land-use type, those who build have security or right over land (relate to *(2-P₄-CAT₂) Tenure security*), are built following enforced building code, obtained building permission, and is not subject to inspection, in addition to standard construction process.¹³⁰

5. Patterns of building forms and durability in the slum: to show number of buildings with variations in the above descriptions. ¹³¹

Property
type

Objective, however, information about 3a – 3d, 3f and 4 can be inferred.

Property tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by descriptions of building forms and durability.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by descriptions of building forms and durability and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between the descriptions of building forms and durability and other property tags/anchors.

Consider whether the following affect/influence/trigger building forms and durability in the slum:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM.
- (3-P₉-CAT₅) Density, (4-P₉-CAT₅) Spatial patterns.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Consider whether building forms and durability affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE
- (P₂-CAT₂) GEOGRAPHY, (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (2-P₈-CAT₄) Poverty, (3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings, (4-C₈-CAT₄) Structural policies and institutional functions.
- (1-P₉-CAT₅) Safe water, (2-P₉-CAT₅) Sanitary conditions, (3-P₉-CAT₅) Density, (4-P₉-CAT₅) Spatial patterns.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Endnotes

¹ (Neuwirth, 2007, p. 74).

² (see Arputham, 2016b; Gulyani and Bassett, 2010; Hamdi, 2004; Kohli et al., 2012; UN-Habitat, 2013b, 2013c, 2003a).

³ (WHO, 2011, 2004, 1958).

⁴ (UN-Habitat, 2013a, 2011a, 2007a, 2003a). In slums of Nairobi for instance, only 19% of people have access to household water supply (Dagdeviren and Robertson, 2011).

⁵ (The UN Special Rapporteur, 2014). More information and sections of the book may be obtained from <http://www.righttowater.info/handbook/>.

⁶ The millennium development target to improve access to safe water in the world has recorded some degree of success. 6 billion people had access to safe water in 2010 as compared to 4 billion in 1990 (UN-Habitat, 2015b). This has set the millennium development target up 5 years ahead of schedule, at 86% global coverage. However, growing number of slum dwellers, challenge efforts to improve access to water and degree of successes achieved.

⁶ (UNCHR, 2012).

⁷ (Gandy, 2006).

⁸ For example, toilets positioned on high ground, close to wells, non- sanitary human practice, environmental hazards like flooding, marginal site conditions, and built-up density (see Gandy, 2006; Herbert, 1983; Kimani-Murage and Ngindu, 2007; Newman et al., 1993).

⁹ Dadaab refugee camp for example (UNCHR, 2012).

¹⁰ For example the meningococcal epidemic that spread along water collection route in a Ugandan refugee camp (Hunter et al., 2010; Santaniello-Newton and Hunter, 2000).

¹¹ (Gandy, 2006; Kimani-Murage and Ngindu, 2007).

¹² (See WHO, 2011, 2004, 1958).

¹³ Standards that characterize the quality of water include microbial, chemical, radiological quality, and acceptability based on human sensual judgements (WHO, 1958). More in depth microbial, radiological, or biological analysis can be conducted if it is deemed necessary or if the capacity exists. WHO (2011) provide guidelines for conducting these types of water safety analysis.

¹⁴ Globally, only 1% of water can be considered as fresh water that can be sourced, and this fresh water is not evenly distributed. Several Developing Country regions of North Africa, South Asia and Latin America have low water aquifer, and small-scale wells or groundwater facilities can be hard to develop. This description will provide insight into challenges of accessing safe water resources, and in terms of management plans.

¹⁵ The WHO (2011, 2004), suggest that improved sources of water that are protected and improved, are more likely to supply safe drinking water than those which are not.

¹⁶ More information and guidance on safe water quality can be found at http://www.who.int/water_sanitation_health/publications/2011/dwq_guidelines/en/.

¹⁷ Surface water that include river, dam, lake, pond, stream, canal, shallow wells, and irrigation channels are considered as unimproved sources of water (ibid).



18 An example of a shallow well. Source: (UN-Habitat, 2012).



19 Containers such as these are enclosed to keep water safe, but do not restrict extraneous dipping (unless fitted with taps). Source: (Ankitalath, 2011).

²⁰ Image source: free classifieds in https://img01.olx.co.za/images_olxza/1007295424_2_1000x700_water-container-with-tap-add-some-photos.jpg.

²¹ Profiles for access to water used by WHO (2011) is adapted as an effective way of assessing and describing this property.

²² Optimal access to water will be established if more than 50% of slum population have water supply in their homes.

²³ Source: (TWAS, 2002). This was the only map of global water resource distribution that the researcher was able to access.

²⁴ (Hunter et al., 2010). This will provide intermediate access to water without compromising on hygiene (WHO, 2011b). The WHO (ibid) further proposes that approximately 20 litres per capita per day can provide basic requirement 'for most people under most conditions' (ibid:83), hygiene may however be compromised.

²⁵ This value (3% of income) is recognized by the United Nations Water Agency as the spending threshold for water that when surpassed will indicate financial hardship, see (Van de Lande, 2015).

²⁶ (Satterthwaite et al., 2015; UN-Habitat, 2003a; UNICEF, 1997; Who/Unicef/Wsscc, 2004).

²⁷ Many infectious diseases are caused by poor sanitation, they include cholera, typhoid, infectious hepatitis, and ascariasis (Who/Unicef/Wsscc, 2004).

²⁸ Little has, however, been achieved in the development of water and sanitation in Developing Regions (Satterthwaite et al., 2015). At present about 27% of Developing Region population lack basic sanitation (ibid) – a whopping 1.8 billion (United Nations, 2015c), up from 813 million in 2008 (UNDESA, 2015). The figure, is however underrepresented as statistical

coverage does not cover all informal areas, nor are aspects of cleanliness, privacy, waste removal, maintenance, or transport considered (ibid; Munamati et al., 2015).

²⁹ (See Satterthwaite et al., 2015; UN-Habitat, 2003a; UNICEF, 1997; Who/Unicef/Wsscc, 2004).

³⁰ (Bigon, 2008; Neuwirth, 2005; UN-Habitat, 2013a, 2011d, 2007d, 2003a).

³¹ In a recent study of Nairobi informal settlements, for example, it was found that only 5% of the population have private toilets, the rest of the population were sharing latrines (Keefe et al., 2015). What's more, the toilets are not open at night and people resort to open defecating, and 'fly tipping' (collecting their faecal waste in polythene bags and throwing them on solid waste dumps (ibid).

There are certain instances also where people are at risk of injury or even death from motorists or environmental phenomena like floods when they resort to open defaecation (Neuwirth, 2005).

³² Another dimension to public toilet use is discomfort caused by high density of use and lack of privacy (most especially women and children who face the risk of assault and sexual harassment (Satterthwaite et al., 2015; Taher and Ibrahim, 2014).

³³ (See Bendahmane et al., 1999; Jacobson, 2007).

³⁴ (See Hahn, 2012; Hamdi, 2004; Jacobson, 2007; Pugh, 2000).

³⁵ Satterthwaite et al. (2015, p. 3) capture certain key aspects for good toilet sanitation:

'[...] all urban dwellers need safe, quick, easy access to clean toilets, day and night – without fear, without a long walk, without a long wait in line, and without the need to plan ahead or to spend more than they can easily afford. They should be able to count on privacy, cleanliness and the means to wash anus and hands quickly and conveniently, which is difficult if there is no water piped on the premises. These toilets need to serve everyone – girls and boys, women and men of all ages and conditions. Women who are menstruating should have not only a way to wash but a place to put their waste safely and privately. People with impaired mobility should not have to add toilets to the list of challenges they face. Small children should be able to meet their needs without someone having to pick up and dispose of their waste or accompany them to a distant facility. [...]. And all toilets need to function so that toilet wastes do not end up contaminating anyone's food, water or hands.'

³⁶ (UN-Habitat, 2003a; WHO, 2004; Who/Unicef/Wsscc, 2004).

³⁷ (UN-Habitat, 2003a; Unicef, 2009; UNICEF, 2008).

³⁸ (Bendahmane et al., 1999).

³⁹ (The Sphere Project, 2015).

⁴⁰ (Satterthwaite et al., 2015).

⁴¹ (DEC, 2017).

⁴² (See The Sphere Project, 2015).

⁴³ Source: photo by Kate Eshelby in (Uwejamomere, 2008, p. 2).

⁴⁴ Without increasing the risks of flood and contamination of water supply sources.

⁴⁵(Cheng, 2010; Harris, 2006).

⁴⁶ (Ibid; United Nations, 2000)

⁴⁷ (Cheng, 2010; Rapoport, 1975).

⁴⁸ Slum communities in general build in response to spaces available, the materials they can access, and due to their capacities, both in proficiency and knowledge.

⁴⁹ (Econometrica et al., 2007; Roberts-Hughes, 2011; UNHCR, 2013).

⁵⁰ Generally, global policy tends to keep up with trends in population densities and are being documented on a near yearly basis; 'great density debates' guide economic, political, and urban design policies world-wide. Relevant discussion links include <http://www.rudi.net/taxonomy/term/137>; <http://urbandemographics.blogspot.co.uk/2014/05/urban-density-patterns-in-9-global.html>; www.urbandensity.org; and <http://livableballard.org/density-debate/>.

⁵¹ (Echanove and Srivastava, 2010; Gulyani and Bassett, 2010; Kohli et al., 2012; Parham, 2012; UN-Habitat, 2003a).

⁵² Non-ideal density conditions in slums is a generally applied threshold for slum demolition in cities (Alagbe, 2006; Bigon, 2008).

⁵³ Floor area per person ratios (FAR) is used to control and plan for population densities in cities.

⁵⁴ The United Nations demographic yearbook documents density trends alongside other urban demographic trends to the square kilometre (km²) per geographic area. Comparison of urban demographic data show urban densities steadily increasing along with rates of population (15.1percent globally between 1999 and 2014) (United Nations, 2015d, 2001).

⁵⁵ This researcher did not find studies that explicitly relate high density population clusters with urban slum population clusters.



⁵⁶

Global concentrations of population density. Source: (Burdett and Rode, 2011, p. 27). Urban regions with the brightest

glows are those with densities of over 1,000 people/Km². Places like Nairobi, Mumbai and Dakar that have high slum populations (see UN-Habitat, 2016a) are within the areas of brightest glow. The place annotations for Dhaka and Nairobi were added by this researcher.

⁵⁷ Example Mumbai (Stecko and Barber, 2007).

⁵⁸ Higher population densities in slums means more people sharing sanitation facilities, risk of contamination, and disease spread. For example, in Kibera the average toilet capacity is 1 to 150 people (Taher and Ibrahim, 2014), and Kandivali ward in Mumbai where there is a density of 4,367 people per tap (Mundu and Bhagat, 2009), even in cases where there is some form of access to improved water source, high densities could reduce access in terms of time spent and affordability.

⁵⁹ (K'Akumu and Olima, 2007).

Lungo and Baires (2001, p. 87) for instance note: 'currently an estimated 55% of the total population of Nairobi lives in the spatially segregated informal settlements that occupy only 5% of Nairobi's residential area [...]. One such settlement is Kibera [...].'

⁶⁰ (UN-Habitat, 2003a).

⁶¹ The effect of natural hazards when they occur in high density places are always worse felt; death rates due to falling rocks and mud slides (e.g. Rocinha Brazil (UN-Habitat, 2003a)), and erosion and floods (e.g. Lagos, Nigeria (Adelekan, 2009)) caused by heavy rains are common. There are also strong correlations between high densities and soil erosion, which further causes salinization of water bodies (UN-Habitat, 2014c). Other risks like fire outbreaks spreading fast, and the inability of fire services to gain access in slums are also common news (Olekina, 2014; UN-Habitat, 2007b).

⁶² See section (P₄-CAT₂) TENURE.

⁶³ (Brand, 2010).

⁶⁴ (Cronin, 2013; De La Hoz, 2013; Hamdi, 2004; Leitão, 2008; Neuwirth, 2005).

⁶⁵ (United Nations, 2000).

⁶⁶ (Econometrica et al., 2007; Roberts-Hughes, 2011; UNHCR, 2013).

⁶⁷ (UNHCR, 2013).

⁶⁸ (Shetty et al., 2007).

⁶⁹ (See Econometrica et al., 2007; Unger, 2013; Unger and Riley, 2007).

⁷⁰ For example, the Haji Kasam Chawl in Parel Midlands is a 500-room tenement layout with 2,500 inhabitants on a 3,931 m² plot, there are single families of over 6 people sharing its (10 m²) rooms (Shetty et al., 2007). Building density is low and to standard, but high population and overcrowding.

⁷¹ Bangkok, Thailand, for example, has residential floor area per person ratio (FAR) that range from 1:06 to 1:12 and allows for higher densities within the formal construction sector (Hasan, 2014). Some low-income sectors have over 3,550 persons per hectare that even Bangkok informal settlements are keeping within formal density ranges.

⁷² (Alexander, 1993; in Cheng, 2010).

⁷³ (Rapoport, 1975; Cooper-Marcus and Sarkissan, 1988; in Cheng, 2010; Zacharias and Stamps, 2004).

⁷⁴ The instance of Meera Singh is an example: she lives in a 40 square meter apartment in Dharavi with 15 people – herself, 8 furniture makers, and family members (Jacobson, 2007). In Meera's words, 'informal housing had been good to her' (ibid. P. 5). She does not consider her condition as a disadvantage or lack of privacy, nor would she consider moving to a re-housing apartment (not even for the prospect of a personal toilet).

⁷⁵ In cases where demographic population and slum census data is not available or reliable, methods for sampling and analysing population and population density like that used by Desgroppes and Taupin (2011) can be applied.

⁷⁶ Demographia is a useful source of information regarding urban densities, its scope corresponds to build up urban areas or urban agglomerations with 500, 000 or more population, and data is updated on a yearly basis.

⁷⁷ Where data is available.

⁷⁸ Visual transect walk is effective at capturing this.

⁷⁹The Nairobi building regulations for low income settlements (Achuka, 2015), was the only guide for set-backs in low income or slum contexts identified by this researcher.

⁸⁰ Source: (Alcamo et al., 2016)

⁸¹ Source: (Shetty et al., 2007).

⁸² Source: (Schreibkraft, 2000).

⁸³ Source: (Leitão, 2008).

⁸⁴ Data source: (Achuka, 2015; Adebayo and Iweka, 2014; Econometrica et al., 2007; Spicker et al., 2007; The Sphere Project, 2011; UN-Habitat, 2014b; Wikipedia contributors, 2016b). Averages from these sources were analysed, and thresholds reflect those proposed by WHO and UNHCR.

⁸⁵ (See EUROSTAT, 2014).

⁸⁶ (Unicef, 2009; UNICEF, 2008).

⁸⁷ Data source: (Demographia, 2016; Desgroppes and Taupin, 2011; Hasan, 2014; Nijman, 2010; Shetty et al., 2007; Sudjic, 2011; Valladares, 2007; Westervelt, 2012)

⁸⁸ (Chamra Bazaar area has highest density of 44, 460).

⁸⁹ (Peponis et al., 1997; Valente-Pereira, 1982).

⁹⁰ (Gulyani and Bassett, 2010).

⁹¹ (Dovey, 2007).

⁹² (Porta et al., 2014).

⁹³ (Echanove and Srivastava, 2010; Parham, 2012; UN-Habitat, 2003a).

⁹⁴ These descriptions are generally sourced from Fernandez (2011).

⁹⁵ Generally associated with all types of (2-P₇-CAT₄) Origin by type of built context.

⁹⁶ When in informal and illegal occupation is carried out on slopes without much consideration for the land topography and slums form, it usually presents plot management, infrastructure, and service provision challenges. On the contrary, when on flat land, it is easier to perform sub-division of land, infrastructure layout and access into sites (Fernandez, 2011).

⁹⁷ Source: (Matos Mar, 1977 in Fernandez, 2011, p. 6).

⁹⁸ Source: (Matos Mar, 1977a; in Fernandez, 2011, p. 7).

⁹⁹ Source: (Shetty et al., 2007).

¹⁰⁰ Source: : (Matos Mar, 1977; in Fernandez, 2011, p. 8).

¹⁰¹ Slums, with spatial patterns that are adapted to the terrain or topography are also lauded for showing peoples skill and creativity in the development of land, as well as reflecting organic development of human societies (see (Brand, 2010; Echanove and Srivastava, 2010; Fernandez, 2011; Porta et al., 2014). On the downside, however, the complex nature of the spatial form becomes a challenge for waste management, emergency access, water, street and sewage maintenance.

This characteristic spatial pattern is described as a feature of Brazilian slums but is also found in Africa and Asia.

¹⁰² Source: (Matos Mar, 1977; in Fernandez, 2011, p. 8).

¹⁰³ As it does not require large movement of soils. On hills, the main streets can form as steps, which also serve as rain water drainage. A challenge of this type of spatial pattern (as in the case of Vila Natal example) is that even though rain water is being managed within the slum, flooding occurs at foothills, limiting access. Furthermore, access is limited for the aged, physically challenged and emergency vehicles (Fernandez 2011).

¹⁰⁴ Source: (CONDER, 2002 in Fernandez, 2011, p. 10).

¹⁰⁵ This type of spatial pattern is also lauded for showing organic nature of housing development and intensive space use (UN-Habitat 2003; Echanove and Srivastava, 2010). In certain instances, the central corridors act as a hub for different social and economic functions (ibid). However, the narrow and informal outline of passages also restrict movement, especially for emergency access, services, and sanitation facilities.

¹⁰⁶ Source: (CONDER, 2002 in Fernandez, 2011, p. 9).

¹⁰⁷ A cluster of buildings arranged around a common shared communal space that is either central or longitudinal. (see Moughtin, 1964).

¹⁰⁸ (see also UN-Habitat, 2003a).

¹⁰⁹ (Hamdi, 2004; UN-Habitat, 2003a).

¹¹⁰ (Arputham, 2016b; Gulyani and Bassett, 2010; Kohli et al., 2012).

¹¹¹ See <https://sustainabledevelopment.un.org/?menu=1300>.

¹¹² (UN-Habitat, 2014c, 2003a). In Hamdi (2004), we learn that building materials considered as temporary, when innovatively used and made durable can contribute to an identity of a slum (place).

¹¹³ (Echanove and Srivastava, 2010; Gulyani and Bassett, 2010; Hamdi, 2010, 2004; Kohli et al., 2012; UN-Habitat, 2007d, 2003a).

¹¹⁴ Sometimes slum communities build their houses directly with permanent materials as a ploy to negotiate for tenure security.

¹¹⁵ Buildings that do not support internal air quality, are made of materials that are temporary and vulnerable to degradation, deterioration, fire etc., are dilapidated, and without structural integrity can be considered as non-durable.

¹¹⁶ (Gilbert, 2007; Gulyani and Bassett, 2010; UN-Habitat, 2003a).

¹¹⁷ (Ahsan and Quamruzzaman, 2009; UN-Habitat, 2003a, 2003b).

¹¹⁸ Sometimes, building development in slums emulate the standard design processes (design and construction) as they learn from working on other building sites, or the traditional methods (Luiz Lara, 2010; Oakley, 1970). Oakley (1970) refers to this as an 'embryonic' form in material use and techniques.

¹¹⁹ Understanding building standards is also important because even those that are considered conventional residential types can be informal.

¹²⁰ The knowledge of legalities and standards and analysing site and ground conditions relative to building construction will, however, require specific knowledge and skill.

¹²¹ (see Kamruzzaman, 2012; Kombe and Kreibich, 2001; Oakley, 1970).

¹²² (Baldea, 2013).

¹²³ This is more common with slums that originate as slum estates.

¹²⁴ Here the researcher includes makeshift buildings as a typology that are common to slums. Analysis of building type will, however, be relative to generally categorized housing types in the locale/city/or region.

¹²⁵ Source: (Baldea, 2013), the image for the second category of attached houses and type of stacked houses was added by this researcher. The author's (Baldea, 2013) research interests also involve studies of high density informal settlements.

¹²⁶ Source: (Baldea, 2013).



¹²⁷ The image is an example of a slum building in Zeyrek that is makeshift without two walls (source: (Ferguson, 2005, p. 6). It is necessary to document this even for buildings that are blocks as they may be un-completed.

¹²⁸ (Gulyani and Bassett, 2010; Harris, 2006).

¹²⁹ Materials falling into decay or disrepair due to lack of maintenance, use, environmental occurrences etc. (UN-Habitat, 2003a).

¹³⁰ (See Ahsan and Quamruzzaman, 2009; Kombe and Kreibich, 2001; Oakley, 1970; UN-Habitat, 2003a).

¹³¹ The concept of 'shacks' or 'shanty' that is commonly used to refer to slum settlements involve meeting certain criteria that includes being makeshift, built with a variation of materials that are temporary, is dilapidated, and assessed as non-durable ("Shanty town," 2017; Wikipedia contributors, 2017f).

Category 6 (CAT₆): Process properties of slum

In the years of struggle [...] They had learnt to work as a collective, working their way out of exclusion and creating a new unity, a togetherness which met their common purpose [...]

Nabeel Hamdi, 2004¹

(P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.

Property category and role	<p>Process properties of slum capture the evolution of the slum and the story of different states it has been, relevant events, and even conditions, etc. that describe how the slum gets to the stage it is and dynamics that map it – relevant documentations of slum’s existence. Process properties of slum properties potentially hold ‘high’ influence in any slum property map.</p>
Definition	<p>The length of time a settlement has been existing and the evolution of both social and physical structures.</p> <p>Three sub-properties are proposed to compile these properties: social consolidation and established social structures, spatial consolidation of place, and history and defining events.</p>
<p><i>(1-P₁₀-CAT₆) Social consolidation and established social structures</i></p>	
Definition	<p>Describes the types of social structures – power hierarchies, organizations and networks, in the slum that have formed over time with processes and endeavours towards consolidation² and maintenance of livelihoods.</p>
What for	<p>For the UN-Habitat (2003), with progression in the age that slum settlements have been in existence, comes consolidation, both in terms of the social and physical dimensions. This property of slums captures social capital of place, and the role they play in the narrative of slums. It aids in identifying those that can become liaisons and partners towards enhancing place and those that need to be approached creatively and carefully in intervention as they may, when improperly addressed, become impediments to progress of place.</p>
Some useful information	<p>John Turner³ was one of first urban practitioner to highlight the capacity of slums to develop strong social structures – organizations and networks that can extend to other slums and sections of the city. This unique aspect of slums is exemplified within arguments and discussions in De soto (2000), Hamdi (2004), Neuwirth (2005),⁴ Hernandez, Kellet & Napier (2010), K’Akumu & Olima (2007), and by UN-Habitat.</p> <p>Social structures in slums can be of traditional power hierarchies, or those that develop with continued interaction and relations of people, or other external (urban management) organizations that are now a strong feature of slums – NGOs, global urban institutions etc.</p>

Consolidation of social structures generally occurs within long intervals of time.⁵ However, social consolidation of structures can even occur within a shorter period, if the will to foster strong ties and build places to put down roots exist in and between people.

On a whole, social structures can be quite influential to the physical and social properties that define slums and changes to them – in the procedures of settling, the types of tenure arrangement presiding, poverty relief initiatives and building of enterprise, development of buildings, and spatial expansion, and how people relate with each other, and perceptions of place etc.

Social structures and organizations in slums can, however, include those that are considered as negative, for example those that exploit people, or those that are a social vice.⁶

Demographic differentiations also play a key role in the type, organization and functions of social structure development.

Sometimes when spaces impede the development of social relations and structures in a slum, it can reduce sense of belonging, especially where demographic differentiations exist.⁷

The SPM proposes⁸ that social structures of the slum can be described by recognising and categorising the types of communities⁹ that have developed and can be found in the slum, as well as how they serve to improve living and livelihood conditions in the slum or impede it.

1. The period the slum has been in existence – age/time it originated.
2. The types, numbers, and/or designations/names of social structures – power hierarchies, organizations, and networks that have formed to become:
 - Communities of interest – formed when people organize towards common objectives of concern or advantage to the community that it becomes a basis for cooperation.¹⁰
 - The common interest that is the objective and its origin.
 - Communities of culture – formed around social values, beliefs, and traditions that connect people and are accepted over time in society.
 - Communities of practice – formed around common enterprise and work in the pursuit of economic as well as social achievements.¹¹
 - Communities of resistance – formed as outlets for people to heal, redeem, and transform their realities in the effect of social unrest or unease, external threats, oppression etc.
- a. Whether power hierarchies, organizations and networks can be considered as positive to the progress of the slum, or oppressive to it (including people's consideration to stay in the slum).
- b. Where necessary, the people involved with power hierarchies, organizations and networks.

Property
type
Property tags/anchors

- c. The length of time the power hierarchies, organizations, networks have been in operation or existence.
- d. Whether power hierarchies, organizations and networks have a place of gathering or operation.
- e. Whether power hierarchies, organizations and networks have a representative, or formally convened and agreed upon power (or administrative) structure.
- f. The means of operation and/or communication used to pursue common objectives.
- g. Whether power hierarchies, organizations' and networks' reach extend to other slums or other parts of the wider city, and if they interact or actively participate – verbally or otherwise, in development initiatives in the city.
- h. Constraints in the physical and social (mostly demography) structure of place to the development of the power hierarchies, organizations and networks.

Inferred

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by social consolidation and established social structures in the slum.

(P₁₂-CAT₈) HEALTH CONDITIONS, (C₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by social consolidation and established social structures in the slum and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between social consolidation and established social structures in the slum and other property tags/anchors.

Consider whether the following affect/influence/trigger social consolidation and established social structures:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (3-P₁₀-CAT₆) History and defining events.

Consider whether social consolidation and established social structures affects/influences/triggers the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE

- (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-P₈-CAT₄) Migration, (2-P₈-CAT₄) Poverty, (3-P₈-CAT₄) Appropriateness and adaptive nature of dwellings, (4-P₈-CAT₄) Structural policies and institutional functions.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (2-P₁₀-CAT₆) Spatial consolidation of place, (3-P₁₀-CAT₆) History and defining events.

(2-C₁₀-CAT₆) Spatial consolidation of place

Definition

Describes the way that people incrementally make changes to improve and adapt their homes and surroundings – dwellings, and communal spaces.

What for

Ideally, length of stay and social consolidations of places in slums are accompanied by spatial consolidations of dwelling as well.¹² The processes of spatial consolidation are as much about forms, spaces, and uses, as about the people, their capacities, ideals, and engagements with their built spaces in the bid to create homes.¹³ By describing this property, one can appreciate these processes where it occurs, and where it has not occurred, the reasons why. In both cases, information obtained will be influential to finding an equilibrium in the management of spaces between land and its dynamics, social properties of place, standards, what is required and needed, and people's dignity and sense of place and achievement.

Some useful information

Processes of spatial consolidation combine dynamic interrelations of households (of people), the contexts they exist within and how they are used, and the dwelling that undergoes changes within the wider geography of the settlement.¹⁴

Hence, as much as adaptations to place is an evolutionary process, it is linked to general conditions of existence.

The way that slum communities (more specifically, but not exclusively, those that originate as informal settlement on vacant land/properties) incrementally develop their homes and spaces has been likened to vernacular and organic settlements. With longer periods of stay and some perceived tenure security, expansion and servicing is done to ensure flexibility in terms of resources¹⁵ and needs, by both owners and builders.^{16, 17}

This property of slums, as Turner¹⁸ sought to highlight, indicates that slum communities are in no way devoid of will, incentive, and human resource to develop place. The process can start with rudimentary makeshift buildings of temporary materials to more permanent structures; but is not always the case, as sometimes people build houses directly with permanent materials.¹⁹

With constraints of space, lack of infrastructure, and proper design and consideration for place geography, these processes can also impact negatively on the relative landscape and environment.

Consolidation of spaces can also occur with the more standard settled slums where buildings are provided as people continue to adapt their spaces to their requirements, needs, and ideals.²⁰ This process can also impact negatively on spaces.

The processes of space consolidation is also been linked to greater perceptions and meanings attached to place – to dignity, ownership, and responsibility to what one has built.²¹

It has, however, been observed that consolidation of dwellings and spaces does not always occur in all slums,²² putting to question the dynamic interrelations between personal inclinations, capital and tenure security, and social growth with the lack of spatial consolidation.

1. How people have sought to consolidate – change and adapt, their dwellings – buildings and surroundings, and communal spaces, within the period they have been living in the slum (from when they or their families settled in the slum).
 - a. The actual changes to dwellings that have taken place – form, function of spaces, materials, and structure.
 - b. The period these were done (relative to time of stay in slum).
 - c. Factors (in household) that triggered changes to place at times they were done, and factors that influenced choices made.
 - o Relate to perceptions of tenure, poverty (financial capacities), and social structures.
 - d. Whether space use has evolved with changes to dwellings or remained the same.
 - e. Investments in the process – human and capital
 - f. Constraints relative to geography.
 - g. Constraints relative to social geography – tenure, poverty, demography.
 - h. Whether processes of consolidation of dwellings has enhanced its durability (in space and design, material, and structural integrity) in provision of shelter, security, and comfort.
 - i. Whether the processes of consolidation have been accompanied with greater connection to place and the will to stay and continue to improve it.
 - j. How slum community have sought to consolidate communal spaces in terms of use and maintenance in the slum.

- o Processes and organization of such use and maintenance.
- k. Constraints that people consider as decisive to their consolidation of place, where consolidation has not occurred.

Objective, however, information about 1b – 1e, 1g, 1i and 1k will be inferred.

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by spatial consolidation in the slum.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by spatial consolidation in the slum and the (C₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it, both positive (that improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between spatial consolidation in the slum and other property tags/anchors.

Consider whether the following affect/influence/trigger spatial consolidation in the slum:

- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (1-P₁₀-CAT₆) *Social consolidation and established social structures, (3-P₁₀-CAT₆) History and defining events.*

Consider whether spatial consolidation affects/influences/ the following:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE.
- (P₂-CAT₂) GEOGRAPHY: (2-P₂-CAT₂) *Relative position, centrality and connectivity, (3-C₂-CAT₂) Slum neighbourhood, infrastructure and amenity (3-P₂-CAT₂) Relative landscape and site conditions; (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE CONDITIONS, (P₅-CAT₂) POVERTY CONDITIONS.*
- (P₇-CAT₄) THE ORIGIN OF SLUMS, (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (1-P₈-CAT₄) *Migration.*
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (3-P₁₀-CAT₆) *History and defining events*

	<i>(3-P₁₀-CAT₆) History and defining events</i>
Definition	A compilation of dynamic events and/or conditions (social and physical) in the evolution of the slum's existence that maps its origins, and those that affected and/or continues to impact the existence of the slum – both positively and negatively. ²³
What for	Dynamic events and conditions that affect or continues to affect the social, physical and spatial structure of slums, can provide vital knowledge that can be learnt from – reliable partners in development and avoidable aspects that may fuel vulnerabilities or present risks. Supporting practical approaches to address current conditions. What's more, knowing people's stories on how they got to be in the slum, their travails and endeavours towards staying, allows one to understand the slum community better and creates an environment where the slum community can also bond with stakeholders that are intervening. ²⁴
Some useful information	<p>Information on the History in the slum (or anywhere else in fact) will be vast and vary between the different dimensions that define the slum, because of the way they originate, and/or certain factors related to endeavours to maintain livelihoods in the city. It (history) can however become a medium of knowledge and understanding for action when one focuses on certain aspects of it. Hence, the thesis' position to focus on events and conditions that are seen to be decisive in forming the character of the slum and may continue to impact on its continuing existence.²⁵</p> <p>These events do not have to be about negative challenges alone, but also about positive progression, and/or endeavours towards such.</p>
What to look for	<p>1. Dynamic events and/or conditions, which can be found in the evolution of the slum existence, and which affect or continue to impact on it:</p> <ol style="list-style-type: none"> a. The evolution of events that map the origin of slum and how people came to settle. b. Events that map approaches to intervention or management and organizations involved, and/or endeavours towards tenure security. <ol style="list-style-type: none"> o Any ongoing/planned/previous slum upgrade/improvement strategies. o The main objectives of these and methodology, people/organisations involved, sections of the slum affected, budget/project planning, and outcomes. c. Changes in its demography. d. Changes that map endeavours towards tenure security. e. Changes to geography of place with related environmental and climatic occurrences, and how it has impacted on their identity and contexts they live within. f. Changes to building and spatial forms and events related to these in description of slum.

2. Essentially, however, descriptions of historical events should capture what the slum community consider as historical events and conditions that are decisive to their current living and livelihood conditions – both negative challenges to it, and those that have propelled positive progression physically and socially.

- a. Changes that map endeavours in the growth of social structures of place and how communities have sought to balance those that affect them negatively, and others that seek to propel growth.
- b. Other external events like wars, civil strife etc.
- c. The use of (conflict) trees²⁶ – to portray events and/or conditions that are considered the root of negative challenges to their conditions and outcomes (figure III.28 as example).
- d. The use of (progress)²⁷ trees²⁸ – to portray events and/or conditions that are considered as the root of progress to their conditions and outcomes.

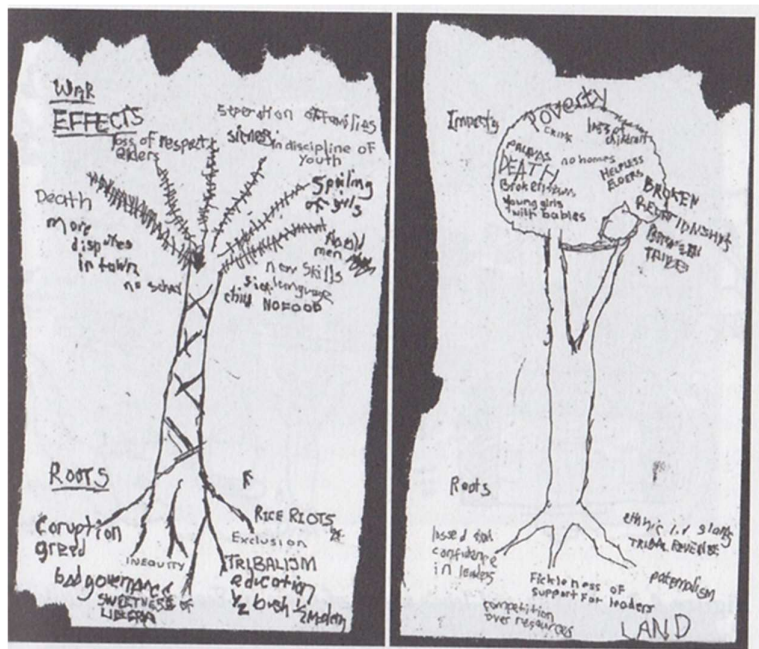


Figure III.28: An example: conflict trees drawn by a group of people in Yealla, Liberia, to represent the root and impacts of war on their community.²⁹

Property type

Inferred.

Property tags/anchors

(P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by history and defining events in the slum.

(P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE that are affected/influenced/triggered by history and defining events in the slum and the (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY of it (both positive (that

improves their livelihood), and negative (that deepens the challenges they face), and whether it mediates (if at all) between history and defining events in the slum and other property tags/anchors.

Consider whether the following affect/influence/trigger history and defining events in the slum:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE
- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (1-P₁₀-CAT₆) *Social consolidation and established social structures, (2-P₁₀-CAT₆) Spatial consolidation of place.*

Consider whether history and defining events in the slum affects/influences/triggers the following.

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE.
- (P₂-CAT₂) GEOGRAPHY: (2-P₂-CAT₂) *Relative position, centrality and connectivity, (3-C₂-CAT₂) Slum neighbourhood, infrastructure and amenity (3-C₂-CAT₂) Relative landscape and site conditions; (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE CONDITIONS; (C₅-CAT₂) POVERTY CONDITIONS.*
- (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES.
- (P₇-CAT₄) THE ORIGIN OF SLUMS; (P₈-CAT₄) FORCES AND DRIVERS OF SLUM.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (2-P₁₀-CAT₆) *Social consolidation and established social structures, (3-P₁₀-CAT₆) Spatial consolidation of place*

Endnotes

¹ (Hamdi, 2004, pp. 26, 27)

² Consolidation means to make something stronger by combining it into a more effective and wholesome state or condition (Collins Dictionary, 2014). It is derived from the Latin 'consolidationem', a noun for the action of Latin 'consolidare', (Dictionary.com, 2016).

³ (Turner, 1976).

⁴ (see also Leitão, 2008).

⁵ For the UN-Habitat (2003a) the average period for social consolidations is 30 years.

⁶ Drug gangs for example (Leitão, 2008; Neuwirth, 2005).

⁷ (Cronin, 2013; See "India's millennials," 2017).

⁸ Here, the SPM draws from types of communities discussed in Hamdi (2004).

⁹ The concept of community is a wide ranging and complex one, with varying definitions and research outlooks, and is as much a conception of mind as of social interaction and physical location. In this framework, it is used solely to guide analysis and documentation of social interaction processes in the slum.

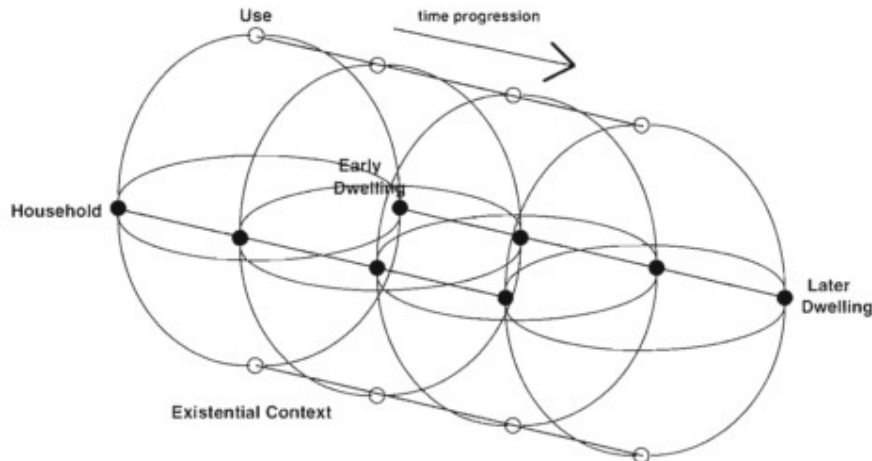
¹⁰ For example, childcare organizations, neighbourhood watch, tenure campaigns, NGOs etc.

¹¹ For example, sewing enterprise organizations, service providers etc.

¹² (Engstrom et al., 2015; Hamdi, 2004; Kellett and Napier, 1995; Leitão, 2008; Neuwirth, 2005; Sori, 2012; Taher and Ibrahim, 2014).

¹³ This includes expanding and consolidating dwellings to accommodate newcomers that migrate to the slum, see (1-P₈-CAT₄) Migration.

¹⁴ Kellett and Napier (1995) use a simple model diagram to show this dynamic process of consolidation in slums whereby each factor contributes to changes in dwelling with the passage of time. Source: (Kellett and Napier, 1995, p. 17).



¹⁵ This means moneys that can be used to buy building materials, in which case, consolidation can be done progressively over many years, or if resources allow, can be faster and done within a few years of settling on land (Kellett and Napier, 1995).

¹⁶ (Kombe and Kreibich, 2001).

¹⁷ Kellett and Napier (1995), show an example from a settlement that started informally where the older dwellings have been improved steadily with corrugated sheet over mud wattle and daub walls (image below).



¹⁸ (Turner, 1976).

¹⁹ (see Fernandez, 2011).

²⁰ See (3-P₂-CAT₄) Appropriateness and adaptive nature of dwellings.

²¹ (see Hamdi, 2004; Kellett and Napier, 1995; Turner, 1976).

²² This is the case in East London, a slum in South Africa that was informally settled, where despite the passage of time there were no evident changes from the original makeshift buildings, they did not 'harden' their presence over time (Fernandez, 2011).

²³ History studies past important events, it is also a continuous event because it is dependent on passage of time (Oxford living Dictionaries, 2016a).

²⁴ (See Hamdi, 2010)

²⁵ The Karabayir slum (a *Gecekonu*) neighbourhood in Istanbul is a useful example here (Erman and Eken, 2004), to show how violence being experienced (then) was tied to ethnic/religious/sectarian divisions that were influenced by frictions between government, political powers, and construction companies in the bid to lay claim on the occupied lands. This provides a deeper understanding of the slum demography and the undercurrents that define it, and an important context to be considered (if the *Gecekonu* were the subject of intervention) to progress both place and society.

²⁶ Hamdi (2010) proposes the use of conflict trees as an effective and simple tool for learning histories and defining events and or conditions that map a slum community's development.

²⁷ To progress means to move towards a more advanced or improved condition or situation (Collins Dictionary, 2014).

²⁸ In reverse, the use of progress trees can help in identifying aspects that have been influential to progress in the slum.

²⁹ Source: (Routley, 1998; in Hamdi, 2010, p. 73).

Category 7 (CAT₇): Personality traits of slum community

'[P]laces, like people are social objects and as such are targets of perception, emotions and stereotypical judgements'

Maria Lewicka, 2008

(P₁₁-CAT₇) PLACE MAP: PERCEPTION OF SLUM

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Property category and role</p>	<p>Personality traits of slum community are therefore the way people express themselves (intellectual and mental, emotional characteristics, and manners of behaving) both in relation to their inner person (biology, culture and ideals) and the outer (physical and social) environments that they exist within. Personality traits of slum community potentially hold 'low' influence in any slum property map. They, however, can influence what people do in relation to conditions they live within.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Definition</p>	<p>The concept of 'place' (a core aspect of environmental psychology) is used to describe a space setting that is endowed with meaning as it is perceived¹ and felt to have some significance to people.² Personality traits influence this perception of place and are used to express its effects by individuals. The place map: perceptions of slum are the slum community's experiences and meanings attached to the slum existence and feelings evoked by it according to their own perceptions that are outcomes/responses of slum descriptions.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">What for</p>	<p>Sometimes, obvious characters of slums, like environmental degradation or poor sanitation, can dictate how places and communities are perceived.³ The perceptions of those living within them and how they identify with these places, and their expectations for place and the wider city can become side-lined.⁴ These are, however, important aspect to slum definition. The people are an integral part of it and capturing the imaging of their different contexts and conditions will provide information about them, their quality of life, and aspirations they hold for themselves and their homes; these descriptions are vital to any slum narrative,⁵ and can as well award stakeholders a more intimate relationship with the slum community.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Some useful information</p>	<p>The study of how people experience places and interpret it include concepts of place meaning, environmental experience, place identity, place dependence, and place attachment.⁶ These are vast and engaging topics; plus, the way people experience and perceive their environments is an on-going and complex process.⁷</p> <p>The way people inhabit spaces, its composition, conditions, and function, and social interactions and activities relative to it, and its effect are mutually correlated.</p> <p>People's knowledge (education and exposure) is also an important aspect that influences perception of place.⁸</p>

People are also known to 'break-in' and endeavour, where they can, to give their environments in the slum some form of significance in accordance with their culture and ideals, needs and aspirations also.⁹

In relation to all factors that influence perception of place by people, it can also change with time. This is because as communities grow, people may begin to identify with their place (increasing their sense of responsibility to it),¹⁰ or detach themselves from it.¹¹

This property is quite subjective, and people's responses will differ relative to all factors that affects their perception of place.¹²

Being able to capture these subjective contexts of slum communities is also one of the challenges faced in describing slums (see chapter 3).

Two main targets are proposed to simply describe this property: (1) the experiences, meanings, and feelings they attach to other properties of the slum, and (2) a general overview of their perceptions of place and self.

1. What are the experiences and meanings that the people associate to the slums existence that are a response/outcome of slum descriptions and feelings evoked by these experiences, and stories behind them.

(It is this section of inquiry that should be explored in relation to all other properties where is proposed (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY that are affected/influenced/triggered by the property should be analysed):

¹³

- a. Patterns: themes of experiences and meanings can be formed from responses and qualified.
 - Simple effective tools can be used to obtain information from people¹⁴ – social and cognitive maps.¹⁵
- b. Patterns: information regarding different slum spaces can be distributed on slum map (example, figure III.29).
- c. The feelings evoked by these experiences.
 - The (Plutchik, 1980) conceptual wheel of emotions can be an effective tool in structuring people's responses (figure III.30).
 - Patterns: Themes can be formed from responses, structured and qualified.
 - Patterns: information regarding different slum spaces can be distributed on slum map (example, figure III.29).

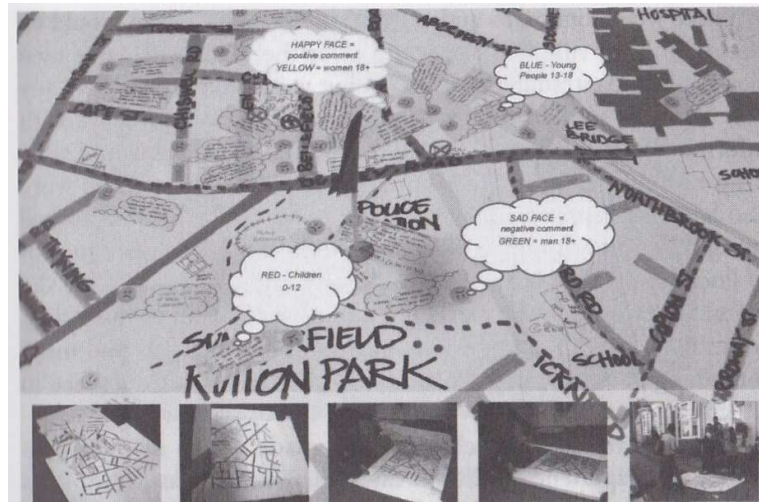


Figure III.29: A simple place map showing people's comments due to their experiences, and feelings (happy and sad faces) about the various parts of the place.¹⁶

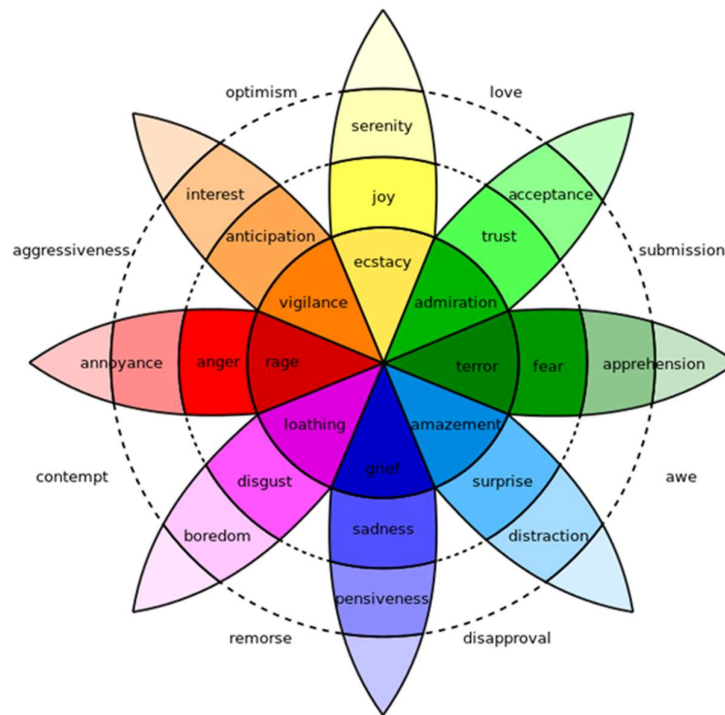


Figure III.30: The Plutchick wheel of emotions.¹⁷ The primary emotions are the darkest hues – joy, sadness, trust, disgust, fear, anger, surprise, and anticipation. The different intensities they manifest are represented in the same colour band. Whilst other emotions that can be created as a mix of the primary bands of emotions are shown by the dotted lines.

2. A general overview of perceptions of place (targeting various demographic groups – children, elders, women, men):

- a. Whether people can identify their community within the wider city space (and related amenities and landmarks).
 - o People can be encouraged to make sketch maps identifying their community in the wider city space.¹⁸
- b. Whether people regard their dwellings and spaces as a projection of themselves, their culture and ideals.
- c. The places that people like in the slum and why.
- d. The places that people dislike in the slum and why.
- e. The aspects of their lives that matter to them most, why, and how do they feel about it.
 - o The events, conditions, or activities that distresses them most, why, and how do they feel about it.
 - o And if they could, what would they have or do to change it. – ‘if I could, I would...’¹⁹
 - o The people’s aspirations for themselves and their places.
 - Simple tools like story maps can be used to obtain this information (example, figure III.31).

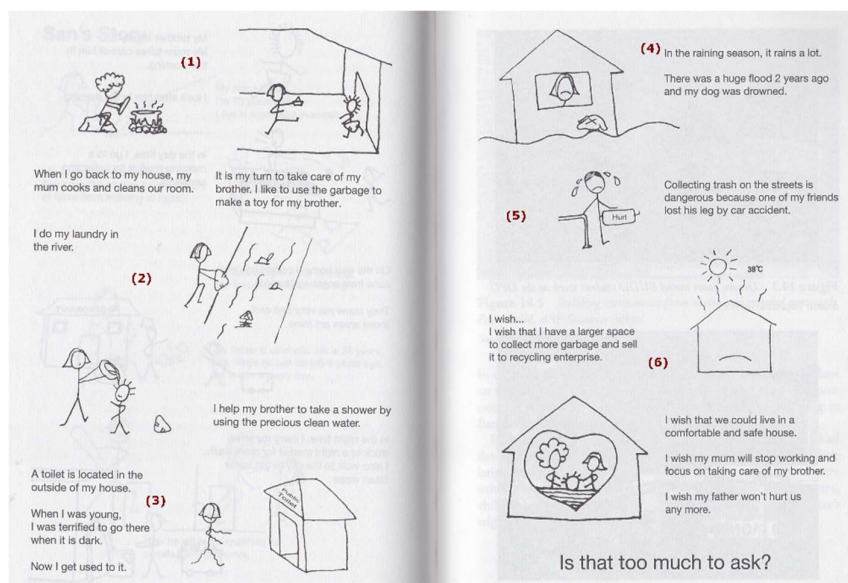


Figure III.31: An example: a story map narrating a boy’s livelihood, places, related experiences, feelings and aspirations: Scene (1) can be related to a family structure and livelihood pattern and what he likes about it; scene (2) can be related to lack of access to safe water that is a challenge; scene (3) sanitary condition showing toilet access is limited and how it made him feel – fear; scenes (4) and (5) show how flood, a relative condition of landscape and environment, and challenges involved in work to earn money, respectively, cause him distress. It also indicates that the boy, a minor, works to earn

Property type	<p>money. The last scene (6) is a documentation of his aspirations for himself, his family and their home.²⁰</p> <p>Inferred, however, information about 2 can be clarified by making reference to objective descriptions of the slum.</p>
Property tags/anchors	<p>Consider whether the place map: perceptions of place affects/influences/triggers the following:</p> <ul style="list-style-type: none"> • (P₅-CAT₂) POVERTY CONDITIONS: (3-P₅-CAT₂) <i>Social exclusion.</i> • (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES. • (P₈-CAT₄) FORCES AND DRIVERS OF SLUM: (3-P₈-CAT₄) <i>Appropriateness and adaptive nature of dwellings, (5-P₈-CAT₄) Social and cultural pathology.</i> • (P₁₃-CAT₈) ACTIVITIES OF PEOPLE

Endnotes

¹ 'To perceive' means becoming aware of something through sensory experience, understanding and interpreting it (Merriam Webster Dictionary, 2016).

² (Lewicka, 2008; Tuan, 1977; Ujang, 2014).

³ See chapter 3.

⁴ An example can be found in James Hollingshead's discussions about a nine acre slum in 1861 London (Neuwirth, 2005). Hollingshead could not understand why people would choose to live there or defend their right to do so after observing the dreary and unsanitary conditions in the place.

⁵ (Hamdi, 2010).

⁶ Relevant research methods to explore these concepts within the slum community will be quite informative. However, it will also increase the scope of analysis.

⁷ (Romice and Frey, 2007).

⁸ (See Gifford, 2002; Karan et al., 1980). Karan et al., 1980 is particularly focused on slum analysis.

⁹ In Hamdi (2004, p. 27), for example, is the story of how members of a newly relocated slum, 'exchanged plots to be near family and friends and to combine lots into family compounds as they once had in their villages'.

¹⁰ (See Brown, 1987).

¹¹ See above reference in endnote 4.

¹² (See Gifford, 2002).

¹³ Relevant information may have to be interpreted from people's responses.

¹⁴ On a participatory platform.

¹⁵ See (Hamdi, 2010).

¹⁶ Picture by Jeni Burnell – Source: (Hamdi, 2010, p. 81)

¹⁷ Image source: (Wikipedia contributors, 2009).

¹⁸ An example can be found in (Karan et al., 1980).

¹⁹ Here, one can borrow from the UNICEF format for capturing aspirations – ‘if I could, I would’ (Hamdi, 2010, p. 79).

²⁰ Source: (Hamdi, 2010, pp. 208, 209). The Scenes (1 to 6) were added by this researcher.

Category 8 (CAT₈): Behaviours of the slum community

'One such entrepreneur [...] would set out at 5.00am [...], buy his fresh fish [...], take it home, scale, clean, [...] packing it in his ice box. By 7.00am he was on the road delivering orders or touting for sales [...]

Nabeel Hamdi, 2010

(P₁₂-CAT₈) HEALTH CONDITIONS

Property category and role	<p>Behaviours of slum community describe the manners of acting or expressive responses, and the manners of being or physiological responses of the people (slum community) relative to conditions they live within. Behaviour of slum community potentially hold 'very low' influence in any slum property map. However, behaviours are influenced by personality traits of people and in combination are human agencies that can link two or more descriptive properties that affect/influence/trigger each other.</p>
Definition	<p>Health conditions describe the physiological conditions (of body and mind) that are intrinsic to people, and those that are extrinsic or due to the conditions of living in the slum.</p>
What for	<p>Good health is a decisive factor in people's quality of life as well as for being productive.¹ Analysing and documenting this property of the slum will highlight the degree to which people are vulnerable in this aspect of life (which can put the wider city at risk as well), and related challenges that are influential to it, allowing for proper action. Moreover, ensuring healthy lives for all is recognised as a vital target to achieving global sustainable development.²</p>
Some useful information	<p>There are two major factors that lead to physiological health conditions: metabolic or organic conditions that are intrinsic to people – due to internal factors like abnormalities, hormonal imbalances, malfunctioning of systems etc., and those that are (hazards) extrinsic – (environmental, social, physical) that are external or exists outside of the person, like malnutrition, pollutants in the environment, disease causing organisms, tobacco etc.,³ and emergencies (accidents or deliberate harm). For both types, health conditions can be vast and many.</p> <p>In slums, health conditions that pose a challenge are evidently extant of the wider properties of the slum and are a point of concern globally.^{4, 5} Some are intrinsic to people, but they find as a challenge due to other contexts of their lives like poverty or limited knowledge or experience. Whilst health hazards and emergencies can be caused or influenced by other properties of slums or wider environment.</p> <p>There are many studies that indicate child mortality and challenges of managing old age conditions are higher in slums.⁶ Vast data and discourse show slum communities are more vulnerable to spread of diseases like HIV, those that are effects of poor sanitation</p>

What to look for

and environmental hazards like floods, varmints etc., accidents in the line of work or livelihood patterns, and others caused or influenced by social vice in the community.⁷

As they are categorically of human agency, health conditions can serve as intermediary and link that adds clarity between other slum properties, including activities.⁸ Health conditions can be vast. The SPM therefore posits that to describe this property of slums, it is necessary to focus on health conditions that are affected/influenced/triggered by other slum properties, and those which ailment and treatment are challenge a owing to same. In this way, even when health conditions influence other activities of people and outcomes that cause change in the slum (both positive and negative), the primary origin of it will be clear.

1. The health conditions (body and mind) of the people in the slum that are the response/outcome of other slum properties: (P₂-CAT₂) GEOGRAPHY, (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE CONDITIONS, (P₅-CAT₂) POVERTY CONDITIONS, (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, (P₇-CAT₄) THE ORIGIN OF SLUMS, (P₈-CAT₄) FORCES AND DRIVERS OF SLUM, (P₉-CAT₅) THE FORM OF THE SLUM, (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION, (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE; and whether health conditions are intermediary between descriptions of these properties.

- a. Health conditions that are organic or metabolic (caused by factors that are internal to persons) of which spread, challenges to their management, and cure are the response/outcome of other slum properties (e.g. poverty).
 - o Examples include diabetes, kidney disease etc.
- b. Health conditions that are hazards (caused by external factors) which their contraction, spread, constraints to their prevention, and management are the response/outcome of other slum properties.
 - o Examples include cholera, meningitis, hepatitis etc.
- c. Health conditions that are considered as emergencies owing to accidents or deliberate harm that are response/outcome of slum properties.
 - o Examples include broken legs, bodily wounds, frost bite, effects of rape etc.
- d. Instances of death that are the response/outcome of slum properties.

2. Patterns of health conditions

- a. The number of people in the slum that are exposed to the variations of health conditions described in the slum.

Property
type

Inferred, however, persons physical conditions in relation to all descriptions can be objectively captured, and 2a will require an objective count.

Consider whether health conditions in the slum affects/influences/triggers these in instances where it mediates between two or more properties:

- (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE
- (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS.
- (P₇-CAT₄) THE ORIGIN OF SLUMS.
- (P₉-CAT₅) THE FORM OF THE SLUM.
- (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.
- (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY.
- other (P₁₂-CAT₈) HEALTH CONDITIONS, (P₁₃-CAT₈) ACTIVITIES OF PEOPLE.

Endnotes

¹ (UN-Habitat, 2013a).

² See <https://sustainabledevelopment.un.org/>.

³See (Khanna, 2011).

⁴ (Fernando, 2009; Hamdi, 2004; Neuwirth, 2005; Satterthwaite et al., 2015; UN-Habitat, 2003a).

⁵ See for instance (Ramin, 2009).

⁶ (Bhatkal and Lucci, 2015; Boonyabanha, 2005; Nolan, 2015; Sclar et al., 2005; UN-Habitat, 2003a).

⁷ (Fernando, 2009; Hamdi, 2004; Leitão, 2008; Neuwirth, 2005; Satterthwaite et al., 2015; Sclar et al., 2005; UN-Habitat, 2003a).

⁸ For example, cholera outbreak caused by poor sanitation and water that is not safe (See Ajibade and McBean, 2014); or, poor sanitation in terms of waste influences an avenue for recycling enterprise, however, the actual activity of sorting and collecting trash materials manually (activities of people) triggers infections and bodily harm by accidents (health condition) (see Hamdi, 2010); or cholera outbreak triggering a response from the wider community or NGO to become involved in the slum (social structures).

Property category and role	<p>Behaviours of slum community describe the manners of acting or expressive responses, and the manners of being or physiological responses of the people (slum community) relative to conditions they live within. Behaviour of slum community potentially hold 'very low' influence in any slum property map. However, behaviours are influenced by personality traits of people and in combination are human agencies that can link two or more descriptive properties that affect/influence/trigger each other.</p>
Definition	<p>This describes the actual activities that people do in the slum relative to living and livelihood endeavours within it.</p>
What for	<p>Some of these activities are positive and serve to improve slum communities' living conditions and strengthen social and physical place – enhancing enterprise, countering poverty, stabilizing social structure etc.¹ Whilst others can be considered as negative challenges that increase their vulnerability – promoting social vices, polluting environment, infringement on people's rights etc.² To form the slum narrative and for effective intervention, it is essential to consider all facets of activities that people do in relation to wider slum properties they are associated with. This will provide vital information about how the slum exists for its inhabitants, and people's role in it.</p>
Some useful information	<p>People engage with their environments, both natural and man-made, to live within them categorically through agencies. The activities of people in the slum, can be influential to the development of all aspects that describe it as well as outcomes of it, generating yet more change.</p> <p>Activities of people in the slum, will be infinite and vast. The SPM therefore posits that to form the narrative of the slum, only relevant activities that can add context to the character of the slum and are specifically the effects/outcomes/responses for other slum properties should be described. In this way, the activity described will have context, showing how people respond to the associated property of the slum. This knowledge is essential even when it triggers change to another (linked) property that it mediates between.</p> <p>Also, because behaviours respond to influences of personality traits, one should as well consider activities that are the effect/outcome/response to place map: perceptions of place.³</p>
What to look for	<p>1. The activities that people engage in doing in the slum, which are the response/outcome of the varying properties of the slum – (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE, (P₂-CAT₂) GEOGRAPHY, (P₃-CAT₂) DEMOGRAPHY, (P₄-CAT₂) TENURE CONDITIONS, (P₅-CAT₂) POVERTY CONDITIONS, (P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES, (P₇-CAT₄) THE ORIGIN OF SLUMS, (C₈-CAT₄) FORCES AND DRIVERS OF SLUM, (P₉-CAT₅) THE</p>

Property type	<p>FORM OF THE SLUM, (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION, (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY, (P₁₂-CAT₈) HEALTH CONDITIONS – and how they mediate between the properties they are response/outcome of with other properties.</p> <p>a. To capture (and summarize) only essential activities that, add clarity to descriptions of the slum, are (1) positive activities and have potential to aid in the management of associated properties, or are (2) negative activities – can increase vulnerabilities, and need to be addressed in conjunction with properties they are associated with for intervention to be effective.⁴</p>
	<p>Objective, however, information about activities can be inferred after the act.</p> <p>Consider whether activities of people in the slum affects/influences/triggers them in instances where it mediates between two or more properties:</p> <ul style="list-style-type: none"> • (P₁-CAT₁) SLUM NAME AND ITS SIGNIFICANCE • (P₂-CAT₂) GEOGRAPHY; (P₃-CAT₂) DEMOGRAPHY; (P₄-CAT₂) TENURE CONDITIONS; (P₅-CAT₂) POVERTY CONDITIONS. • (P₇-CAT₄) THE ORIGIN OF SLUMS. • (P₉-CAT₅) THE FORM OF THE SLUM. • (P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION. • (P₁₁-CAT₇) PLACE MAP: PERCEPTIONS OF THE SLUM BY ITS COMMUNITY. • (P₁₂-CAT₈) HEALTH CONDITIONS, other (P₁₃-CAT₈) ACTIVITIES OF PEOPLE.
Property tags/anchors	

Endnotes

¹ (see Hamdi, 2010, 2004).

² (see Hamdi, 2010; Neuwirth, 2005; Satterthwaite et al., 2015; UN-Habitat, 2003a).

³ Example of an activity is when meanings attached to the name of a slum causes people distress that they take civil action to change it, (Robertson, 2014; Wood, 2007). Or, the actual assault activities carried out on women and children influenced by lack of privacy at toilet points or when they are exposed during long treks to access toilets that are far from homes (Satterthwaite et al., 2015; Taher and Ibrahim, 2014).

⁴ For example, when income poverty ((1-P₅-CAT₂) Income poverty) in the slum triggers the development of a recycling enterprise ((2-P₃-CAT₂) Socio-economic enterprise), influenced by the presence of solid waste ((2-P₉-CAT₅) Sanitary conditions) in the slum (Hamdi, 2010). The activity property here will be the actual activities that people undertake to source material, collect them, and sort them etc., linking sanitary condition to enterprise, which is associated with poverty.

Slum Property Map template

Category 1 (CAT₁): Name properties of slum	<i>Appendices: information & data</i>	<i>Methodology notes</i>
<p style="text-align: center;">(P₁-Cat₁) SLUM NAME & ITS SIGNIFICANCE</p>		
Category 2 (CAT₂): Place properties of slum	<i>Appendices: information & data</i>	<i>Methodology notes</i>
<p style="text-align: center;">(P₂-CAT₂) GEOGRAPHY</p>		
<div style="background-color: #555; height: 33px;"></div>		
<p style="text-align: center;">(P₃-CAT₂) DEMOGRAPHY</p>		
<div style="background-color: #555; height: 29px;"></div>		

(P ₄ -CAT ₂) TENURE CONDITIONS		
(P ₅ -CAT ₂) POVERTY CONDITIONS		
Category 3 (CAT₃): Functional properties of slum	<i>Appendices: information & data</i>	<i>Methodology notes</i>
(P ₆ -CAT ₃) PROVISION OF ACCESSIBLE SHELTER AND		
Category 4 (CAT₄): Procedures and Agency properties of slum	<i>Appendices: information & data</i>	<i>Methodology notes</i>

<p>(P₇-CAT₄) ORIGIN OF SLUM</p>		
<p>(P₈-CAT₄) FORCES AND DRIVERS OF SLUM</p>		
<p>Category 5 (CAT₅): Structural properties of slum</p>	<p><i>Appendices: information & data</i></p>	<p><i>Methodology notes</i></p>
<p>(P₉-CAT₅) THE FORM OF THE SLUM</p>		
<p>Category 6 (CAT₆): Process properties of slum</p>	<p><i>Appendices: information & data</i></p>	<p><i>Methodology notes</i></p>

<p>(P₁₀-CAT₆) THE AGE OF SETTLEMENT AND EVOLUTION.</p>		
<p>Category 7 (CAT₇): Personality traits of slum community</p>	<p><i>Appendices: information & data</i></p>	<p><i>Methodology notes</i></p>
<p>(P₁₁-CAT₇) PLACE MAP: PERCEPTION OF SLUM</p>		
<p>Category 8 (CAT₈): Behaviours of slum community</p>	<p><i>Appendices: information & data</i></p>	<p><i>Methodology notes</i></p>
<p>(P₁₂-CAT₈) HEALTH CONDITIONS</p>		

(P₁₃-CAT₈) ACTIVITIES OF PEOPLE

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Appendix IV. Synopsis of informal discussions with three urban professionals in Glasgow, to corroborate research argument

This section is a brief documentation of informal discussions the researcher had with three urban professionals in the field of urban design and architecture to provide first-hand insights and corroborate research arguments formed through literature review (see methodology section 2.1). These discussions took place on the 26th and 27th of October during the Plot Based Urbanism summit at the University of Strathclyde Glasgow. Much thanks and appreciations to these persons for making time to support endeavours towards the design of the research. For the discussions to be clear and engaging, the urban professionals are tagged as urban-professionals8, 9, and 10.⁶⁹

Urban-professional8 presented a paper on popular home development initiatives using plot-based principles during the seminar, and he had used examples that were associated with slum development also. The discussion with this professional was initiated through a question which was basically focused on gaining the professional's insight on:

- Whether from experience and observation, the slum morphology and their processes of construction can be linked to principles of plot-based urbanism and the professional's recommendations for adaptable building plot and block sizes discussed in the presentation.

For this professional, there can be found similarities between the principles of plot-based urbanism and how some slum morphologies have developed – an example is the use of a standard knotted rope dimension (same as the length of a bamboo) as a building layout strategy in a manila slum. This measurement strategy has worked for the community for years and is the same proportion as the 15meter rule used in plot-based urbanism. This quality of slums, in addition to the needs-related incremental nature of housing development can be learnt from, and in terms of intervention adapted to the dynamics of the slum settlement.

Urban-professional9, presented a paper on how urban morphologies and related social and evolutionary aspects are consistent and are a vital focus of plot-based urbanism, his discussion also included aspects of vernacular architecture during the seminar. The discussion with this professional was also initiated through a question, which was focused on gaining insight on:

⁶⁹ The numbering is continued from tags given to another group of urban professionals whom the researcher had informal discussions with in the process of research also, and are documented in appendix I.

- Whether from experience or observation, the professional has identified vestiges of self-organising vernacular architecture in present day slums; and
- Whether, slums have the potential to contribute to their management and/or urban practice overall.

For this professional, functional density, replicability and interchangeability are principles that interconnect our urban space, form, and understanding. These are also aspects that have allowed vernacular architecture to sustain, which are evident in some Developing Region slums. What's more, some slums have a strong social structure and ability to self-organize. Once this quality is evident in a slum, then all physical manifestations can be borne and accommodated. However, more work is required to identify that hazy point where professional intervention and stakeholder responsibility stops, and the people take over during slum intervention in general – a sort of weaning point.

Urban-professional¹⁰ presented a slum upgrade and re-settlement project that the UN-Habitat was involved with in Nairobi. The discussion with this professional was guided by a list of topics of which the most relevant to the research were:

- The challenges of managing slums in Developing Regions.
- The characteristics of slums and potential to become stakeholders to city development and prosperity.

For this professional, slum management is intertwined and challenged by political dynamics in Developing Regions especially Africa, which is further exacerbated by capitalism and corruption. Other challenges for slums are (1) non-economically viable (for slum communities) projects that lead to gentrification, (2) processes that do not enable the slum community to share in the benefits of development, and (3) a dearth of knowledge and human capacity building especially in middle or sub-Saharan Africa. On the character of slums, this professional⁷⁰ highlights some slums are a throve of commercial and small-scale facilities – clubs, agriculture etc.; they also stay close to jobs and provide informal labour. Also, they have strong social connections and friendships – they know each other, secure and control each other, which contributes to their pride in their places, they are happy to be there. These characteristics in association with the incremental nature slum communities build their homes are strong qualities. Slums can become integral to city development especially if they are supported to change and improve their conditions themselves – participating in the democracy of housing.

⁷⁰ This professional also garnered a lot of information from a colleague that is directly engaged with African slum projects.

Appendix V. Framework of indicators for slum prosperity

The framework of indicators for prosperity is proposed as a tool in the operational slum-prosperity framework (SPF). There are fifty-four indicators for prosperity with real-life model urban contexts they capture grouped about three interrelated dimensions – (1) people, (2) wider (natural and man-made) environment, and (3) management structures. These are presented in a tabular format and numbered from ‘1’ for ease of referencing. The collective urban wellbeing concepts that the indicators were built from are shown as codes in parentheses to conclude each explanation of real-life context of indicators and include: ‘P’ for ‘productivity’, ‘Q’ for ‘quality of life’, ‘E’ for ‘equity’, ‘F’ for ‘infrastructure’, ‘Es’ for ‘environmental sustainability’, and ‘G’ for ‘governance and legislation’. Endnotes are then used to document references and any additional notes.

Prosperity indicators: (P) people

<i>Indicator of prosperity</i>	<i>Real-life context</i>
1. <i>Employment</i>	<p>This is an indicator for both productivity and quality of life. When people are engaged productively in some form of work – public or private, formal and informal¹ that has the potential to contribute to the economic development of self, city, and to city product (per capita).² Engagement here covers all producers of labour – agriculture, manufacturing, trade, finance, community, governance etc.</p> <ul style="list-style-type: none"> • (P; Q)
2. <i>Employment opportunity</i>	<p>When people – especially the youth – are employed and/or given opportunities for productive and economic engagement and adequately supported through the processes.³</p> <ul style="list-style-type: none"> • (Q; E)
3. <i>Economically active persons</i>	<p>When there are (a substantial number of) people (15 years and over) capable and with capacities to engage in or are already engaged in active work (of some sort).^{4, 5}</p> <ul style="list-style-type: none"> • (P)
4. <i>Active women engagement</i>	<p>When women are actively engaged in varying forms of enterprise, industry, services, or work towards growth – labour, economic, social and community, political, personal and other corresponding categories etc.⁶</p> <ul style="list-style-type: none"> • (E)
5. <i>Concentration of basic industries/enterprise</i>	<p>When there are some singular establishments, groups of, or a range of establishment set-ups engaged in same, similar, or varying types of productive activity or work.⁷ These establishments can</p>

	<p>range from the widest sector to households, engagement can range from tangible goods production to services, and whether incorporated or unincorporated enterprise.</p> <p>This also captures when these establishments provide access to wider domestic and/or international markets/networks.</p> <ul style="list-style-type: none"> • (P)
6. <i>Human capital – personal, collective</i>	<p>This captures any individual or collective knowledge of things, skills, health, and personal or collective motivation, and efforts put in towards productive change.⁸</p> <ul style="list-style-type: none"> • (P)
7. <i>Technology</i>	<p>When available, appropriate, and adequate technology is used in productive activities or work to achieve efficient and maximum output.⁹ Technology is a broad concept, but it can refer to scientific skills and methods, process, tools, techniques, hardware, software etc used in accomplishing everyday tasks, work, or production of goods and services to make them efficient.¹⁰</p> <ul style="list-style-type: none"> • (P)
8. <i>Monetary output of value</i>	<p>Financial capital¹¹ outputs of productive engagement or transactions that can be moneys, profits, savings etc., which in themselves invaluable, but are used to add value to other financial, social, human, material, and natural capital. It can be capital in coffers, as wages, or used in re-investment.¹²</p> <ul style="list-style-type: none"> • (P)
9. <i>Consistent & decent household income</i>	<p>This is an indicator for both productivity and quality of life. When people can earn consistently and to a certain degree can keep up with costs and receipts for household goods and services, and other items that people want (either monetary or in-kind), as well measure real cost savings from productive engagements.^{13, 14}</p> <ul style="list-style-type: none"> • (P; Q)
10. <i>Income security</i>	<p>When people's earnings are at levels of income that is consistently above the poverty line¹⁵ with deviations of these incomes earned being comparable across the population and are not in substantial debt that exceeds 60% of such incomes.¹⁶</p> <ul style="list-style-type: none"> • (E; G)
11. <i>Personal security and stability</i>	<p>When persons, communities (and wider urban) in their diversity are safe and protected from vulnerabilities to, and risks of loss, theft, destructiveness, harm, deprivations, lack of support, lack of response to reduce harm, vice, and instability and lack of control – to mind, person, life, earnings, dwellings and property, and surroundings – from other people and interrelations, wider</p>

	social/economic/political environment, state and civil society, and in relation to natural (flora and fauna) and man-made environment. ¹⁷
	<ul style="list-style-type: none"> • (Q)
12. <i>Life expectancy</i>	<p>When historically (and in general) death rates in a population is generally attributed to natural death rather than other causes (given that mortality rate census information or other valuable sources are available), and average life expectancy is high.^{18,19} Or, when the risk of dying due to health, other externally influenced health conditions (e.g. poor sanitation), accidents and emergencies, environmental vulnerability, nutrition etc. is very low or non-existent. Mortality here includes infancy and early childhood mortality, and maternal mortality that are non-accidental (deaths due to pregnancy, its termination, or childbirth).²⁰</p> <ul style="list-style-type: none"> • (Q; F)
13. <i>Safe water use</i>	<p>This is a health indicator. When people use water that is safe and adequate and will not endanger health and livelihood activities.²¹</p> <ul style="list-style-type: none"> • (Q)
14. <i>Well balanced nutrition</i>	<p>This is a health indicator. When people are able to nourish themselves with well-balanced foods consistently.²²</p> <ul style="list-style-type: none"> • (Q)
15. <i>Disease protection</i>	<p>When people use, have, or are involved with processes and initiatives, set-ups, institutions, or other activities that are targeted at protecting and improving responses to diseases and vulnerability to these.²³</p> <ul style="list-style-type: none"> • (Q)
16. <i>Clean and durable living</i>	<p>This is a health indicator. When people are living in places or involved in endeavours that promote good sanitation – all types of waste – and does not endanger health and life activities.²⁴</p> <ul style="list-style-type: none"> • (Q)
17. <i>Communal and social capital</i>	<p>This is an indicator of cultural and social vitality. All conditions, events, processes etc. wherein people show cohesion, potential for trust, networking and working together and interconnectedness, altruism, benefaction. This also includes overall support for each other in process of using human, material, natural, and money capital in everyday living and in the pursuit of knowledge, improvement, and progress.²⁵ This can come from families, communities, social organizations, institutions, partnerships with various organizations etc.</p> <ul style="list-style-type: none"> • (Q; P)
18. <i>Civic²⁶ engagement and participation</i>	<p>This is an indicator of cultural and social vitality. When people have the opportunity, capacities with supporting facilities and</p>

	<p>functions, are connected to, formally included, and in all fairness allowed to participate in the processes of, and active engagement to improve: public service, and normal interrelationships of civil community – social, economic, cultural, political, administration, development and growth processes – and governance of state/city; this also includes political freedom, recognition, and engagement.²⁷</p> <ul style="list-style-type: none"> • (Q; E; G)
19. <i>Social interconnectedness</i>	<p>This is an indicator of cultural and social vitality. When people have capacities for forming and obtaining knowledge and information, feedback, social networking and reach mechanisms in their livelihood endeavours, and civil and social relations; this includes having, access and use of communication and information²⁸ services and facilities.²⁹</p> <ul style="list-style-type: none"> • (Q; E; G)
20. <i>Cultural, ethnic, and civil liberties</i>	<p>This is an indicator of personal freedom. When people have the freedom, autonomy to express views, choice, beliefs, have social representation, organization, and movement. They have assurance of protection of civil, social, cultural rights and tolerance of these, and justice and regularity regardless of ethnicity, culture, gender, identity, and social standing.³⁰</p> <ul style="list-style-type: none"> • (Q; E; G)
21. <i>Gender equality</i>	<p>When women are protected from harm and oppression, and there are no settings in place that deny women rights to protection from such, and they are allowed equal opportunity with capacities to any form of activity in the pursuit of livelihoods and living.³¹</p> <ul style="list-style-type: none"> • (E)
22. <i>Education and skills</i>	<p>When people have some form of educational, and/or vocational and skills set training – primary, secondary, or tertiary level – the most basic of which are for reading, writing, productivity, and public participation.³²</p> <ul style="list-style-type: none"> • (Q)
23. <i>Equitable education</i>	<p>When both male and female children in society have equal opportunity to and can access education – at least to secondary – and progression in it.³³</p> <ul style="list-style-type: none"> • (E)
24. <i>Assets</i> ³⁴	<p>When people have, or there are institutions/organizations in place that enable access to ownerships, use, and powers over assets holdings (all tangible and intangible forms of, including dwellings).³⁵</p> <ul style="list-style-type: none"> • (E)

25. <i>Life experience, affect, eudaimonia</i> ³⁶	<p>These are core and complex aspects of subjective wellbeing. When people are basically satisfied and content with facets of life, they do not associate negative feelings to their living, and consider their living is worthwhile and has a sense of purpose; what's more, they anticipate much the same conditions for the future.³⁷</p> <ul style="list-style-type: none"> • (Q)
26. <i>Public services and goods – access</i>	<p>When people can adequately access – use, afford, and are efficient – spaces, facilities, institutions and processes that support living and livelihood activities, most especially, shelter, food, education, health, employment, social facilities and support institutions.³⁸</p> <ul style="list-style-type: none"> • (E; F; G)
27. <i>Open public spaces – access</i>	<p>When people have within their vicinity and can access and use clearly assigned public spaces and facilities for many uses that range from circulation, cultural, work, recreation, leisure, and social networking etc.³⁹</p> <ul style="list-style-type: none"> • (Q; E)
28. <i>Functional density</i>	<p>When people have the opportunity for diverse and vibrant spatial interactions owing to a balanced or rich mix of complementary land-use functions and activities that include residential, work and local commerce, and recreational that keep places accessible, animated and somewhat safe.⁴⁰</p> <ul style="list-style-type: none"> • (E)

Endnotes

¹ Informal employment comprises all jobs in unregistered and/or small-scale private unincorporated enterprise, covering units that employ hired labour, run by individuals or groups, self-employed persons, or with the help of unpaid family members (International Labour Organization, 2013; in UN-Habitat, 2014b).

Informal employment, according to the UN-Habitat (2014b) is an accurate and substantial indicator for prosperity, because (despite the formal sector being more secure) a great number of people in developing regions are engaged in it to counter poverty.

² (Levitas et al., 2007; OECD, 2001; UN-Habitat, 2014b, 2013a).

³ (UN-Habitat, 2014b, 2013a).

⁴ (UN-Habitat, 2014b).

⁵ When there are fewer people engaged in work, or a larger number of older persons not in work and being supported by those who are active, it can adversely affect savings affordances, investment, and city growth (ibid).

⁶ (UN-Habitat, 2014b, 2013a).

⁷ (OECD, 2001; ibid).

⁸ (Forum for the Future, 2014; Spring Singapore, 2011).

⁹ (Forum for the Future, 2014; OECD, 2001; Wikipedia contributors, 2017g).

¹⁰ Goods are considered as the tangible materials that can be used or harnessed for production to satisfy the human (Milgate, n.d.), and can include inferior, normal, luxury, complimentary, and giffen or free goods (Heakal, 2014; Pettinger, 2011). Services, however, are intangible materials used, and functions performed in every day production (Milgate, n.d.).

¹¹ Capital is any tangible or intangible asset that can be applied into production of things to support living, and utilize innovation and technology to render services and harness goods for productivity (Forum for the Future, 2014; OECD, 2009; Spring Singapore, 2011).

¹² (Forum for the Future, 2014; Kumbhakar, 2006; Spring Singapore, 2011).

¹³ (McKay and Collard, 2003; OECD, 2001; UN-Habitat, 2014b, 2013a).

¹⁴ 'A prosperous city seeks to build the appropriate foundations to increase mean household income to foster consumption, savings and well-being.' (UN-Habitat, 2014b, p. 14).

¹⁵ This is an international monetary average established by the World Bank.

¹⁶ (CBS, 2014; Kate Bird, 2009; Levitas et al., 2007; UN-Habitat, 2016c, 2014b, 2013a, 2003a).

¹⁷ (Legatum Institute, 2016; OECD, 2013a; UN-Habitat, 2013a).

¹⁸ Ibid.

¹⁹ Life expectancy measures are usually taken in 5year intervals (UN-Habitat, 2014c).

²⁰ ²⁰ (UN-Habitat, 2014b).

²¹ Ibid.

²² Ibid.

²³ Ibid.

²⁴ (UN-Habitat, 2013a).

²⁵ (Forum for the Future, 2014; Legatum Institute, 2016; Shah, 2012; Spring Singapore, 2011; UN-Habitat, 2013a).

²⁶ 'Civil' and civic, means interrelations and duties of citizens and between citizens and government (TheFreeDictionary, 2016).

²⁷ (Legatum Institute, 2016; Levitas et al., 2007; OECD, 2013a; Shah, 2012; UN-Habitat, 2016c, 2014b).

²⁸ For example, internet, libraries, computers, phones etc.

²⁹ (UN-Habitat, 2013a).

³⁰ (Ibid; Legatum Institute, 2016; OECD, 2013a; Shah, 2012; Yinan, n.d.).

³¹ (UN-Habitat, 2016b, 2013a).

³² (UN-Habitat, 2014b, 2013a).

³³ Ibid.

³⁴ An asset is any useful or valuable thing that can be owned, controlled, or used to produce further value (Wikipedia contributors, 2017h).

³⁵ (Kate Bird, 2009; Levitas et al., 2007; UN-Habitat, 2016b, 2013a).

³⁶ Conceptualizing these aspects of subjective wellbeing is complex and involves diverse processes.

³⁷ (OECD, 2013a).

³⁸ (UN-Habitat, 2014b, 2013a).

³⁹ (Ibid).

⁴⁰ (UN-Habitat, 2014b).

Prosperity indicators: (W) wider environment (natural, man-made)

<i>Indicator of prosperity</i>	<i>Real-life context</i>
1. <i>Adequate shelter and spaces</i>	<p>This is an infrastructure and spatial equity indicator. When people have at their disposal shelter, spaces and its facilities that is adequate and appropriate to their use and does not compromise, rights to adequate living, health (in its use), As such people are not overcrowded, space functions are ideal as well as dwellings arrangements and density.¹</p> <ul style="list-style-type: none"> • (F; E)
2. <i>Improved shelter of durable materials</i>	<p>When physical dwellings/shelter are improved, constructed, or renovated, maintained etc. to be structurally and architecturally more robust and provide the utmost of protection from mortal risks and elements, and reduce vulnerabilities to these in their use of materials, construction, and maintenance.²</p> <ul style="list-style-type: none"> • (F)
3. <i>Natural capital</i>	<p>This captures all organic life, renewable and non-renewable natural resources, sinks that absorb and recycle waste, and the processes of harnessing, regulating, and maintaining natural resources.³</p> <ul style="list-style-type: none"> • (P; Es)
4. <i>Open green spaces</i>	<p>When there are available open green spaces/areas in a place or within a vicinity of 300 meters of the place where people reside,⁴ and when these areas are accessible to people for use.⁵</p> <ul style="list-style-type: none"> • (Q; E; Es)
5. <i>Material capital</i>	<p>This captures all equipment (plants) and materials – tools, lands and buildings etc. – that are used towards productive outputs.⁶</p> <ul style="list-style-type: none"> • (P)
6. <i>Water</i>	<p>When places (or households) have improved water facilities and infrastructure that are accessible and efficient also.⁷</p> <ul style="list-style-type: none"> • (F)
7. <i>Improved sanitation facility</i>	<p>When places (or households) have sanitation facilities for all types of wastes, and sewer systems that are accessible and efficient.⁸</p> <ul style="list-style-type: none"> • (F)
8. <i>Education facility</i>	<p>Well-equipped and efficiently administered physical facilities for the purpose of educating people, promoting education and research.⁹</p> <ul style="list-style-type: none"> • (F)
9. <i>Social-education facilities</i>	<p>Well-equipped and efficiently administered physical facilities for purposes of pursuing, teaching, or promoting social development, e.g. in relation to food, recreation, public interaction, culture, and health.¹⁰</p> <ul style="list-style-type: none"> • (F)

10. <i>Health facility</i>	<p>When places have health care facilities dedicated to providing quality health service that is adequate, accessible, and efficient (this includes having certified doctors).¹¹</p> <ul style="list-style-type: none"> • (F)
11. <i>Power facility</i>	<p>When there is a power generation facility that is adequate, efficient and accessible – primarily electricity, which is essential for most aspects of living.¹²</p> <ul style="list-style-type: none"> • (F)
12. <i>Transport</i>	<p>Facilities and services that ensure safe, efficient, and equitable mobility and commutes – connectivity and integration – within urban place, this includes the road or street infrastructure and design, efficient vehicles and vehicular systems (private and public), and reductions in travel time.¹³</p> <ul style="list-style-type: none"> • (F; Q)
13. <i>'Green' transportation</i>	<p>When vehicles and vehicular and commuting systems used are predominantly non-carbon generating – a more comfortable and environmentally friendly system.¹⁴</p> <ul style="list-style-type: none"> • (F)
14. <i>Walkable neighbourhood</i>	<p>Places with smaller housing development blocks and more street intersection densities¹⁵ that encourage commuting on foot rather than motoring.¹⁶</p> <ul style="list-style-type: none"> • (F)
15. <i>Environmental quality</i>	<p>This is an indicator of subjective wellbeing and environmental sustainability. When living environments are attractive, and both people and places are not subjected to instability and harm, and degradation of environment – air (excesses of household, industry, agriculture, enterprise e.g. carbon monoxide, pesticides etc.), ground (spills, chemicals etc.), noise, in the animal and plant life, and other forms of pollution.¹⁷</p> <ul style="list-style-type: none"> • (Q; Es; G)
16. <i>Renewable energy use</i>	<p>When there is some degree of energy supply from sources that are inexhaustible and not from fossil fuel for domestic or primary, transport, and electricity use. these inexhaustible sources can include: geothermal, solar photovoltaic, solar thermal, tide, wind, industrial waste, municipal waste, primary solid biofuels, biogases, bio-gasoline, biodiesels, other liquid biofuels, non-specified primary biofuels, and charcoal.¹⁸</p> <ul style="list-style-type: none"> • (Es)
17. <i>Spatial inclusion</i>	<p>When places that are part of the city/urban are not excluded, segregated, or enclaved by (various forms of) physical barriers, by types of design and planning of spatial structure,¹⁹ and connectivity/mobility facilities in relation to the wider city spatial structure.²⁰</p> <ul style="list-style-type: none"> • (E; G)

18. *Efficient land-use*

When people are living on land specifically delegated to accommodate and provide for efficient functionalities of urbanization and opportunities to access development opportunities; also, when the land use is not encroaching on ecological structures that should enhance urban living – like sensitive green areas or agricultural land, resources etc.²¹

- (G)

Endnotes

¹ (OECD, 2013a, 2013b; UN-Habitat, 2014b, 2013a, 2003a; Xypolia, 2011).

² (UN-Habitat, 2014b).

³ (Forum for the Future, 2014; Legatum Institute, 2016).

⁴ The benefits of open green areas (free of pollution) to air quality and the quality of life of people within its vicinity is felt even when they cannot access to use it (UN-Habitat, 2014b).

⁵ (Legatum Institute, 2016; OECD, 2013a; UN-Habitat, 2014b).

⁶ This is also known as manufactured capital (Forum for the Future, 2014).

⁷ (UN-Habitat, 2014b).

⁸ (ibid; Pieterse, 2014).

⁹ Ibid.

¹⁰ (Pieterse, 2014; UN-Habitat, 2014b, 2013a).

¹¹ Ibid.

¹² Ibid.

¹³ (Acioly, 2014; Pieterse, 2014; UN-Habitat, 2014b, 2013a).

¹⁴ (UN-Habitat, 2014b).

¹⁵ The UN-Habitat (2014b) note that there are, however, various challenges to walkability in more dense neighbourhoods, like climate effects, congestion externalities and health effects.

¹⁶ Ibid.

¹⁷ (Legatum Institute, 2016; OECD, 2013a; UN-Habitat, 2014b).

¹⁸ (UN-Habitat, 2016c, 2014b).

¹⁹ Physical forms, circulation and outdoor spaces, and landscape (Valente-Pereira, 1982).

²⁰ (Levitas et al., 2007; UN-Habitat, 2016c, 2013a, 2003a; Xypolia, 2011).

²¹ (UN-Habitat, 2016c).

Prosperity indicators: (M) Management structures

<i>Indicator of prosperity</i>	<i>Real-life context</i>
1. <i>Informal employment standardization</i>	<p>When efforts or endeavours are being focused towards balancing the employment sector, by extending to the informal sector the security, regularity, knowledge, conducive working environments, and efficiency that the formal sector has to offer, this includes simplifying and making regulatory frameworks and processes for enterprise/businesses standardization more effective.¹</p> <ul style="list-style-type: none"> • (P; G)
2. <i>Capital & Informal capital monitoring</i>	<p>When monies earned through formal and informal engagement, and transactions are being remitted in, or captured and monitored and properly taxed by relevant institutions.²</p> <ul style="list-style-type: none"> • (P)
3. <i>Economic environment quality</i>	<p>Any form of regularity, standardization, and support for productive engagements to support persistent growth in output (quantity, quality, and diversity).³</p> <ul style="list-style-type: none"> • (P)
4. <i>Waste collection</i>	<p>Efficient and regulated collection and disposal of all forms of waste.⁴</p> <ul style="list-style-type: none"> • (Es)
5. <i>Solid waste recycling</i>	<p>Endeavours, efforts, and activities towards recycling, and re-using solid waste, whether it is focused on increasing lifespan of disposal systems, the creation of jobs or work engagement, or for monetary profits.⁵ (Es)</p>
6. <i>Renewable energy consumption</i>	<p>Incentives and active endeavours for the use of renewable energy sources for power generation and to support livelihood activities whether motivated by economic or ecological concerns.⁶ (Es)</p>
7. <i>Public accountability</i>	<p>When people are awarded rights and privileges for transparency – clarity and adequacy of information of authorities’ conduct; answerability – power to question the conduct of the other on its efficiency and adequacy, and correctness by both authorities and people; and good governance and enforcement – power to pass judgement on authorities’ conduct, thus safeguarding misuse of power and corruption.⁷</p> <ul style="list-style-type: none"> • (G)
8. <i>Socio-economic self-sufficiency</i>	<p>When people actively organize, and coordinate to engage and pursue local economic and social initiatives for generating own revenues to support living and livelihood, reducing dependencies on external assistance and benefaction, and with a focus on standardization.⁸</p> <ul style="list-style-type: none"> • (G)

Endnotes

¹ (UN-Habitat, 2016c, 2014b).

² Capturing informal capital can substantially improve (developing) cities productivity stance (The Economist, 2013).

³ (Legatum Institute, 2016; UN-Habitat, 2014b).

⁴ Sanitation facilities and activities towards clean and durable environments are only matched by an efficient waste collection and disposal system (UN-Habitat, 2014b).

⁵ Ibid.

⁶ Ibid.

⁷ (UN-Habitat, 2016c).

⁸ (ibid).

Appendix VI. The Slum-Prosperity Framework (SPF) manual

The Slum Prosperity Framework (SPF) is proposed as an actionable approach for slum intervention. It was designed to guide stakeholders – locals and slum community, urban and design professionals, NGOs, government officials etc. – towards pathways and potentialities for slum improvement that is appropriate to properly defined slum contexts and to cities' pursuit of prosperity. In this way, improving lives overall and streamlining a positive role for slums in the progress of cities. The SPF requires that stakeholders commit themselves to establishing two conditions in the slum that will set the community to **develop** and **thrive**, and therefore prosper: the first is their rights to adequate and appropriate spaces for development – through action 1: compiling the slum property map, and action 2: profiling potentials for prosperity; then, the rights to participate in the territorial control and management of spaces – through action 3: identifying requirements and resources as per needs, and action 4: designing intervention.

The SPF manual is designed to guide the implementation of these actions step by step. It is, however, important for stakeholders to understand the logic behind the SPF overall as conceived within the thesis.

Instructions for the SPF manual

For stakeholders, the SPF manual is structured according to the following:

THE ACTION: for stakeholders to engage on path to establish condition of prosperity.

Objective	The main objectives of engaging with such activity for stakeholders and slum community alike are outlined in this section. These actions, in general, require logical analysis, assessments and taking decisions by stakeholders.
Strategic tools for engaging actions for prosperity: Social Network Analysis (SNA)	These are the SNA tools implemented within the actions for prosperity to support stakeholders in their logical analysis and assessments, to make decisions involved in the actions for prosperity in the slum. SNA assumes actors in a social relationship as 'vertices' and their adjacent associations as 'edges', then uses mapping tools and algorithms to aid logical analysis and assessments about them. The actors for the SPF are the slum properties and prosperity concepts. The slum is a complex set-up of socially related and physical contexts, which improvement and endeavours towards prospects for prosperity can be approached through dimensions of people, our environments (natural and man-made) and management structures of the two. Carrying out actions for prosperity in slum (as in all real-life conditions that need to be resolved in a systematic, associative, and holistic way) will

require simple analysis: of identification, representation and documentation of slum and prosperity, and of objectively comparing, tracking and strategizing about their relations, and making logical assessments. SNA is proposed as tool to help simplify these processes for stakeholders that would otherwise be very complex to contemplate and provide clarity. SNA processes in the SPF can be implemented manually, and stakeholders can creatively design ways to do so with the slum community: for example, a public consultation where weight is given to a particular slum aspect owing to the number of people that mention it etc.

However, for those with access to computers, and this is strongly encouraged, SNA can be implemented in a software environment, making it more efficient and easier to apply. An easier than most SNA software is NodeXL. It was developed as a simple tool to allow non-programmers conduct SNA without the need for complex and sophisticated algorithms, it integrates with the ubiquitous Microsoft office Excel spreadsheet software (a familiar environment) and its prevailing functions. It is, however, somewhat limited in terms of certain graphical modelling capabilities (like assigning a gradient colour to concepts), but, has a robust technical build-up. What's more, using the interface of Excel also means one can input concepts simply as literature or from other built up worksheet data – in this case, about slum and prosperity. Also, one can attribute additional information, data, associations etc. to them in excel columns. Nonetheless, users still need to have some level of proficiency as it took this researcher some time to learn. To aid in this category, the interface proposed in the SPF has been calibrated for user input and guides towards how it was done to support further personalization.

Practical approaches for engaging towards actions for prosperity

The relevant approach[es] for engaging with each action for prosperity will be highlighted here. These are the minimal practice approaches that the SPF proposes and requires stakeholders to uphold whilst engaging with actions for prosperity in the slum community, and to support transferability. These approaches are consistent with global considerations of essential stances for the pursuit of prosperity and include the following:

(1) Taking an 'asset-based prospecting' approach: this means (a) engaging in a way that comprehensively searches for, recognises, and identifies the robust character of the slum – the people, their abilities and other socially related aspects, the environmental, spatial, and physical – without disregarding the challenges within, and with a view that all have the potential to become assets in the pursuit of prosperity. (b) recognising, encouraging and strengthening the people's capacities for pursuing improvement and their local autonomies towards such. (c) ensuring all

process are not conducted at the expense of people's and the natural environment's welfare.

(2) Taking an 'advocative and enabling participative' approach: this means (a) recognising and enabling slum community to voluntarily take part in the process, contribute to it socially, mentally, and physically, decisively influence and deliberate about it, and receive, share in and take responsibility for outcomes. (b) Considering the ethical implications of engaging slum community. (c) Fostering social relations and interactions to ensure people effectively participate.

(3) Taking an approach that is 'small and incremental in every way'. This is a time-conscious approach, it means (a) considering and identifying resource partners in the slum and all that it represents, no matter how inconspicuous. (b) taking on small and manageable, but impactful targets of engagement that are coordinated incrementally.

Stakeholders are further encouraged to continuously consult the discourse on these approaches whilst carrying out actions, this may help to improve engagement and guide other small activity steps for prosperity in the slum.

Steps-1, 2 etc.:

Here the step by step activities that stakeholders should engage in doing are proposed along with relevant integrated framework tools that are applied to conduct analyses and assessments to guide the most effective outputs. One of these frameworks is the Slum Property Map (SPM), a framework for comprehensively defining slums. Notably, the SPF is proposed as a non-prescriptive framework that is flexible and responsive. At inception of slum intervention, it is important to maintain a systematic approach to all actions proposed however; then, thereafter, as instructed, they can be enacted in a progressive way and relative to requirements.

Actions for slum prosperity

Action 1: Compiling the slum property map

Objective

To engage in applying the SPM (appendix III) to compile the slum property map of the slum and a narration that captures this character and tells its story in the city. The outcome here will be a comprehensive definition of the slum through (1) categories of slum properties that describe the character of the slum and highlight relevant aspects about the people, situations and conditions they live with and within, priorities and presiding interest in slum improvement

etc., (2) supporting information and data of such descriptions in appropriate format, (3) an interactive map of how the properties associate which also reveals their relative roles in defining its character with relevant analytical values and a visual model graph to support its definition and story of how it exists in the city.

Social Network Analysis (SNA) tools	Network graph. Degree centrality.
Practical approaches for compiling the slum property map	(1) Taking an 'asset-based prospecting' approach (2) Taking an 'advocative and enabling participative' approach

Step-1: apply the SPM

This is the most extensive action of the SPF. Stakeholders should gather their team and apply the SPM manual (appendix III). The SPM manual instructs through three steps to describe and define the slum.

- (a) First 'comprehensively analyse and compile descriptive properties' with all necessary information (knowledge, attributes of values, literature, implicit responses etc.) and data (survey results, maps, physical evidence, documentation, visuals and diagrams etc.) that contextualize them. Then, fill in the slum property map template (shown below) provided in the SPM manual. Slum properties to be compiled are colour coded and categorically numbered, it is essential to maintain this conceptual structure for clarity, referencing, consultation, and knowledge dissemination. A simple schematic outline can also be used to clearly represent the slum properties that describe the slum e.g. a manually drawn model, or a sunburst diagram.

Table VI.1: The slum property map template.

Category 1 (CAT ₁): Name properties of slum	<i>Appendices: information & data</i>	<i>Methodology notes</i>
(P ₁ -Cat ₁) SLUM NAME & ITS SIGNIFICANCE		

<p>Category 2 (CAT₂): Place properties of slum</p>	<p><i>Appendices: information & data</i></p>	<p><i>Methodology notes</i></p>
<p>(P₂-CAT₂) GEOGRAPHY</p>		
<p>(P₃-CAT₂) DEMOGRAPHY</p>		
<p>(P₄-CAT₂) TENURE CONDITIONS</p>		
<p>(P₅ - C AT</p>		

Category 3 (CAT₃): Functional properties of slum	<i>Appendices: information & data</i>	<i>Methodology notes</i>
<p>(P₆-CAT₃) PROVISION OF ACCESSIBLE SHELTER AND LIVELIHOOD OPPORTUNITIES</p>		

Category 4 (CAT₄): Procedures and Agency properties of slum	<i>Appendices: information & data</i>	<i>Methodology notes</i>
<p>(P₇-CAT₄) ORIGIN OF SLUM</p>		
<p>(P₈-CAT₄) FORCE AND DRIVER</p>		

	Category 5 (CAT₅): Structural properties of slum	<i>Appendices: information & data</i>
		<i>Methodology notes</i>
(P ₉ -CAT ₅) THE FORM OF THE SLUM		
	Category 6 (CAT₆): Process properties of slum	<i>Appendices: information & data</i>
		<i>Methodology notes</i>
(P ₁₀ -CAT ₆) THE AGE OF SETTLEMENT AND EVOLUTION.		
	Category 7 (CAT₇): Personality traits of slum community	<i>Appendices: information & data</i>
		<i>Methodology notes</i>
(P ₁₁ -CAT ₇) PLACE MAP: PERCEPTION OF SLUM		

Category 8 (CAT₈): Behaviours of slum community	<i>Appendices: information & data</i>	<i>Methodology notes</i>
(P ₁₂ -CAT ₈) HEALTH CONDITIONS		
(P ₁₃ -CAT ₈) ACTIVITIES OF PEOPLE		

- (b) Second build an interactive property map of the descriptive slum properties by making explicit how they associate – affect/influence/trigger each other, thereby becoming tags/anchors to each other; in this way also identify properties that play a stronger role in the slums character. Here stakeholders can choose the most appropriate format for documenting relevant tags/anchors and how they associate for each slum property, perhaps an additional cell in the slum property map template.
- (c) Third build a structured narrative that documents the interactive slum property map – all categories of slum properties compiled with information and data that contextualize them and how they affect/influence/trigger each other in a consistent format.

- (d) All comprehensive outcomes so far with information obtained and effective methods used to collect data should be documented in appropriate formats and proceed to the next step.

Step-2: structure and organise

Using the most efficient strategy and format, the comprehensive slum property map should be structured and organized to ensure that the first and second step in its compilation are robust enough.

- (a) First ensure that all descriptive slum properties are properly and clearly documented.
- (b) Second ensure that all slum property tags/anchors with type of association – affect/influence/trigger, have been comprehensively identified (where it applies) and captured for all descriptive slum properties in the slum property map. Here, a content analysis of all information can be conducted, the NVIVO software is an excellent tool for this.

Step-3: map properties

We implement SNA and NodeXL software at this stage. Stakeholders should proceed to capture the slum property map as a network through:

- (a) Capturing all the descriptive properties that compile the slum property map as 'nodes' in the network. The information and data that contextualize each slum property can be attributed to it.
- (b) Capturing, for slum properties that have been explicitly identified as having tag/anchor properties that they affect/influence/trigger, all the tags/anchors with type of association (whether affect/influence/trigger) as adjacent 'edges', including reciprocal ones.

NodeXL¹ uses Excel worksheets to separate information into concepts (figure VI.1). By default, there are worksheets called 'Edges', 'Vertices', 'Groups', 'Group Vertices' and 'Overall Metrics'.

- (c) All the properties that describe the slum should be input into the first column cells systematically by importing, pasting, or typing in the information.
- (d) Then, properties that are affected/influenced/triggered by each property, where such association has been identified and captured, should be input into the cells of the adjacent column creating an 'edge list' (figure V.2). Additional rows can be added above or below property cells to capture all their associations. Reciprocal associations should be noted also, and when a property does not associate with any other it should be input to associate with itself.²

- (e) The type of association – affect/influence/trigger – should then be input in an attribute column relative to each edge association.
- (f) All these properties with their associations represent the slum property map of the slum being described.
- (g) A network graph of the slum property map should then be modelled by selecting ‘show graph’ in the graph pane tool bar, and then turned to a directed graph using the ‘graph’ section in the NodeXL tool bar.

The model shows the slum properties as shaped vertices, and their associations (edges) – as lines connecting them (figure V.3). In the network graph, arrows on the tip of edge lines from a property to another will show the direction of affect/influence/trigger. When an edge has two arrows, to and from vertices, it means their association is reciprocal. Properties that are not associated with any other are shown as disconnected vertices with ‘loops’. Each association of directed affect/influence/trigger from a property to another is simply considered as an ‘outdegree’ and is valued as their geodesic distance, which is ‘1’.

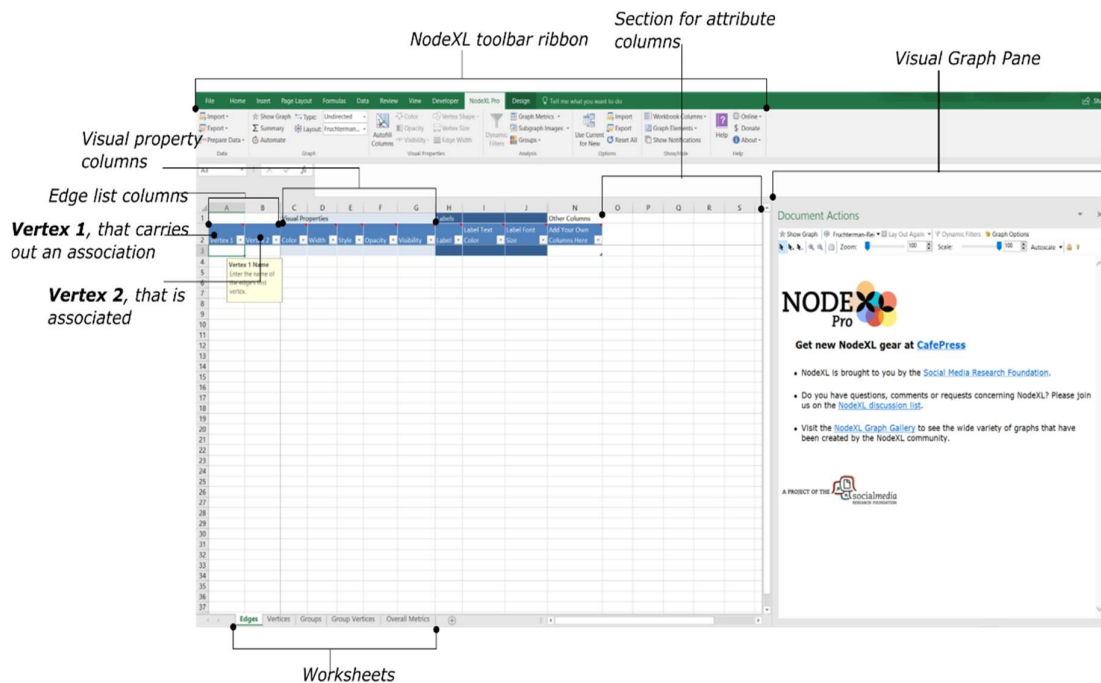


Figure VI.1: NodeXL interface.

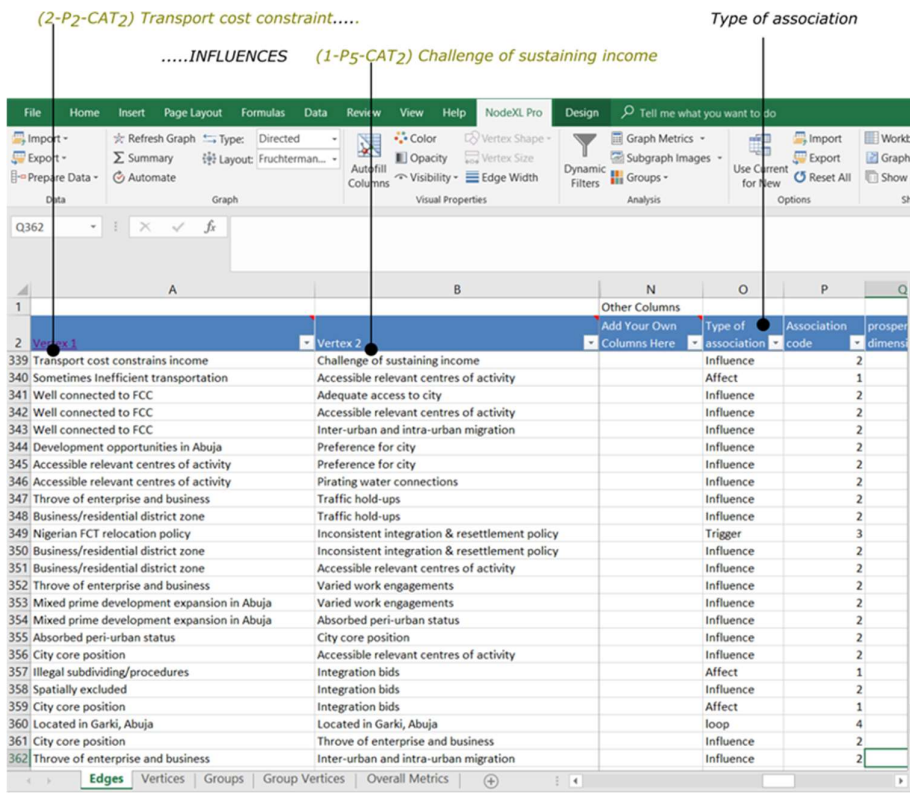


Figure VI.2: A slum property map edge list showing properties, their associations, and type of association. In the calibrated interface, number codes (affect-1, influence-2, trigger-3, loop-4) are assigned to types of associations for each.

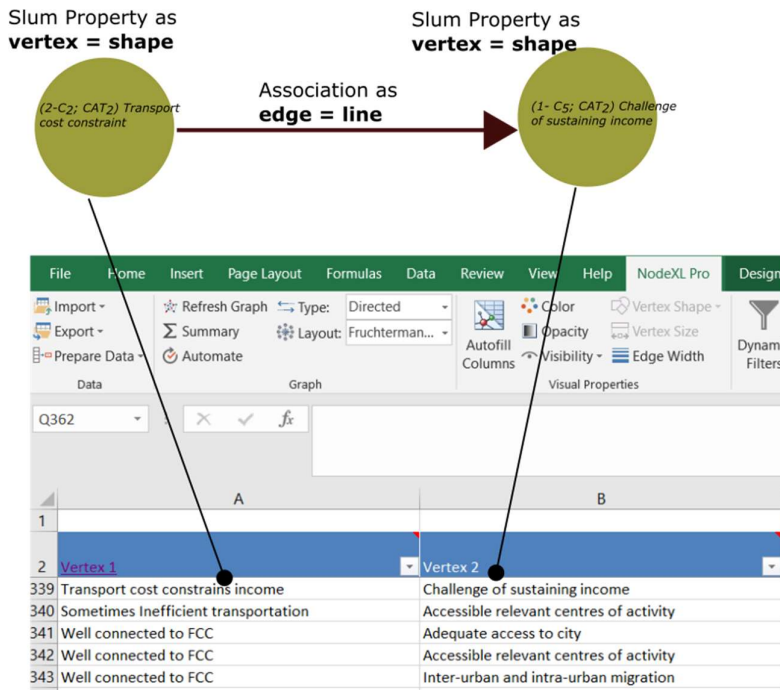


Figure VI.3: Generation basics for the slum property map network graph.

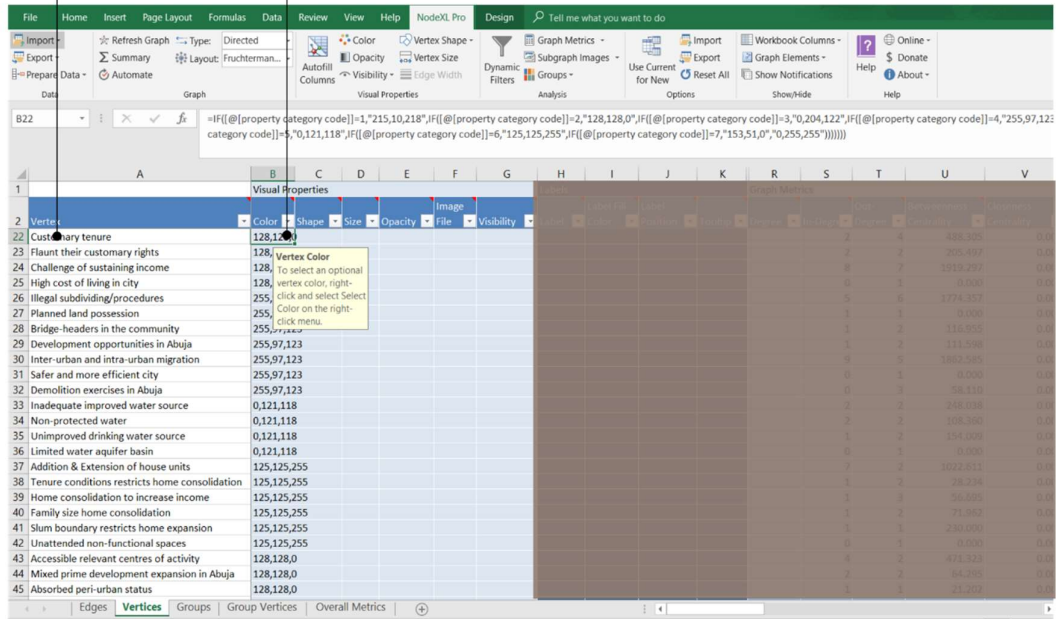
NodeXL will automatically generate a list of all the properties in the slum property map in the 'vertices worksheet' (figure VI.1) after a network graph has been generated and will systematically update any subsequent changes.

- (h) For each slum property, the property category and any relative information (as literature, objects, files, or links to files, or custom menu links³) can be appended in attribute columns.
- (i) Then, visual properties – colour, shape, line style – should be assigned to property 'vertices' and their adjacent associations by using the 'Autofill' tool or an Excel function to make them clearer to interact with (figure V.4). For the SPF interface, an 'IF' function is used in the 'visual properties' columns to assign colours that are consistent with the slum property categories colour codes in the SPM framework. Each type of association is also assigned different line styles. The network graph can be continuously refreshed and laid out.

Slum properties
(vertex) column:

Slum properties' vertex
colour using 'IF' function

Vertices worksheet showing all properties
that describe the slum and constitute the Slum property map



Different line styles used to show Associations between slum properties
using an IF function and type of association as reference

Edges worksheet showing slum properties
and how they associate

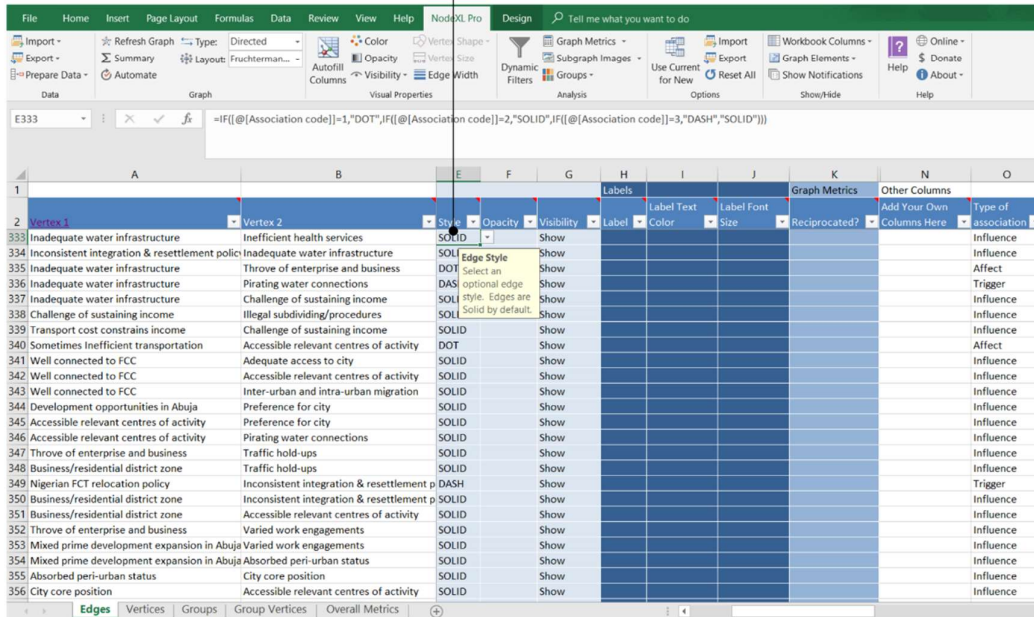


Figure VI.4: NodeXL interface visual properties assignment.

Step-4: analyse and review

For each property that affects/influences/triggers one or more properties, its outdegree value will be a number from 1.

- (a) An outdegree analysis of the slum property map network should then be calculated by selecting the relevant metric in the NodeXL 'Graph metrics' tool and documented.

For the slum property map the higher the value of outdegree a slum property has, the higher its directed associations, and therefore, its role in defining the character of the slum. For the SPF interface, the size of each property vertex in the network graph is set to its outdegree using the 'Autofill' tool – the largest vertices have highest outdegree (figure V.5).

The outcome from this step is useful for narrating the story of the slum and defining it (the third step in compiling the SPM). This is because the model provides a valuable visual documentation of all interactions in the slum property map that can be tracked, and their contexts consulted. The narration of the slum property map can be revised at this step or postponed accordingly.

- (b) It is suggested that all these variables and outcomes should form the subject of presentation and feedback forum between stakeholders and the slum community; the comprehensive slum property map so far developed should be perceived as relevant, appropriate, and applicable by all. The challenges experienced in the slum should especially be presented in a way that people do not develop antipathy towards the outcomes and initiative overall.
- (c) All recommendations should then be carried out by the stakeholder team and a comprehensive story of the slum proposed.

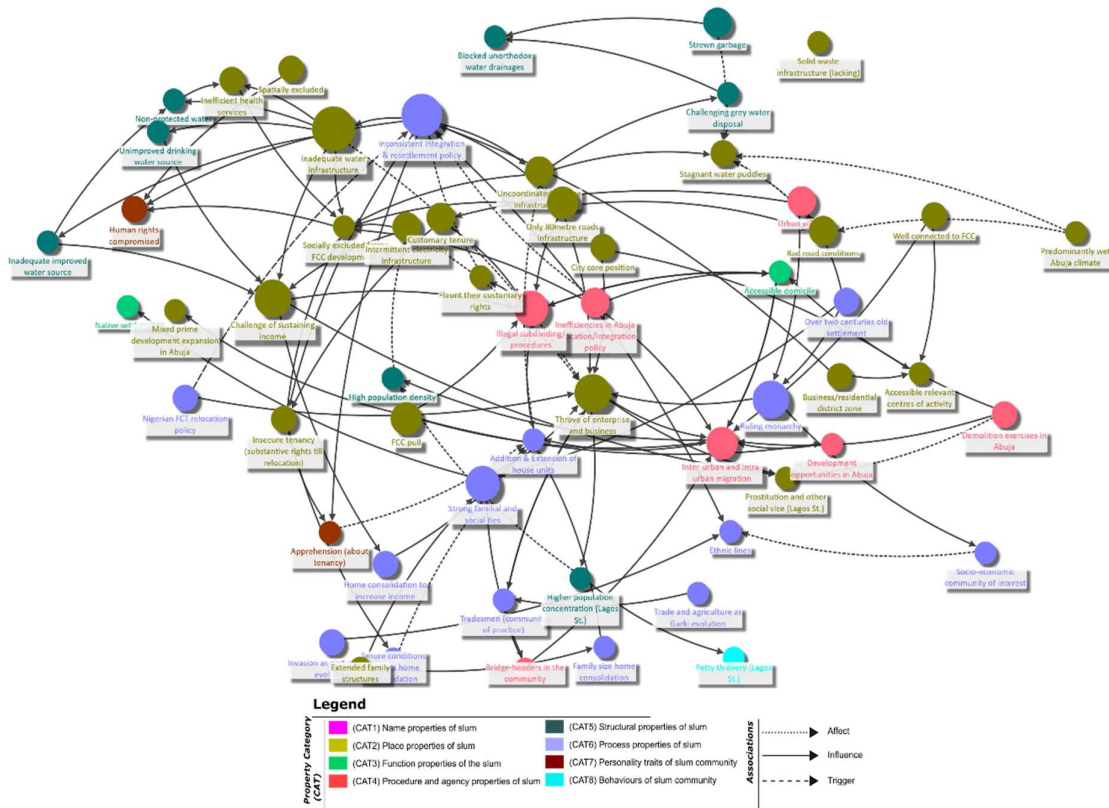


Figure VI.5: A typical slum property map showing descriptions of slum with highest outdegree (large disks) and influence in its character

Action 2: Profiling potentials for prosperity

Objective

For stakeholders to consider the compilation of the slum property map and establish a slum typology that reflects how adequate and appropriate it is at affording people the capacity to develop and prosper through: (1) a comprehensive conceptualization of how the slum property map performs across relevant contexts of (people, wider environment, and management structures) indicators for slum prosperity and a slum-prosperity map; (2) qualification of such potential for prosperity in the comprehensive slum property map along with an objective profile graph; and (3) a prosperity index that represents the slum prosperity typology, which highlights the slum spaces' affordance for and relative distance from prosperity – a point of reference and an objective 'pace-setter' – to improve on and surpass.

Social Network Analysis (SNA) tools

Network graph.
Degree centrality.
Affiliation of prosperity.

- Practical approaches for profiling potentials for prosperity
- (1) Taking an 'asset-based prospecting' approach.
 - (2) Taking an 'advocative and enabling participative' approach.

Step-5: match and qualify

Each slum property in the SPM needs to be logically assessed and then matched to an indicator for slum prosperity by consulting a proposed framework of indicators for slum prosperity (appendix VI). There are fifty-four indicators grouped about dimensions of people, wider environments, and management structures that describe model real-life contexts, which should ideally support development. This activity provides a structured (but non-fixed) way of strategizing about the pursuit of development towards slum prosperity.

- (a) Each slum property should be reviewed and matched to the contexts of one or more prosperity indicator(s) if its description indicates such context(s). The matching can occur in one of three ways: (1) By being a positive aspect of the slum that captures such context, potentially supporting and enhancing it. This type of match should be qualified with a value of '+1'. (2) By being a negative challenge, which compromises or excludes a prosperity context, potentially inhibiting it. This should be qualified with a value of '-1'. (3) By being purely descriptive with no potential to enhance or inhibit any context of prosperity, and therefore qualifies as a '0'. A table, like the one shown below, can be used to organise this analysis, with rows added as required.

Table VI.2: An example of a slum-prosperity indicator match and qualification template to fill in.

Dimension of prosperity	Indicator for prosperity (with number)	Slum property that matches indicator for prosperity (with number and colour code)	Potential that slum property holds for prosperity (enhances/inhibits)	Value of potential that slum property holds for prosperity (positive '+1'/negative '-1'/neutral '0')
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- (b) Each match to prosperity should be affiliated to the slum property in the edge list of the slum property network in NodeXL (figure V.1) (inserting each affiliation in a new row). One must, however, remember to 'skip' these matches (affiliations) to prosperity in the 'visual properties', otherwise NodeXL will consider them as associations and include them in relevant calculations. The value of each match and prosperity

dimension of the indicator(s) being matched should be added in relative attribute columns.

This leads to a slum-prosperity map, which can be modelled or schematised to show each contextual match between slum property and prosperity indicators, whether it was enhance or inhibitive of the pursuit, and the dimension of prosperity. A sunburst diagram or bar chart can be effective in showing this; it will show how the slum performs across contexts of people, wider environment, and management structures and which is more compromised, all relevant information for strategizing towards establishing prosperity conditions.

- (c) The cumulative prosperity potential value for each property (relative to number of matches to prosperity indicators) should then be calculated and attributed to it (figure V.6). For each valued slum property, this will be its potential for prosperity. For the SPF NodeXL interface, a 'SUMIF' function was used to search for all instances of prosperity match and attribute these to slum property.

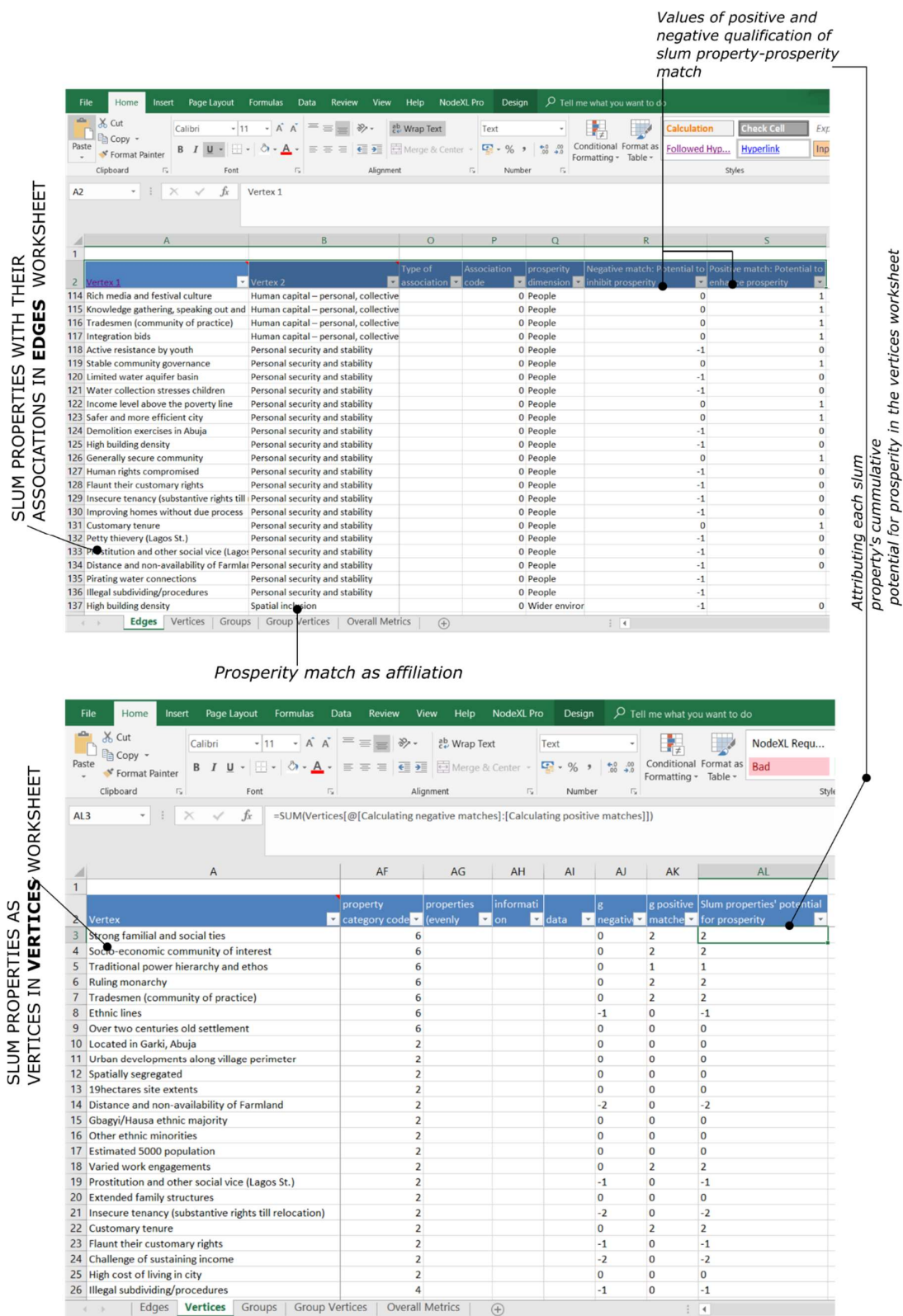


Figure VI.6: NodeXL matching slum properties to potential for prosperity.

Step-6: map prosperity

- (d) A slum property-prosperity potential X-Y graph of the slum property map network should be developed to capture prosperity potential values across all the slum properties. This analysis should retain all characteristics and values – interactive map of the slum with associations, outdegree and influential role in slum character – obtained in step 4, action 1 ‘compilation of the slum property map’.
- (e) To do this in NodeXL, the X and Y axis in the ‘Autofill’ tool should be set to capture the slum properties (evenly distributed) and their cumulative potentials for prosperity respectively. The ‘axes’ tool in the ‘Graph elements’ tool bar should then be activated before remodelling the network graph (using ‘refresh graph’).⁴ This leads to a profile graph of prosperity in the slum – points above or below a point ‘0’ where development towards prosperity can be potentially enhanced or inhibited (figure VI.7).

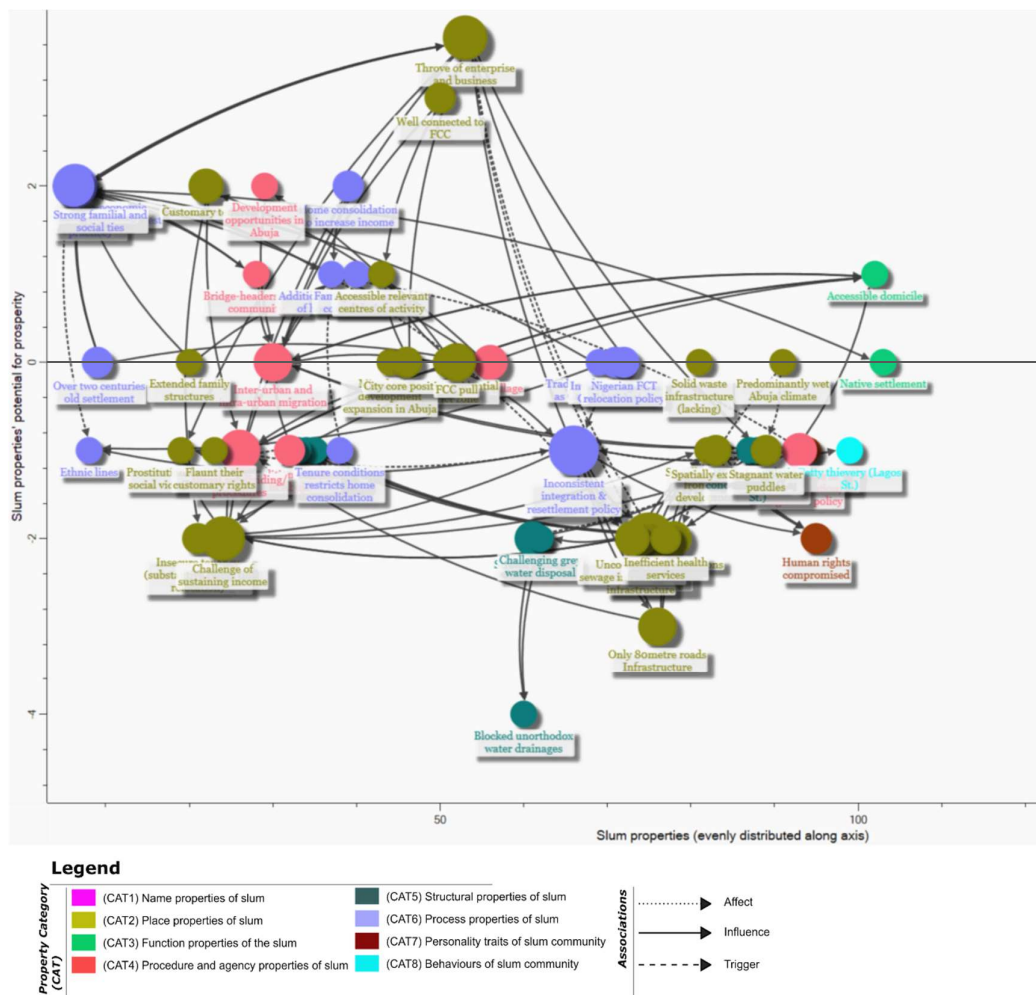


Figure VI.7: A typical slum-prosperity map in pattern graph showing associations between slum properties and their outdegree and influence in defining slum. Properties along the ‘0’ value line neither enhance nor inhibit prosperity.

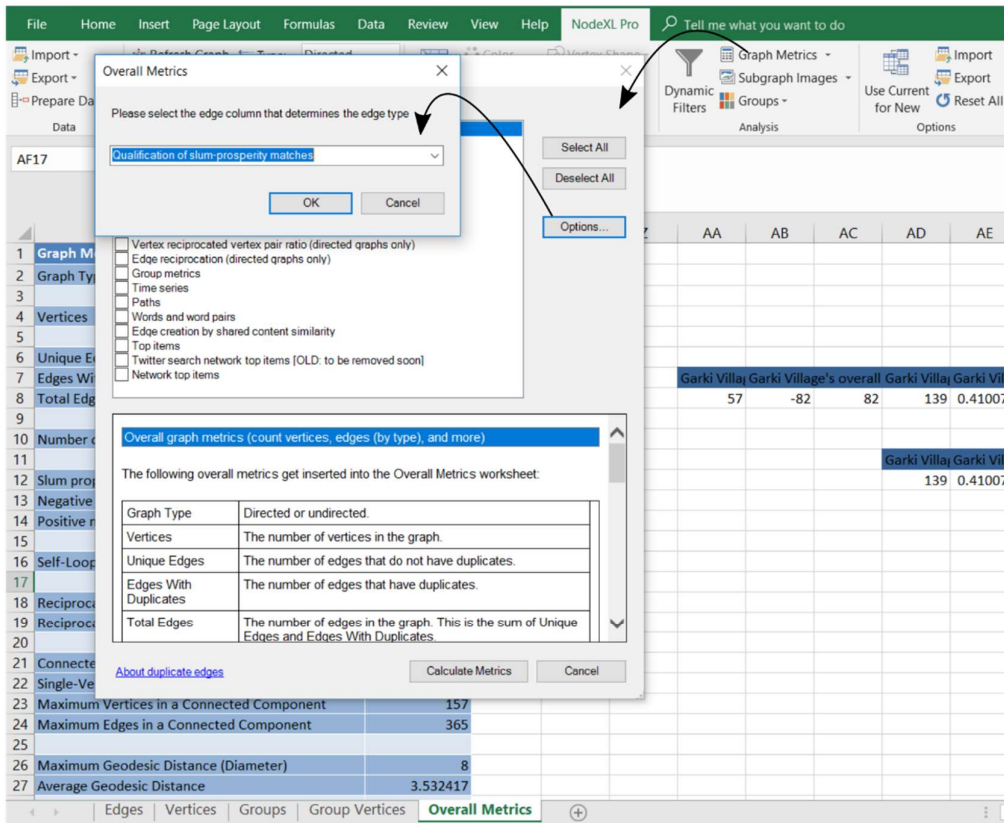
Step-7: analyse and profile

- (a) Taking a positive outlook, degree of overall matches that potentially enhance prosperity per overall match to prosperity for slum property map in entirety should be calculated to provide an index value. This can be a whole number index or percentage from – 0.00 or 1% (lowest degree) to 1.00 or 100% (maximum degree), and, will be the slum's affordances for prosperity and its typology in the city.
- (b) In the SPF NodeXL interface, the index value calculation is calibrated in two ways: (1) by calculating the slum property map networks' overall degree of slum-prosperity matches/affiliations and using the attribute column where all the qualifications of such matches are documented as the filter option in 'graph metrics' tool, then calculating overall graph metrics of the network and noting the value in the 'overall metrics' worksheet (figure VI.8). This can be recalculated every time there is a change. Simpler yet, and for automatic updating, (2) a 'SUM' and 'PERCENTATGE' function was inserted in separate cells (within the slum property vertices worksheet) that tells NodeXL to refer to all affiliations to prosperity, add up values, and provide an index and percentage for all positive matches that enhance prosperity. This too is documented in the overall graph metrics worksheet (figure VI.9).
- (c) Or, the prosperity index value and percentage can be manually calculated using the following formula:

$$\frac{\Sigma_{\text{positive}} = +1 \text{ slum property match to prosperity indicators}}{\Sigma_{\text{All slum property matches to prosperity indicators}}} * 100\%$$

- (d) The comprehensive slum-prosperity map with graph should chart a feedback process with the slum community. Outcomes should be presented and explained, especially regarding how contexts that capture indicators of prosperity are reflected in the slum.

Calculating graph metrics: selecting the column that tells NODEXL the types of prosperity affiliations



Result of calculation

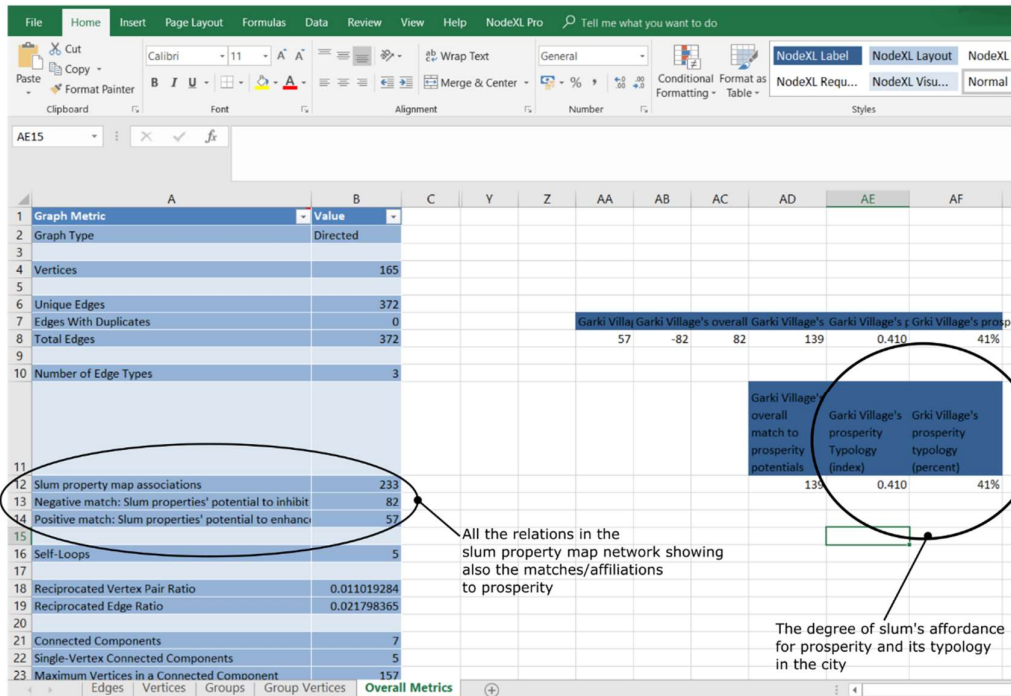


Figure VI.8: Calculating slum-prosperity index using 'graph metrics' tool.

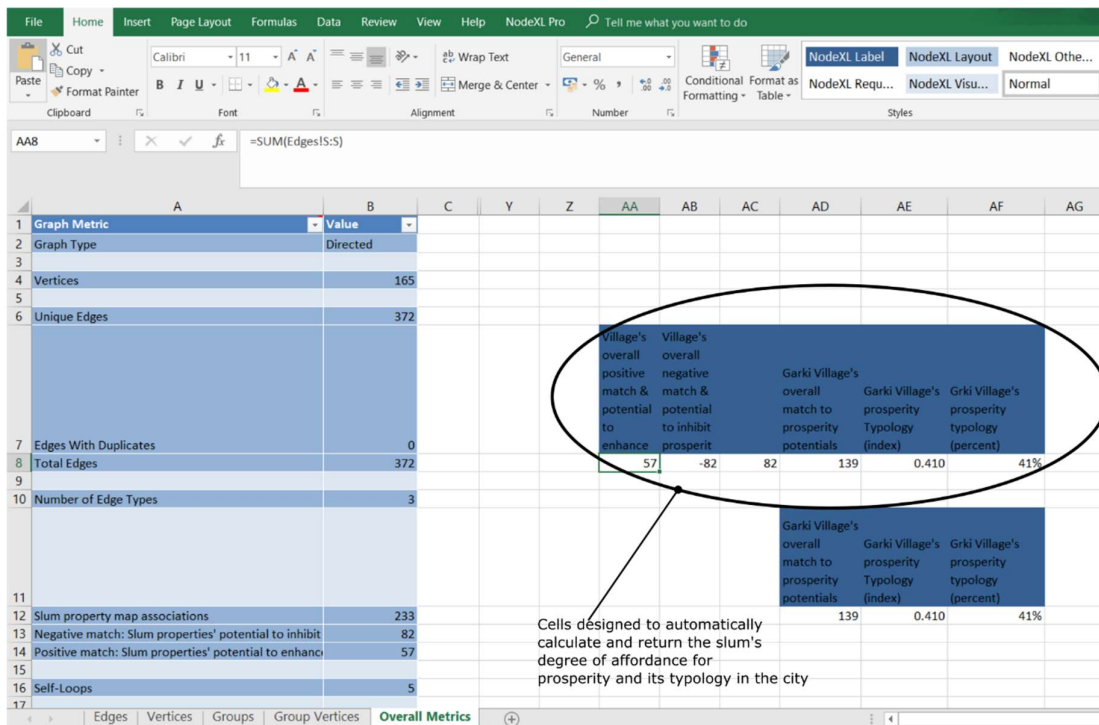


Figure VI.9: Calculating the slum-prosperity index and typology using the 'SUM' and 'PERCENTAGE' function.

Action 3: Identifying requirements and resources

Objective	To develop comprehensive set of information on slum and prosperity that is needed to strategize and design intervention to 'push-up' the slum spaces and support development, setting them on the path to thrive through: (1) comprehensive set of contexts – targets of engagement with required ideal spaces and resources to implement them – that are necessary and appropriate to improve the character of the slum, and (2) avenues for actively and pragmatically engaging towards this in coalition with the slum community.
Social Network Analysis (SNA) tools	<ul style="list-style-type: none"> Network graph. Degree centrality. Affiliation of prosperity. Eigenvector centrality. Betweenness centrality
Practical approaches for identifying requirements and resources	<ul style="list-style-type: none"> (1) Taking an 'asset-based prospecting' approach. (2) Taking an 'advocative and enabling participative' approach. (3) An approach that is 'small and incremental in every way'.

Step-8: find eigenvectors

- (a) Stakeholders should proceed to find significant eigenvectors within the slum property map. These will be slum properties that have a wide reach in the slum character due to extent of their direct and secondary associations. Creative ways of identifying eigenvectors can be identified and carried out with the slum community. Or,
- (b) In NodeXL, an eigenvector centrality should be calculated in using the 'graph metrics' tool to assign eigenvector values – from 0.000 to 0.1 – for each slum property. The calculation can be done alongside outdegree (step-4) for subsequent use. These slum properties will potentially have the widest and high degree of impact within the slum property map where actions need to be taken.

Step-9: map targets of engagement

- (a) A slum-prosperity-eigenvector network graph should be developed showing the comprehensive slum property map with properties' outdegree and influence in defining the slum, the slum-prosperity map and eigenvector centrality values.
- (b) In NodeXL, this can be done using the 'Autofill' tool with the graph structured in many ways to clearly show these outcomes. For the SPF interface, the size of property vertices is still used to show outdegree and influence, their prosperity potential is maintained on the 'Y' axis, whilst their eigenvector values are now shown on the 'X' axis (figure VI.10).

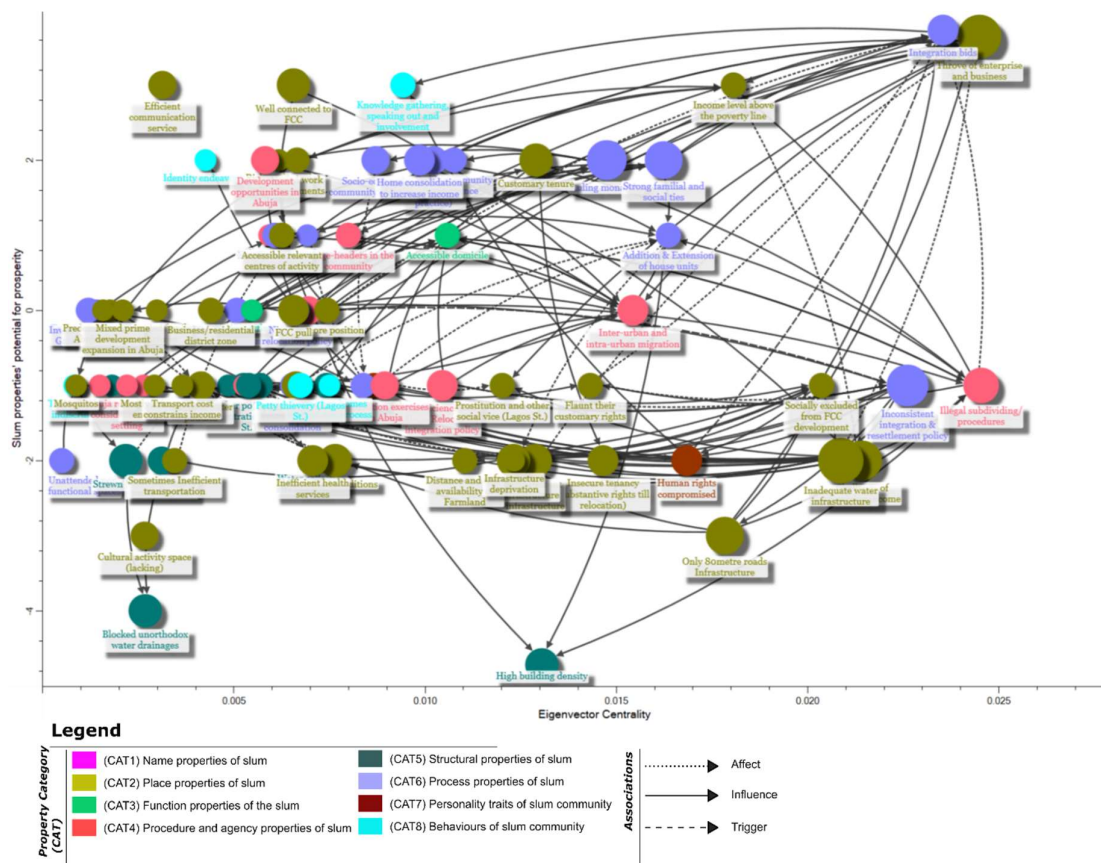


Figure VI.10: A typical slum-prosperity-eigenvector map in the NodeXL interface.

- (c) Stakeholders should debate and map potential targets of engagement in the slum character through the following:
- Selecting slum properties to ‘scale-up’ and sustain so as to further improve prosperity prospects and impact beneficial change in slum character overall. Potential targets should be from properties with potential to enhance prosperity, significant eigenvector value, and high outdegree.
 - Selecting slum properties to correct or remove so as to improve prosperity prospects and introduce beneficial change in the slum character overall. Potential targets should be from properties with potential to inhibit prosperity, significant eigenvector, and high outdegree.
- (d) To support these debates, the slum property map should be grouped by cluster using the ‘group’ tool and modelled in the graph pane using the ‘layout vertices in group’ option (figure VI.11). This will show properties more linked to eigenvectors that will potentially benefit from engagement, helping to streamline priorities and consider potential targets for incremental engagement.

For targets of engagement that are to be improved and sustained activity should carry on to the step-11, for those that are challenges and need to be set on course to prosperity, stakeholders can proceed to the next step-10.

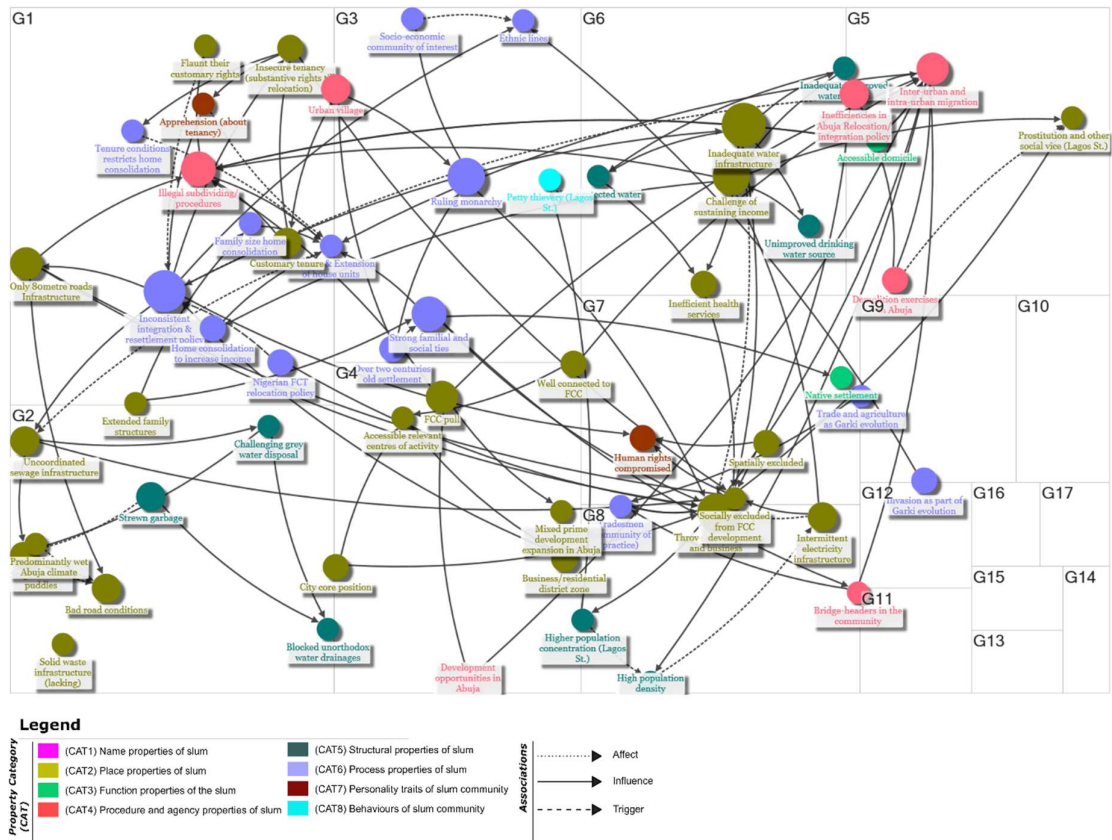


Figure VI.11: A typical slum property map group/cluster network graph. Significant eigenvectors have their labels centred to make them stand out.

Step-10: consider basic needs, and structure

- (a) Stakeholders should seek to prioritise those identified targets of engagement that are potentially compromising people's capacity to fulfil basic needs: of subsistence especially, then for protection or safety (lack of protection or safety can substantially challenge subsistence), then, the pursuit of other needs especially those that can synergise to fulfil basic needs of subsistence. This assessment should be based on logic in consultation with the framework of nine basic needs, which simply defines them, helping to select which properties suit the criteria. The framework of basic needs with proposed definitions can be accessed from section 6.3.1, box 6.1, however, a brief outline is provided in table VI.3.

Table VI.3: A brief outline of the Basic human needs.

Subsistence	This is what is needed to <i>stay alive</i> at the basic minimal level, or sustaining to exist
Protection	Being <i>safe</i> and <i>secure</i> from the occurrence of <i>harm</i> and <i>persecution</i> , threats of these, vulnerability to their effects and impacts, perceptions of their severity, and the probability of their occurrence.
Affection	The reciprocal conditions of love, devotion, fondness, or liking between people or living things, thus caring about the wellbeing and happiness of each other.
Creativity	The tendency to generate, invent, imagine, develop, identify, or recognize acts, ideas, possibilities, alternatives, novel products, concepts etc. That change an existing domain into something new, different, or better.
Understanding	Learning the procedures that underline a certain knowledge, and the principles behind it, such that one can interpret it, gain insight from it, cohere, and use it towards some purpose or goal.
Identity	Self-awareness of ourselves and as human beings, in addition to awareness of characteristics, traits, and social roles that are true to oneself at various times and locations.
Leisure	Freely chosen passive or active activities performed during time that is free from maintenance of self, and are perceived to be satisfactory, enjoyable, and have positive effect on self, others, and/or elements in the environment.
Participation	Voluntary contribution/collaboration, involvement, organization, cooperation, active influence, and deliberation across any realm of meaningful social activity with the aim of social and economic progress
Transcendence	This is the attitude of pursuing living as a whole, and practically engaging with one's existence in and with the wider environment to confront challenges, conditions or situations, limitations etc. that highlight a necessity, seeking to augment and go beyond these to a more progressive state.

Step-11: define required spaces and resources

- (a) After targets for engagement have been identified, mapped, and structured, stakeholders will need to discuss and agree upon types of spaces that can improve the nature of slum properties – correcting or removing challenges – and effectively support basic livelihood needs pursuit. For example, a type of space that could replace (3-P₉-CAT₅) high building density could be ‘standard densities’.
- (b) The required space agreed upon for each slum property that is targeted for action should be documented appropriately and in NodeXL using a titled attribute column – becoming the intervention objective.
- (c) The next task is to analyse and assign appropriate resources needed to implement the ideal spaces for the targets of intervention. Several aspects should be considered in order to determine the most appropriate resources, which include (figure VI.12):

- The comprehensive context of such target – its contextual description with supporting information and data. Considerably, slum properties categorised as (CAT₁) name, (CAT₂) place, (CAT₃) function, (CAT₄) procedures and agency, (CAT₅) structure, and (CAT₆) processes will indicate necessity for tangible and intangible effects, institutions, mechanisms, spaces etc. that people should *have* and *interactions* between them. Whilst slum properties categorised as (CAT₇) personality traits, and (CAT₈) behaviours will indicate that people's *doings* and conditions of *being* are the focus of attention.
- Associated properties, and type of association – affect/influence/trigger, highlighting possible risks and vulnerabilities to avoid with the right resource.
- Expected impact and ripple effect of improving such target on direct and secondary associated properties, and review choice of resource if such impact will not be as effective.
- The context of prosperity indicator it is matched with and dimension – people, wider environment, or management structure – to ensure resource will set slum community to support the model context of the indicator and it is appropriate to the dimension.

Resources could be other space settings (tangible or intangible), activities that may need to be enacted, contexts that are already existing and easily accessible, or those that will be built up from even the smallest of sources.

Here, it is necessary to remind stakeholders about the importance of consulting with the practical approaches for carrying out actions for prosperity that apply. This is important to support endeavours of designing resources as well as the next steps 12 to 15 that are consistent with prosperity pursuit.

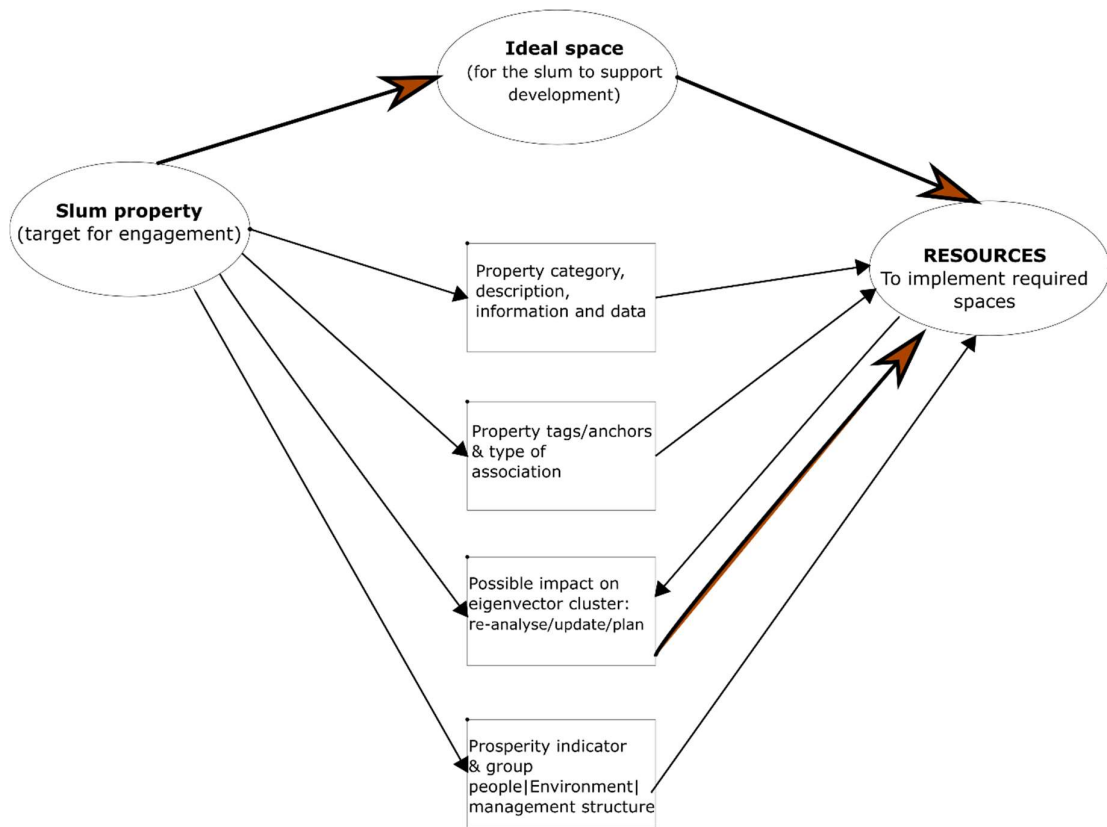


Figure VI.12: Aspects for consideration to define appropriate resources.

Step-12: define starting blocks

- (a) The next task is to identify essential 'starting-blocks' from within the slum. Stakeholders will need to consider the comprehensive slum property map with a prospective eye and establish if any (social, physical, or behavioural context etc.) can potentially trigger, broker, or partner practical resource implementation to establish required spaces – becoming bridge-builders within the slum.
- (b) To assist in making logical choices, a betweenness centrality of the slum property map should be calculated and modelled in NodeXL to reveal properties, which due to the way they associate with property clusters act as bridges between them. Starting-blocks can be sought from properties that preferably have over average betweenness and do not inhibit prosperity. For the SPF interface, these are modelled along with slum-prosperity-eigenvector and assigned a different shape to make them explicit (figure VI.13).
- (c) Starting-blocks should be discussed as part of an engagement process with slum community. When none can be found within the slum property map, then it has issues! Stakeholders should initiate a starting point of interest that actively engages the slum community.

- (d) Starting blocks for targets of engagement and plan of activity can also be documented within appropriately marked attribute columns in the NodeXL vertices worksheet.

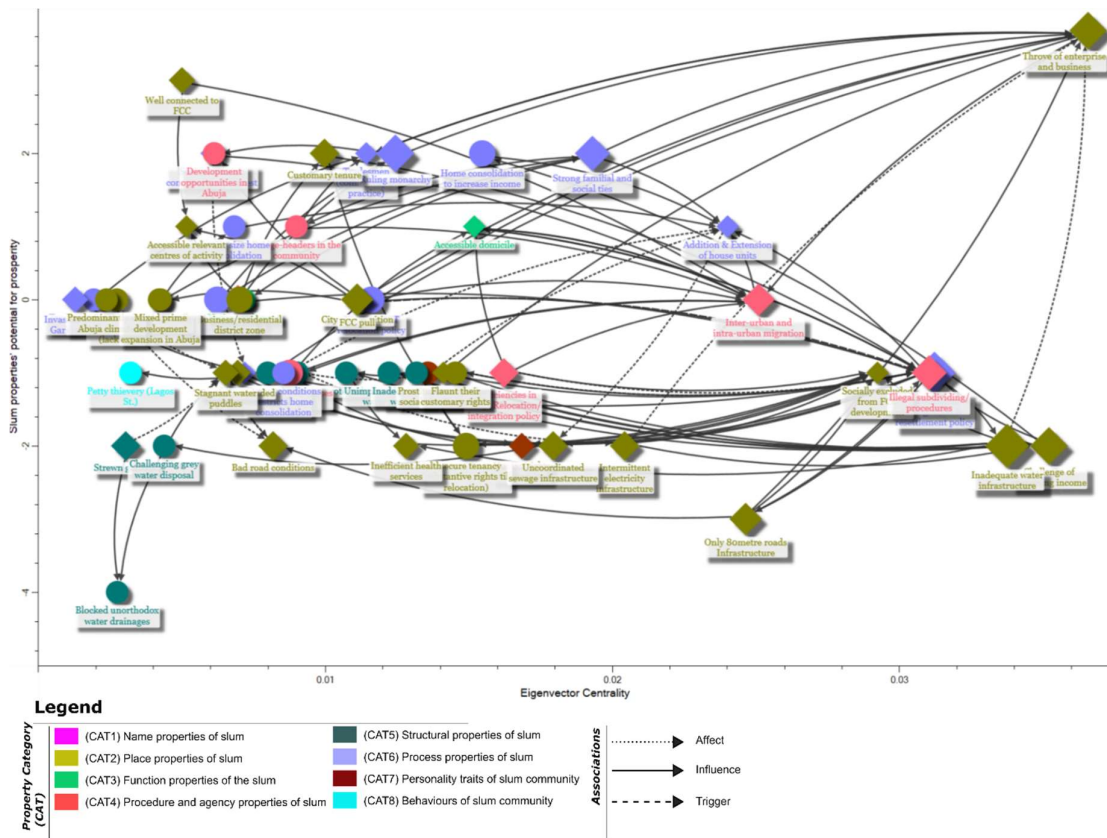


Figure VI.13: A typical slum-prosperity-eigenvector-betweenness map. The slum properties with diamond shape are those with over average betweenness.

Step-13: feedback and buy-in

- (a) The stakeholder team should then organize feedback workshops with the slum community – an avenue for knowledge gathering, forming rational debates, making concessions and forming consensuses. The theme of the workshops will involve intense discussions, creative and simple activities⁵ to ascertain the people’s perception of proposed intervention targets, ideal spaces required, needs, resources, and planned starting-blocks in the process. Workshops can be organized to reflect the different age and gender groups (or even ethnic where necessary) in the slum. In this way, differences in perceptions, knowledge, culture, ideals, aspirations, and responses to place will be taken into consideration.
- (b) Ultimately, the loop between all actions – 1 to 3 – must close and pave the way for the design of a slum intervention program.

Action 4: Designing intervention

Objective	<p>To consider the myriad of possibilities and pathways for improvement established so far and pursue an intervention program to improve lives and livelihoods enabling development in the slum and maintain such, and further establish conditions that allow them to thrive. The program is set to be: (1) progressive and sustain through lives changes and transformations, and (2) interactively targets all development milieus – people, social networks, and environment in ways that are systematic, flexible and responsive.</p> <p>Slums, just like other human communities are complex with continuously changing and unpredictable relations between the above milieus. These local complexities will remain even after the slum has been well defined and will need to be considered.</p>
Social Network Analysis (SNA) tools	<p>Network graph.</p> <p>Out degree centrality.</p> <p>Affiliation of prosperity.</p> <p>Eigenvector centrality.</p> <p>Betweenness centrality</p>
Practical approaches for intervention design	<p>(1) Taking an ‘asset-based prospecting’ approach.</p> <p>(2) Taking an ‘advocative and enabling participative’ approach.</p> <p>(3) An approach that is ‘small and incremental in every way’.</p>

Step-14: establish a program

- (a) Stakeholders should proceed to consider all outcomes so far and the most logical pathways for engagement and design an intervention program. Whatever program is drawn up, its design should be:
- (b) Well targeted.
- (c) Primarily implemented by the slum community with rigorous guidance from stakeholder team – giving them more responsibility to actively engage and manage their spaces and keep this engagement with the slum community alive or intervention as whole will lose the ‘buy-in’.
- (d) Integrated with human capacity building programs for the slum community.
- (e) Flexible and allowed to adapt when needed so slum community can respond well to changes and challenges and keep delivering small improvements along the way.

Step-15: looking back to go forward

Therefore, it is important for stakeholders to consider the SPF as a progressive improvement and monitoring tool:

- (a) Stakeholders should, at established periods, seek to map changes that occur in the character of the slum, to capture it and assess the impact of intervention using the SPM (which can also be implemented in a flexible and dynamic way) (action 1).
- (b) The slum-prosperity map should be updated to monitor its relative distance from prosperity (action 2), and establish whether to review – add-on, change, or maintain course of intervention.
- (c) Where course of intervention needs to be added-on or changed, actions 3 and 4 can then be re-enacted to respond to changes.

Stakeholders should also consider the SPF as a flexible framework of engagement and robust space for adaptations, revisions and re-contextualization when complexities arise in the slum or the city (especially regarding (4-P₈-CAT₄) structural policies and institutional functions). Or, there is progression in urban (and prosperity) research and practice. The four actions can be implemented 'as-needed':

- (d) To re-compile the slum property map when necessary and subsequent actions followed.
- (e) To re-assess the slum-prosperity map and typology of the slum with subsequent actions.
- (f) To review eigenvectors, resources, and starting-blocks when necessary, then,
- (g) Appropriately respond to such revisions in the intervention program.

Ultimately, it is suggested that stakeholders employ the use of a real-time visual dashboard that chronologically capture all incremental maps of engagement – activities, documented outcomes, changes made, re-assessments, revisions, and adaptations with progresses made especially in the slum typology. The visual dashboard can be any appropriate medium that is available and accessible – simple clipping board, the 'timeline series' tool in NodeXL, a time-line apparatus or series, a digital application, or more interactive yet, a dynamic web page etc. In the global environment of today, having a dynamic and interactive base for monitoring, reporting, knowledge extension, advocacy, partnership, and data cache about urban practice is just as essential as the engagement itself.

Endnotes

¹ For additional support on using NodeXL please refer to (Hansen et al., 2011).

² Otherwise it will not be identified by the software.

³ The add custom menu can be accessed from the graph options in the graph pane.

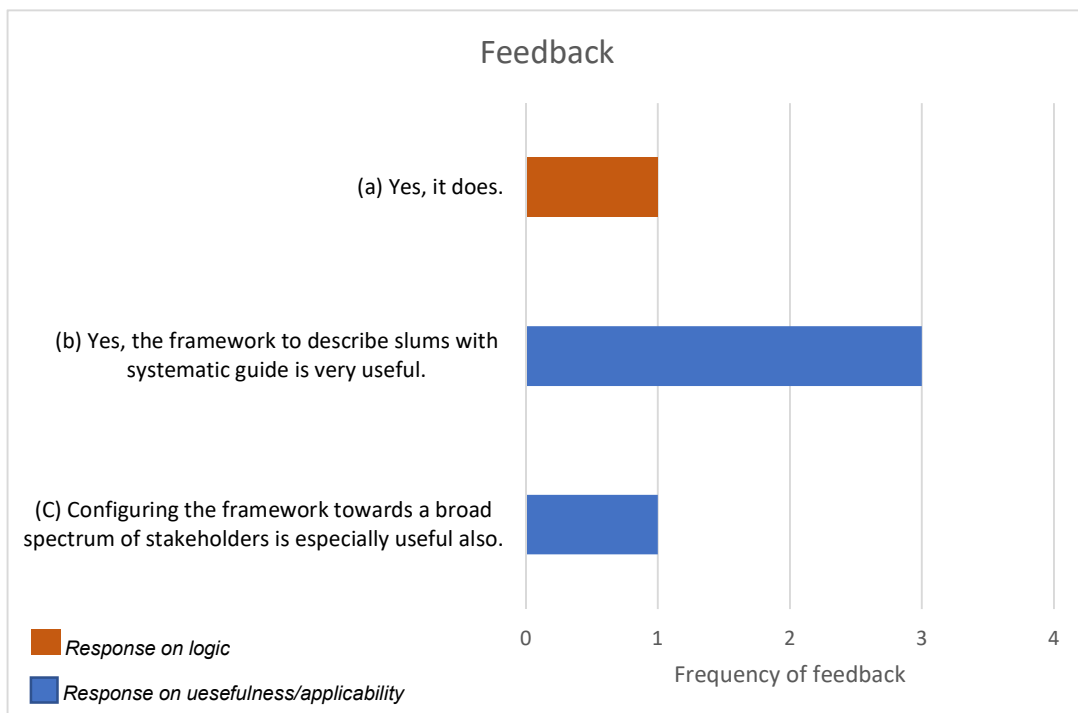
⁴ The possibility of a property enhancing prosperity at the same time inhibiting it should not be ruled out. When so, separate graphs of negative and positive prosperity can be shown interactively.

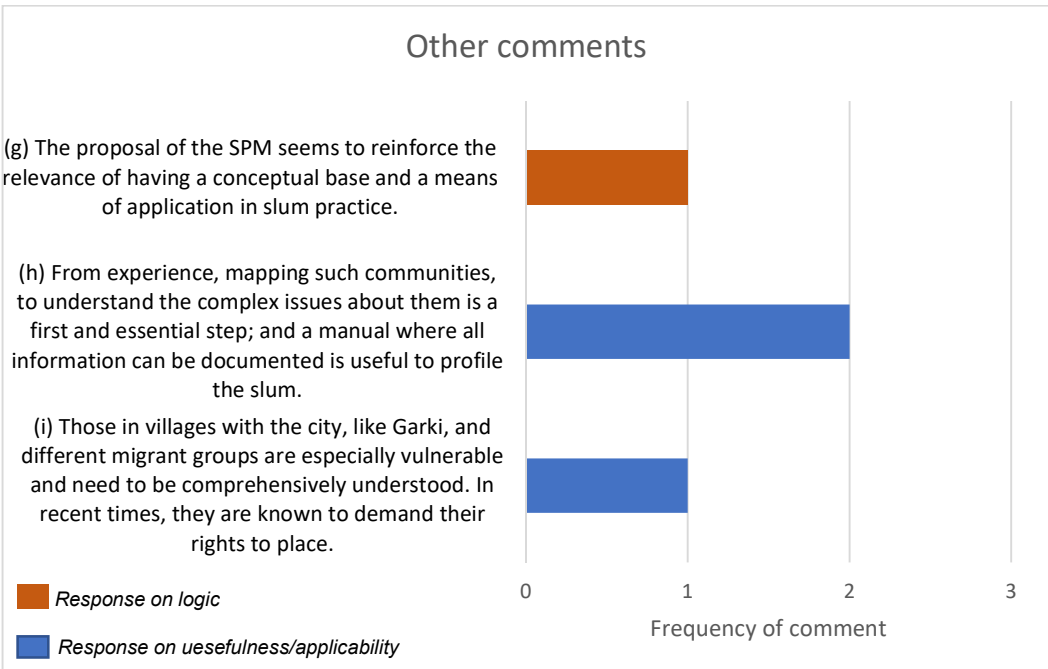
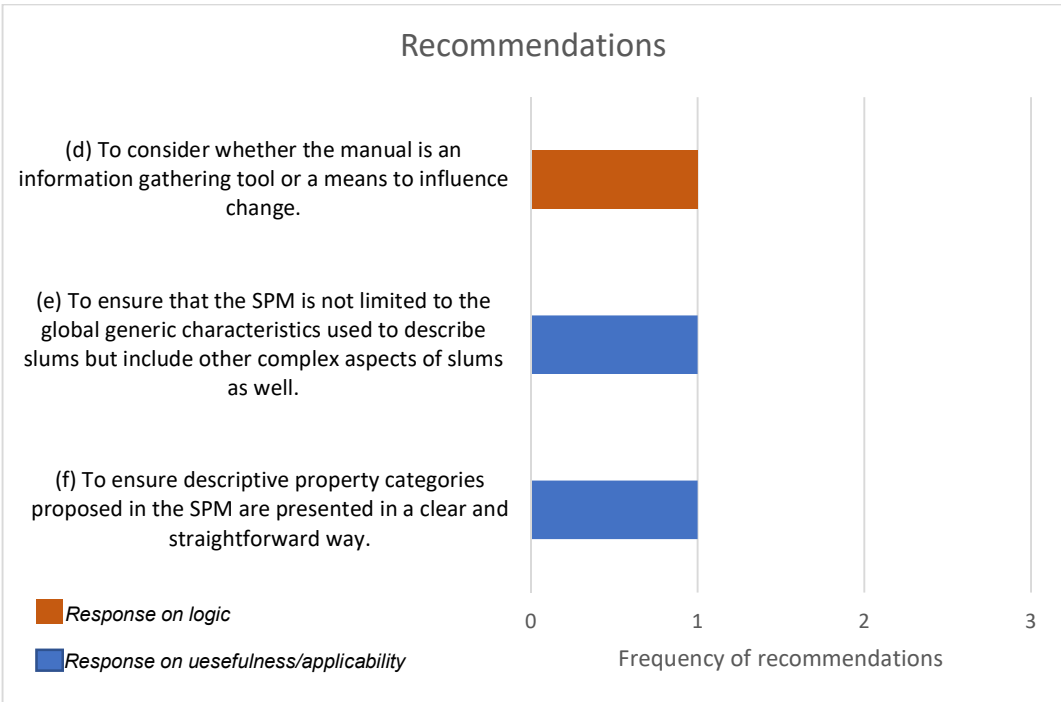
⁵ Refer to Hamdi (2010) where he discusses some effective methods that can be quite informative.

Appendix VII. A summary of expert opinions on the logic and usefulness/applicability of the Slum-Prosperity Framework (SPF)

Below is a summary of expert opinions given by five urban professionals and experts during an investigation to validate the Slum-Prosperity Framework (SPF) and integrated Slum Property Map (SPM). First, a brief introduction to the research was outlined for/discussed with the experts, including the principles on which the SPF with SPM were built – theory construction, theories, and concepts. Their opinions were then sought on the logic and usefulness and/or applicability of its principles and functions, structure, and outcomes. These expert opinions were analysed from written opinions – provided by one urban professional and expert, and from transcripts of interviews with the other four (see methodology section 2.5). There were nine expert opinions tendered overall and they are structured in charts showing feedback, recommendations, and comments.

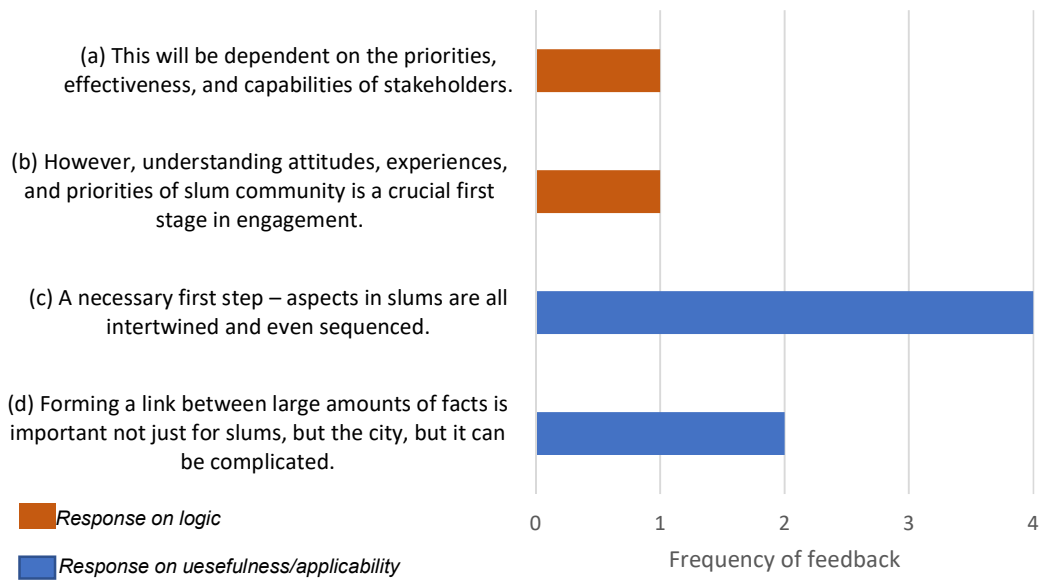
1. Opinions on whether using the SPM with instruction and information manual to extensively describe slums through sets of conceptually developed descriptive properties seems logical, is useful and applicable to stakeholders in slum intervention.



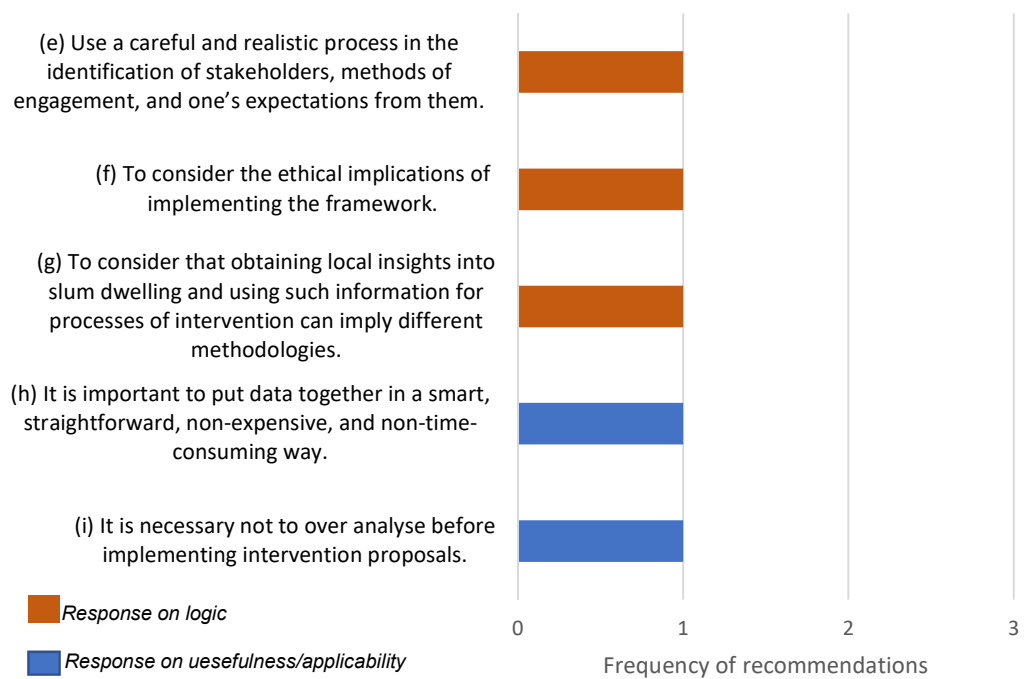


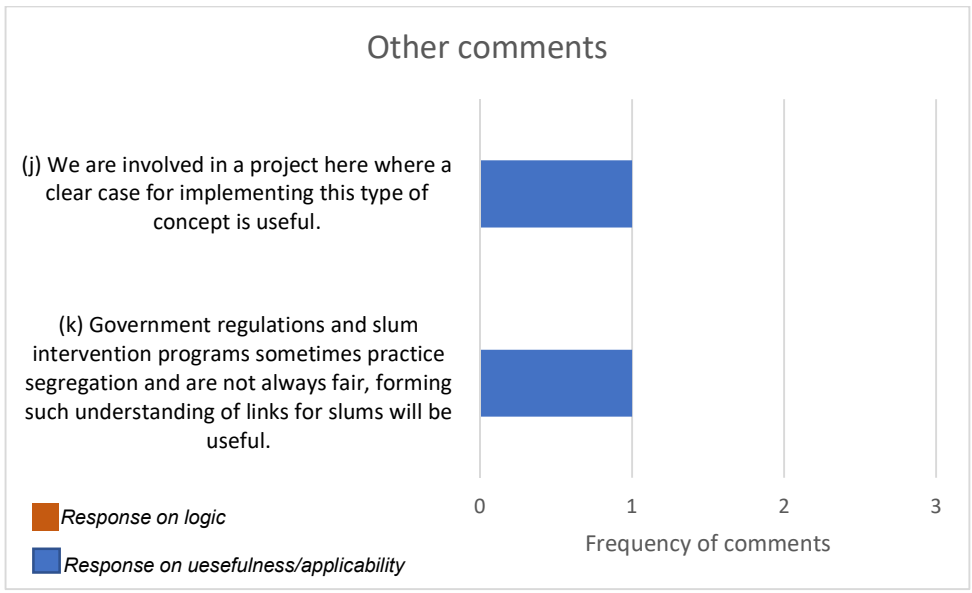
2. Opinions on whether it makes sense and is useful to consider, capture, and form a narration of how properties describing a slum associate – a heuristic slum property map highlighting properties that are influential and have wide impact in its character.

Feedback

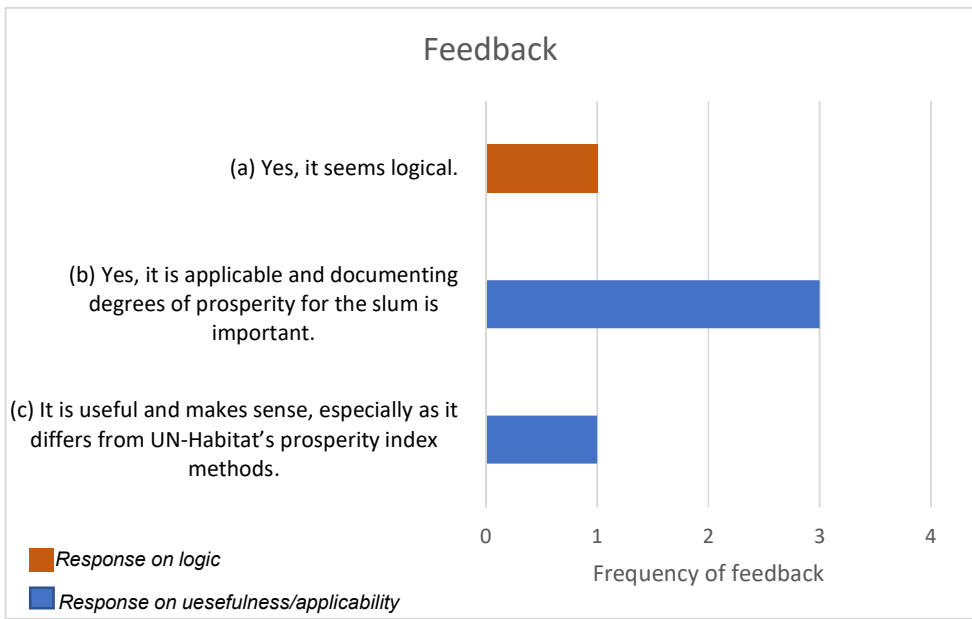


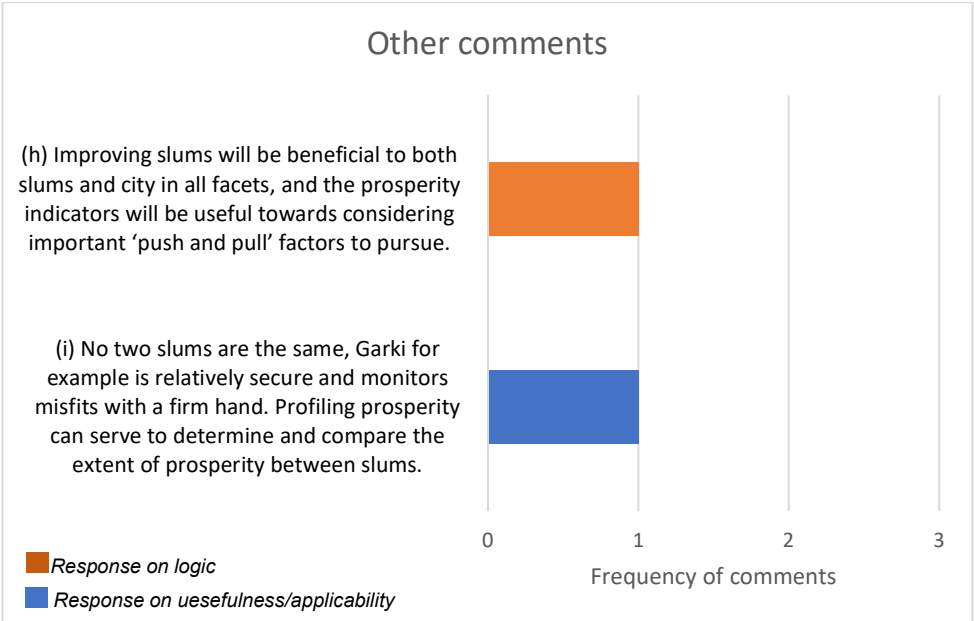
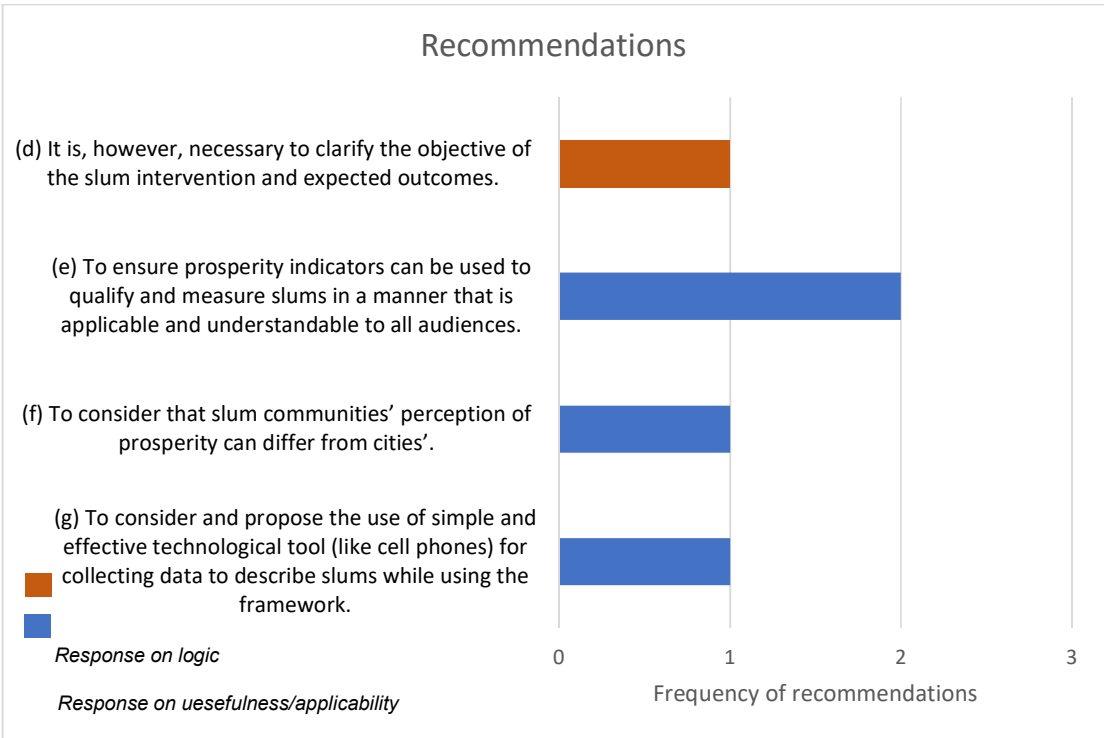
Recommendations



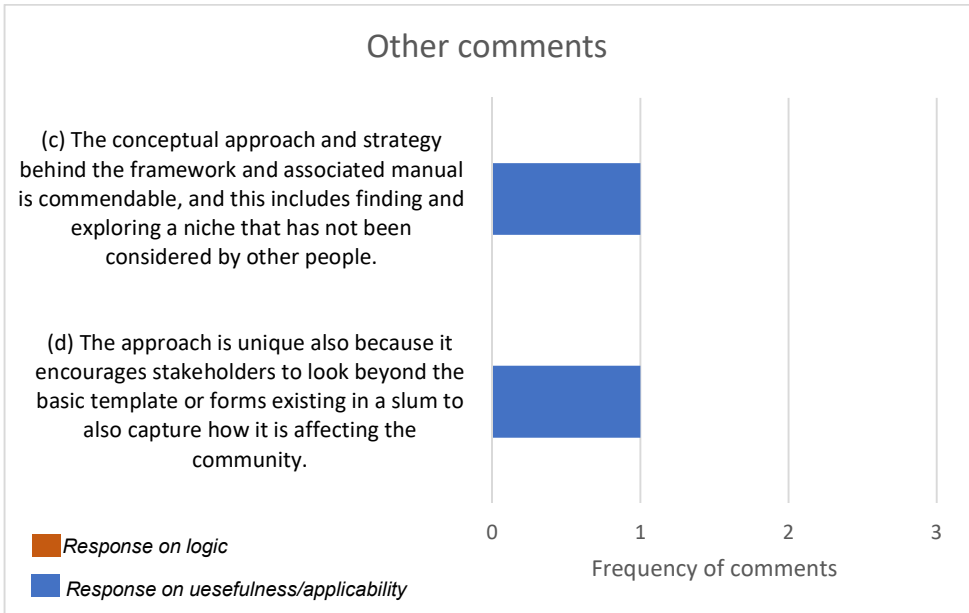
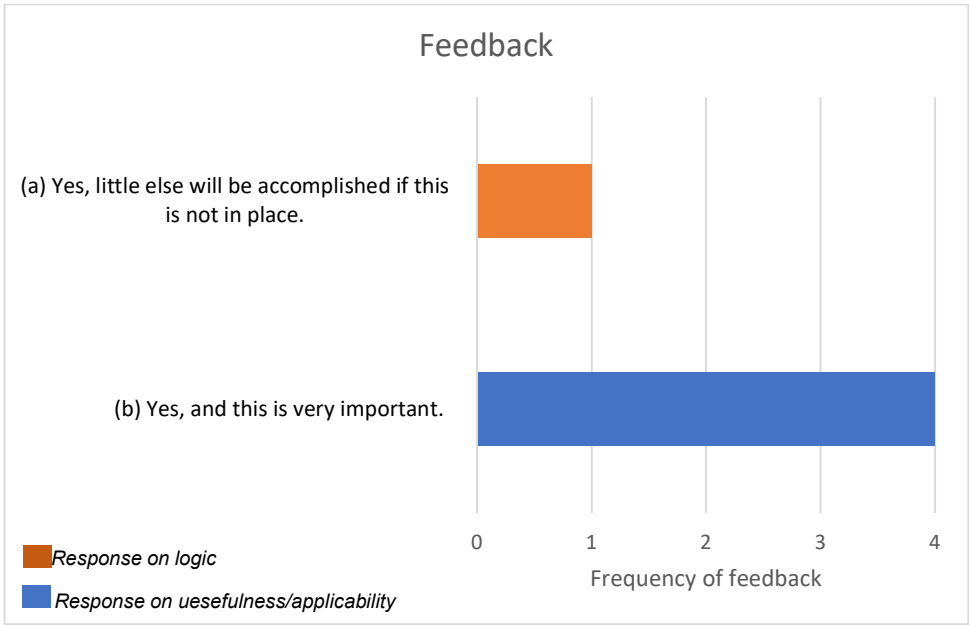


3. Opinions on whether it makes sense and is useful and applicable to have and use prosperity indicators that help to analyse and profile how a slum enhances or hinders prosperity in order to guide the design of effective intervention and improving prosperity prospects.





4. Opinions on whether it makes sense and is useful to consider the slum communities' basic needs, especially for survival, and how these can impact other life requirements, first, as relevant consideration for designing intervention.



5. Opinions on whether it makes sense and is useful to consider slum communities and the varying dimensions within which they exist as key assets in the design, and processes of intervention to enhance prosperity.

Feedback

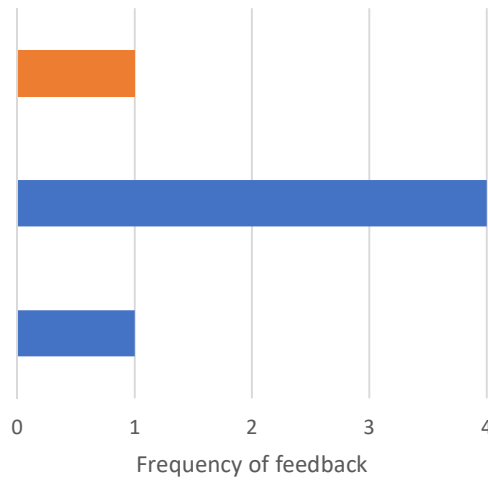
(a) It will depend on how one defines prosperity within the context of slums and the city.

(b) Yes, this is very useful, involving communities and initiatives that can be sought from them to improve wellbeing should not be ignored.

(c) Doing this will provide a clearer understanding of their situations and is important to designing intervention.

■ *Response on logic*

■ *Response on usefulness/applicability*



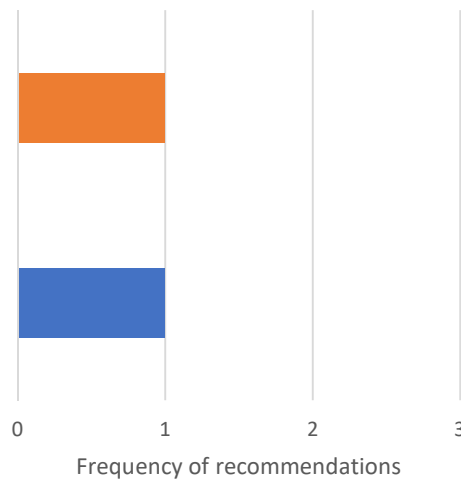
Recommendations

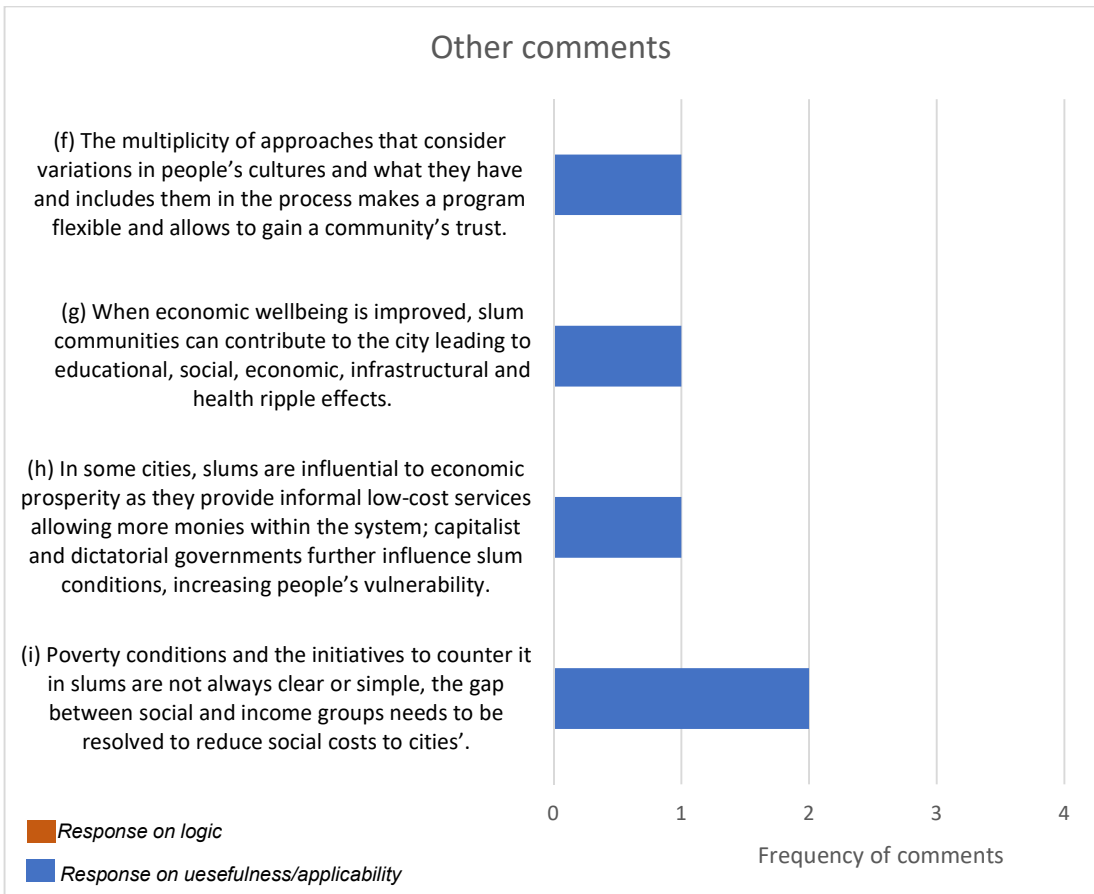
(d) It will be interesting to draw out research on conceptions of prosperity as it may differ and be dependent on personal circumstances.

(e) To achieve betterment for slums it is essential to understand the ruling structure of their country and how it affects them.

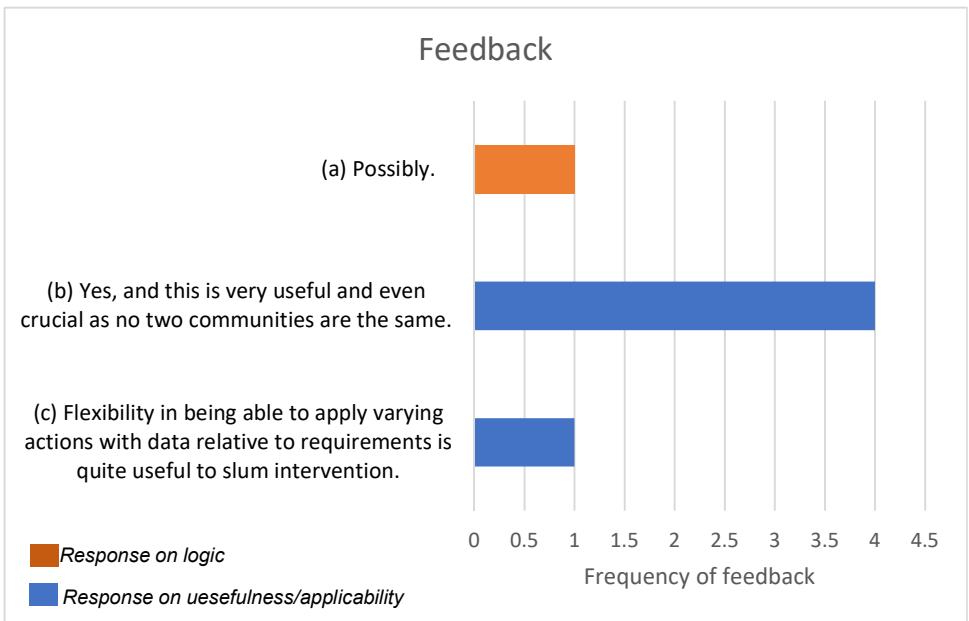
■ *Response on logic*

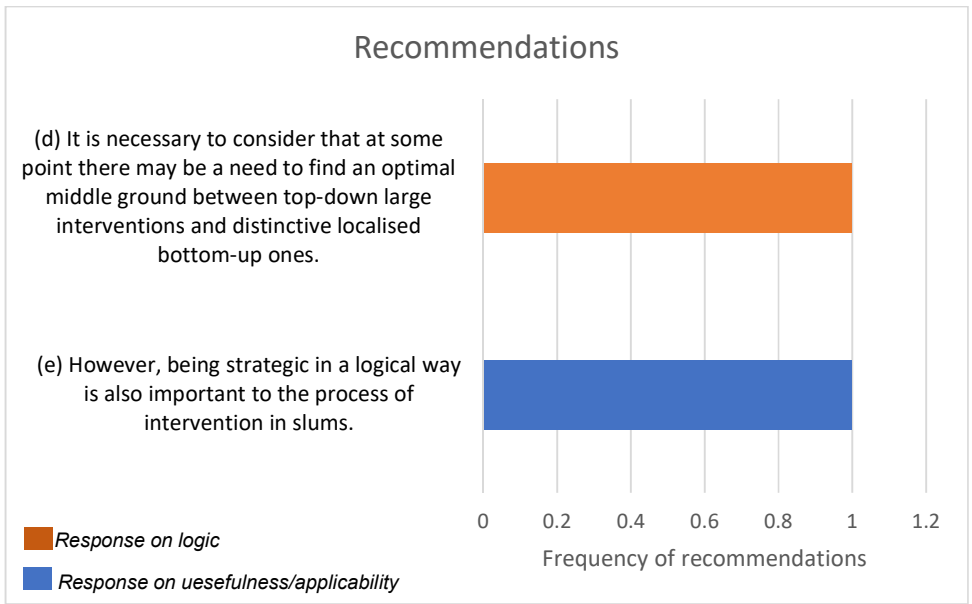
■ *Response on usefulness/applicability*



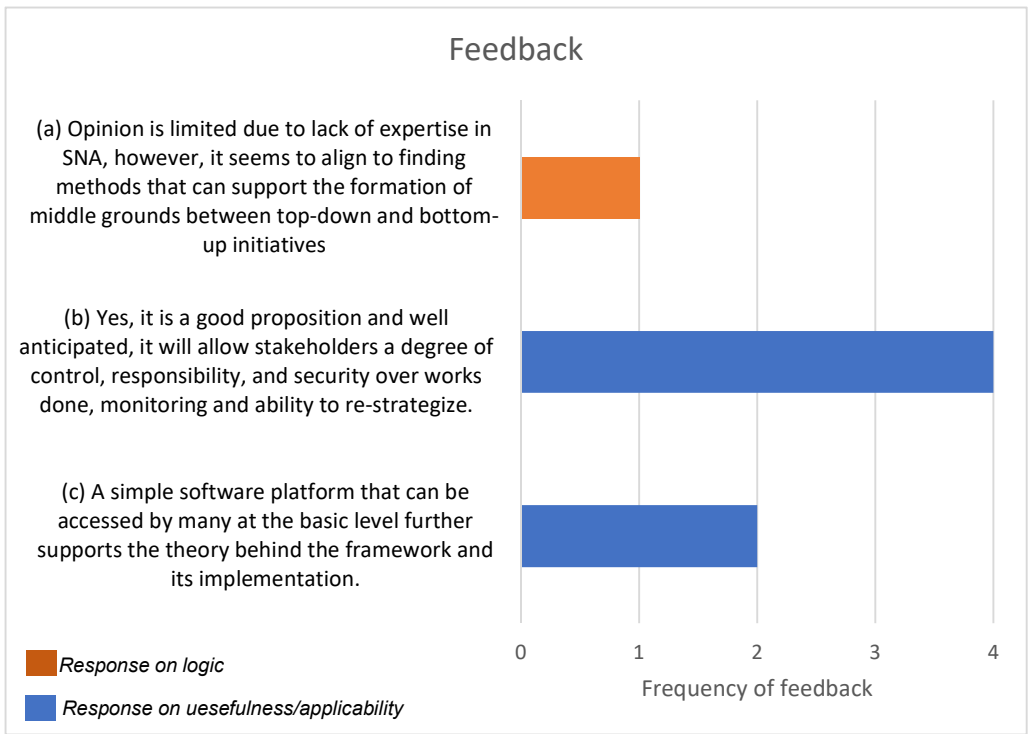


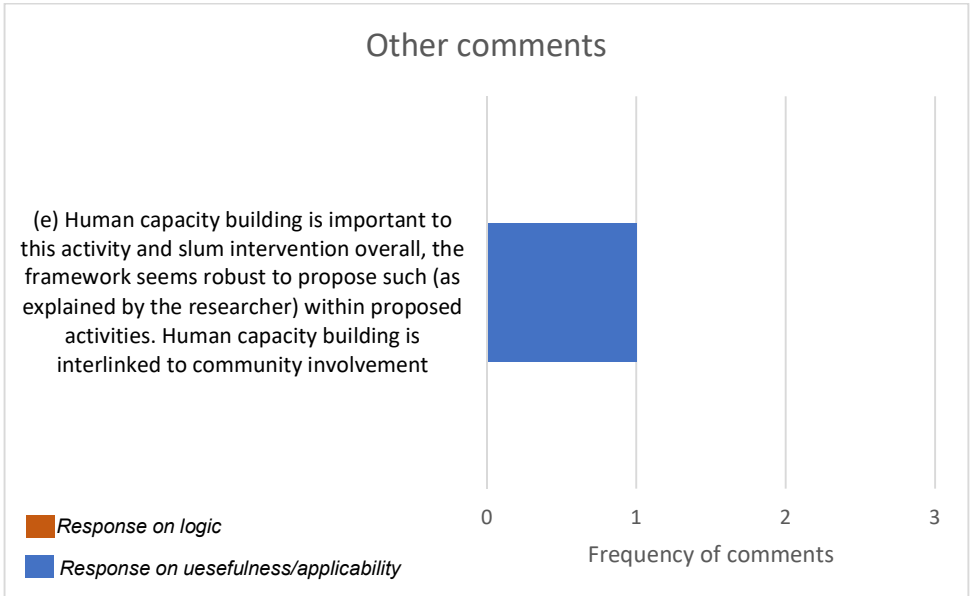
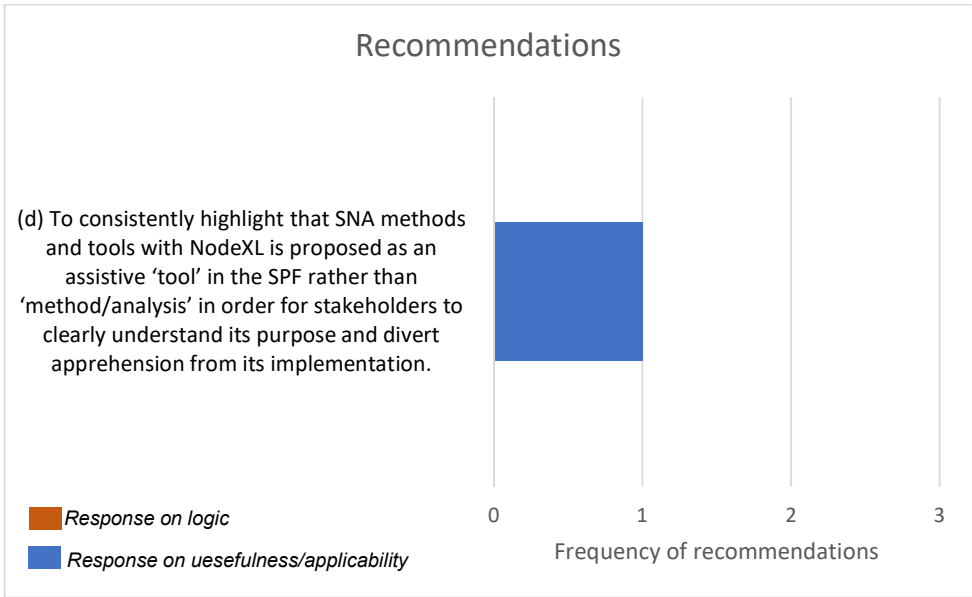
6. Opinions on whether it makes sense and is useful for stakeholders to have a framework that is systematic, yet flexible and responsive to follow in finding appropriate pathways for intervention and in progressive monitoring.



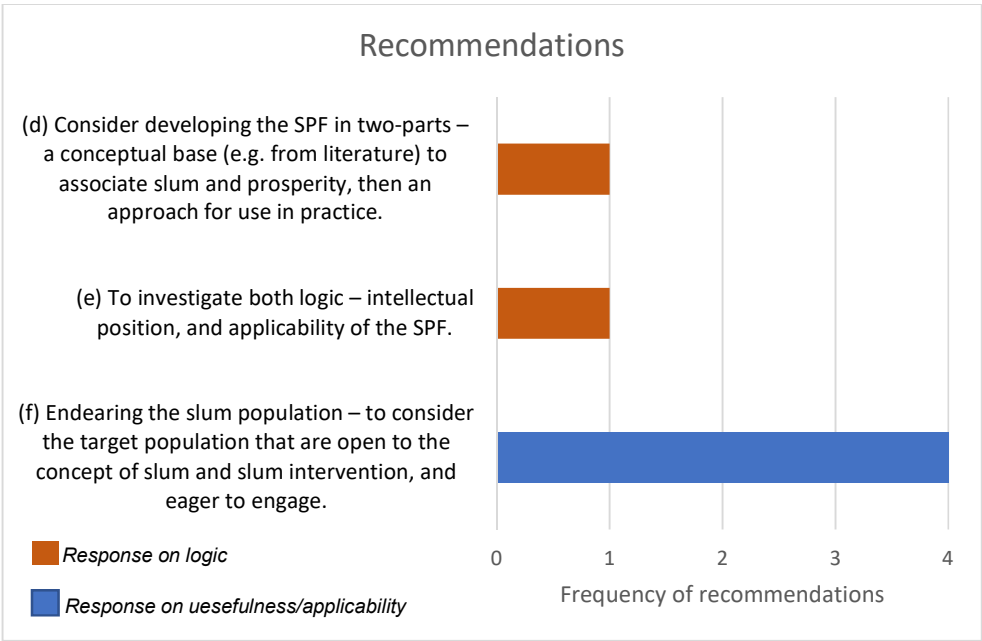
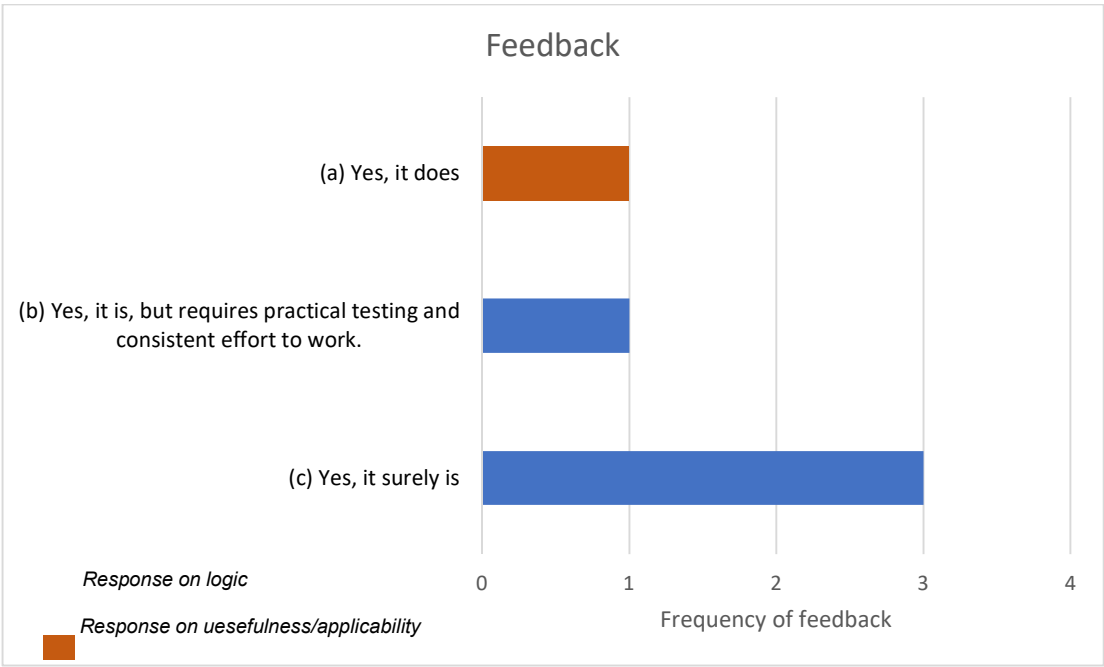


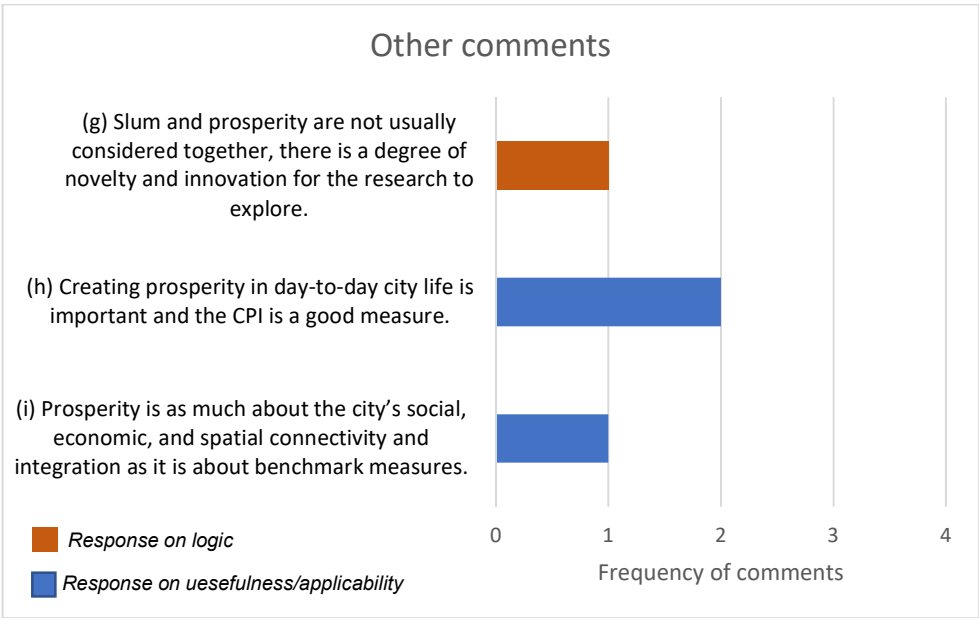
7. Opinions on whether it makes sense and is useful and applicable to propose the use of Social Network Analysis (SNA) tools with NodeXL software, to aid in the strategic and efficient implementation of the SPF and clarity of data representation.





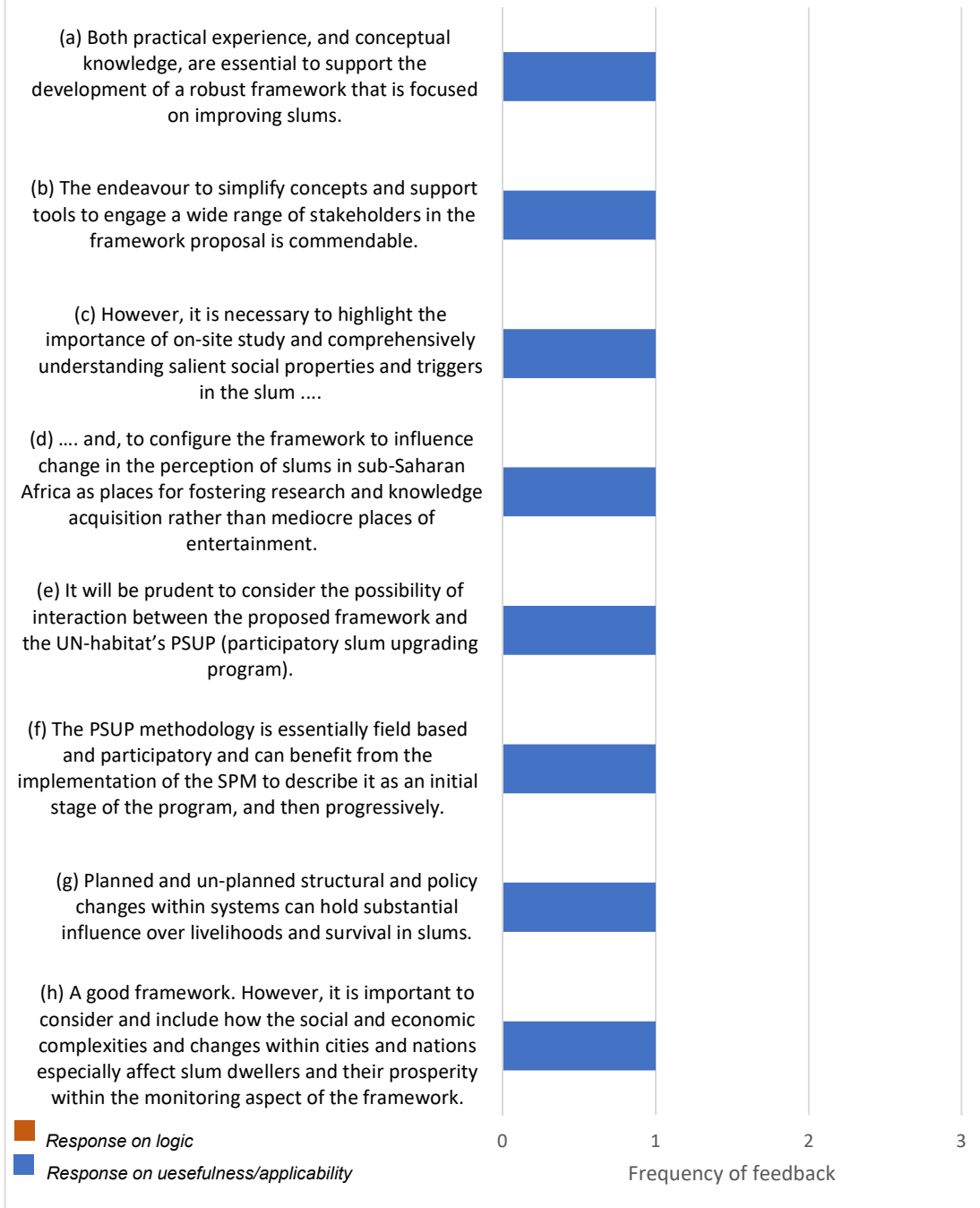
8. Opinions on whether proposing relevant practical approaches to be taken in implementing actions for prosperity by stakeholders in the basic design of the SPF makes sense, is useful, and applicable towards robust slum intervention to enhance prosperity.





9. Opinions on the varying qualities of the proposed SPF with integrated SPM that were discussed with experts overall.

Feedback



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