LOCAL GOVERNMENTS AND DISASTER RISK REDUCTION: A CONCEPTUAL FRAMEWORK

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ABSTRACT

A conceptual framework visually illustrates the linked concepts of a broader research. Hence, it is considered to be a key part of the research design. Therefore, developing a conceptual framework is an important aspect of the research process and guides the researcher in the data collection and analysis. The paper elaborates the conceptual framework of a research study aimed at making recommendations to empower local governments in making disaster resilient built environment within cities. The conceptual framework was developed based on literature review and further refined based on expert opinions. Through the literature review it was able to identify the key concepts for research and these were further refined through the opinions of experts. The key concepts identified are: increased disaster risk in cities; the need for disaster resilient cities; the role of stakeholders in making disaster resilient cities; the role and challenges for local governments in creating disaster resilient cities; and the need for empowering local governments in making cities disaster resilient. The paper discusses these key concepts and explains the development process of the conceptual framework. The process includes, identifying the key concepts, their inter-relationships and the boundary of the study. Accordingly, the conceptual framework illustrates the process for empowering local governments in making disaster resilient built environments within cities.

Key words: Conceptual framework; disaster resilience; resilient cities; local governments; empowerment

INTRODUCTION

A conceptual framework is a visual illustration which explains the main parameters to be studied, including the key factors, constructs or variables and the presumed relationships among them, in graphical or narrative form (Miles and Huberman, 1994). It articulates the pathways through which an intervention takes place to arrive at the desired outcomes (John Hopkins University and Bertrand, 2006). Accordingly, a conceptual framework consists of concepts, assumptions, expectations, beliefs and theories that support and

inform the research (Miles and Huberman, 1994). Hence, it is considered to be a key part of the research design.

The aim of this research is to make recommendations to empower local governments in making cities resilient to disasters in the built environment context. In doing so, the research intends to develop theories applicable to the local government sector to empower them to create disaster resilient built environments. In the main, the study adopts an inductive approach and uses case studies as the main strategy for the research. Inductive approaches usually begin with empirical observations and it is important to have an initial definition of the research questions prior to building theory from case studies (Eisenhardt, 1989; Yin, 2009). Therefore, when designing a good case study, the researcher is forced to construct a preliminary theory (Yin, 2009). This directs pre-establishment of theories prior to data collection and analysis and enables the researcher to identify the main concepts of the study, their inter-relationships and boundaries for the research (Yin, 2009). Developing a conceptual framework is an important aspect of the research process and guides the researcher in the data collection and analysis process. This study has, therefore, developed a conceptual framework before the primary data collection. The conceptual framework was developed based on the literature review and further refined based on expert opinions.

The paper elaborates the conceptual framework of the above discussed research study. Firstly, key concepts, identified through literature and expert opinions, are discussed. Secondly, the process of developing the conceptual framework is discussed. Finally, the conceptual framework of the study is presented.

KEY CONCEPTS IDENTIFIED THROUGH LITERATURE AND EXPERT OPINIONS

Through the literature review it was able to identify the key concepts for the research and these were further refined through the opinions of experts. The key concepts identified through literature and expert opinions are discussed below:

Increased disaster risks in cities

Urban areas are growing rapidly all over the world, particularly in lower and middle-income countries (UN, 2014; UNFPA, 2015). As a result of rapid urbanisation, majority of the world's population now resides in urban areas or cities which home to 54% of the world's population in 2014 (UN, 2014). In general, urbanisation refers to the population shift from rural to urban areas (McGranahan and Satterthwaite, 2014). The reason for the population shift from rural to urban can be divided into two: push factors, which pushes people away from rural areas and pull factors which pulls people to live in urban areas (BBC, 2014). Push

factors include, lack of job opportunities, low wages and poor standards of living and pull factors include, better job opportunities, better services and high standards of living. According to UN (2014), urbanisation will continue to rise and it is projected that 66% of the world's population would be urban by 2050.

Disasters usually occur as a result of an interaction between natural hazards and vulnerable conditions (Wamsler, 2014). Aforementioned, shift in the population results in unsafe conditions where people live in marginal and hazard-prone areas which increases the vulnerability to threats posed by natural hazards (Malalgoda et al, 2013). Moreover, cities are one of the main contributors in generating hazards (Wamsler, 2014) from the high levels of green house gas emission and waste with consequent climate change and rising sea levels (O'Brien et al, 2009). The high concentration of population and economic and cultural capital in cities bring much increased disaster risks (Cook and Chatterjee, 2015) and also climate change risks (UNISDR, 2012). Urban disasters can substantially disrupt the economic function of the city, its political regime and infrastructural integrity where productivity and access to external markets can be halted or curtailed for some time (Pelling, 2003). As such, it is evident that cities are increasingly vulnerable to threats posed by natural and human induced disasters. The experts also acknowledged the importance of focussing on cities due to their growing vulnerabilities. However, one of the experts stated, "Focussing on cities is important, but focussing on rural areas is also important as if a disaster happens in a rural area it would be very difficult for them to recover". However, the particular expert accepted that the study needs to have a manageable focus and also agreed with the fact that the cities are at high risk of disasters.

The need for disaster resilient cities

In responding to the aforementioned vulnerabilities literature suggests the importance of focusing more on cities and the need for converting cities into disaster resilient cities. 'Resilient city' is a comparatively new term which is now widely used in disaster related literature and policy documents published by various institutions such as UN-ISDR (Malalgoda et al, 2013). In reviewing the literature, different definitions have been put forward for the term 'resilient city'. One such definition was "*a city that has developed the systems and capacities to be able to absorb future shocks and stresses over time so as to still maintain essentially the same functions, structure, systems, and identity, while at the same time working to mitigate the present causes of future shocks and stresses*" (RecilientCity.org, 2010). Accordingly, it is expected that a resilient city can withstand, cope with and overcome the adverse impacts of disasters and at the same time protect the people from the adverse impacts of disasters. According to Satterthwaite (2013), the resilience of a city could be investigated in different contexts based on whom or what is resilient. Consequently,

investigating the resilience of a city can involve various studies ranging from the resilience of individuals, families and communities, the resilience of institutions as well as the resilience of physical systems of the city. One of the key elements of physical systems is the built environment. Therefore, in achieving disaster resilient cities, it is important to build a resilient built environment. Since the research is focussed on a built environment context the next section highlights the concept of resilience in the context of the built environment.

Any destruction to the built environment disturbs the functioning of human society and the economic and social development of the country due to its strong connection with the human activities (Malalgoda et al, 2013). Thus, it is clear that achieving a resilient built environment is of paramount importance to achieving resilient cities. As such, due to the complex and interrelated nature of the built environment it is important to adequately recognise and rectify every failure in advance, to avoid any possible disaster and to withstand the situation at a time of a disaster (Voogd, 2004). In doing so, it is important to focus on sound development practices with good regulations; well maintained infrastructure and participatory and sustainable urban planning and development (UNISDR, 2012). All interviewees agreed with the literature that there is a need for disaster resilient cities and built environments.

Stakeholders in making disaster resilient cities

Based on the literature findings, it was clear that a number of parties are required to be involved in the process of making cities resilient, including community and citizens' groups, local governments, the private/corporate sector, the national government, civil society organisations, external actors, academic and professional groups and the media (Niekerk, 2007). It is further observed that none of these role players can act in isolation and a successful and effective system requires integration and coordination of all these role players (Malalgoda et al, 2013). Many authors have argued that out of all the stakeholders the local government is the key stakeholder in the process of making cities resilient to disasters and as such there is widespread agreement within the literature that local governments have a vital role to play in implementing disaster risk reduction initiatives and to create cities resilient to disasters (MacManus and Caruson, 2006; Kusumasari et al, 2010; Manyena, 2006; Albrito, 2012; Wamsler, 2014; UNISDR, 2010, Red Cross, 2010).

Roles and challenges for local governments in creating disaster resilient cities

Local governments are, therefore, required to play a key role in making cities resilient to disasters as they are rooted at the local level where disasters happen. UN-ISDR (2010) has identified four broader roles that local governments are expected to play in implementing

disaster risk reduction, namely: play a central role in coordinating and sustaining a multi-level, multi-stakeholder platform to promote DRR in the region or for a specific hazard; effectively engage local communities and citizens in disaster risk reduction activities and link their concerns to government priorities; strengthen their own institutional capacities and implement their own practical DRR actions; and devise and implement innovative tools and techniques for disaster risk reduction which can be replicated elsewhere or scaled up nationwide.

However, it was evident that local governments are facing a number of challenges in making their cities resilient to disasters (Malalgoda et al, 2013; Manyena, 2006; Niekerk, 2007). Some of the major challenges identified through the literature review were: the lack of knowledge of disaster risk reduction initiatives; lack of interest and political will; human resource constraints; lack of financial capability; internal organisational and administrative weaknesses; lack of community engagement; managing a long term process; lack of focus and reactive approach to DRR; inadequate urban planning; lack of tools and techniques for DRR; lack of monitoring and supervision of new developments; competing priorities; capture of local level responsibilities by the central government; lack of authority; multi-layered governance arrangements; unstable political systems; and relationship issues with central government. All the experts agreed with the literature and recognised local government to be a key stakeholder in making disaster resilient cities and built environment.

Need for empowering local governments in making disaster resilient cities

In responding to aforementioned challenges, the importance of empowering local governments has been identified as a key priority in the current context. As explained earlier, empowerment can be done through capacity development (UNDP, 2011; Kusumasari et al, 2010; Collins and Kapucu, 2008; Manyena, 2006; Malalgoda & Amaratunga, 2015) and conferring power and authority by reforming the existing governance (UN-ISDR, 2004; ADPC, 2004; Ahrens and Rudolph, 2006; WMO, 2010; Malalgoda & Amaratunga, 2015). As such, capacity development and improved governance relating to local governments have been given a very high priority in the existing literature and by the experts in order to empower local governments to make cities resilient to disasters.

The conceptual framework of the study was then developed based on the key concepts identified in this section. The process adopted to develop the conceptual framework is explained in the next section.

DEVELOPMENT OF THE CONCEPTUAL FRAMEWORK

Key concepts

As explained earlier, five key concepts have been identified through the literature review and further justified through expert consultations. Both literature and the experts were in agreement that the cities are increasingly vulnerable to threats of natural disasters. Accordingly, the importance of making cities resilient to disasters has been highlighted. The literature further highlighted the increased vulnerability of the built environment to disasters and the need for developing built environments with an effective degree of resilience to withstand a disaster and to protect the physical and human communities of the city. The experts also acknowledged the importance of focussing on cities and their built environments, as the built environment is the core element of every city and facilitates the everyday life of the human beings. Both literature and experts were in agreement that a number of stakeholders need to be engaged in making disaster resilient built environments within cities and identified local governments as the key stakeholders in the process of making disaster resilient built environments within cities. Furthermore, it was highlighted that local governments are supposed to play a key role in making disaster resilient built environments and their inadequate contribution was further acknowledged by literature and experts. All these have justified the need for empowering local governments to make disaster resilient built environments within cities.

Inter-relationships between the concepts

After identifying the key concepts the next task was to identify the inter-relationship between the concepts. In the context of this research, it is important to identify the inherent vulnerabilities of cities in order to arrive at the required role of the local governments in making disaster resilient built environments within cities. This leads to the identification of the challenges faced by local governments in making disaster resilient built environments. Based on the challenges, recommendations are made as to how these could be overcome and how local governments could be empowered to make disaster resilient built environments within cities.

Boundaries of the key concepts and inter-relationships

Having identified the key concepts and their inter-relationships the next task was to identify the boundaries of the key concepts and inter-relationships. As explained earlier, the built environment is a core element of every individual and when moving towards disaster resilient cities it is important to provide built environments with an effective degree of resilience to threats posed by disasters. Therefore, the study is limited to the context of the built environment and examines how the local governments could be empowered in making disaster resilient built environments within Sri Lankan cities.

Accordingly, the conceptual framework was developed incorporating the key concepts, their inter-relationships and their boundaries. It indicates the unit of analysis for the study, which is 'empowerment of the local government'. The framework was then populated with the key literature findings and is presented in Figure 1.

CONCLUSIONS

This paper elaborates the process of developing the conceptual framework of a research aimed at developing a framework to empower local governments in making disaster resilient built environment within cities. The process includes, identifying the key concepts, their inter-relationships and the boundary of the study. The conceptual framework is developed based on the literature review and further refined based on the findings from three expert opinions gathered as part of the study. Accordingly, the conceptual framework illustrates the process for empowering local governments to make disaster resilient built environments within cities.

As discussed in the paper, both natural and human induced disasters can have extreme effects on cities. Therefore, firstly it is important to understand the vulnerabilities and challenges experienced by the cities, and how these could be overcome. Accordingly, at the second phase of the research, it is proposed to conduct case studies to identify the vulnerabilities and challenges experienced by the cities, and to explore the role of the local government in contributing to disaster resilience and the challenges that they face. Based on the analysis, the research will develop a framework and propose recommendations to empower local governments in creating disaster resilient built environment in cities.
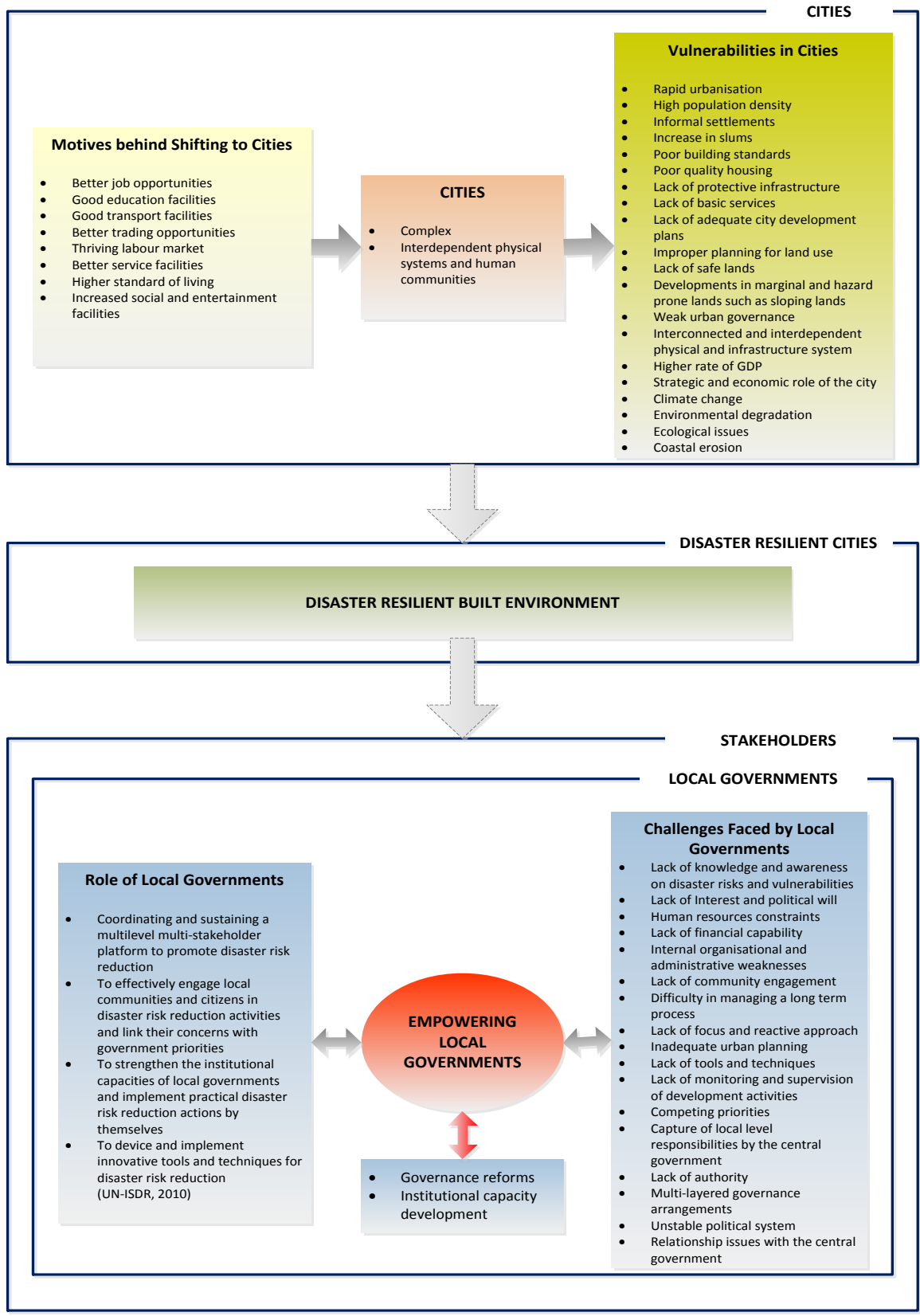
Vulnerabilities in Cities

- Rapid urbanisation
- High population density
- Informal settlements
- Increase in slums
- Poor building standards
- Poor quality housing
- Lack of protective infrastructure
- Lack of basic services
- Lack of adequate city development plans
- Improper planning for land use
- Lack of safe lands
- Developments in marginal and hazard prone lands such as sloping lands
- Weak urban governance
- Interconnected and interdependent physical and infrastructure system
- Higher rate of GDP
- Strategic and economic role of the city
- Climate change
- Environmental degradation
- Ecological issues
- Coastal erosion

Motives behind Shifting to Cities

- Better job opportunities
- Good education facilities
- Good transport facilities
- Better trading opportunities
- Thriving labour market
- Better service facilities
- Higher standard of living
- Increased social and entertainment facilities

CITIES

- Complex
- Interdependent physical systems and human communities

DISASTER RESILIENT CITIES

DISASTER RESILIENT BUILT ENVIRONMENT

STAKEHOLDERS

LOCAL GOVERNMENTS

Role of Local Governments

- Coordinating and sustaining a multilevel multi-stakeholder platform to promote disaster risk reduction
- To effectively engage local communities and citizens in disaster risk reduction activities and link their concerns with government priorities
- To strengthen the institutional capacities of local governments and implement practical disaster risk reduction actions by themselves
- To device and implement innovative tools and techniques for disaster risk reduction (UN-ISDR, 2010)

EMPOWERING LOCAL GOVERNMENTS

- Governance reforms
- Institutional capacity development

Challenges Faced by Local Governments

- Lack of knowledge and awareness on disaster risks and vulnerabilities
- Lack of Interest and political will
- Human resources constraints
- Lack of financial capability
- Internal organisational and administrative weaknesses
- Lack of community engagement
- Difficulty in managing a long term process
- Lack of focus and reactive approach
- Inadequate urban planning
- Lack of tools and techniques
- Lack of monitoring and supervision of development activities
- Competing priorities
- Capture of local level responsibilities by the central government
- Lack of authority
- Multi-layered governance arrangements
- Unstable political system
- Relationship issues with the central government

Figure 1: Conceptual framework of the study with key literature findings

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