

DISCOURSES OF INNOVATION AND DEVELOPMENT: INSIGHTS FROM ETHNOGRAPHIC CASE STUDIES IN BANGLADESH AND INDIA

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ABSTRACT

In the 1990s, the topics of development and poverty, once dominated by development economists, appeared on the radar of management, organizational studies and innovation scholars. A huge variety of terms, some historical like 'appropriate technology' and some others totally new like 'frugal innovation', 'Jugaad innovation' and 'inclusive innovation' began to populate the business and management literature. Concurrently, the field of development studies became progressively hybridised with elements from business and innovation studies. This thesis contributes to the analysis of this 'cross-pollination' between the discourses of development and the discourses of Innovation. The research discusses how the meaning of innovation, an interpretively flexible and contested 'buzzword' with the capacity to shelter multiple political agendas, is constructed within the discourses and practices of development to support and further the values and interests of those actors who employ it. By telling the stories of four different communities of practitioners in Bangladesh and India, this thesis validates, on one hand, some of the conclusions of the extant literature concerning innovation in resource-constrained environments. On the other hand, it provides original insights about the construction of the discourse of innovation and technical change in situated practices. The cases confirm that innovation can and does spring from resource-constrained conditions, where it is often driven and shaped not only by malfunctioning formal and informal institutions, market mechanisms and a weak private sector, but also by traditional knowledge, empathy and cultural motives. At the same time, the findings reveal that technological innovation is neither necessary nor sufficient to reverse the causes of poverty and exclusion, historically major targets for development. In certain circumstances, innovation can even reinforce unequal power relationships by favouring those who already enjoy privileged positions in the community. In three of the four cases analysed, the discourse of innovation attempt to transform the social practices of '*the beneficiaries*', promoting all the features typical of neoliberal agenda such as competitiveness, ownership, productivity, efficiency and market-oriented production, while at the same time dismissing pre-existing or alternative subsistence patterns of life and nonmarketable solutions. These dynamics present within an emergent, hegemonic discourse of 'Inclusive business', which is inspired by the

desire to include people within the framework of the market economy, fighting the informal economy and, ultimately, erasing subsistence. What emerges from the research is that discourses of social justice and political transformation have been marginalised, if not completely neglected, in discourses of innovation and development. The thesis, however, describes that the meaning of innovation in the context of development remains contested. There exist countervailing voices that, despite being a minority, have and continue to open up the debate about the value of innovation and technological change as an instrument for social transformation.

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To Irene and Matteo

'Truth lies not in one dream, but in many dreams'

— *Pier Paolo Pasolini – Il Fiore delle mille e una notte*

[...] recitando un rosario
de mezquinas ambiciones
de temores milenarios
de inagotables astucias
cultivando tranquila
la horrible variedad
de su propia soberbia
la mayoría está
como una enfermedad
como un infortunio
como un anestésico
como una costumbre [...]

— *Desmedida Plegaria, Alvaro Mutis*

PREFACE

‘The outstanding discovery of recent historical and anthropological research is that man's [and woman's] economy, as a rule, is submerged in his social relationships. He does not act so as to safeguard his individual interest in the possession of material goods; he acts so as to safeguard his social standing, his social claims, his social assets. He values material goods only in so far as they serve this end. Neither the process of production nor that of distribution is linked to specific economic interests attached to the possession of goods; but every single step in that process is geared to a number of social interests which eventually ensure that the required step be taken. These interests will be very different in a small hunting or fishing community from those in a vast despotic society, but in either case the economic system will be run on noneconomic motives’.

— The Great Transformation, (K. Polanyi, 2001[1944]: 48)

In the winter of 2006, I was working as an engineer in the Bolivian plateau trying to convince Quechua and Aymara communities to use photovoltaic panels when my certainties about the economic rationality of human beings began to crumble. I was hanging around in one of the biggest open air markets of Latin America, the *cancha* of Cochabamba, when my attention was captured by a set of five nice wicker baskets exposed on a small table. A sleepy *cholita* was sitting beside the table placidly talking to her neighbour. I enthusiastically asked the lady to sell me all the baskets. She nodded as a sign of rejection. When I insisted, she added: “*caserito, son las 9 de la mañana, si te vendo todo que voy a hacer todo el día?*” – “*Boy, it's 9 in the morning, if I sell you all what I'm gonna do for the rest of the day?*” Apparently, sitting in the market for her was more appealing than selling her products all at once. Those words echoed in the back of my mind for years until the day I met Pedro, the Chilean-Dutch manager of an Ecuadorian NGO called Ekorural, in his house nearby Quito. I was looking for local ‘frugal innovators’ and I came across Ekorural since I was told they were researching the socio-technical changes undertaken by farmers’ communities in the Andes as a strategy of adaptation to global warming. When I started talking about my research on frugal innovation he suddenly stopped me:

“what is this thing that you call ‘innovation’? – He said – we are fed up with this word. Innovation for us is synonymous with commodification of our traditional ways of production. It means marketable goods, imported technology and destruction of our commons. Since development has miserably failed, they have now invented this new word, innovation.” After the encounter with Pedro, I started wondering if the kind of innovators I was looking for were just an intellectual construction, supported by what I was reading in a detached, academic literature. Where were the heroic entrepreneurs? Where the animal spirit? Where the systematic pursuit of economic value through innovation? Years after, I met the founder of the forum for human rights Vimochana, Corrine Kumar, in her house in Bangalore and told her about my experience in the Andes. She smiled and stated: *“you are standing on the slopes of the big mountain of Western universalism. It takes a long time and many efforts to climb to the top and realise that it’s just a mountain surrounded by many others”*. This thesis is just a little part of the journey I undertook a few years ago to climb that mountain.

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This research has been inspired by all the women and men who exercise their ingenuity not for enacting their alleged *homo economicus* essence but for the sake and the pleasure of inventing, creating, for the incommensurable value of beauty or the unfathomable reasons of the spirit.

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without the awe of challenging well-established truths. I hope the end of my PhD is just the beginning of a long-lasting friendship.

Finally I dedicate this PhD to my family. To my mother who taught me to love my work, to my father who taught me the value of hard work, my son to brighten my days and to my partner who, apart from being a wonderful mum, is above all a marvellous woman.

Exeter, November 2014

CHAPTER ONE

INTRODUCTION

“People need new tools to work with rather than new tools that work for them.”

— Tools for Conviviality (*Illich, 1973: 10*)

The aspiration to transform our surroundings is often considered innate in human beings. Such urgency for change, however, acquires different forms depending on the cultural settings in which it emerges. People may want to change to improve their life; preserving or disrupting certain power arrangements. The nature of modern capitalism, modulated through competition and ‘creative disruption’ (Schumpeter, 1934), often frames and even imposes change in the form of technological innovation. The ideas that wealth is generated by innovation and the *new is always better than the old* has not only pervaded the historical and present bourgeois establishment but is also well entrenched in the collective imaginary of people in the West. At the same time, we live in a heterogeneous world in which the forces of modernity are slowly penetrating indigenous cultures with uncertain outcomes. At the periphery of the world system this battle for change occurs in a less evident fashion. Here people rely on informal economies and networks of subsistence. In these

contexts, the features of socio-technical change, so clear in the standardised setting of industrial countries, become fuzzy and elusive. As Sahlins (1992, 1993) points out, the modernising wave of capitalism does not sweep away indigenous cultures, but rather triggers unexpected pathways of change for those subjects that are willing to make sense out of the new socio-economic world order. This hidden process is occurring everywhere on different fronts. People struggle to improve their education, their health and their general welfare. The vast field of Political Ecology has documented how traditional communities all over the world oppose the process of commodification of natural resources, both through conflicts, and also via a process of social and technical rearrangement (Martinez-Alier, 2002). Innovation in this scenario hardly fits the simplistic label of a creative process of novelty. Those fuzzy, sometimes covert processes of change shake the very teleology of innovation: innovation is not just novelty for the sake of novelty (or for the sake of market-driven wealth creation). Innovation underpins broader purposes and goals. Those purposes can be variegated, fragmented, contested. What leads people to change their social life or the tools they use in their daily life has less to do with the progress of science and technology and more to do with fundamental social and political questions like: why do people want to change? Why do people need to change? How are people going to change? Who will win or lose after the change?

Within Western capitalist societies however, the hope for change remains often embodied in the idea of scientific and technological progress. Science and Technology laid the foundations for widespread prosperity (and inequality) at the beginning of the 20th century and there is no reason to think that they will not deliver further prosperity (and inequality) in the 21st. The whole modern industrial system is engaged in a never ending race to provide more efficient technologies, and more appealing products and services. The field of Innovation Studies attempts to understand how this process occurs and how it can be improved. Innovation has become the medium for the success of a country; it delivers economic growth and, thus, wealth. As a result, it is not surprising that scholars from different disciplines have begun to look at the capacity to innovate as an important factor which might explain why some countries are rich and 'developed' whereas others are 'backward' and poor. This thesis focuses on the debate about the intersection of innovation and

development in what are commonly defined as *developing countries*. In order to introduce the reader to this debate, I start by acknowledging that, in my opinion, the last three decades have been characterised by a ‘cross-pollination’ between once quite disconnected disciplines: development studies, Science, Technology and Society studies (STS), business management and organization studies. The consequence of this convergence has been that the theory and practice of development have ceased to be the prerogative of task forces of experts, usually economists, engaged in the deployment of big projects funded by public international institutions. The ideology of competitiveness, the free market, business management and private-public cooperation - all underpinned by innovation – has entered triumphantly into the field of development. Not surprisingly, this coincides with the rise of the neoliberal agenda promoted by nation-states (predominantly the US and EU) and multilateral institutions such as the IMF, World Bank and WTO. This convergence is thought to have also resulted in a new turn for innovation studies, which has turned its attention to study a number of different, heterodox formulations of innovation and technical change in the so-called ‘developing world’. The second part of this chapter discusses the importance of understanding socio-technical change in these contexts. Building on these, I conclude the chapter by describing the main contribution of the thesis and the structure of the following chapters.

1.1 THE NEW TURN IN INNOVATION STUDIES: HETERODOX MODES OF INNOVATION EMERGE FROM UNDER THE RADAR

Until the end of the 1990s the topics of development and poverty, once dominated by development economists, had gone largely under the radar of management, organization and innovation scholars (Kolk, Rivera-Santos, & Rufin, 2013). A huge variety of terms, some old, like ‘appropriate technology’ (A Smith, Fressoli, & Thomas, 2014), and some totally new, like ‘resource-constrained innovation (RCI)’ (Agarwal & Brem, 2012), then began to populate the business and management literature. Intriguing and provocative concepts such as ‘*frugal innovation*’ (Bound & Thornton, 2012), ‘*reverse innovation*’ (Govindarajan & Trimble, 2012), ‘*Jugaad*

innovation' (Radjou, Prabhu, Ahuja, & Roberts, 2012), '*BOP*¹ *innovation*' (Prahalad, 2010, 2012), '*Gandhian innovation*' (Prahalad & Mashelkar, 2010), '*empathetic innovation*' and '*pro-poor vs. from-the-poor*' (A. Gupta, 2010a, 2012), '*long tail and long tailoring*' innovation (Anderson & Markides, 2007), '*below-the-radar innovation*' (Kaplinsky, 2011) and '*inclusive innovation*' (Heeks, Foster, & Nugroho, 2014) have recently attracted the attention of heterogeneous communities of scholars around the world. These forms of innovation are characterised by conditions of material, financial, and human resources scarcity (Baker & Nelson, 2005; Gibbert, Hoegl, & Valikangas, 2006; Keupp & Gassmann, 2013), resource insecurity and concerns regarding environmental sustainability (Sharma & Iyer, 2012). Their focus has been in general centred within the context of emerging and developing countries and specifically: their role in the global value chain (Kaplinsky, 2000), their potential to help exploit as yet unexploited markets (Prahalad, 2010) and the emergence of indigenous forms of innovation (A. Smith et al., 2014). All those perspectives agree on the fact that innovation capacity –whatever this means – should be enhanced in order to allow these countries to 'develop'.

This heterogeneous literature is focused on the resolution of three major questions: first, does innovation occur (and if so how) in resource-constrained environments in the so-called developing world (Keupp & Gassmann, 2013)? Second, how does innovation contribute to various goals e.g., of social inclusion and poverty alleviation (George, McGahan, Prabhu, & Macgahan, 2012; Hall, Matos, Sheehan, & Silvestre, 2012; Halme, Lindeman, & Linna, 2012), and/or the creation of markets for commercial gain? Third, what are the implications for the so called developed world (i.e., 'innovation blowback' or South-North innovation transfer) (Brown, 2005) - acknowledging the globalisation of resource scarcity as a contemporary feature of our time - and in turn what are the implications for emerging innovation policy (i.e. a focus on implications, policy and even risks (A. Gupta, 2012))?

As regards the first question, the broader business and management literature points to more general situations in which resource constraints within organizations enable

¹ The notion 'Bottom of the Pyramid (BOP)' is usually indicates those living on less than 2 US dollars a month (Prahalad, 2010).

innovation by '*making do with what is at hand*' (Baker & Nelson, 2005; Garud & Karnøe, 2003). Others also identify within the bounded creativity of teams the inception of Resource-Constrained Innovation (Hoegl, Gibbert, & Mazursky, 2008). Others stress the mutual interaction between science-based Research & Development and experience-based learning (Hendry & Harborne, 2011).

The second question has been only partially explored (Altenburg, 2009). From the extant literature emerges a plurality of terms, goals, purposes and motivations. Innovation scholars in both emerging and developing countries have, for example, advocated concrete actions to set up functional Innovation Systems (IS) aimed at overcoming problems of underdevelopment and poverty (Arocena & Sutz, 2000; Lundvall, Vang, & Chaminade, 2009; Martins Lastres & Cassiolato, 2008; Muchie & Gammeltoft, 2003). Others have argued that innovation can in fact be the *very cause* of inequality and social exclusion (Arocena & Senker, 2003; Arocena & Sutz, 2003; Cozzens & Kaplinsky, 2009; Cozzens, 2007, 2008). Entrepreneurship and organization scholars publishing in the so-called 'BOP literature' (Prahalad, 2010) offer a differing perspective. This literature focuses on the search for opportunities for companies that are interested in opening markets at the BOP through the development of 'good-enough' and 'affordable' products (London, 2009; Prahalad & Mashelkar, 2010). These scholars hypothesise that the BOP could be a source of breakthrough innovations (Prahalad, 2012) and a huge potential market for multinational corporations (London & Hart, 2004; London, 2009). In contrast again, a more recent perspective suggests that innovation in the developing world is largely carried out in informal settings by grassroots movements that arise in reaction to social injustices and environmental problems, which are perceived as being caused by free-market ideology (A. Smith et al., 2014). This perspective calls for patterns of innovation and development that are appropriate for the poor in the developing world (Abrol, 2005; Dagnino, 2009; A. Gupta et al., 2003).

Finally as regards the third question, there are increasing signals regarding the potential for and real impact of new innovation models coming from the Global South. The National Health Service (NHS) in the UK, for instance, is already looking at Indian innovations in healthcare to provide affordable services, while guaranteeing at the same time high quality standards (NHS, 2013). Hart (2002; 2011) has suggested

that a new wave of 'green disrupting innovations' is about to flood the North. Brown (2005) warns against the blow-back effects of Southern innovations on the North's competitiveness while Govindarajan and Trimble (2012) praise the advantages that 'reverse innovation' will bring to emergent economies like India and China.

This new turn in innovation studies has gained momentum since the markets in the so-called 'developing world' are likely to increase dramatically in the next future. Likewise, concerns about the scarcity of resources like water, energy and food, together with the threat of climate change have forced many to wonder whether the extension of the industrial mode of development to the 'underdeveloped' world is either feasible or desirable.

1.2 THE IMPORTANCE OF UNDERSTANDING SOCIO-TECHNICAL CHANGE IN NON-WESTERN ENVIRONMENTS

Today, around five billion people live in the so-called developing countries (Collier, 2007). The study of socio-technical change in those contexts is extremely important to understand the future patterns of development of a globalised economy that today more than ever connects every corner of the planet. In a world in which population is expected to increase steadily for at least the next 35 years (R. Lee, 2011), resource scarcity and insecurity will probably become increasingly ubiquitous. In the face of these challenges, many among scholars, politicians and activists call for an acceleration of the process of inclusion of the 'underdeveloped' into the club of the industrialised nations. This call has been recently enforced by a call to generate competitive environments in which innovation can flourish (Lundvall et al., 2009). This process should be supported by structural reforms at the institutional level, such as the liberalization of trade, labour markets and public services; all elements characteristic of what is known as the neoliberal agenda (Gershon, 2011). In this sense, the developing world is seen as the future *Eldorado* of innovation, and its *holy grail*, to use the words of Prahalad and Mashelkar (2010). As Kaplinsky (2011a) argues, "There are very good reasons to assume that technical change originating in the south will become a major driver of innovation in the 21st century".

But what is this innovation and who is it for? And if this innovation intersects with development, we must also ask what development is and who is *this* for?

Development, and more recently the notion of development-oriented innovation, are concepts so vague and fuzzy that they can easily embody multiple meanings. As Cornwall (2007) argues, development is a buzzword surrounded by many other buzzwords like empowerment, participation, cooperation, capability building, sustainability among many others. Buzzwords always have contested meanings and are interpretively flexible; they also shelter the interests and political agendas of those who promote and use them. As will be explained later in the thesis, the notion of development promoted the diffusion of industrialism outside Western borders to those nations that were recognised as backward, and ‘underdeveloped’: the ‘others’. The initial hypothesis of this thesis is that the innovation turn and construction of a hegemonic *innovation discourse* in the Global South has followed a very similar process to the social construction of the development discourse as described by post-development scholars such as Arturo Escobar (2012) and Wolfgang Sachs (1992; 1990). This construction created the fiction that those non-western countries that did not present the signs of an incipient modernity were ‘underdeveloped’ or not developed at all. And of course, in order to develop, the underdeveloped had to invest in innovation, and the associated industrial and technical infrastructures/competencies, accepting the free market ideology, while abandoning indigenous cultural peculiarities. Nevertheless, as I will go on to explain in the following chapters, the recent intersection of the discourse of development and that of innovation is in fact a more complex, nuanced and pluralistic situation. But suffice to say at this point, that innovation has been welcomed into the circle of ‘development *buzzwords*’. This welcoming, both in theory and practice, is the subject of this thesis.

1.3 RESEARCH FOCUS AND MAIN RESEARCH QUESTIONS

The main objective of this thesis is to show how narratives of innovation have been constructed within the wider discourses of development, both of which are dynamic, moveable feasts. Innovation, I argue, has become a new buzzword that underpins multiple meanings and political agendas concerning development, which in turn have profound implications on the *practices* of development on the ground. Therefore, if innovation and development can be framed as interlinked, *discursive* narratives that are not passive but have the constitutive power to shape and construct the reality of

concrete practices in favour of certain actors and to the detriment of others, how does this process occur *on the ground*?

As suggested by a few scholars (Arora & Romijn, 2011; Escobar, 1996, 2004), my intent is to use a non-essentialist approach to grasp how the discourse of ‘innovation for development’ is constructed in the context of the so-called developing world. Therefore, I propose the following main research questions:

- How are discourses of ‘innovation for development’ constructed, adopted and negotiated in non-western environments?
- How do different actors re-interpret, re-purpose and reframe these discourses, for what reasons and by which strategies?
- How do those narratives emerge in the practices the actors perform and how do they influence them?

The aim of the following chapters is to describe how those questions emerged throughout my personal journey and how I designed and carried out my research project to address them. By researching, and then telling the stories of four different communities of ‘innovation practitioners’ linked to the theory and practice of development, the findings of this thesis embrace a number of themes that in some cases validate the literature of innovation in resource-constrained environments, and which in other cases provide original insights and new directions concerning innovation discourse. First, the cases analysed confirm that innovation is hardly a product of well-functioning ‘innovation systems’. It springs from resource constraints, sometimes driven by faulty formal and informal institutions, biased market mechanisms, and a weak private sector: in these instances there is no innovation system *per se*. It can also embrace traditional knowledge, empathy, cultural motives and networks of solidarity. At the same time, contrary to the original mantra of innovation for development, the findings reveal that technological innovation is neither necessary nor sufficient to reverse the causes of poverty and exclusion. Indeed, in some cases, innovation can even reinforce existing, unequal power relationships by favouring those who already enjoy privileged positions in the community. Second, in some of the cases analysed, the discourse of innovation for development hides an attempt to transform the social practices of ‘*the beneficiaries*’,

by promoting all the features typical of neoliberal agendas like competitiveness, ownership, greater productivity, greater efficiency and market-oriented production, at the same time dismissing pre-existing or alternative subsistence patterns of life and nonmarketable solutions. These dynamics are particularly evident in the case of the discourse of Inclusive Business Model innovation I will describe. The discourse of *inclusivity* is inspired by the intention to include people within the framework of the market economy i.e. monetising all possible transactions, transforming the informal economy, fighting alternative educational systems and marginalising local forms of subsistence. What emerges from the majority of the communities of practitioners analysed is that, at best, the discourses of social justice and political transformation have been marginalised, and at worst they have been completely neglected. As one might expect, the findings of the research show that the meaning of innovation remains contested and can be used for different purposes. These include countervailing voices that, despite being a minority, seek to (re)open up the debate about the social value of innovation and technological change as an instrument for social transformation.

Main contribution of the research

The core contribution of this thesis is to the critical evaluation of *innovation discourse* in resource-poor contexts, within management studies in the first instance and development studies in the second. The main original contributions to the state of the art are twofold. The first consists of a critical reflection on the extant literature that traces the origin of the introduction of the discourse of technical change, and in particular the discourse of innovation, within the wider discourse of development. The analysis reveals that the discourse of innovation serves as a bridge between the discursive worlds of development, Science & Technology, business management and organization studies. The second contribution is to disentangle the normative and constitutive nature of the abstract discourses of innovation and development by empirically researching practices that such discourse produce on the ground, in case studies undertaken in India and Bangladesh. In order to achieve this, I spent time with and then analysed research involving four networks of practitioners that enact very different narratives of innovation for development. These cases disclose the use of innovation as a buzzword that, depending on the contexts, enable (or disable)

different kinds of social practices, with tangible impacts e.g. on concepts of space, time and the meaning of rural life.

1.4 THE STRUCTURE OF THE THESIS (FIGURE 1)

In this chapter I have introduced the key questions of the thesis, which is the study of the discourse of innovation for development. The first part of the chapter focused on the new turn in the study of innovation as a way to overcome the condition of underdevelopment. The second part discussed the importance of studying socio-technical change in the context of the developing world and presented the research questions and the main contribution of the thesis. Chapter 2 provides in the first part a critical literature review of the emergence of the notion of innovation as a fundamental engine of economic growth in capitalist societies. The second part of the chapter presents a systematic overview of the recent literature on innovation for development. The chapter ends with a critical overview of the 'narratives of innovation' identified and highlights gaps in the state of the art. In Chapter 3 I go on to introduce the notions of discourse, frames and narratives, which are key concepts central to the thesis as a whole. In the second part of the chapter, these same concepts are further discussed as a way of introducing the positions of development and post-development scholars. The main hypothesis formulated in this chapter is that the recent hybridization of the discourse of development with elements emerging from innovation studies can be analysed using a process of discourse deconstruction often used by post-development scholars. Chapter 4 describes how the research projects were designed and carried out. The first part discusses my personal research journey. The second part describes the criteria that guided the selection of four case studies. In this section I also describe how I analysed the data using a qualitative Grounded Theory approach. Chapter 5 analyses the first case study, which I have entitled a case of '*poor as clients*', the story of the company Grameen Shakti that provides renewable energy solutions for the rural poor in Bangladesh. Chapter 6 describes the second case study, which I have entitled an example of '*poor as co-producers*'. The case is the retail Indian company Mother Earth which focuses on connecting rural artisans with the domestic and global market. Chapter 7 analyses the discourse of '*inclusive business models*' by describing how this idea is constructed within a major educational centre in India, the Indian Institute of

Management in Bangalore. Chapter 8 tells the story of the People's Science Movements, a social movement born in post-independence India to popularise science among the poor. The case unveils a countervailing narrative of the role of Science and Technology in the development discourse. Chapter 9 summarises the ideas discussed at the end of each case study. This chapter analyses the multiple roles of innovation as a 'buzzword' in the narratives that emerge from the data. Finally, the main theoretical and empirical contributions of the thesis are critically reflected in and discussed.

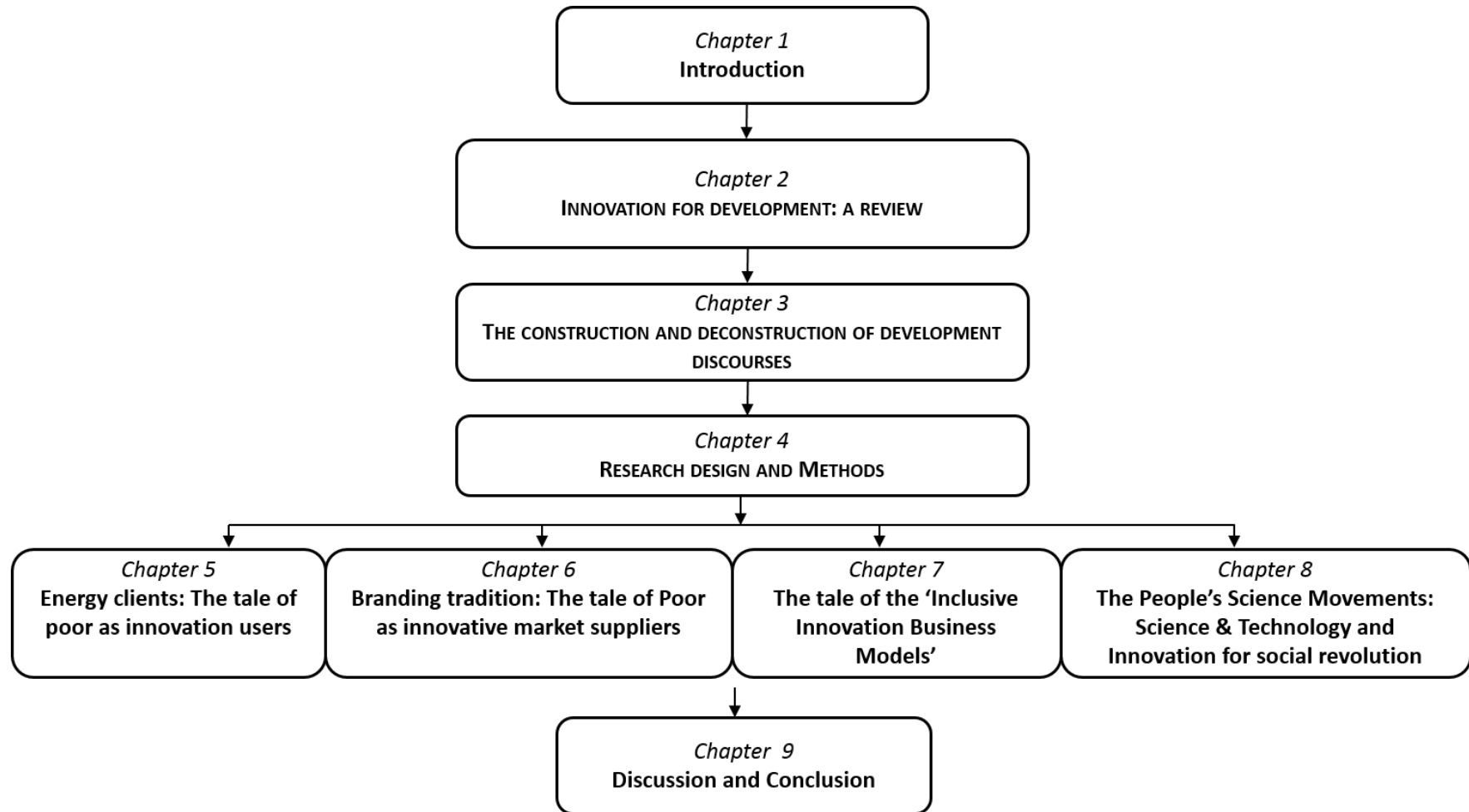


Figure 1 Organization of the chapters

INNOVATION FOR DEVELOPMENT: A REVIEW

Among all the elements which concur with an affluent and prosperous society, innovation, underpinned by technological change², seems to play a major role (Freeman & Soete, 1997). After years of empirical research there is now a wide consensus that innovation represents an essential ingredient for sustainable economic growth within the capitalist paradigm (Freeman, 2002). The literature on innovation has soared in the last two decades and new journals and research groups focusing on this topic have been created (Fagerberg & Verspagen, 2009). Several indicators have been created to measure innovation performance and innovation surveys are carried out periodically by the OECD countries and more recently by countries in Asia and Latin America (Freeman & Soete, 2009). Those systems of indicators are based on science, technology and innovation (STI) proxy-variables that usually encompass input (e.g. general education indicators, R&D expenditures, science investments) and outcome indicators (e.g. number of new patents, new products and services on the market). In those surveys wealthier countries often perform better than low income countries in terms of innovation outcomes.

² It is worth clarifying that the vast majority of management scholars clearly distinguish between *technological change* and *innovation*. The former is an umbrella term that indicates the general evolution of technological (but also organizational routines) artefacts, whereas the latter refers to the process of bringing new processes, products or services to the market. In this sense, the contemporary understanding of the notion of innovation, at least in management studies, is predominantly framed within the boundaries of the *market economy* (Bessant, Lamming, Noke, & Phillips, 2005; Dosi & Freeman, 1988; Freeman & Soete, 1997; Tidd & Bessant, 2009).

Understanding the relationships and dynamics between innovation processes and development in low income countries is still a matter of academic debate, one which is often hindered by a lack of reliable data. The problem becomes greater if one wants to study what is happening in the informal sector, a major portion of those economies which is not captured in surveys. Does innovation also occur at grassroots levels? If so, the tools and key performance indicators that advanced economies have designed to measure innovation performance could be only partially adequate. Furthermore, what kinds of innovations are needed to put low-income countries on the path of development? Are they condemned to be ever-followers of the rich countries? Is it true, as Schumacher (1973) provocatively asked, that innovation in low income countries is only possible when they reach the frontier of technological development?

This chapter explores how the extant literature has tried to address these questions by identifying the origins of the ways innovation is currently understood, and the various (including political) dimensions of this. The chapter is divided in two sections. The first part is an introduction to the way the notions of technical change and innovation have been framed in the economic thinking of the last century. This part, moreover, provides a guide to earlier approaches to technical change and describes how these differ from the way innovation is currently codified in management studies. The second part is a literature review of the extant literature on innovation as a way to develop and overcome poverty. It also includes reflections on the trope of novelty in development studies, and how this links to or differs from the current focus on innovation.

2.1 ECONOMIC DEVELOPMENT AND THE ROLE OF INNOVATION

Growth theories and innovation

Technology has to be the main part of the solution. To the extent that we talk in terms of any moral obligation, it's our obligation as rich countries to find ways for the rest of the world to develop economically with a proper respect for the environment.

The tradition of liberal economics, also known as neo-classical economics, was for a long time indifferent to the concept of innovation (Verspagen, 1992). Innovation and technical change, however, are not really neglected by the neo-classicists; they are rather considered as being an external variable (Ibid.). In this view, a firm is assumed to have perfect and complete knowledge about the best technology available at any given time. What is more, any firm is always able and free to adopt technology whenever it is needed. The knowledge embedded in a certain technology is considered to be static and independent from the environment in which the process of technological development, deployment and diffusion takes place. The underlying assumption behind the free circulation of technology is that technological knowledge can always be perfectly coded without ambiguity (Foray, 2004).

Schumpeter's work reversed those assumptions. He demonstrated that the real engine of capitalist expansion is technological change, which continuously revolutionises the way goods and services are produced and delivered, introducing dynamism and instability into the context of a competitive free market economy. The capacity to innovate (i.e. to exploit technological change into the market) is *embedded* in people and organizations. He individuates the main agent of this process as being the visionary entrepreneur (the so-called Mark I) who is actively and incessantly looking for competitive advantages to overcome competitors. Later on in his life, Schumpeter modified this position following his observation of the new wave of innovations that followed WWII. He considered that the R&D departments of the big corporations had become the new core of industrial innovation (Mark II) (Schumpeter, 1934, 1994). He witnessed the development of heavy industry and the beginning of the mass consumption culture in US and Europe, where the big private or state companies were the major actors of innovation processes. But probably the most important consequence for the neo-classical tradition of Schumpeter's work was the fact that he challenged the assumption that growth is based only

³ The Region, September 1, 2002. Retrieved on November 2011 from http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3399

on capital accumulation. Building on this evidence, successive scholars then attempted to include innovation into neo-classical analysis. In the 1950s Solow (1957) introduced technical change into the function of production, claiming that innovation is the major reason for the increase in productivity. Further research was carried out by Arrow (1962), Lucas (1988) and Romer (1994) who attempted to prove that economic growth was due to investment in human capital, which had spill-over effects on the economy through the continuous creation of endogenous innovation. Those models aimed to explain why the law of '*diminishing returns*' does not seem to affect the industrial system in the real world. The conclusion was that technical change constantly scales up the function of production by increasing the productivity of factors (i.e. labour and capital). This thinking is commonly known as 'endogenous growth theory' or 'new growth theory'. Those theories acknowledge that since the second half of 20th century capitalist economies addressed the problem of diminishing returns through a continuous differentiation of products and, above all, the creation of truly new goods, services and markets (i.e. what it is generally meant by the term innovation) (Bonaiuti, 2014). In this view, economic growth is the result of endogenous and not external forces. In the endogenous growth theory, investment in human capital, innovation and knowledge are seen as significant contributors to economic growth. Innovation, according to this argument, can thus be fostered by investing in research, development and education (Romer, 1994). This approach, also known as the "Linear Model", encourages the state and the private sector to invest in R&D activities and basic scientific research to feed the innovation process (Godin, 2006).

On the distribution and diffusion of the benefits of innovation *in society*, neo-classical economists are less explicit (Castellacci, 2007). The main argument is that sustained economic growth generates long-term increase in per capita income that is transferred to the base of the social pyramid (*trickle-down effect*) (Arndt, 1983). The solution to underdevelopment is synthesized in the recipe: 'get the process right, get the property rights right, get the institutions right, get the governance right and get the competitiveness right' (Chang, 2003). Innovation and technological knowledge spill over from advanced to low income countries through international trade, Foreign Direct Investment (FDI) and

licencing. In a free trade world, enterprises in the developing world would be able to acquire always the best technology available on the market.

Evolutionary theory, knowledge and learning

Like the endogenous growth theory, the 'evolutionary school' recognises Schumpeter's work as a major source of inspiration. His work, indeed, proposed an idea radical for its time: the evolutionary perspective. Technical change occurs through the creation of new varieties and combinations of technologies, which result in specific technological paths and trajectories. In this model, the equilibrium of 'the normal mode of economic affairs' is continuously destroyed by visionary entrepreneurs (Mark I) or public/private gigantic organizations (Mark II), that introduce innovative processes or products. A successful innovation introduces turbulence in the system and produces a disturbance or even a breakdown in the normal flow of the economy. Schumpeter called this effect 'creative destruction'. This process can make existing technologies obsolete, forcing them to lose their positions within the economy (Schumpeter, 1994, pp. 82-83).

As technical changes constantly take place in the economy, then some kind of *evolutionary process*, that can be compared to Darwinian evolution theory, must be in play (Nelson & Winter, 1982). Like mutation in the genes in the DNA, technologies mutate and are selected by the external environment that eventually determines their success or abandonment (Arthur, 2009). Given its path-dependency, this evolutionary process generates *technical regimes or paradigms* (Dosi, 1982) that, once established, are difficult to modify (Dosi & Freeman, 1988). The accumulation of technical changes periodically yields technical revolutions that in turn can trigger major social and economic transformations (e.g., the industrial revolution ignited by the steam engine, the electricity revolution, the car revolution, the ICT revolution) (Freeman & Soete, 1997; Pérez, 2002). Evolutionary theorists do not consider innovation as being the result of a linear process in which the outcomes are determined by a specific set of inputs (i.e., Science, Technology and Innovation (STI) input variables) but as the result of a complex process of interaction between

numerous actors like firms, research centres, R&D departments, suppliers and users (Kline & Rosenberg, 1986).

One important consequence of evolutionary thinking in terms of development and underdevelopment is that technology *does not* naturally flow freely from north to south as the neoclassic world view argues (Ulku, 2011). In order to be transferred effectively, technology requires contexts that present certain conditions. To describe the factors that make a specific setting a 'fertile' environment for innovation, concepts like 'technological capability', 'absorptive capacity', 'social capability', and 'national systems of innovation' have been introduced. The technological capability approach was introduced by Kim (Kim, 1980) after the study on the Korean manufacturing industry. Observing the catching-up process of Korea in the 1980s, Kim realised that Korean firms went through three different phases: Implementation, assimilation and improvement of Western technology. In other words, they have been able to adopt and absorb foreign technologies and then start an independent technological path. A similar notion is 'absorptive capacity' defined as: 'the ability of firms to recognize the value of new, external information, assimilate it and apply it to commercial ends, driven by firms' prior knowledge from activities in R&D and manufacturing, and efforts aimed directly at promoting knowledge and training' (Cohen & Levinthal, 1990, p.128). This approach has been used to understand the different performances of firms and countries in the adoption of innovation (Fu, Pietrobelli, & Soete, 2011). Other authors stress the importance of 'social capability', defined as 'the attributes and qualities of people and organizations that influence the responses of people to economic opportunity' (Temple & Johnson, 1998, p. 966). The concept, drawing on an historical analysis of the economic performance of several countries by Abramovitz (1986), is an attempt to investigate those features within the social fabric that make a society 'more innovative' and more proactive in generating economic opportunities.

But probably the most successful development of evolutionary thinking is the Innovation System (IS) framework. Introduced with the scope of providing a framework for policy making, the IS draws on evolutionary economics but with particular attention to the social and institutional aspects that characterise the

process of innovation. IS supporters consider innovation as a learning process that requires the interaction between markets and public agents (Lundvall, 1992). Innovation is the outcome of a systemic process that involves a network of relationships as well as a set of capabilities '*to do and to learn things*'. The IS approach also advocates for a central role of the state to sustain the economy by developing national or regional innovation policies (Edquist, 2005, 2006). There are three main perspectives of IS.

The first perspective focuses on *agents* and their interactions. ISs are characterized by agents and the mesh of relationships that intertwines each other. Freeman (1995) defines IS as the network of institutions in the public and private sectors whose activities and interactions initiate, modify and diffuse new technologies. A nation's innovation performance depends on the aggregation of these interactions from the micro to the macro level. Agents' identification has mostly been influenced by the Triple Helix approach (Leydesdorff & Etzkowitz, 1998): government, educational institutions (i.e. university, polytechnics, research centres etc.) and firms are pointed out as the major stakeholders.

A second perspective focuses on *processes*. Lundvall (2010) stresses the centrality of "*learning*" at the IS core. The capacity to innovate is the result of a larger process of mutual learning between private and public actors. Different modes of learning (*learning by doing, learning by using and learning by interacting*) take place at different levels and generate the huge variety of capabilities necessary to produce new services and products and introduce them into the market. Those capabilities obviously encompass scientific and technological knowledge, but also market oriented and managerial skills (Edquist, 2005, 2006). A fundamental role in the IS framework is played by tacit knowledge (Foray & Lundvall, 1998). The skills acquired by the agents through the interactive learning processes that occur in the system, cannot be easily codified because they are usually the result of a long, iterative process of practical learning (Jensen et Al., 2007; Johnson, Lorenz, & Lundvall, 2002). In other words, the knowledge involved in the process of innovation within the system cannot be separated from the people who constitute the system.

A third perspective of IS focusses on institutions. The institutional setting (i.e. the set of rules, values, routines within which any economy is possible (North, 1990)) is thought to be one of the main determinants of an IS (Nelson & Nelson, 2002). They (ibid.) define a routine as 'a way of doing something, a course of action'. In turn, the way routines are organized and their evolution will impel or burden a country's economic progress (Nelson, 2008). Management routines, information supply and access, incentives placement and resource allocation, for example, are some of the aspects that are influenced by the institutional setting within an IS.

Despite its success within the innovation studies community, the operationalization of IS has been a major challenge (Carlsson et Al., 2002). In order to overcome this issue, others have adapted the IS framework to allow the development of more focused innovation policies. Some authors, for instance, have explored how to use IS to govern and guide technological changes (Markard & Truffer, 2008), others have studied the geographic characteristics of IS (Cooke, Gomez Uranga, & Etxebarria, 1997; Tödting & Trippel, 2005), others have applied the notion of IS to sectoral analysis (Malerba, 2002). Finally a relatively recent body of work has focused on the application of the IS framework to the development of low-income countries. This is the theme of the next section.

Innovation Systems and developing countries

In order to provide empirical evidence to support the claims of the IS approach, its supporters have analysed the relationships between economic growth rates and the systemic variables described above (e.g., education, institutional settings, infrastructures). A statistical analysis carried out using 25 indicators and 115 countries between 1992 and 2004, for instance, suggests that systemic failures (like inadequate physical and digital infrastructures, low human capital capacity and degraded institutional environments) negatively affect the innovation performance on a national and regional basis (Fagerberg & Srholec, 2008; Fagerberg et Al , 2007). As a consequence, in the first decade of the 21st century, IS promoters have made an effort to adapt the framework to the *developing world*. They started analysing the structural factors that are

supposed to influence innovation delivery. Ulku (2011), for instance, argues that low-income countries have lower performance in key determinants of innovation, such as low human capital and high rates of immigration. He argues that a national or regional policy is needed to strength strategic sectors like education and research institutions, private sector competitiveness and public support to entrepreneurship.

Recent volumes, promoted by the Globelics⁴ network, have also focused on the developing world: Africa (Muchie & Gammeltoft, 2003) , Latin America (Cassiolato, Lastres, & Maciel, 2003) and Asia (Lundvall, Intarakumnerd, 2006). Lundvall et al. (2009) focus their attention on the contribution of the IS approach to developing economies. The general attempt of those studies is to understand how to reproduce the systemic conditions that enhance innovation performance in the advanced countries. The analysis of the ISs of the countries examined, which combine aggregate statistical analysis with sectorial analysis, shows that some emerging economies preferred to passively imitate more developed nations (e.g. Latin American and African countries), while others invest in learning dynamics (e.g. South East Asia).

Arocena and Sutz (2000) attempted to create a framework for innovation-driven development based on the IS approach. However, in doing so they recognised four major issues. First, unlike developed countries, in the periphery, the IS concept is basically an *ex-ante* concept. In industrialized countries the study of ISs has been based on empirical analysis that allowed the identification of common patterns among different nations and regions. In developing countries it is very difficult to find regular patterns in the economic system at a national level. Second, the IS concept carries a normative weight. That means that there is no ideal system. Some measures can be useful in a specific context and may be less effective in other situations. Third, the IS concept is, in its nature, a *relational* model. Good relationships between actors are often the most

⁴ The Global Network for Economics of Learning, Innovation, and Competence Building Systems (Globelics) is a global network of scholars who apply the concept of 'Learning, Innovation, and Competence Building System' (Lics) as their analytical framework. The network is especially dedicated to the strengthening of Lics in countries in the South: <http://www.globelics.org/> (last accessed March 11, 2015)

important factor of success in the systems. In the case of Latin America, for example, given the strong influence of Europe and North America it has been relatively easy to create organizations to boost innovations shaped on the Western models, but it was hard to make them work. Finally, the IS concept is useful to formulate policies. That implies that it should be possible to act deliberately on the system to achieve real changes in the innovation performances. Since in the majority of developing countries Science & Technology policy never occupied a high position in the political agenda, this process of change appears to be quite difficult to achieve without a strong political commitment. Other authors stress the importance of social aspects of the IS concept applied to less developed countries, in particular they advocate for an IS which encourages social inclusion and reduces inequality. According to the CEPAL⁵ for example, the IS framework can be applied to Latin American countries, in particular as an instrument for policy making, only if it is modified to include the sensitive objectives for the region like poverty alleviation, social inclusion and environmental sustainability (CEPAL 2009: 165).

In conclusion, while IS promoters have suggested a recreation in the developing world of the systemic conditions that have enabled technological development in the more advanced economies, they recognise that this process cannot happen without taking into account the specificity and diversity of each country. The African and Latin American IS academic community, for example, recognises the failures of mere replication of the industrial policy applied by the wealthy nations in addressing the issues of poverty and inequality (Arocena & Senker, 2003; Muchie & Gammeltoft, 2003). For the same reason, Lundvall et al. (2009) and Arocena & Sutz (2000) advocate for a flexible intellectual attitude that takes into account the diversity and the complexity of developing economies.

From the early formulation of economic growth theory to the IS framework, thoughts concerning the role that innovation plays in the development process

⁵ Comisión Económica para América Latina, the UN economic commission for Latin America based in Santiago de Chile (<http://www.eclac.cl/> last accessed March 11, 2015)

have dramatically evolved. There is now a wide consensus among academics that technological change and innovation are fundamental to achieving economic growth. However, despite the tremendous technological advances of the last five decades and their diffusion around the globe through the process of globalization, a large part of the global population still does not enjoy the benefit of such development. As Stiglitz (2002) notices, the globalization process has created many opportunities but it has also increased the discontent of those groups that have remained excluded. As a result, increasing efforts have been dedicated to explore how poverty and inequality can be addressed through a more inclusive model of economic development and technological change. The following section outlines attempts to address this.

2.2 A SYSTEMATIC REVIEW OF THE ACADEMIC LITERATURE ON INNOVATION, DEVELOPMENT AND POVERTY

The debate about innovation/technology and poverty can be traced back at least to the first half of 20th century. Gandhi in the 1930s (Dabholkar & Krishnan, 2013) and Schumacher (1973) in the 1970s, for instance, had already examined and reflected on the relations between human development and technology⁶. However, the debate within the business and management studies academic communities starts to become relevant at the end of the 1990s with the introduction of the concepts of 'Bottom Of the Pyramid' (BOP), 'frugal', 'inclusive innovation' and the like (Garud, Tuertscher, & Van de Ven, 2013; Kolk et al., 2013; Zott, Amit, & Massa, 2011). In order to explore the evolution of the extant academic literature and identify notable emerging discourses linking innovation and development I carried out two keyword searches. The search was designed to maximise the number of results in the category of 'social science' using the two most complete database available in the field: Scopus and Web of Knowledge. For the database queries, 12 keywords were selected: *"frugal innovation"*, *"bottom of the pyramid"*, *"bottom of the pyramid innovation"*, *"inclusive innovation"*, *"jugaad"*, *"gandhian innovation"*, *"pro-poor innovation"*, *"below the radar innovation"*, *"resource constrained innovation"*, *"Inclusive*

⁶ The Gandhian approach to appropriate technology and innovation is discussed in detail in 7.2.

growth", *"inclusive development"*, *"grassroots innovation"*. The search was performed in January 2014 and included all the available electronic papers in the above mentioned databases published between 1900 and 2014. The bibliometrics analysis shows that the first paper appeared in 2005 and that the literature production exhibited a strong increase from 2010. From the two keywords searches I gathered a database of 218 papers. I complemented the database with a few strictly - selected reports, newspaper articles or books that I think are highly relevant to understand where the academic community is directed as regards those topics, like grassroots innovation or non-mainstream economics for example, in which the peer-review literature is still scarce.

In order to understand the proliferation and use of the above mentioned concepts within the academic community, I then performed a network analysis with the help of the free open-source software Gephi⁷. Gephi is an interactive visualization platform that allows the analysis of complex networks and complex systems. I used the database to create a network of keywords and their relations (Figure 2). Each node of the network represents a keyword and each link between 2 nodes indicates that the 2 keywords appear in the same paper. The thickness of the link is proportional to the number of times the 2 keywords appear in the same paper. In order to make the visualization of 517 keywords possible, I grouped the keywords in macro groups. For example, I grouped all the keywords related to the concept of inclusion in the macro group 'Inclusive growth', and all the possible formulations of 'Bottom of the pyramid' in the macro group BOP. Finally, I applied a Louvain algorithm to discover the communities' structure of my network. The algorithm is designed to detect '*big aggregators*' i.e., those nodes that are more connected than the others (Blondel et al., 2008). The algorithm detected four major communities: Inclusive growth, BOP, Resource Constrained Innovation and Sustainability. Surprisingly enough, the keyword sustainability was not initially included in the 12 original keywords. A more accurate manual analysis reveals that in each community there are at least a couple of sub-communities. The dominant aggregate is grouped around

⁷ Gephi is freely available at: <https://gephi.org/> (last accessed November 3, 2014)

the concept of '*inclusive growth*' that contains the concepts of inclusive development, growth and social inclusion. Related to this concept we find two subgroups. One is composed of the literature that deals with the use of traditional knowledge in development, the other deals with the topic of inequality. The second dominant aggregate is the BOP. The community is situated between the concepts of inclusivity and innovation. Particularly important seems to be the presence of a sub-community of scholars that focus on microfinance. A relevant concept related to the BOP is also ICT technology, especially mobile technology. The third community in size is composed of two major aggregates: sustainability and grassroots. Particularly interesting is the presence of a sub-community focused on non-mainstream economics that publishes on topics such as '*de-growth and new economics*'. Finally there is the community of innovation that contains concepts like 'frugal innovation, reverse innovation or affordable innovation'. Within this community there is a sub-community that focuses on legislative issues. A quite distinct and relevant sub-community within the innovation community is the '*India*' community. This contains concepts like '*Jugaad, poor consumers*' and novel words like '*Indovation or Hindolence*'.

In the following sections I will describe in detail the four macro-communities that emerge from the network analysis: (resource-constrained) innovation (RCI), BOP, grassroots innovation and the notion of Inclusive growth.

Resource-Constrained Innovation (RCI): Bricolage, Frugality and Jugaad

'*Necessity is the mother of invention*'. This popular phrase suggests that the necessity to address compelling needs sharpens ingenuity and encourages innovative thinking. Poverty, defined as a lack of material resources, and scarcity are certainly related. However, scarcity can also refer more generally to a situation of shortage of financial/materials resources or managerial skills in an organization. A recent business and management focused literature has

approached the topic by introducing such concepts as RCI, bricolage, frugality or Jugaad (Horn & Brem, 2013).

An attempt to theorise RCI, or '*scarcity-induced innovation*', lies in the work of Srinivas and Sutz (2008). They argue that in the academic literature there has been a misleading quest for innovation uniformity (i.e. the idea that the conditions needed to innovate are the same in any given context) that has sidelined the study of the capabilities needed to innovate in conditions of scarcity. The mainstream of innovation studies focuses on those innovations that occur in efficient innovation systems, while RCI usually takes place in a huge variety of different contexts and cannot be analysed using the same intellectual arsenal.

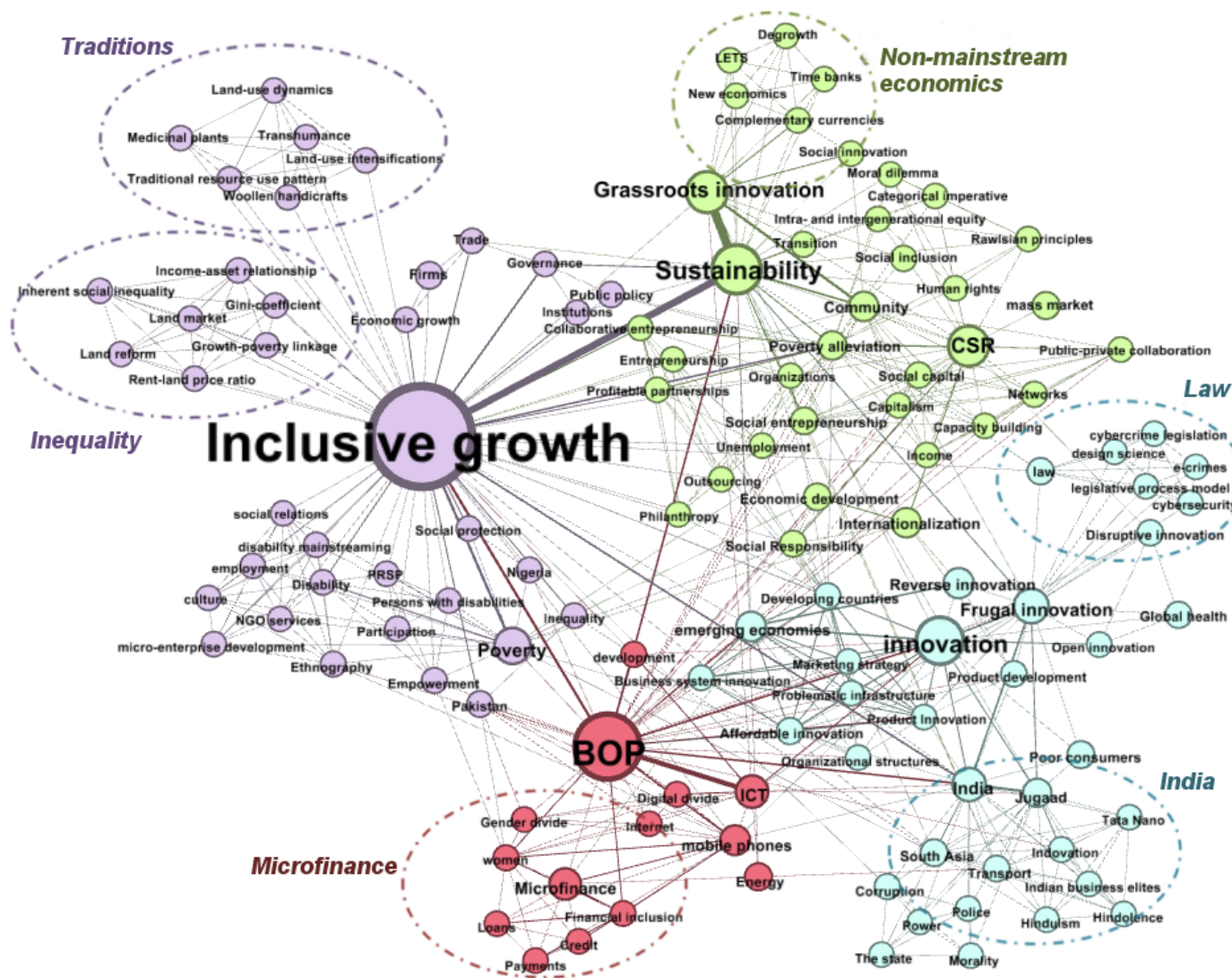


Figure 2 Systematic literature review network analysis

Even more importantly, the innovation process in resource-constrained environments is not necessarily an earlier stage or the precursor of a fully-fledged innovation system. In their words:

‘We argue that roughly speaking, people search for and design solutions within “technological universes”. To innovate or to solve problems in a technological universe characterized by scarcity requires the development of a series of skills—learnt by doing, by searching, by interacting, by solving—that are idiosyncratic: we term them capacities to innovate in scarcity conditions’ (Ibid.: 135).

A more organization-centred approach is presented in the *bricolage* literature. The notion of *bricolage* introduced by the anthropologist Levy-Strauss has been recently rediscovered to describe the condition of resources scarcity within organizations. According to Levy-Strauss, the *bricoleur* “is [...] someone who works with his hands and uses devious means compared to that of the craftsman [...] is adept at performing a large number of diverse tasks” (Lévi-Strauss, 1966, pp 16-18). The concept was introduced in the business literature at the beginning of the 21st century by Baker et al. (2003) and Garud & Karnøe (2003). The *bricoleur* firms “refuse to conceive scarcity as a limit” (Baker & Nelson, 2005) and develop a number of strategies to cope with it. According to those authors, resource scarcity drives the development of capacities in firms to improvise and generate alternative solutions. The evidence from a number of empirical studies supports this assumption (Weiss, Hoegl, & Gibbert, 2011). Another interesting effect of *bricolage* is the search for new applications of pre-existing technologies and/or solutions and the recombinant dynamics that this process generates. One of the characteristics of the *bricoleur*, indeed, is to combine different technologies that were originally designed for other purposes (Ibid). Given the resource limits that affect the BOP contexts, some authors have attempted to use the notion of *bricolage* to theorise how firms and organizations deal with scarcity at the BOP (Di Domenico et al., 2010; Gibbert et al., 2006; Halme et al., 2012; Immelt et al., 2009; Zeschky et al., 2011).

A number of examples document the *bricolage* activity of MNCs in emerging countries such as India and China (Immelt et al., 2009; Prathap, 2014). In this body of literature the concept of *bricolage* is usually replaced by the concept of

frugality (Bhatti, 2013). Bricolage and frugality have vernacular equivalents in many languages. In India, for instance, frugal innovations are indicated by the Hindi word '*Jugaad*'. *Jugaad* colloquially means a creative idea or a quick workaround to get through commercial, logistic or law issues (Radjou et al., 2012; Sharma & Iyer, 2012). The word *gambiarra* in Brazil and *chapuza* in Spain indicate shoddy work carried out with minimal means. The terms *zizhu*, *chuangxin* or *shanzai* in China indicate low-cost counterfeiting manufacturing. Solution D in France, *jua kali* in Kenya, *DIY* in the US and the art of *arrangiarsi* in Italian, all indicate bricolage attitudes. Those solutions share some very basic features (Rao, 2013) : They must be i) robust to deal with infrastructure shortcomings such as electrical voltage fluctuation; ii) fault resistant to cope with unsophisticated or even illiterate users; iii) affordable for larger sections of the society.

A recent book by Radjou et al. (2012), explores in a journalistic fashion the extension of the *jugaad* attitude in India. According to the authors, not only is *jugaad* innovation a revolutionary tool in emerging countries, but it represents an unexpected opportunity for Western companies that are facing low rates of growth in the over-saturated markets of developed nations. By analysing the evidence coming from the field, other authors stress the fact that the '*jugaad attitude*' is an indispensable element for firms and consumers survival in rural India (Singh, Gupta, & Mondal, 2012). Some evidence suggests that MNCs are particularly interested in those dynamics for three reasons: to reduce the costs of products/service design, to create new markets in developing countries for low-cost products, and to explore the markets for disruptive innovations based on high-quality/low-cost products in wealthier nations. Two paradigmatic examples in this sense are the portable ECG machine for rural India and the ultrasound device for rural China, both developed by GE. When GE's portable ECG was redesigned by its Indian branch, the cost shrank from \$10,000 to \$1,000, whilst the Chinese were able to reduce the cost of the ultrasound device from \$30,000 to \$10,000. Those achievements have been made possible by rethinking the way GE used to design its products (Immelt et al., 2009). The local branch used low cost materials, less plastic and smaller LCD screens. They preferred local engineers, redesigning the software to reduce the

memory requirement and using the same printer as that used in bus terminal kiosks in India (Kriplani, 2008). But maybe even more importantly, those pioneering machines are now being sold in the United States. This process is known as '*reverse innovation*' and is quite the opposite of the technology transfer that characterised the early globalisation dynamics (Agarwal & Brem, 2012; Govindarajan & Trimble, 2012).

Some critical voices in the academia have questioned the positive framing of frugal/jugaad innovation. According to Birtchnell (2011: 249), for instance, 'Jugaad is a product of widespread poverty and underpins path dependencies stemming from dilapidated infrastructure, unsafe transport practices, and resource constraints. These factors make it wholly unsuitable both as a development tool and as a business asset'. The analysis of Krishnan (2010) of the Indian innovation potential published in the book '*From Jugaad to Systematic Innovation: The Challenge for India*', stresses the temporary, precarious and uncertain consequences of a jugaad culture. According to Krishnan, in fact, a modern country that aspires to become a world leading power should invest to build up a proper innovation system with the aim of triggering a systematic and continuous process of technological development, instead of indulging in notions like frugality and jugaad. He thinks these latter notions are produced by what he calls *Hindolence*, which he describes as a 'bhraminical attitude' or, in other words, the 'lack of a strong time orientation', 'disdain for physical work', and being 'passive on action' (Krishnan, 2010: 136-140).

Evolution of the Bottom of the pyramid (BOP) discourse

One well known and influential literature is the so-called 'BOP literature'. The notion of BOP was introduced by Prahalad in 2005 in his book '*The fortune at the bottom of the pyramid: eradicating poverty through profits*' (Prahalad, 2010): I will introduce this as 'BOP1'. The main argument posited by Prahalad's work is that the poor are un-served consumers who represent an immense unexploited market. In this frame, those at the BOP are positioned as being currently excluded from mass consumption because of their very limited purchasing power. By targeting the poor, the private sector would have access to new and unsaturated markets and the poor in turn would gain access to consumer goods

that are currently inaccessible because they are too expensive. In a nutshell: *'doing more with less and for more people'* (Prahalad & Mashelkar, 2010; Prahalad, 2010, 2012). According to these scholars, those institutions that would be best placed to implement such a strategy are MNCs (Kanter, 2008; Rosenbloom & Althaus, 2007). The underlying philosophy of the BOP approach is that the quest for profit can *simultaneously* generate economic growth and deliver social value: *'making money by doing good'* (Agnihotri, 2013; Bardy, Drew, & Kennedy, 2012; Chakravarti, 2007; Faulconbridge, 2013; Seelos & Mair, 2007). By attempting to address problems faced by the poor, BOP innovators can also contribute to creating a new way of innovating (Anderson & Markides, 2007) (an example of BOP1 narrative analysis is described in section 3.1).

BOP initiatives in China, India and Brazil, for example, appear to follow four different strategies (Prahalad & Mashelkar, 2010; Prahalad, 2012): (i) Applying disruptive business models to acquired western technology; (ii) Inventing new uses and business models for acquired technology; (iii) Creating new technologies rooted in local contexts; (iv) Creating new business models to exploit endogenous technology.

In a review of the BOP literature, Kolk et al. (2013) analysed 104 articles published in journals or proceedings over a 10-year period (2000-2009) and concluded that the BOP concept had drastically evolved following Prahalad's original call to MNCs. This first formulation of the BOP perspective (following (Arora & Romijn, 2011) and which I have referred to as 'BOP 1') has been further elaborated to overcome the lack of institutional perspective inherent within Prahalad's original work. In the BOP 1, the actors are depicted as isolated subjects without any attempt to describe the institutional, cultural and even historical settings that are at the base of poverty. The following literature identified by Kolk et al., that I will call BOP2, updates the *'poor-as-consumers'* perspective by analysing the criticisms levelled at the BOP1 perspective (an example of BOP2 narrative analysis is described in section 3.1). In the book *'Next Generation Business Strategies for the Base of the Pyramid'* (London & Hart, 2011), Hart and London revisited the BOP1 perspective, introducing the

concept of '*co-creation with the poor*'. This new framing however, still emphasises a central role for MNCs in eradicating poverty, in which the co-production of economic profit and social value is underpinned by a free market economy, innovation and western style democracy (London & Hart, 2004; London, 2009). The BOP2 perspective emerges in part from observations made by London and Anupindi (2011), who compared donor-led initiatives with enterprise-led ones, finding that both approaches have common failures which include the lack of local stakeholder involvement and long term sustainability. London and Hart (2004) discovered that successful initiatives at the BOP imply a strong commitment to establishing alliances and participative ventures with local actors and local institutions. They found for example that local institutions and social networks influence purchasing decisions at the BOP in rural India and as a consequence they suggest drawing on those webs of relationships to promote BOP products; Ramani et al. (2012) found that the role of local intermediaries is crucial to the diffusion of BOP innovation in the field of water sanitation in India; Sesan et al. (2013) analysed the diffusion of clean-cook stoves in Nigeria and concluded that its success was mainly due to the collaboration between for-profit ventures and local NGOs; Weidner et al. (2010) by analysing several cases of innovation at the BOP, explored the strategies currently being used across social enterprises engaged in subsistence marketplaces and concluded that the most successful are those with a strong relation with local actors.

Other authors have attempted to overcome the limitations of the BOP1 framing by introducing the notion of '*capability building*' (Ansari, Munir, & Gregg, 2012), some have delved into marketing strategy (Mason, Chakrabarti, & Singh, 2013), some have explored the potential of BOP initiatives to deal with gender issues (Dolan, Johnstone-Louis, & Scott, 2012), and finally others have applied the BOP framework to microfinance (Chakrabarty & Erin Bass, 2013; Jose & Buchanan, 2013; Karamchandani, Kubzansky, & Lalwani, 2011; Reeves & Sabharwal, 2013; Sonne, 2012) and to ICT for development (Akter, Ray, D'Ambra, & D'Ambra, 2013; Dash, Patwardhan, & Verma, 2011; Foster & Heeks, 2013b; Gamboa, 2009; Tarafdar, Anekal, & Singh, 2012; Tarafdar, Singh, & Anekal, 2013). Finally, a surprising minority of other authors

(considering the increasing interest in climate change and environmental issues in the last two decades), have attempted to expand the outcomes of the BOP initiatives to include environmental issues and climate change. Hart et al. (2003), for instance, discuss the inclusion of clean technology and pollution prevention alongside BOP strategies to meet 'unmet needs'. Other authors argue that the struggle for survival of the poor is one of the causes of environmental degradation and the BOP approach could reduce the pressure on the environment by increasing the income of the poor (Hahn, 2008; Hart, 2011; Viswanathan, Yassine, & Clarke, 2011). Hart (2011) introduces the concept of 'green leapfrog' or 'trickle-up' effect. As eco-friendly technologies and practices always represent a disruptive change in developed countries, where standard technologies are well established, they are often hampered by the pre-existing technological regimes. Those constraints are often looser at the BOP. The absence of technological lock-in and the lack of strong legal frameworks to enforce specific socio-technical regimes might potentially provide a way for the development of a huge variety of alternative technological paths. In this view, the BOP context is a fertile ground to test and experiment sustainable technologies, like off-the-grid energy production, organic farming or micro-finance.

Critics of the BOP approach

From the literature review, the BOP1/2 narratives emerge as dominant frames in the business and management literature. This approach, however, risks neglecting the social and political causes of poverty. As Arora and Romijn (2011: 497) notice, this inclination 'promoted at the same time as advancing the spread of neoliberalism over the planet, perhaps to compensate for, and foster, the effective withdrawal of state support for welfare provision to the poor'. These authors, quoting the work of S. B. Banerjee (2012) on Corporate Social Responsibility and Willmott (2008) on critical management, hypothesise that the BOP and the inclusive innovation discourses, by using a depoliticised rhetoric of inclusion and participation, neglect the existence of unequal global and local power relations that shape the process of technological change and innovation to perpetuate capitalist hegemony (Peredo, 2012). In the words of Arora and Romijn (2011: 497):

'[...] the BOP literature is rapidly inching toward a new corpus of apolitical management studies for managing the (adverse) incorporation of the poor into world markets and further neoliberalization of extremely indigent areas of the planet. Such an apolitical understanding of complex social dynamics, by masking extant privilege and its consolidation will only serve to reproduce existing inequalities at the local level and further entrench the dominance of national and global capitalist formations.'(Ibid. 497)

Despite its hegemonic position within the business and management communities, the BOP narratives have been the subject of increasing criticism (Arora & Romijn, 2011; Kolk et al., 2013; Landrum, 2007). Right from the first appearance of Prahalad's book, the BOP approach as a way to alleviate poverty was questioned (J. P. Walsh, Kress, & Beyerchen, 2005). According to those authors, the BOP approach fails to understand the effects of MNCs strategy on socio-economic development in the developing world. One of the sharpest criticisms comes from one of Prahalad's colleagues at the University of Michigan, Aneel Karnani (2011b: 149) who writes:

'This romanticized view of the poor harms the poor in two ways. First, it results in too little emphasis on legal, regulatory and social mechanisms to protect the poor who are vulnerable consumers. Second, it overemphasizes microcredit and underemphasizes fostering modern enterprises that would provide employment opportunities for the poor. More importantly, it grossly underemphasizes the critical role and responsibility of the state in poverty reduction'

Many feminist NGOs for example strongly criticised the case of Unilever's advertisement of skin whitening products that allegedly promoted racist messages among disadvantaged women in rural India (Karnani, 2007a, 2007b, 2007c, 2010, 2011a). Moreover, the environmental perspective, Pitta et al. (2008) argue, is almost untouched. Selling shampoo in smaller packaging, as Prahalad suggests and Procter & Gamble is already doing in India, will actually increase waste with minimum impact on the poor's welfare. Jaiswal (2007) and Schwittay (2011) showed that marketing products does not necessarily enhance the poor's wellbeing, meant as a social process with material, relational, and subjective dimensions (S. C. White, 2010). On the contrary it increases the probability of being abused by MNCs interests whilst not addressing the social and political causes of exclusion. Moreover, recently MNCs do not seem to have changed drastically their business strategy towards the BOP: on the

contrary in many cases they have been discouraged to approach the BOP for the institutional uncertainty that characterises this context (Harjula, 2005).

Appropriate technology and grassroots innovations

The consumption-based perspectives described above have been opposed by social movements (Abrol, 2005), grassroots movements (A. Smith et al., 2014) and many Non-Governmental Organisations (NGO) (Hopwood, Mellor, & O'Brien, 2005; A. Smith, 2005). Social and grassroots movements have been more concerned with empowering local communities and enhancing the indigenous potential to innovate (Seyfang & Haxeltine, 2012). Moreover grassroots perspectives acknowledge technology and innovation are neither socially nor politically neutral, nor sufficient to overcome the problems of poverty and social exclusion (Burnett, Senker, & Walker, 2010) and global justice within a capitalist setting (Papaioannou, 2011).

A first attempt to develop a bottom-up approach to innovation and technology was the seminal work of Schumacher in the 1970s that ignited the debate on the notion of '*intermediate or appropriate technology*'. Schumacher's approach privileges people over markets when he explicitly states: "Instead of mass production, we need production of the masses" (Schumacher, 1973). According to Schumacher, the quest of developing countries to catch up with industrialized countries by making a technological leap would increase inequality and poverty. The idea behind this approach is that technology is just a partial and temporary solution to problems that are *fundamentally social* (A. Smith, 2005); as a result, the approach focuses on the innovation capability of common people and communities to generate more socially just and situated technological solutions (Kaplinsky, 1990). The appropriate technology movement originated in the 1960s as part of the debate about international aid and development programs and remained a distinct, identifiable movement until the early 1980s. In the intentions of its activists, the movement aimed at reformulating technology as a tool for development (Ibid.). According to A. Smith et al. (2014), although heterogeneous across different countries, the appropriate technology movements had a set of common features:

'low in capital cost; use local materials; create jobs, employing local skills and labour; small enough in scale to be affordable for small groups; understood, controlled and maintained by local people wherever possible, without requiring a high level of Western-style education; suppose some forms of collective use and collaboration; avoid patents and property rights' (Ibid.: 118)

By the end of the 1970s, organizations active in appropriate technology were present in about 90 different countries, some of which enjoyed financial support from the state (A. Smith et al., 2014; A. Smith, 2005). Despite its diffusion, the movement quickly lost its momentum in the early 1980s. The origin of the movement might be found in the frustration many development practitioners had with the top-down industrial blueprint imposed in the post WWII period (Rist, 2011), see next chapter. By the end of the 1970s many of the principles of the movement had been accepted by the mainstream scholars of development (A. Smith et al., 2014). However, the neoliberal turn embodied in the agenda of Structural Adjustments promoted by the World Bank shifted innovation policy towards the model of technological catch up, seeking to replicate the successful experience of the East Asian countries (Kaplinsky, 2011). Furthermore, according to Smith et al. (2014), the movement failed to fulfil its promises of delivering community empowerment and promoting local ingenuity. The vast majority of the appropriate technology projects, indeed, were carried out by well-intentioned engineers on the basis of their assumptions about what poor people needed. Moreover, the movement failed to acknowledge that the solutions to the problems they intended to address mainly involved engaging with local power relations (Ibid.). Gender, class and ethnicity in many cases hampered participation. Technology was not able to reverse those relations without radically questioning the socio-political structures within which appropriate technology initiatives operated (Ibid.).

The principles of the appropriate technology movement nowadays have been revisited by grassroots innovation movements (see also an example of Grassroots Innovation narrative analysis in section 3.1). A. Smith et al. (2014) identify at least three major grassroots groups in developing countries: the People's Science Movement (see Chapter 8 where I will investigate the first of these empirically in more detail) and the Honey Bee Network in India and the technologies for social inclusion movement in Latin America. This phenomenon

is present in low-income countries but it has also diffused in industrialized countries as several scholars (Seyfang & Smith, 2007), especially in the UK, have proved: Hargreaves et al. (2013), and Ornetzeder and Rohrer (2013) documented the grassroots innovation in the field of 'community energy projects' and the strategies deployed to diffuse them; Kirwan et al. (2013) analysed social grassroots innovations in the food sector; Monaghan (2009) documented the creation of grassroots innovation niches in the sector of body disposal; R. White and Stirling (2013) focused on the evolution of 'communal growing' initiatives, their dynamics and diversity. Some of these scholars have also explored the potential of grassroots initiatives to start a transition towards an environmental and socially sustainable new society (Feola & Nunes, 2014; Seyfang & Haxeltine, 2012; Seyfang & Longhurst, 2013a; R. White & Stirling, 2013). Other aspects of grassroots innovation have been analysed by those scholars interested in user-led innovations. Low-cost innovation niches, for instance, are highly diffused among lead users in developed countries in different fields, serving to decrease the innovation cost with respect to formal R&D activities (Von Hippel, 2005). The rising phenomenon of the DIY culture of the *makers' movement* is another example of grassroots innovation (Honey & Kanter, 2012; The Economist, 2011). Other examples of grassroots, user-led innovation can be found in the cases of *Desobediencia tecnologica* (technological disobedience) documented in Cuba by the designer Ernesto Oroza⁸.

Within the scant academic literature focused on grassroots innovation in the Global South, the work of Anil Gupta is particularly relevant. According to Gupta (2012), innovation that stems *from the poor to the poor* is not a novel phenomenon, but he frames it in a rather particular way in terms of its social and cultural constitution. Rather than pursuing exclusively the innovation of novel products appropriate for the BOP context underscored by a profit motive for MNC's (with social goals such as alleviation of poverty envisaged as being co-produced), indigenous grassroots innovators innovate to address problems

⁸ Available at: <http://www.ernestooroza.com/tag/desobediencia-tecnologica/> (last accessed December 14, 2014)

that are essentially and primarily social. These bottom-up perspectives refute the essentialist idea that poverty is caused by a direct lack of income and consumption potential. Thus, it is not a surprise that such innovation is *empathetic* (Gupta, 2010) or pursues objectives other than more consumption, profitability or ever increasing incomes (Ansari et al., 2012). According to Gupta (2009), who founded the Honey Bee Network devoted to scouting grassroots innovators in rural India, scientists do not seem to be interested in frugal innovation. Perhaps even more importantly, formal institutions have not been interested in embedding frugal innovation potential in mainstream innovation policy (Fressoli et al., 2014). Instead of adapting national policy to develop specialised fields of technology for the benefit of big industry, frugal innovation policy would focus on the specific needs of local communities and empower people to have control of technology (Gupta, 2010). Smith et al. (2012) documented the activity of several formal and informal networks of grassroots innovators in developing countries. Among these cases, Smith et al. (2014) have documented the institutional links and the public support raised by networks for social technology active in Argentina, Uruguay and Brazil. The networks are supported by public institutions as well as by private organizations. However, despite the increasing interest and support to those initiatives showed by the political elites of those continents, grassroots innovations are still considered a form of social intervention rather than an alternative to the mainstream of the industrial innovation policy. According to some authors, despite their limited impact, grassroots innovations are an important alternative source of knowledge that should be taken very seriously. Smith (2005, 2007), suggests that small scale grassroots initiatives generate relevant knowledge to formulate alternatives for sustainable innovation policy. Demeritt et al. (2011) argues that, despite its limited impact, grassroots innovation opens up the space for debating alternative pathways to sustainable futures⁹. Finally Smith et al. (2014) argues that grassroots innovations offer three challenges for the process of socio-technical change:

⁹ An intriguing and original reformulation of the role of tools and technology in human life has been

- Locally-specific, yet widely-applicable: grassroots ingenuity stimulates the search for context-based innovation that can be potentially applied in a number of different contexts that share common features like material and human resource scarcity.
- Appropriate to, yet transforming situations: grassroots innovation encourages the emergence of socio-technical practices under different value systems that can be very different from the profit-driven innovation of the business-as-usual
- Project-based solutions, yet seeking structural change: grassroots movements stimulate the debate about social reform and encourage the structural critique to the present economic and political structures.

An emerging overarching discourse: Inclusive growth and inclusive innovation

More recently both top-down, consumption based and bottom-up, grassroots perspectives have been combined within concepts that include ‘inclusive growth’ (George et al., 2012) (see Figure 2), ‘inclusive development’ (I. Sachs, 2004; World Bank, 2008), ‘inclusive innovation’ (Altenburg, 2009; Heeks et al., 2014; Nijhof, Fisscher, & Looise, 2002), ‘Inclusive innovation systems’ (Foster & Heeks, 2013a) and ‘Inclusive Business Models’ (UNDP, 2008). The concept of ‘*inclusive growth*’ has also been enthusiastically used in the context of more advanced economies such as the EU (Guth, 2005). Although vague and heterogeneous, the concept of inclusiveness in these three formulations (i.e., development, growth and innovation) advocates for a more equal and fair distribution of the economic benefits of innovation, development and economic growth, evoking concepts of social justice and equity (Cozzens & Sutz, 2012; Papaioannou, 2011). One reason for this lack of specificity may lie in the fact that the concept of inclusiveness is a buzzword that encloses a huge number of notions, meanings and frameworks.

found by Ivan Illich (1981: Chapter IV) in the late Middle ages. Drawing on the seminal work of the cleric Hugh of St. Victor who lived in France at the end of 12th century, Illich *rediscovers* the notion of *tools as remedies* i.e., the necessity of human beings to remedy their natural weakness through the use of technological artefacts. Hugh describes the quest for technology as ‘*the caring pursuit of truth, motivated not by that love which cherishes the well-known, but driven by the desire to pursue further what has been tasted and has been found pleasing*’ (Ibid.,87). According to Illich, this formulation is neither compatible with the modern concept of R&D nor with the Baconian desire to subjugate nature. It is not even ‘*the pure, disinterested research which aims at finding and publishing the truth*’, but a medieval formulation of something that today we might call *Science by People*.

To the best of my knowledge, the term '*inclusive development*' was first introduced in the academic context by I. Sachs (2004). Drawing on an historical analysis of successive conceptualizations of development he proposed the coordination of policy efforts to find a balance between economic efficiency, decent work and environmental protection. He wrote:

'Given the unruliness of the globalization process, national-level policies must be relied upon to bring the excluded into the economic mainstream, notably by helping informal-sector workers make the transition to formal entrepreneurship'. (I. Sachs, 2004: 161)

More recently, the concept has been transformed through the idea of '*inclusive growth*' (Kanbur & Rauniar, 2010; Rauniar & Kanbur, 2010; Sengupta, 2010). Kanbur and Rauniar (2010: 445) wrote:

'the main argument is that a growth process becomes inclusive when every individual has access to the different elements of the well-being, without being prevented from enjoying these rights because of any legal and social barrier'.

The underling perspective of inclusivity, although elaborated by several authors with distinct perspectives, is very straightforward: the process of development, while it has created richness for a few people, has excluded a vast portion of humanity. The question as to what type of innovation can produce inclusive development (and how) remains one on which the academic community is divided. As I showed earlier, at least in the business and economic community the BOP perspective appears to be highly influential or even dominant when compared to the grassroots perspective. The main argument of the BOP1/2 supporters is that organizations (i.e., MNCs) can and must engage in social innovation activities to empower disadvantaged groups and foster social and economic growth. Similar to the BOP1/2 approach, inclusive innovation promotes the development of innovative capability to produce low-cost, reasonable quality products or business models in developing countries which are then exported to other low-income countries. According to George et al (2012), inclusive innovation is the "development and implementation of new ideas which aspire to create opportunities that enhance social and economic well-being for disenfranchised members of society".

With regard to grassroots innovation the solutions proposed are very diverse and heterogeneous. A first group of scholars focuses on the notion of equality and technical change (Cozzens & Kaplinsky, 2009; Cozzens, 2007; Papaioannou, 2011). Is innovation itself creating inequality or rather is it the distribution of wealth originating from such innovation that is inefficient? There is empirical evidence that suggests inequality both hinders development and presents an obstacle to innovation (Cozzens & Kaplinsky, 2009; Cozzens, 2007, 2008). In short, if economic growth is not accompanied by other measures like the improvement of educational, health and welfare systems that diminish inequality, then further development and growth could be jeopardised. Other scholars have proposed a rediscovery and upgrading of traditional ways of production as a way to build an inclusive economy, which reinforce or rebuild local linkages between people and the environment (A. Gupta, 2010b; A. Gupta et al., 2003; Martinez-Alier, 2008; Thomson, 2011). An increasing minority are exploring non-mainstream economics thinking to overcome the need to 'include the poor' within the capitalist system. The 'de-growth' community, for example, criticises what they call the '*religion of growth*' and advocates for a new kind of inclusive development outside the paradigm of economic growth (Fournier, 2008; Jackson, 2009; Kallis, 2011; Martinez-Alier, 2009; van Griethuysen, 2010). Finally, local community experiments propose the use of '*alternative currencies*', auto-production and local markets to strength local economies (Seyfang & Longhurst, 2013a, 2013b). These kinds of experiments seem to be increasing in number, but are not yet on the radar of the majority of the academic community.

2.3 COMPETING NARRATIVES OF INNOVATION FOR DEVELOPMENT

It seems safe to conclude that the debate about technical change, poverty and development is alive and kicking. The business and management communities have now joined their colleagues in development studies to contribute to this debate, re-shaping the way academia understands and frames crucial concepts such as development, poverty and well-being. Those diverse and often contested frames are usually embedded in stories or narratives of innovation and inclusivity. The notion of narrative will be explored in the following chapter, for now is enough to say that this cross-pollination between innovation and

development studies has created diverse and heterogeneous frames (Table 1 is a non-exhaustive summary of the different ways to frame innovation for development). It is virtually impossible to classify the literature analysed into a set of clearly defined and fixed categories. Any taxonomy will degrade the complexity of each approach and would not take into account the fact that ideas, meanings and principles overlap and are dynamic in practically all the works considered. However, from this literature I suggest three major trends appear to emerge which I will call ‘*Business-as-usual*’, ‘*reform*’ and ‘*transformation*’. The first trend tends to transfer *laissez faire*, neo-liberal principles into the development field and, as a consequence, considers development-oriented technological change/innovation as something compatible with and achievable within free market dynamics. This trend is clearly visible in the early BOP literature. The poor are conceived as ‘recipients of innovation’ and *consumers*. In the more recent BOP literature this trend has been modified by adding complexity to the way scholars look at the field. They realised that turning the poor into consumers of products designed elsewhere did not even scratch the surface of the complex phenomenon of poverty and underdevelopment. As a consequence they developed a number of refined formulations of this perspective to overcome the narrow view of purely market-driven innovations. The BOP2 narrative considers the poor *as co-producers, intermediaries* and in some cases even *entrepreneurs*. The business-as-usual perspective is replaced by a scenario open to *alliances* and collaborations between stakeholders with very different backgrounds and motivations (i.e., NGOs, local communities, small and big firms).

Table 1 Innovation and development narratives

	Main actors	Overarching Narrative	Purpose / Motivations	Key authors
BOP 1	MNCs	MNCs have to transform the poor into consumers by providing affordable products	Opening underserved markets. Fighting poverty with a profit based approach	(Prahalad, 2010)
BOP 2	Synergies between MNCs, small firms, NGOs, communities	Adapts BOP1 in that MNCs can serve better the BOP by creating alliances with local agents	Opening underserved markets by fostering global-local cooperation	(Hart & Christensen, 2002; Ted London & Hart, 2004; Prahalad & Mashelkar, 2010)
Bricolage,	Any firm or	“ <i>Doing more with</i>	Reduce resource use	(Baker & Nelson,

Frugality, Jugaad	individual	less” for necessity as an individual, for growth as a firm	and/or competitive advantages	create (2005)
Grassroots innovation, Appropriate technology	Common people and communities	Ingenuity of the poor is huge and must be promoted by public institutions to create affordable and inclusive solutions	Empowerment of local communities. Meeting basic needs endogenously.	(A. Gupta, 2012; Seyfang & Haxeltine, 2012; A. Smith et al., 2014)
Inclusive growth	Any	Economic development/growth alone is not sufficient to distribute equally its benefits	To extend the benefits of economic development/growth to those who have been excluded Equality, wellbeing improvement, empowerment.	(George et al., 2012; I. Sachs, 2004)

The second trend (i.e., ‘reform’) that emerges from the review remains only marginally influential in the academic arena. This trend is advocated by those who focus on the countervailing movements at the margins of the dominant discourse of neo-liberal expansion. This trend looks at the poor, but more generally at ‘common people’, as potential self-organised producers and entrepreneurs. This is, of course, a hugely variegated group that includes not only a few scholars and also activists, practitioners and even indigenous groups. The underling discourse that shines through this heterogeneous and scant literature is a call to reform the current, locked-in development paradigm based on the mono-culture of market mechanisms. They also stress the idea that ‘technological innovation is a contextual process whose relevance should be assessed depending on the socio-economic condition it is embedded in’ (Srinivas & Sutz, 2008: 129).

Finally, a very small minority (i.e., the ‘transformation’ group) openly question the model of development that has been promoted in the post-WWII era (Fournier, 2008; Kallis, 2011; van Griethuysen, 2010). This community questions the basis of the notion of development and progress: i.e. the fact that history is a linear evolution of never-ending progress where technological and economic growth is always inevitable and necessary.

Innovation as a vector

As I have attempted to show in this chapter, the notion of innovation as a tool for development is highly contested ground. The ways technology and innovation are framed in the field of development imply a huge diversity of values, motivations, interests and political positions. In any case, in my opinion, any attempt to grasp the way innovation for development is framed and its impact on socio-technical change should not avoid addressing the following questions. What is innovation for? Who is innovation for? Who establishes what problems innovation should or shouldn't address? Who and for what reason new problems are created for? Why are the problems of certain sectors of society privileged, whereas others are completely neglected? Furthermore, the same applies to the outcome of the process. Who is impacted and how? Who wins and who loses? The process of technical change, thus, has to be investigated by disclosing its double nature: first understanding meaning of the change (e.g., '*why do we want to change?*'), second questioning the direction of change (e.g., '*what do we want to change?*')¹⁰.

Those questions, which are certainly not new (see also Illich (1981) in footnote 9), underlie the need to elaborate a normative ethics able to guide the processes of development and social appraisal of technology. This need is particularly incumbent, I argue, since the discourse that still dominates policy debates is overwhelmingly oriented to more exclusive, linear and deterministic notions of technological progress (Stirling, 2008). More recently, the opposition to this dominant discourse has been gradually shifting from the strategy of *resistance* towards a number of 'new frameworks and methods for promoting engagement with stakeholders and the public in the governance of science and technology'¹¹ (Ibid.: 264). As Stirling (2008) noticed, those manifestations are

¹⁰ Consider that within this framework the situation of no-change and/or no-innovation is totally legitimate. In this sense the prerequisite to answer the fundamental political question of technical change is to address the deeper question: 'Do we want to change?'

¹¹Opposition to hegemonic discourses in the Foucauldian tradition is usually addressed by the notion of 'resistance'. The lack of normative ethics or theory in Foucault's notion of resistance, however, poses a problem for those who wish to find alternatives to specific modes of technological progress, because one is always reacting to dominant discourses in the mode of resistance rather than being able to construct a viable alternative (Pickett, 1996). A detailed critique of Foucault's politics of resistance is out of the scope

presented as moves to more 'inclusive', 'deliberative', 'reflexive' and 'participatory' approaches to decide what kind of technological change is licit, socially acceptable and desirable. As a consequence, the early linear and deterministic framings of technological progress are giving the way to more complex understandings of the process of innovation creation and diffusion that include notions such as, just to mention few, path-dependency (Dosi, 1982), social shaping (Bijker, 1995; Winner, 1980) and lock-in (Arthur, 2009). Those concepts suggest that technological progress is far to be an agnostic apolitical process but it is rather embedded in specific, often contested and hybrid, normative frameworks. In the words of Sterling (2008: 263), 'in short, innovation is a vector, rather than just a scalar quantity. It includes the crucial but neglected normative property of direction. Accordingly, the form and orientation taken by science and technology are no longer seen as inevitable, unitary, and awaiting discovery in Nature. Instead, they are increasingly recognized to be open to individual creativity, collective ingenuity, economic priorities, cultural values, institutional interests, stakeholder negotiation, and the exercise of power.'

In order to better understand the role of socio-technical change in the context of development, hence, we have to *re-politicize* the study of innovation processes by introducing new research questions: Who decides which direction is legitimate? How do those decisions become dominant? How are they embedded in discourses and translated into situated practices? Why are those questions generally absent in the BOP rhetoric? Is the meaning of innovation used for a specific purpose in the BOP literature? Or in the inclusive growth narrative? Why for example is the role of the state marginalised whereas the role of market mechanisms particularly emphasised? How, why, by whom? Is it possible to shape the innovation vector in ways that combine positively all the relevant directions? (e.g., environment, equality, profitability and efficiency). My feeling is that all the components cannot have an equal weight. Is it possible to shape socio-technological regimes? Is it possible to engage the whole society in

of this thesis. However, it is acknowledged here that viable normative-oriented alternatives to the dominant linear and deterministic notion of technological progress are being explored within social movements and engaged scholarship (Demeritt et al., 2011; Stirling, 2008).

the shape of socio-technological change (A. Smith, Stirling, & Berkhout, 2005; Stirling, 2008, Jasanoff, 2003)? In my view, those are the relevant questions for a critical enquiry about innovation and development which arise from the literature review. These are also the questions that shaped the main research questions introduced in the Chapter 1.

CONCLUSION

This chapter explored the origins of the ways innovation is currently codified in management and development studies. In the first part of the chapter, I showed how the current predominant frame of innovation emerged from Schumpeter's work and evolved in the evolutionary economics and Innovation System literatures. Furthermore, the way innovation is framed in the economics and management literature undoubtedly situates technical change as a fundamental engine of capitalist market economies. Innovation, meant as exploitation of technical change in competing markets, is the force that drives capitalist society. The second part of the chapter presented the emerging literature focused on innovation as a way to develop those countries that are considered *less developed* or in process of development. This literature is enormously diverse and presents a wide variety of perspectives about growth, development and innovation. There is certainly a dominant body of literature (in terms of numbers of sources), which is framed within neoliberal, market based thinking (i.e. BOP1/2). On the other hand, a small but significant number of sources present a variety of highly diverse perspectives that sometimes complement the business-as-usual perspectives, and sometimes clearly oppose them, sometimes radically so. This variety, to me, is the sign that the field of technological change and innovation is the ground of a political debate that underlies the existence of very different motivations, values and ideological backgrounds for innovation and development. The fragmentation that characterises the literature reveals that innovation for development can be conceived in a variety of formulations precisely because the underlying values and motivations of the people who write, speak and act in the name of development – their world views - are varied and diverse. The acknowledgment of this diversity and its causes, in my opinion, is seldom evident in the literature

I have analysed. The general tendency of the sources analysed is to provide an essentialist, individually narrow and often normative perspective of innovation and development made of measurable needs, and problems that can be contingent to the specific local context but that can be easily transferred to other contexts by 'scaling', 'managing', and 'organizing'. I hypothesise that the diversity of visions present in the extant literature is due to different ideological positions with regards the aspects mentioned above and the lack of a critical analysis that focuses on such diversity is a clear gap in the state of the literature. In this thesis, my objective is to contribute to fill this gap by providing a critical understanding of the diversity in which technical change and innovation are framed in the context of development. In doing so, I also attempt to address a key gap that I have observed: that although research focused on innovation and development has gained momentum in the management and organizational studies communities since the 1990s *empirical work* published in peer-reviewed, academic sources represents a small minority when compared to the documentation produced by practitioners like social movements and NGOs. One consequence of this imbalance is the emphasis on the market approach that dominates the management academic literature. A strong effort has been dedicated to understand the strategy of MNCs or private firms to penetrate BOP markets, but only few attempts have been made to understand how innovation actually occurs within those contexts labelled as 'underdeveloped' by the ideologists of development (Cozzens & Sutz, 2012). In order to understand how the narratives of innovation are constructed on the ground, in the next chapter I shortly introduce the literature on discourse, frames and narrative analysis and then I describe how those concepts can be used to frame the notion of innovation for development as a discourse.

THE CONSTRUCTION AND DECONSTRUCTION OF DEVELOPMENT DISCOURSES

“The complex notion of economic development has been reduced to a number, the income per capita. The dialectical spectrum of Human wants [...] has long since been covered under the colourless numerical concept of “utility” [...]”

— The Entropy of Economic Process, (Georgescu-Roegen, 1971: 52)

In spite of their widespread use, the meaning of words such as ‘development’ (Rist, 2007) and ‘innovation’ (Krause, 2013) remain highly contested, vague and elusive. These concepts assume multiple significances depending on who uses them and for what purpose. Consequently, the notion of innovation as a tool for development, as shown in the previous chapter, can only rest on equally highly contested ground. The ways science, technology and innovation are framed in the discourse of development underpin a huge diversity of values, motivations, interests and political positions. Those elements can be combined to create an interpretative framework of reality in which the actions of any practitioner of development is constructed and legitimated. In order to understand the role of innovation in the discourse of development it is crucial to understand how those two notions are constructed from abstract formulations and enacted into practices. The outcome of this analysis is certainly as multiple as are the ways human development is perceived. The deconstruction of the ways in which the

notions of development and innovation are intertwined, I argue, is possible using a theoretical framework focused on the notion of *discourse*. This theoretical, and analytical, lens is based on the idea that language is fundamental to constructing the frames through which every individual or human group deciphers and creates meaning from the complexity of the surrounding reality. In the first part of this chapter I introduce the concepts of discourse, framings and narrative. Those concepts are highly relevant to the idea that the notion(s) of development itself is the outcome of a process of dialectic interaction between different actors who can have very different motivations and very diverse goals. At the end of this first part, I provide an example of narrative analysis applied to three of the innovation narratives identified in the literature review in Chapter 2. In the second part of this chapter I treat a particular position within development studies known as post-development that frames the notion of development as a specific, historically situated discourse. This perspective allows me to deconstruct the notion of innovation within the broader discourse of development and analyse it with a non-essentialist lens that is sensitive to both the historical and contingent aspects that contributed to its emergence and evolution. I consider this perspective to be fundamentally important, because the way the discourse of development has emerged and evolved has in turn influenced, or even defined the way technical change and innovation have been framed within this context i.e., I propose that innovation has become domesticated within broader, contested discourses of development itself.

In this chapter, thus, I introduce the theoretical focus based on discourse that guides the remainder on the thesis. In the following chapter I will present the methodological approach to qualitative analysis –a qualitative Grounded Theory approach- that I used to interpret the data collected in the field.

3.1 RELEVANT CONCEPTS: DISCOURSES, FRAMINGS AND NARRATIVES

The order of the discourse

“There is no true word that is not at the same time a praxis. Thus, to speak a true word is to transform the world.”

— The pedagogy of the oppressed, (Freire, 1996: 68)

The word ‘discourse’ in common parlance refers to the mundane use of language in social interaction. The word usually describes an articulate discussion or treatment of a subject in the form of speech or writing. At the same time, the term discourse also refers to the ways in which people integrate linguistic and non-linguistic features ‘to enact or recognize certain identity [...] give the material world certain meaning, distribute social goods in a certain way, privilege certain symbols systems and ways of knowing over others’ (Gee, 2011: 13). The study of this specific meaning of the term discourse is known as ‘Discourse Analysis’. The importance of this kind of analysis has gained momentum during the last five decades, since an increasing number of ‘researchers developed the idea that discourse is, first and foremost, a form of action, a way of making things happen in the world, and not a mere way of representing it’ (Nicolini, 2012: 189). This idea emerges from the observation that the use of language is not limited to the transfer of information, but also conveys identities (e.g. who speaks) and action (e.g. for what one speaks). Let’s consider for example the following two apparently neutral sentences:

1. Cod is the common name for the genus *Gadus* of demersal fishes, belonging to the family Gadidae¹².
2. In the United Kingdom, Atlantic cod is one of the most common ingredients in fish and chips.

Both sentences talk about a fish commonly known as cod. However the two sentences convey very different contents in terms of information (saying), identity (being) and action (doing). The first sentence, for example, provides information about the genus and the family of the animal that is commonly known as cod (saying). At the same time, the reader could decipher that the writer/speaker comes from a scientific community of people who studies fish (being). Moreover the information provided about the ‘genus’ and the ‘family’ implicitly underlie the existence of the practice of classifying animals possibly

¹² Retrieved on October 3, 2014, from Wikipedia Article on Cod, available at: <http://en.wikipedia.org/wiki/Cod>

through a routinized and systematic activity of scientific observation (doing). The second sentence is about the same object, the cod, but conveys a different combination of saying-being-doing. The language is not scientific; one might assume that the speaker is not a scientist or is not speaking 'as a scientist' (being). The information provided is that cod is used in the preparation of fish and chips in the UK (saying). Finally, the sentence provides information about an action, or better a routinized action or 'practice' that is the preparation and consumption of 'fish and chips' (doing). Not only do the two sentences refer to two different kinds of practices (e.g. scientific classification of species and preparing/consuming fish and chips), they also refer to two 'communities of practices' (e.g. the scientific community of marine biologists and the fish and chips producers/consumers). The activities of saying, doing, being according to a specific set of rules and conventions are also called 'social practices'.

In this sense 'Discourse' (with capital 'D') itself can be seen as a form of 'Social Practice' (also defined as 'discursive practice') and in turn defined as nexuses of not only '*saying and doing*' (Schatzki, 2002) but also of '*being*' (Gee, 2011). As a form of social practice, discourses always belong to social groups, cultures and institutions (van Leeuwen, 2008). So when one enacts a specific kind of discursive practice one can also sustain (or create/transform) specific social group(s), culture(s) and institution(s) (Gee, 2011). The analysis of discursive practice can be used to gain insights about the evolution and organization of social phenomena. The practical outcomes of discursive practices are evident in the allocation and distribution of social goods, defined as all the goods (e.g. products, services, values or relationships) that people value. As Gee (2011) argues, social goods are the field of politics and '[politics] at a much deeper level it is about how to distribute social goods in a society: who gets what in terms of money, status, power, and acceptance on a variety of different terms, all social goods. Since, when we use language, social goods and their distribution are always at stake, language is always 'political' in a deep sense. (Ibid. 7). In this view, if discourse is always and necessarily political, its analysis also has to be political, since any full description of any use of language has to deal with politics. This approach to discourse analysis is known as Critical Discourse Analysis (CDA).

A very influential way of approaching CDA comes from Michael Foucault. Foucault's interest is not in the mundane use of language but in the formation of those rules that enable the emergence of a particular set of discursive practices and the 'domains of knowledge that are constituted in this way' (Nicolini, 2012: 196). Foucault calls those groups of rules 'discursive formations' (Foucault, 1970, 1984). The 'discursive formation' for Foucault consists of a number of rules based on certain orders of statements, that Foucault calls '*énoncé*'. Those rules determine what can be spoken of, who is allowed to speak or write and within which field of possibilities. 'Who is speaking? ...who is qualified to do so? Who derives from it his own special quality, his prestige, and from whom, in return, does he receive if not the assurance, at least the presumption that what he says is true?' (Foucault, 1970: 50). The rules that establish a particular discursive formation are the result of a process of historical negotiation among the producers and users of a discourse. Those subjects who are 'allowed' to speak have a privileged status that is given by a specific 'institutional site' 'from which [they] make their discourse, and from which this discourse derives its legitimate source and point of application' (ibid. 51). For example, a doctor is allowed to make medical statements. The legitimation of those statements is given by the institution of medicine that consists in the systematic and coded observation and practice of care for patients carried out by hierarchized medical practitioners in physical spaces called hospitals and surgeries. The discursive formations, apart from being historically situated and unstable objects (i.e. they are historical formations that evolve in time), are not isolated. On the contrary, any particular formation is related to a number of other discursive formations to form what Foucault calls the 'order of discourse', which can be seen as the totality of discursive practices within a set of institutions or society at a given point in time (Foucault, 1984). According to Foucault, the order of the discursive formations present at any moment in society - the ways they interact, the preponderance of a specific formation over another - is controlled and organised by certain rules that are hardly avoidable. In his words:

'In every society the production of discourse is at once controlled, selected, organised and redistributed by a certain number of procedures whose role is to ward off its powers and dangers, to gain mastery over its chance events, to evade its ponderous, formidable materiality' (ibid.: 52).

The process of controlling, selecting, and excluding discourses is intimately related to the *distribution of power* among the institutional sites within which the discourse is produced and consumed. The process of exclusion underlies a subtle mechanism of power that consists of the delimitation of other subjects' range of actions. By setting the boundaries of what is legitimate to say or do, the order of the discourse establishes which discursive formations are 'possible and reasonable' and which are not. The divisions created by the exclusion of certain types of discourses in favour of others are historically constructed; they have complex but specific origins and are subject to change and evolution. An important consequence of Foucauldian thought is that discourse has a *constitutive* nature. It is not simply a mechanism signifying and representing the world but is involved in the *definition and structuring of the world itself* (Nicolini, 2012: p. 196). This process of structuring social life through discursive practices does not occur by a repetition of the same activity over and over again, as much as by delimiting diversity (Foucault, 1970: p.37). Foucault's mechanisms of exclusion can be seen as different forms of exercising power through the exclusion of certain discursive practices, which in turn represent the exclusion of certain identities (i.e. ways of beings, institutions, values, social groups etc.) and certain practices (i.e. ways of doing).

According to Fairclough (1992) the production of discourse always takes place within specific institutional settings. He argues that the '*order of the discourse*' is not determined by a free play of ideas but it is determined by tensions and conflicts between different institutional settings. This normalization of the discourse in reality hides its past struggles that can at any moment become again a source of potential tension (Ibid. 86). An end to these struggles is achieved by control over a specific order of discursive practices that, according to Fairclough (1992), assumes the form of a *discursive hegemony*. At the same time, CDA does not conceive this quest for hegemony as an intentional attempt (at least not totally intentional) at domination put in place by organised groups or classes. Discourse and power are subject-less, overarching effects, which should rather be considered as 'highly provisional, localised and contingent expressions of a multiplicity of forces, energies, materials and interventions consistent with an overarching framework of ontological imperatives and

methodological protocols' (Reed, 1998: 197). One consequence of this analysis is the call for political action to empower the powerless, to give voices to the voiceless, exposing power abuse and reviving the alternative discursive practices excluded by the hegemonic discourse (Blommaert & Bulcaen, 2000).

In conclusion, discourse analysis is concerned with the study of the use of language to convey information, identity and action. In this view, language is not merely a process of transferring information but also a way to enact certain social practices. According to CDA, discourse can be used to legitimate, reinforce or exclude specific social practices. According to Blommaert & Bulcaen (2000) CDA is also an attempt to overcome structural determinism, the movement developed in Europe from the first half of 20th century that exhibits the tendency to analyse human culture on the basis of structures modelled on language (Deleuze, 2002). CDA proposes a dynamic model of relationships between structure and agency where, since language stays in 'dialectical relation to social structure, linguistic-communicative events can be formative for larger social processes' (Blommaert & Bulcaen, 2000: 452). This approach is also known as 'post-structuralism'. This approach has been used in the study of discourse in development, sustainability and technology and has influenced the fields of cultural studies and postmodernism, feminism, postcolonial and globalization scholars (Escobar, 1984, 2012).

Framings and Narratives

One of the characteristics of the discursive practices discussed above is the capacity to create, promote and diffuse cognitive frameworks, mental models that influence action in the real world (van Dijk, 1995). In the description of those dynamics the concept of 'framing' and 'narrative' occupy a relevant position.

The concept of framing was introduced by Gregory Bateson to describe the context that enables any kind of communication (Bateson, 2000). He argues that verbal and non-verbal communication always occurs with reference to a meta-message, a frame, which is the information related to the context in which the communication occurs and provides the necessary key for its interpretation.

According to Bateson, any communication in the biological world is possible only within a certain frame of interpretation. Once the frame is set, the communication can start and be meaningful. The capability of interpreting and deciphering the context is acquired through the experience that draws on a process of codification of those features that make a certain frame 'recognisable'. The process of framings, through a process of 'sense making' of the surrounding reality, allows a simplification of an otherwise complex and chaotic situation (Goffman, 1986: 40-45). The notion of frame or framings draws on the observation that the understanding of the whole complexity of reality is always mediated by a process of interpretation (Tannen, 1993).

The mechanisms of interpretation of a complex reality are not randomly established but follow specific logic. This logic is never unique. The boundaries of the system, its dynamics, outcomes and interactions are 'always open to multiple, particular, contextual, positioned and subjective assumptions, methods, forms of interpretation, values and goals' (Leach, Scoones, & Stirling, 2010). Thus, a frame is a particular interpretative logic of a complex reality that implies not only a choice about which elements stand out but also subjective value judgements. The process of framings construction is characterised by at least two elements (Leach et al., 2010: 45-47): first the choice of elements like scale, boundaries, dynamics, the kind of output, the kind of relationships to be considered. Secondly, it is shaped by subjective judgements, group or individual perspectives, interests, values and goals. In short, framings are a 'way to frame reality', define boundaries within complexity and produce interpretative mechanisms. According to Entman (1993), the interpretative process that takes place in the dynamic of framings involves four steps: Frames 'define problems' (i.e. define who or what is doing what, who is damaged or benefited, usually measured in terms of social goods or cultural values), 'diagnose causes' (i.e. identify the source(s) of the problem), 'make moral judgements' (i.e. define what is 'just' to do and what is not) and 'suggest remedies' (i.e. propose action). The creation and evolution of framings has important implications in many aspects of social life. Frames can highlight some aspects of reality while obscuring other elements. Frames can become the basis for narratives about problems or social issues. Narratives are simple stories that start defining a problem, elaborate

their consequences and ends, outlining solutions (Roe, 1994). The creation of a narrative implies a number of practices that involve value judgements about what or who is excluded and included and what issues, questions and solutions are prioritised.

As with CDA, framings and narratives analysis provide some guidelines to analyse the narratives of innovation identified in the literature review (Chapter 2). By way of example, I have analysed three of the narratives of innovation that emerge from the literature review: The BOP1, the BOP2 and the grassroots narratives.

Example 1: The narrative of BOP1

[To jugaad] We prefer “Gandhian innovation,” because at the core of this type of innovation lie two of the Mahatma’s tenets: “I would prize every invention of science made for the benefit of all,” and “Earth provides enough to satisfy every man’s need, but not every man’s greed.” Affordability and sustainability were Gandhi’s touchstones six decades ago, and Indian companies have recently discovered their power. (Pralhad & Mashelkar, 2010: 3)

This passage, extracted from the article ‘Innovation’s Holy Grail’ by Prahalad & Mashelkar, intends to connect the discourse of the BOP with Gandhi’s intellectual heritage. In his book ‘My experiment with truth’ (Gandhi, 2008), Gandhi treats the topic of technology by providing a quite original interpretation of innovation as a path to people’s independence and self-sufficiency. The sort of cross-reference to Gandhi in the article is a case of discourse ‘intertextuality’ (Gee, 2011). The authors are referring to another discourse that is very influential in the Indian context to legitimate their argument. However, from the Gandhian discourse they extract only three elements: affordability, sustainability and the concept that any invention should benefit everybody. Then they proceed to describe the identity, the motivation and the goals of the innovators described in the case studies:

CEOs must develop a deep commitment to inclusive growth, which will force them to think of un-served customers, be they rural poor who don’t have access to telephones or urban poor who don’t get emergency medical services. A focus on inclusion challenges executives to push price-performance envelopes to ensure affordability, and to think about increasing scale to lower costs. The starting point has to be the desire to serve more people, though. Companies often start by asking: “Given our cost structure, which segments can we serve?”

They should ask: “Given that we need to cater to the un-served, what should our cost structure be?” (Prahalad & Mashelkar, 2010: 9)

The authors are saying to the reader that in India many MNCs should start providing affordable solutions to poor customers. At the same time, the authors are defining some clear identities: the identity of the company (the server) and the identity of the un-served customer (client). The Discourse also recalls a specific set of social practices (doing) usually enacted in the corporate world e.g., identifying markets, setting prices, provide services and scaling up. Interestingly, services like ‘access to mobile phone’ and ‘emergency medical services’ are treated in the same way. The fact that the use of mobile phones, which in other contexts might be considered irrelevant for poverty alleviation, and the provision of medical services, which in many contexts is considered a basic human right, are lumped together, implies a specific ideological orientation: private companies are legitimised to provide *any kind* of service, even those that have been traditionally considered the duty of the state or the community. It is worth noticing that both the authors, as it is stated in the article, serve on the boards of Reliance Industries, Unilever Hindustan and Tata Motors. In summary, the frame that emerges from the article fits in the following steps (Entman, 1993):

- Defining problem: There are poor in need of products and services.
- Diagnose causes: Poor are un-served customers.
- Arbitrary assumptions: Private sector is legitimate to provide any kind of services.
- Propose remedies: MNCs have the ability to meet the needs of the poor and in doing so create profits for themselves.

Example 2: The narrative of BOP2

The book ‘Next Generation Business Strategies for the BOP’ edited by London & Hart (2011) marks the shift of the BOP narrative from top-down (via MNCs) intervention *to co-creation* with the poor. Large parts of the book are dedicated to showing examples of innovative BOP initiatives based on the synergy between MNCs and small/medium companies and NGOs (BOP2). The BOP2 narrative also makes use of intertextuality, drawing in particular on the

discourses of *participatory development* and *local knowledge*. Here are two examples:

The objective of market-creation perspective is to create an offering that encourages people to 'try it on' and thereby initiate the sense-making process. [...] The idea has its roots in the work of pioneering community organizers like Myles Horton and Paolo Freire. (Ibid.: 115)

[...] learning how to build upon, and not over, ancient foundations and local knowledge is key (Ibid.: 89)

Interestingly, in the case studies presented in the book, there is neither clear reference to any use of Freirian participatory approach nor mention of local knowledge. On the contrary, some of the cases described suggest that local habits in fact risk being replaced by BOP products or services. For example, the case of the Solae Company, a US based company that developed a soy protein as a nutritional complement for rural India, documented in Chapter 4 of the book (pp. 103-128) describes that the introduction of this new food product required 'learning new cooking habits and skills, as the protein isolate's performance is affected by the acidity and temperature of foods into which it is incorporated' (Ibid.: 120).

The element of identity (being), similar to the BOP1, is framed in terms of a business community and academia, but now with the addition of the NGO sector. At the same time, the identity of the beneficiary is reframed in terms of *co-creators* rather than consumers. The BOP definition is provided by at least three communities of practice (i.e., managers, development practitioners and academics) but, notably, it excludes the opinion of BOP members themselves. Finally, the BOP2 Discourse underpins a reframed set of practices (doing) in comparison to the BOP1. The BOP2, indeed, identifies two sets of practices that were not present in the earlier BOP1 narrative: the local entrepreneurs that operate at the border between the formal and informal economies and the development professionals. The narrative of the BOP2 can be described as follows:

- Defining problem: Need, need, everywhere, but not a BOP Market to Tap (Ibid.: 103)

- Diagnose causes: No markets at the BOP
- Arbitrary assumptions: Profit-driven initiatives are more efficient in delivering products/services to the BOP
- Propose remedies: Instead of tapping markets at the BOP, MNCs have to *co-operate* with NGOs and local entrepreneurs to *create markets* at the BOP

Example 3: The narrative of the Honey Bee Network

The main assumption of the Honey Bee Network initiative is that underdevelopment is partially caused by a repression or a suboptimal exploitation of grassroots ingenuity. Although their discourse never assumes radical political stances, they recognise that the asymmetric distribution of the power in the exploitation of grassroots knowledge is a fundamental source of inequality and underdevelopment at the BOP. The following fragments are extracted from the Honey Bee Network webpage (www.sristi.org):

'[...] both on efficiency and ethical grounds, the prevalent mode of knowledge extraction from people, and dissemination among them, were non-sustainable. This knowledge asymmetry has been historic. Knowledge has been extracted, documented without any acknowledgement to the source of knowledge. The documented knowledge has not been communicated to the knowledge holder for feedback. These practices have not only impoverished the knowledge holders by pushing them further down in the oblivion, but also have hampered the growth of an informal knowledge system, that is robust in nurturing creativity [...] People's knowledge has been utilized in some cases for developing value-added products. In most cases, the beneficiaries of value added products were not the same as the providers of the knowledge. Thus the knowledge asymmetry reinforces the subsequent asymmetry in communication, power, benefit and reward sharing'

The Honey Bee philosophy is based on the conviction that knowledge is a process that takes place in any human community whatever the level of institutional complexity or technological progress. In this view, anybody is a potential innovator. Nevertheless, the grassroots inventors are usually unnoticed and the value of their creation remains unexploited. The knowledge produced by the grassroots should be documented, protected and disseminated to stimulate the creativity in other contexts. The Honey Bee narrative draws on the discourse of Intellectual Property Regulation (another example of intertextuality), as a system of quasi-regulations that is supposed to protect grassroots innovation from counterfeiting and illicit exploitation without the

consent of the innovators. This is quite paradoxical given the fact that many grassroots movements are usually openly against the IPR system as this is considered to be a mechanism of exclusion that hampers creativity and free circulation of knowledge.

The Honey Bee narrative puts in the centre of socio-technological change the grassroots innovator(s). He or she is trapped in a limbo in which his or her identity is not recognised. The goal of the network is to acknowledge the value of those innovators by documenting their work and sharing their achievements. This is visually described by their logo in which a beheaded individual acquires a new head (i.e., a new identity) after joining the network depicted as a hive (Figure 3). The framing in which the Honey Bee Network operates can be summarised as follows:

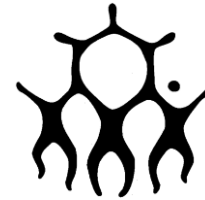


Figure 3 Honey Bee Network Logo

- Defining problem: the ingenuity and knowledge at the grassroots is unexploited
- Diagnose causes: grassroots innovators are unnoticed
- Arbitrary assumptions: Ingenuity is ubiquitous at the BOP
- Propose remedies: Document, connect and augment grassroots innovations

3.2 DEVELOPMENT AS DISCOURSE: THE TALE OF ‘UNDERDEVELOPMENT’

As with the concept of innovation, ‘development’ is a concept that is highly contested both theoretically and politically. In an effort to analyse the wide range of perspectives that exists on development, Sumner and Tribe (2008: 11) have suggested three major categories: i) ‘development’ as a long term process of structural societal transformation; ii) ‘development’ as a short-to-medium term outcome of desirable targets; iii) ‘development’ as a dominant ‘discourse’ of western modernity. A rigorous analysis of the history and evolution of those perspectives is beyond the scope of this thesis. Given the findings of the review of innovation presented in the previous chapter, my primary intention is to

explore how innovation can be approached as a discourse embedded in the broader *dominant discourse of western modernity*. In the following section, thus, I will shortly review the third perspective that considers development as a discourse. This perspective is also known as ‘*post-modern*’ (Sumner & Tribe, 2008), ‘*post-structural*’ (Castro, 2004) or ‘*post-development*’ (Rahnema & Bawtree, 1997) conceptualization(s) of development.

Knowledge as Power: The Post-Development Critique

“Development, as the term came to be used after 1945, was based on a familiar explanatory mechanism, a theory of stages. Those who used this concept were assuming that the separate units - national societies - all developed in the same fundamental way but at distinct paces (thus acknowledging how different the states seemed to be at present time).” (Wallerstein, 2004:10)

According to post-development perspectives the term ‘development’ assumed its modern meaning in the post-WWII era. In this period, the industrialised countries of the time (mainly in the US and Western Europe) took the initiative to extend the benefits of modernization to the rest of the world. Esteva (2010), Escobar (2012) and Wolfgang Sachs (1990), for example, symbolically (and arguably) situate the birth of the ‘development industry’ in the inaugural address pronounced on January 20 1949 by the president of the United States Harry Truman (Truman, 1964). In his speech, Harry Truman declares the intention to ‘develop’ that half of the world’s population living in conditions of poverty and economic stagnation. The key for this intervention was the transfer of modern *technical and scientific knowledge* to the *underdeveloped regions* of the world. Drawing on post-structural analysis, post-development proponents argue that the project of development implicit in Truman’s words can be better understood as a discursive exercise of power, a discursive construct ‘invented’ by the West to diffuse its narrative of modernity outside the Occident. The post-development perspective refutes the purported realism of modernization to show that development was ‘a pervasive cultural discourse with profound consequences for the production of social reality in the so-called Third World’ (Escobar, 2000). Post-development draws on the tools provided by post-structuralism, chiefly Michel Foucault’s analysis of power and language that have previously described. Escobar writes on Foucault:

'Foucault's work on the dynamics of discourse and power in the representation of social reality, in particular, has been instrumental in unveiling the mechanisms by which a certain order of discourse produces permissible modes of being and thinking while disqualifying and even making others impossible.' (Escobar, 2012: 5)

In Escobar's view, the principles expressed by Truman's political speech - far from being objective categories of a neutral way of framing the concept of progress and modernity - are a set of *discursive constructions* that established the boundaries and the permissible space of what it means to be developed and underdeveloped, in ways described in section 3.1. In this sense, according to the post-development position, Truman's words contributed to shaping fundamentally the way the notion of development was framed and understood after the Second World War. Rist (2007: 487) argues that in the second half of the 20th century the term development became a 'modern shibboleth, an unavoidable password [...] to convey the idea that tomorrow things will be better, or that more is necessarily better'.

But the construction of the *underdeveloped* is not totally novel in the Western approach to *the others*. According to Ivan Illich (1981), for example, the way Western thought has framed development (and more generally human progress) has *always* been through a binary contraposition of 'us' against the 'outsider'. To Illich the concept that is currently termed 'development' has gone through a number of stages since late antiquity. For the Greco-Roman civilization the outsiders were the βάρβαροι, the barbarians who were only able to slur together incompressible bar-bar-bar. The mission of civilization was to teach them how to speak properly, how to dress and appreciate art and literature. Then the outsiders became the *pagans*, the *infidels*. Finally, in the colonial quest, the outsider assumed the form of the *savage*, the *native* and ultimately the *underdeveloped*.

Those classifications can be seen as framings constructed to interpret the perceived complex reality outside of the comfortable space of the western domestic contexts. However, as discussed in section 3.1 above, they were not merely verbal exercises: they had profound political implications. Romans often legitimated conquests and invasions by considering the barbarians an inferior

race, Christians and Muslims used the similar arguments to convert infidels. The Europeans justified the occupation of land in the Americas on the basis of the inability of the natives to make it productive for agriculture. In the same way, the framing of the category of the *underdeveloped* had practical implications in the second half of the 20th century. By declaring the vast majority of humanity *underdeveloped*, Truman's doctrine legitimised and defined the boundaries of development in the context of modernity¹³. Development discourses, produced by an efficient apparatus of institutions that produces knowledge about the Third World and exercises power on it, shaped the practices that in turn produced a reality based on Western framings and interests.

As discussed in section 3.1, discourse has a constitutive function, which is the capacity of modifying the reality. As Haraway (1990) says in her analysis of narratives of science, discourse framed in a specific narrative is not an invention or a simple tale opposed to the 'facts'. Narratives are a historical intertwining of facts and fiction, they are always immersed in history and never innocent¹⁴. In Escobar's words:

'Even the most neutral scientific domains are narratives in this sense. To treat science as narrative is not to be dismissive. On the contrary, it is to treat it in the most serious way, without succumbing to its mystification as "the truth". Science and expert discourses such as development produce powerful truths, ways of creating and intervening in the world, including ourselves' (Escobar, 2012: 19).

An example of how the discourse of development was translated into the practices and constructs of reality is presented in the 'institutional ethnographic' work of Ferguson (1990). Ferguson deconstructs the discourse of the World Bank's report of 1975 on Lesotho showing how the country's issues and weaknesses were constructed to legitimise the intervention of development agencies with large infrastructural projects. By drawing extensively on the

¹³ Interestingly, those dynamics always invoked a specific, historically situated, formulation of *rationality*. During the colonial times, rationality was imposed to civilise the uncivilised, whereas in the development era, technical and scientific rationality advocate the development of the underdeveloped. In both cases, the process was far from peaceful. As Foucault (2012: 60) says, '*the power of reason is a bloodthirsty power*' (translated by the author).

¹⁴ This position is clearly influenced by Wittgenstein's thought about truth and language. He writes 'So you are saying that human agreement decides what is true and what is false? - It is what human beings say that is true and false, and they agree in the language they use. That is not agreement in opinions but in form of life.' (Wittgenstein, 1958: 88, 241)

Foucauldian notion of discourse, Ferguson argues that the state, with the help of the World Bank apparatus, constructed a perception of a country that led to the extensions of the power of the government at the expense of the pre-existing traditional structures. In his words:

‘development institutions generate their own form of discourse, and this discourse simultaneously constructs Lesotho [in this case] as a particular kind of object of knowledge, and creates a structure of knowledge around that object. Interventions are then organized on the basis of this structure of knowledge, which, while “failing” on their own terms, nonetheless have regular effects, which include the expansion and entrenchment of bureaucratic state power’ (Ibid. 14).

According to Ferguson, Lesotho was framed by the World Bank as a ‘traditional subsistence peasant society [...] virtually untouched by modern economic development’ (Ibid. 14) despite the fact that the country had been integrated with the South African economy and indirectly connected to the world economy since the beginning of the 20th century. This discursive narrative has had a real impact on people’s lives there. The framing of Lesotho as underdeveloped, marginal, poor, and backward, as depicted by the World Bank using quantitative analysis, increased the power of the local bureaucracy and strengthened the agenda of the central government and the international development agencies.

In other words, the deployment of the discourse of development is often preceded by a *process of knowledge construction about ‘the others’*. A similar argument is sustained by postcolonial scholars like Edward Saïd and Robert Young. They argue that the construction of the discourse about *the others* has profound origins that are rooted in the basic institutions of the West, like the educational system. Saïd (1994) in his famous text ‘Orientalism’, for example, argues that the West’s cultural representation of *the others* pervades Western literature as well as contemporary media representations of the Middle East. In his words, Orientalism is ‘the systematic discipline by which European culture [has been] able to manage – and even produce – the Orient politically, sociologically, militarily, ideologically, scientifically, and imaginatively’ (Ibid. 3). Young has shown that this sense of racial or intellectual superiority is often framed within rational, positivistic and scientific discourses (Young, 2005).

The construction of the reality in which the others are supposed to live is often accompanied by a sense of disgrace or humiliation for the ‘underdeveloped’ (Sahlins, 1993). This feeling of discouragement provides, eventually, legitimation for the developers to intervene. As Sahlins writes:

To ‘modernize’, the people must first learn to hate what they already have, what they have always considered their well-being. Beyond that, they have to despise what they are, to hold their own existence in contempt – and want, then, to be someone else. [...] Humiliation is an important stage of economic development, a necessary condition of economic ‘take-off’. The role of disgrace is critical, for in order to desire the benefits of ‘progress’, its material wonders and comforts, all indigenous sense of worth, both the people’s self-worth and the value of their objects have to be depreciated. (Sahlins, 1992: 13, 25)

Arturo Escobar extends the analysis of development as a discourse to the interventions carried out from the time of the famous Truman speech until the decades of the 1980s. His work casts ‘serious doubt not only on the feasibility but on the very desirability of development’ (Escobar, 2000). He applies a post-structuralist approach to deconstruct the process of intervention in Latin America, with special attention to his home country, Colombia. By describing the missions of the World Bank and the IMF in the country from the beginning of the 1950s until the end of the 1970s, Escobar illustrates how the discourse of development evolved from its first formulation to a more complex weaving of discursive constructs such as ‘the poor farmer’, ‘the rural poor’, ‘the female poor’ etc. (Escobar, 2012). These categories, according to Escobar, are constructed to legitimise a specific political action that serves the interests of the dominant elites and institutions that ruled the country.

‘The world bank strategy argues that development is about growth, about capital, about technology, about becoming modern. This discourse repeated ad nauseam produces a world of production and markets, of good and bad, of developed and underdeveloped, of aid, of investment by multinational corporations, of science and technology, of progress and happiness, of individuality and economics’ (Ibid.: 162)

By oversimplifying the historical reality of the subsistence life of the imaginary stereotype of the *Colombian peasant*, Escobar argues, the development discourse constructs the category of the ‘*rural poor farmer*’ that fits the aspiration of the governmental agenda to create a national, agriculturally-competitive market. The peasants then are removed and excluded from their

traditional production modes and forced to compete as individual entities in the free market. As a result of the inability of those subjects to compete on the market, many farmers lost their land in favour of big landowners or corporations and were compelled to migrate to the city. Beyond this project, Escobar first sees an attempt to introduce the Discourse of modernity into the communities at the periphery of capitalism to serve the interests of the dominant elites. This deconstruction of development is intended to historicise and politicise the modern economic practices that are taken as universal truths by the dominant paradigms of capitalism and liberalism. He argues that those ideas are rather the expression of a cultural paradigm:

Development was—and continues to be for the most part—a top-down, ethnocentric, and technocratic approach, which treated people and cultures as abstract concepts, statistical figures to be moved up and down in the charts of “progress.” Development was conceived not as cultural process (culture was a residual variable, to disappear with the advance of modernization) but instead as a system of more or less universally applicable technical interventions intended to deliver some “badly needed” goods to a “target” population’. (Ibid. 44)

Escobar’s research program was supported by several other critics of the mainstream. Two fundamental anthologies from post-development scholars are ‘The Development Dictionary’ (W. Sachs, 2010) and ‘The Post-development Reader’ (Rahnema & Bawtree, 1997). Those scholars deconstruct many concepts associated with the development Discourse. In his ‘History of Needs’, Illich (1978) further analyses the genealogy of human needs, disclosing their historical and contextual contingencies. He contests the universality of the concept used in Development programs of ‘basic needs’, arguing that in any human society the concept of needs is constructed on the basis of social values and not on economic parameters. A similar argument is proposed by Rahnema (1991, 2005) who analyses the historical evolution of the notion of poverty. He argues that the concept of ‘global poverty’ used in the development discourse is a modern construct based on the dismissal of subsistence ways of living. In his words:

‘Global poverty is an entirely new and modern construct. The basic materials which have gone into the construct are essentially the economization of life and the forceful integration of vernacular societies into the world economy’ (Rahnema, 2005: 178).

At the same time scholars like Alvares (1992) and Linda Tuhiwai Smith (2002) have questioned the universality of (e.g. Baconian) scientific rationalism that dismisses indigenous way of knowing (i.e., indigenous epistemologies) in favour of the supremacy of Western epistemology. According to those authors, scientific rationality can, and has, been used to discriminate and exclude other forms of knowing with the aim of replacing local institutions with Western-style ones. Shiva and Mies (1993) also advocate the right to explore alternative ways of development based on indigenous knowledge that they consider more appropriate to address environmental problems, poverty and gender issues at local levels. Mehta (2010) similarly analyses the effect of development discourse on resources allocation, showing that the politics of distribution of basic resources like water and land are enormously affected by the narrative of industrial progress that privileges the interests of big business, to the detriment of the powerless sectors of society. Finally, the emergent constituency of De-growth advocates attempt to deconstruct the concept of 'growth' by analysing its environmental, social and logical paradoxes (Latouche & Grillenzoni, 2010; Latouche, 2009). Latouche (2009), drawing on Georgescu-Roegen's (1971) work, argues that the idea of endless economic growth in a finite world is illogical, dangerous and incompatible with environmental sustainability. He advocates for a society based on a 'frugal abundance', a post-growth society in which the superfluous needs that characterise the consumerism bulimia of growth-based societies are replaced by a 'convivial' way of living based on auto-production and reciprocity.

Limitations of the 'discursive conceptualization' of development

Since the 1990s the post-development literature has itself received harsh criticisms (McGregor, 2009). Many of these criticisms draw on the same arguments formulated by anti-post-structuralism critiques. One of the main limitations that characterises poststructuralist traditions (e.g. Foucauldian discourse analysis) is that the focus on language usually tends to exclude other contextual factors which may be relevant in the construction of power relations in society (Reed, 2000). In other words, the focus on discourse might divert attention away from the *real material practices* that underlie power relationships between human groups. In this view, social control, subjugation and exploitation

are not merely exercised through the hegemony of certain discursive practices but also and above all through real actions in the world. *In a nutshell, power also lies in people and in the material, not only in the discourse.* Another important limitation of post-structuralism is what Foucault called the '*performative contradiction*': if one can only know reality through discourse then why should one believe any one account -such as that of the post-structuralists- more than any other (Sumner & Tribe, 2008). Any interpretation of any discursive practice, in fact, might be equally 'socially constructed'. Those arguments have been also used to criticise the post-development perspective. In a review of the critique to post-development, Escobar (2000) identifies at least three major criticisms. A first group of critics claim that the *problem of poverty* is not the 'development industry' nor modernity but the capitalist system and the unequal distribution of power among world nations. In this view, poverty and underdevelopment are not the result of a postcolonial discourse generated at international levels but are rather a mechanism of exploitation, planned and deployed through a number of concrete actions (Bebbington, 2010).

A second criticism is that post-development over-emphasises the role of the discourse and presents an over-simplified view of development that does not take into account the diversity of the practical applications of the concept in the field. Some critics emphasise the fact that development in the real world is heterogeneous, contested, impure and hybrid; it is subverted at the local level (Moore, 1999). Finally, another school of critics argue that the discursive conceptualizations of development proposed by exponents of post-development tend to romanticise the poor, local traditions and social movements, ignoring the fact that the grassroots is also embedded in both global and local power relations and many of the conflicts on the ground are in fact due to access to development programmes (Kiely, 1999; Storey, 2000).

Post-development theorists have actively engaged with these criticisms (Escobar, 2000; Tamas, 2004; Ziai, 2004). According to Escobar (2000), the critics of post-development fail to acknowledge that the analysis of the contestation debate on the ground was actually *enabled* by the deconstruction of the development discourse introduced by the post-development approach

itself. Furthermore, the original intention of post-development analysis was to deconstruct the discursive narrative beyond development and open a political debate about the legitimation and justification processes of development interventions. According to post-development scholars, denouncing the discursive nature of development does not deny the existence of power structures and inequalities within non-modern and/or non-western contexts. It is rather a call for the construction of a more equal space for the debate between the dominant discourses and the diverse, unheard voices that come from the South (Ziai, 2007).

However, probably the most interesting debate has focused on the question of 'so what?' (Pieterse, 2000). Post-development scholars have provided reasonable critiques but have 'struggled to show how the theoretical insights can usefully inform practice' (McGregor, 2009: 1694). This criticism is particularly directed towards those post-development theorists that have assumed *anti-development positions* that reject *in toto* any possible positive contribution of the discourse of development to the improvement of human welfare (Simon, 2007). Anti-developmentalists are typically accused of making nihilistic and unachievable calls for the abandonment of development without providing any clear alternative to imagine how a post-development world would look like. In contrast more constructive post-development approaches call for a critical engagement with development to formulate what Escobar (2010) refers to as 'alternatives-to-development'. Those alternatives generally advocate for a leading role of civil society in future decision-making to redefine the goals of development. However, often the practical focus of those alternatives remains as vague as the notion of development itself. According to McGregor (2009), in order to create a real space for alternatives, post-development thinkers would need to refine or redefine the meaning of development. This is a crucial difficulty for post-development thinking because the common understanding of development still encompasses everything from international trade and globalization to health clinics, microfinance or safe sex. To reject all of this is impossible and undesirable, whereas to think beyond it is extremely challenging. Nevertheless, despite its difficulties, post-development critiques

have undeniably opened important spaces to challenge and reframe the notion of development. In McGregor's (2009: 1699) words:

'At the very least post-development has destabilised the self-evident norms, truths and languages of development by directing attention to how development discourses are produced and reified and initiated discussions about alternatives.'

Today, post-development thinking is transforming and shifting towards new forms of critical actions (e.g. see the political ecology of Martinez-Alier (2002), reflexive development initiatives (Jakimow, 2008) and the emerging movements of de-growth (Kallis, 2011) and Buen Vivir (Acosta, 2010; C. Walsh, 2010)).

After post-development: the contemporary situation

The increasing economic interconnections that characterise the present world has undoubtedly reshaped the kind of development discourse dissected by the early post-development scholars. The multi-polarity of the present world has fragmented the discourse of development and generated new discourses through the rise of new regional powers and the emergence of unprecedented transnational corporate elites. As Arrighi (2007) acknowledges, countries like China have formulated their own hybrid discourse of development that only partially overlaps with the categories identified by Escobar and his colleagues. In revisiting the post-development literature after almost two decades W. Sachs (2010) writes:

'Looking at The Development Dictionary today, it is striking that we had not really appreciated the extent to which the development idea has been charged with hopes for redress and self-affirmation. It certainly was an invention of the West, as we showed at length, but not just an imposition on the rest. On the contrary, as the desire for recognition and equity is framed in terms of the civilization model of the powerful nations, the South has emerged as the staunchest defender of development.' (Ibid.: viii)

Local models and traditions might still exist, but not in a pure form. They sometimes survive, as I will go onto show in Chapter 4, in complex hybridizations with the dominant models, but often maintain a status of intellectual inferiority (Young, 2005). As Paulo Freire foresaw in the 1960s, the oppressed eventually adopted the values of the oppressor. This has been so pervasive that:

'Their perception of themselves as oppressed is impaired by their submersion in the reality of oppression. At this level, their perception of themselves as opposites of the oppressor does not yet signify engagement in a struggle to overcome the contradiction; the one pole aspires not to liberation, but to identification with the opposite pole' (Freire, 1996: 27).

The 'colonization of the imaginary' (to use an expression forged by Serge Latouche (2004) (that indicates the process of colonisation of the mind which characterised the acceptance of economic growth as a universal desirable fate), was especially effective within the elites of the so-called developing world, over the five decades of development since Truman's speech. Nevertheless, although nowadays the discourse of development has evolved in a more complex scenario of conflictive perspectives, I think that the post-development, and in general the post-structuralist approach, has had a powerful emancipatory function in the search for a more tolerant and diverse conception of modernity – and as I will shortly go on to describe, the role of innovation in this regard. The post-development approach for example highlights the need for a cultural politics that takes seriously into account the existence of both the mainstream as a dominant model and the manifold hybrid local models maintained in the South. Furthermore, the approach is a call for epistemological diversity, to explore alternative ways of progress and, above all, alternatives to the Western modes of knowing. In the minds of its proponents, post-development analysis is a useful tool to deconstruct the political mechanisms that underlie the discourse and practice of development, in juxtaposition with the process of depoliticisation that has supposedly characterised modern economic theory and the vast majority of development programmes in the developing world. Furthermore, advocating for a new formulation of political economy is a call for a new way of understanding human relations that takes into account culture, history, local contexts and environments. In Escobar's (2012) words:

"Changing the order of discourse is a political question that entails the collective practice of social actors and restructuring of existing political economies of truth"(Ibid.: 216).

My hypothesis, which I will explore empirically, is that these are exactly the kind of dynamics that are still in process, albeit in a more sophisticated way through the reframing of development through the use of notions like 'the 'social enterprise', 'innovation for development' and 'microcredit' or highly specialised

engineering techniques like the 'Randomised Controlled Trials' (RCT) (see below). Since its 'invention', the discourse of development has been modified, transformed, negotiated and even dismissed (Esteva & Prakash, 1998). Nevertheless my conclusions are that it has not drastically changed, at least in its mainstream formulations, in three fundamental aspects. The first is the economization, commodification and bureaucratization of social life. As McEwan (2008) shows in her analysis of the debate between Postcolonial and Development studies, despite an increasing interest in post-development positions, this dynamic is evident in the expert-driven inclination of the big development projects, supported by international organisations like the World Bank, but it is also blatant in the rhetoric of many NGOs. Figures, statistics and reports still have a major role to play in the construction of the '*beneficiaries of development action*' (Radomsky, 2011). The legitimate interpreters and users of these tools are an increasing generation of development experts that is now specialised in many fields, from the classic water/sanitation to the newer microcredit and entrepreneurship: see Escobar (2010a) for the case of Latin America, part III in Mehta (2010); for Asian cases, see Sumberg & Thompson (2012); for development intervention in agriculture in Africa and Asia, see Keating, Rasmussen, & Rishi (2010).

The second aspect is a more cognitive phenomenon that is rooted in the *a priori* conviction that there is always something wrong about the condition of the beneficiaries – the 'others'. That does not mean that starvation and destitution are desirable conditions, that child mortality and curable disease should not be fought. I refer to the latent conviction behind many development interventions that those conditions are in some way the result of flawed and biased cultural values, irrational traditions or even intellectual inferiority (for the ethical issues raised by development interventions (see the summary by McEwan (2011); on the new form of intellectual supremacy in research and development interventions on 'the natives' see Linda Tuhiwai Smith (2002)). The third aspect is a direct consequence of the former. The implicit primacy of those who promote the development action tends to neglect the *political causes of the situations of so called underdevelopment* in the field. The consequence of this depoliticization is an increasing recourse to managerial discourse and practice

so evident for example in the BOP literature I will shortly present, in the Inclusive Business Model rhetoric and even in the microcredit industry.

Those aspects, by way of one example, are present in the influential work of Banerjee and Duflo. In the book 'Poor Economics', Banerjee and Duflo (2013) describe the methodology designed at the MIT Abdul Latif Jameel Poverty Action Lab. In the book, which is now highly influential in the field of Development Economics, they argue the problem of development programmes is that '*we don't know when it works and when it doesn't*'. According to Banerjee and Duflo, there are many small interventions that can help in the fight against poverty and underdevelopment but we are not able to identify them because development economists have not been using a rigorous scientific method to find out what really works. The efficacy of development initiatives, the authors argue, is rarely scientifically assessed. To overcome this lack of rigour, they propose to assess development programmes with RCT, a technique borrowed from the practice of clinical trials. The RCTs developed by Duflo's team at the Poverty Lab is a technique of experimental economics that is designed to test a specific development intervention in at least two groups of randomly selected subjects. In one group the intervention is carried out, while the second group is used as a 'control group'. These subjects can be individuals, households or entire communities. The random selection is thought to remove the bias of selection and to increase the 'scientific objectivity' of the experiment. By comparing the evolution of the test group with the control group, the authors claim to be able to have a clear, rigorous and scientific understanding of what really works in the field. Once the deficit of knowledge is overcome through the RCTs, those who have the power to act (Governments, NGOs, philanthropists etc.) are assumed to intervene on the base of reliable scientific information. In this sense the RCT is a very sophisticated way of reframing development and removing politics by using the argument of Baconian scientific rationality. As Reddy (2013) argues in his review of Poor Economics:

'Doing a randomised trial to find out what "works" can fail to recognise how learning happens over time in a complex, and often politicised, setting. [...] The authors' attitude to interpersonal and societal differences reflects what is often called "economic imperialism." They recognise that motivations may have local specificities (for example, because some persons and societies deem it

important that weddings must be celebrated grandly and save accordingly), but ultimately assume that we are all reliably to be treated as *homines economici*. [...] The first discursive factor underlying the influence of the authors' perspective is the widespread appeal of an ambient doctrine that we could call "Washington Consensus plus." (Ibid.: 64-65)

The scenario that seems to emerge from the new approaches introduced by the RCTs is a new context in which a more elaborate discourse of development is framed in a new, *scientized*, neoliberal fashion. The development proponents I argue reframed their discourse and practice to address the disappointment and sometimes the conflicts that the early development interventions caused (Escobar, 2004). The advent of the neoliberal globalization and the discourse of innovation created a new space for further formulations of the development discourse. These new formulations, in my opinion, are visible in the discourses of *poor as consumers*, *poor as entrepreneurs* and *poor as potential successful individuals*. In the words of Linda Tuhiwai Smith (2002):

'The geography of the empire has been redrawn. The north-south divide has become a more meaningful way of distinguishing between what were once referred to as First, Second, Third and Fourth worlds. Territories are called markets, interesting little backwaters are untapped potentials and tribal variations of culture and languages are examples of diversity.' (Ibid.: 98)

The focus of Banerjee and Duflo's work, is on finding the key for individual success rather than reshaping the economic context in which individuals are required to succeed. The poor who turn a small amount of capital into a prosperous business are also the heroes of Yunus' (1998, 2010) books who attempts to show the advantages of tackling poverty through market-based initiatives. Within the neoliberal frame, this discourse is particularly appealing because it leverages on a powerful but biased Western predisposition nicely described by Reddy (2013):

'[...]a desire to "fix" things with simpleminded mono-causal reasoning, allied with the conviction that technology, through the analysis of data using randomised trials, makes it possible to do so. Its technocratic premises, its naïve view of politics and society, and its unselfconscious do-goodism make for a self-affirming picture of the world. (Ibid.: 72)

The depoliticization of development interventions described by post-development scholars is a mechanism that is still used in several reformulations of development discourse in current circulation, especially those who have

gained momentum under the neoliberal ideology (Swyngedouw, 2015). Removing power and politics from the study of so-called underdevelopment is a political move itself. In other words, power and political issues are re-framed as technical problems which the hegemonic narrative of development can easily accommodate (S. White, 1996). Removing politics from the analysis of poverty reduces everything to the issue of innovating and delivering services or products. It becomes a managerial issue for which one needs experts, managers, routines and innovation. This is itself a political process that in some cases aims at excluding the participation of certain actors who, ironically, are often exactly the targets of such innovation and managerial interventions.

3.3 INNOVATION FOR DEVELOPMENT AS A CONTESTED POLITICAL FIELD

Since the beginning of the Development Era, to use the jargon of post-development scholars, the discourses of development, science and technology have been strongly intertwined. This connection has influenced the discourse of development from the end of WWII, usually assuming the form of 'Technical Assistance' or 'Technical Cooperation' conceived as furnishing experts' advice to those countries that require assistance. As documented by Wilson (2007), these discourses have been *reframed to conceive a more articulated role of technological change and innovation in the development process*. The focus on Innovation Systems, learning processes and knowledge management (Chapter 2) that characterises the new generation of development interventions is a sign of this evolution (Ibid). At the same time, according to Leach & Scoones (2006) the discourse about technical change, innovation and development is still polarised, in what they called the '*three races*'. The first race, which is also the dominant one according to the authors, is the '*race to the top of global economy*' where science and technology are seen as the fundamental ingredient to achieve economic growth in a highly competitive world. The narrative of development that underlies this race is one of modernization, assuming that developing countries will move through a sequence of stages towards industrial modernity. In this view, it is generally assumed that poverty will be reduced by a trickle-down effect of the benefits of economic growth. A second race is the '*race to the universal fix*', which assumes that major breakthroughs in science and technology will have a decisive impact on

poverty. New revolutionary advances in agriculture, new mobile phone technologies, and new vaccines among other technological artefacts are all examples of 'universal fixes'. In this view, development is a global overarching process that is morally committed to providing scalable and transferable universal solutions on a large scale. As W. Sachs (1990:14) argues, the popularity of this idea derives from 'the tragic fallacy that modern technologies possess the innocence of tools'. Throughout the North and South, the consensus is that 'more technology' is always better because technology is seen as a powerful but neutral means. There is then a third 'slower race' that Leach et al. (2008) define as follows:

[the slower race] emphasises pathways to poverty reduction which, while recognising the importance of science and technology, are specific to local contexts; recognise that technological fixes are not enough and that social, cultural and institutional dimensions are key; create hybrids between local and external knowledge for appropriate solutions, and go the extra mile to make already-existing technologies more readily available to those who are poor and marginalised. In this view, science and technology are a part of a participatory process of development where citizens themselves take centre stage. Rather than passive beneficiaries of trickle-down development or technology transfer, citizens are knowledgeable, active and centrally involved in both upstream technology choice and design, and downstream deliberations around technology delivery and regulation—perhaps challenging external perspectives. This, so the policy argument goes, makes for technologies more appropriate to the challenges of poverty reduction and social justice.' (Ibid. 730)

The slower race originates from the acknowledgement that the dynamics of technological change, far from being a singular path to progress, imply several complex, power-influenced processes, often contradictory with each other, that move in a huge variety of different directions. These dynamics might imply the marginalisation and exclusion of some social sectors and, at the same time, benefit other people by providing economic growth and greater well-being. Technology is far from a collection of neutral tools, rather it becomes a system of intertwined systems that requires profound social transformation to function properly. Once 'technical development' is embraced, 'no society can stay the same' (W. Sachs, 1990: 15); there can be no technical modernization without remodelling the whole of society's arrangement. In this view, the questions about power, political economy, the impact of planned development interventions and who gains and who loses from these are crucial to understanding the directions of technical change. The study of the politics (and

the direction) of technological change and innovation meant as ‘vectors’ (see section 2.3) is the central focus of an increasing community of scholars usually situated in the field of Science and Technology Studies (STS) but it can also be found (if rarely) both in development studies and in the literature on innovation for development that I have analysed in the previous chapter¹⁵. Wilson (2008) has noticed a convergence between the critical approach proposed by the critics of mainstream development (i.e. post-development scholars) and the social constructivist approach adopted by the tradition of the STS studies. According to Leach et al. (2005) however, although both approaches show an increasing interest in the links between power, knowledge, interests of actors and institutions and political dynamics, the academic work that connects Development Studies with STS studies is still very limited. In this regard, an obvious response to this lacuna would be to draw on the insights from STS, which have been useful to understand how discourses and framings operate in shaping technological change at the BOP and vice versa (Heeks, 2013).

The insights provided by discourse/framings theories (e.g. Foucault’s ideas, frames, narratives and post-development deconstruction I have discussed previously) and the idea of *innovation as a vector* (section 2.3.), I argue, can be particularly useful to enrich the shortcomings in the extant literature of innovation at the BOP identified in the previous chapter: this then I hope to be the original contribution of this thesis. If innovation and development can be framed as discourses that are not passive constructions but have the power to make things happen or shape the reality of practices in favour of certain actors and to the detriment of others, how does this process occur on the ground? As declared in Chapter 1 section 1.4, my intent is to use a non-essentialist approach to grasp how the discourse of ‘innovation for development’ is constructed in the situated contexts of the so-called developing world and how the direction of the ‘vector innovation’ is negotiated.

¹⁵ STS is an umbrella term that indicates constructivist approaches to the study of technical change and innovation. These include the community of scholars grouped under the label ‘Social Construction of Technology’ (SCOT) (Bijker & Law, 1992; Bijker, 1987; Pinch & Bijker, 1984; Winner, 1980) and the Sociology of Translation (Actor-Network Theory) (Callon, 1986; Latour, 2005).

CONCLUSION

In this chapter I set out the key theoretical framework for my thesis. I introduced the notions of discourse as main theoretical focus and framings and narrative analysis as methodological approaches to qualitative analysis. The important lesson that comes from the Foucauldian notion of discourse is that language is not a mere instrument to convey information or meaning but is also a powerful means to make things happen in the world, to shape reality and modify the relations that constitute any social arrangement. In a nutshell, language, meant as Foucauldian discourse, is able to not only convey meaning (saying) but also strongly influences action (doing) and conveys identities (being). By applying the lens of post-structural analysis and social constructivism it is possible, in my opinion, to disentangle the diversity of framings that emerges from a closer analysis of the relations between innovation and development discourse presented in the literature review (Chapter 2).

In the second part of the chapter I engaged with a particular perspective in Development Studies that consider development as a discourse. I reviewed the literature on post-development that describes development as a set of discursive practices designed to impose Western Modernity to 'the others'. I also acknowledged that the discourse of development, in fact, is not a stable and fixed entity but it is rather dynamic, *occurring* in the writing, speaking and acting of many different actors. As shown by post-development scholars the *discourse of development* attempts to enrol through artefacts, such as the reports and documents of international institutions like the World Bank, governments and NGOs. However, as with any form of discourse, it is never a unique monolithic discursive narration but keeps changing continuously.

In the third and final part of this chapter I revisited the notion of *innovation as a vector*, a political and highly contested concept, and introduced the main research questions of the thesis. As Krause (2013) has noticed, there is an increasing use of the word 'innovation' in the development literature and in the discourse of the practitioners in the field. However, she notices, the word assumes a huge variety of meanings, depending on the context in which is used. This increasing popularity of the word innovation leads me to wonder if

we are in front of another form of the rhetoric of modernization or a radical shift in the development discourse. How the discourse of 'innovation for development' is constructed in the context of the so-called developing world and how the direction of the 'vector innovation' is negotiated? This is, in essence, the central question in my thesis. The interest in technological change and innovation as a way to develop, in my opinion, could be a further manifestation of the evolution of the discourse of development ignited –at least according to post-development scholars- by the Truman's speech. At the same time, however, the concept of innovation has been used also by critics of mainstream development with very different goals and motivations: it is, as I will go on to explain, interpretively flexible. The remainder of the thesis will then concentrate on empirical (and largely primary) data collection aimed at understanding how the framings I have reviewed above are enacted by actors in the field through situated social (and discursive) practices. In the next chapter I present the strategy that I followed to collect empirical data and the methodological approach to qualitative analysis –a qualitative Grounded Theory approach- that I used to interpret them.

RESEARCH DESIGN AND METHODS

“And our destiny depends far more on our wisdom than on our knowledge“

— From Bioeconomics to Degrowth (Georgescu-Roegen, 2011: 145)

The approaches to innovation, poverty and development introduced in the previous chapters are presented as a heterogeneous set of frames. In my opinion this heterogeneity is only partially explained by the different disciplinary traditions of their authors. I suggest that the diversity of approaches, which to a great extent overlap each other, is mainly due to different understandings, interpretations, and expectations about human development, progress and technical change; in other words, different world views. In my opinion, the perspectives on technical change and innovation that emerge from the analysis presented in the previous chapters can be better understood using the notions of discourse, framing and narrative that I introduced in Chapter 3. Using this approach, the different perspectives that the authors present as neutral and objective categories are in fact the outcome of the discourses of the *communities of practices* to which the authors belong. My assumption is that the different narratives of innovation identified in Chapters 2 and 3 underlie different discourses that are all connected in some way to the discourses of development. In other words, different framings of innovation (e.g. ‘BOP’, ‘inclusive’, ‘empathetic’ etc.) can be located within different narratives of development/post-development. Drawing on these assumptions, I commence this chapter by presenting my personal reflection about my research journey

that then guides the subsequent empirical research presented within this thesis. In the following, I describe the research strategy designed to address the main research questions introduced in Chapter 1. I explain why I decided to adopt a qualitative approach and then, I describe in detail the research methods that I selected to address my research questions: multiple-case studies. In order to justify the selection of the case studies, I first define the boundaries of my investigation and then describe the units of analysis. I introduce the case studies, specifying the rationale for selecting them. For each case, I illustrate how I gained access, how I collected the data and which kind of data I gathered. Then I describe how I analysed the data using a qualitative Grounded Theory approach, and conclude with some ethical considerations about conducting research in cross-cultural contexts.

4.1 RESEARCH STRATEGY AND METHODOLOGY

Research journey

This thesis is not only the written account of the three years I spent doing research between Exeter and the Indian sub-continent, but extends back through a long, sometimes intellectually painful, journey that started more than ten years ago when I completed my postgraduate programme in engineering. As in any respectable polytechnic institute, my training was dominated by numbers, statistics, mathematical models, and measurement techniques. I majored in the physics of electromagnetic fields, which, despite its abstract mathematical formalism, provides the theoretical basis for a huge variety of experimental disciplines that span from micro-electronics to weather forecasting. During my studies I was trained to never question *scientific realism*, the positive epistemic attitude that guides the vast majority of natural scientists. I was trained to design systems, measure variables and compare outcomes without questioning the universality of the scientific method. With this same *forma mentis*, after one year spent designing telecommunication systems for a Multinational Corporation leader in the sector, I decided to explore other countries and other cultures. The opportunity presented itself when I offered to coordinate a project of rural electrification funded by the Italian ministry of foreign affairs and international cooperation. I moved to the Andes plateau in

Bolivia to persuade the Quechua and Aymara natives to adopt photovoltaic and solar panels to heat and light their houses. Previously I had spent short periods in 'non-western environments'; I had written my masters dissertation in Goma, in the Democratic Republic of Congo. However, in Bolivia I encountered the 'development industry' for the first time in my life. I got to know how NGOs work in the field, how they write projects and how they build their relationships with the beneficiaries and international donors agencies. I was in charge of an ambitious programme of rural electrification aimed at covering four provinces in the inter-Andean valleys. The project was part of bigger programme funded by the European Union with the technological support of Isofoton, a European leading company in the sector of renewable energy. The aim of this vast programme was to deliver over a million photovoltaic systems to rural and remote zones in Bolivia (see also Pansera (2012)). After a promising beginning, the project failed to fulfil my expectations. The average lifetime of the systems was limited to around one year. After that the systems stopped working and, in the vast majority of the cases, the users were not interested in its repair. The programme claimed that energy is a fundamental ingredient of human development and energy access would have increased the productivity in rural areas where most of artisanal production is carried out at home. This never happened in the hundreds of cases I observed. The programme was also designed to create an entrepreneurial eco-system to encourage the maintenance of the systems through the creation of micro enterprises run by the locals. However, according to the best of my knowledge, the only company that really benefitted from the project was the Bolivian partner that assembled and installed the systems in the villages. They prospered and doubled their turnover in the four years of the project. The Bolivian experience forced me to reflect about the alleged universality and neutrality of technical artefacts and the implicit benefits they are supposed to provide to the people. Why did Bolivian natives refuse to enjoy the advantages of green energy? Why didn't they understand the benefits of having energy at home? Why it was so difficult to create an entrepreneurial eco-system to maintain the solar plants and at the same time to create new jobs? Why did they refuse to behave as *homines economici*?

Back in Europe, in order to overcome my frustration, I decided to return to university to improve my knowledge about development and, above all, about the 'sociology of technology'. During the day I worked as a researcher in the Polytechnic University of Madrid and during the evening I attended a two-year master programme on 'Economics and management of innovation'. In those years, I had the opportunity to get in contact with a different epistemological approach to the study of the relationships between humans and technology. I found out that technical change is fundamentally shaped by historical conditions and social structures and it is never neutral or inevitable as it appears in the texts books of engineering schools. This was a sort of *epistemological shock* for me. I discovered that human behaviour vis-à-vis technology cannot be predicted like I used to predict the propagation of a *plane wave* in the space. When I finally start my PhD, I decided to focus on the study of technical change and innovation in developing countries. Most of the literature that I came across, especially the BOP1/2 literature, presented the same apolitical perspective that I had found in the development projects in which I had participated in Bolivia. Rational economic thinking, technological fixes and market-driven initiatives dominated the discourse of innovation, with management and organization scholars interested in *including* the poor in the process of development. When I finally approached my fieldwork for the first time, I had to spend hours travelling by bus in Ecuador and Bangladesh and crossing Indian cities in endless autorickshaw trips. During these days I reflected in depth about my *epistemological shock*, I extensively read about post-structuralism, post-development and critical management theory. Above all, I rediscovered the Aristotle's theory of intellectual virtues in the *Nicomachean Ethics*, which I was forced to study, in the ancient Greek version during high school. According to Aristotle, in order to function properly, a society has to master three virtues: science, that he calls *episteme*, which is the quest to grasp the universal and context-independent laws of nature; the *techne*, commonly traduced as the *art of doing*, which is related to the process of making (the root of the word 'technology' in English, what Michael Foucault calls the "instrumental rationality

governed by a conscious goal” (Flyvbjerg, 2001: 111); and *phronesis*, translated into English as prudence¹⁶. This virtue deals with ethics and encompasses deliberation about values with reference to social practices (Ibid: 57). What is licit, what should be done, what is fair and what is not in the political sphere. But *phronesis* also can be interpreted as the pragmatism and the practical value-rationality that humans use during their day-to-day life. It requires multiple experiences of the world to be exercised and is indescribable by a set of algorithmic rules. In this sense, the Aristotelian *phronesis* is similar to the practical knowledge that Bourdieu (1972) calls *habitus*. According to Aristotle, knowledge about human affairs can only be in terms of *phronesis*. In this view, the role of social science is “to carry out analyses and interpretation of the status of values and interests in society aimed at social commentary to social action, i.e. praxis” (Flyvbjerg, 2001: 60).

The diversity and plurality that I found first in the literature presented in Chapter 2 and later in the field can be better understood, in my opinion, following the theoretical perspective provided by the concept of *phronesis*. For this reason, in the following chapter I will abandon the quest for the *episteme* -the epistemology of natural science- that characterised the early stages of my academic career and I will embrace the other two Aristotelian intellectual virtues: *techne* and more specifically the concept of *phronesis*. Socio-technical change and the way it is framed within discursive narrations, as I have plainly understood through my research journey, is embodied in human actions and shaped by their values and interests. This perspective renounces the universality of the *episteme* (Vattimo, 2011), giving way to a practice-based and political form of knowledge that should also be approached with the formal rigour of the scientific investigation characteristic of the *episteme* i.e., verifiability, falsifiability, transparency in the methods (Eco, 2012). Although the

¹⁶ An alternative formulation of the same concept can be found in the notion of ‘wisdom’ described by one of the fathers of System Thinking, Gregory Bateson. He writes: “[...] I use “wisdom” as a word for recognition of and guidance by a knowledge of the total systemic creature. Lack of systemic wisdom is always punished. We may say that the biological systems – the individual, the culture, and the ecology – are partly living sustainers of their component cells or organisms. But the systems are nonetheless punishing of any species unwise enough to quarrel with its ecology. Call the systemic forces “God” if you will” (Bateson, 2000: 440).

study of social facts through the lens of *phronesis* does not allow the formulation of predictive theories, it does not exclude the possibility of formulating value judgments and normative statements (Gunnell, 1998). It does yield, indeed, a more intriguing form of socio-political and context-dependent knowledge. The questions that guide such analysis, and that guided my research too, are (Flyvbjerg, 2001: 130): Where are we going as a society? Which direction is desirable? What should be done? Who gains and who loses? By which mechanisms of power? How is power exercised?

A qualitative research strategy

“Quality is the continuing stimulus which causes us to create the world in which we live. All of it. Every last bit of it”

— Zen and the art of motorcycle maintenance (*Pirsig, 1974: 351*)

My research is in essence about people, what they think, what they say, what they strive for and what they value. If you want to understand the lives of *the others*, you cannot escape the need to directly observe and taste the lives of the others. This is the first reason for adopting an empirical, qualitative research strategy, to understand how people construct, perform and enact the discourses of innovation and development on the ground. As Karl Polanyi (2001) described, in any human society people are moved by what they feel is just, valuable, social acceptable, beautiful and even sacred. This capacity of sorting, organising and prioritising the things of the world according to qualitative criteria is a fundamental characteristic of human action. What statistics and numbers can hardly grasp is the desire of people for quality e.g., good life, good friendships, good food. Qualitative research consists in inquiring and describing a particular phenomenon from the point of view of those who experience it. In order to catch this privileged perspective the researcher *has* to engage with, listen to, observe, feel and touch the field (Barnes, Christensen, & Hansen, 1994).

There are several qualitative research types, however Miles and Huberman (1994: 6-7) argue that there are some recurring features in all the approaches.

First qualitative research is conducted in intense and/or prolonged contact with a real life situation. The research purpose is to achieve an encompassing overview of the context under study i.e. understand the logic, the explicit and the implicit rules that regulate the lives of the individuals, groups, and society or organizational object of analysis. As a consequence, the researcher's aim is to capture qualitative, usually non-numerical data that record the perceptions of the locals 'from inside through a process of empathetic understanding' (Ibid.: 6). Qualitative methods have usually been selected for cross-cultural research (Chikweche & Fletcher, 2012) and more specifically for research at the BOP (Ketchen, Ireland, & Webb, 2014). The 'BOP environment' is frequently shaped in unique contexts and peculiar conditions that cannot be properly inquired with quantitative approaches (Ramachandran, Pant, & Pani, 2012; Sánchez, Ricart, & Rodríguez, 2005). Moreover, due to their characteristic informality, the dynamics of the BOP often escape the quantitative logic of performance indicators that are commonly used in other contexts e.g., innovation surveys, econometrics, sectorial analysis (OECD, 2011). National statistics are not designed to account for the informal economy – not to mention convivial societies (Illich, 1973) – and even less for innovation in such a context (Chaturvedi & Srinivas, 2012; George et Al., 2012). For those reasons scholars of the BOP have mainly adopted a qualitative approach (Kolk et al., 2013) focused on cases analyses (Ted London & Hart, 2004; Weidner et al., 2010) and ethnographic research (Esqueda & Hernández, 2009; Hamilton & Catterall, 2005). The ethnographic methodology, together with historical and Discourse Analysis, has also been used by post-development scholars (Gudeman et al., 1989) with a particular emphasis on institutional ethnography e.g., ethnographic research conducted within development agencies, NGOs and governmental departments (Escobar, 2012; Ferguson, 1990). More recently, qualitative methods have been used to study the politics of development programs (IDS, 2006; Stirling et al., 2007). Moreover a qualitative methodology is also widely viewed as the best way to study power and politics (Buchanan & Badham, 2008; Flyvbjerg, 1998) and how narratives and discourses are constructed and negotiated (Buchanan & Dawson, 2007) within organizations and institutions.

4.2 RESEARCH METHODS

The following section analyses in detail how I constructed the boundaries of my research, the units of analysis, why I decided to adopt a multi-case approach and how the case studies have been selected to address my research questions. Furthermore, I describe how the field was accessed, the data collected and analysed.

Research boundaries, units of analysis and case studies selection

In order to address my research questions, I began by defining the boundaries of my research journey. The general focus of my research is on the understanding of the production and the enactment of the discourse of innovation for development in non-western environments. As I described in the previous chapter, this discourse is *occurring* in the texts, speeches and actions of multiple actors at local, regional as well as global levels. Different actors construct and reinterpret this discourse in different ways. Those multiple interpretations, as I tried to illustrate in the second section of Chapter 3, underlie different discourses of development. In short, different actors interpret the discourse of development through different interpretative framings that, in turn, produce specific narratives about role of socio-technical change in development. My main assumption is that the narratives constructed in this way both guide and shape the practices (saying and doing) of the actors on the ground and are also continuously influenced, adjusted, and refined by at least three different interactions (see Figure 4):

- Within the practices themselves: my assumption is that the actors' framings are also influenced by the practices i.e., certain practices might create a narrative that attempts to justify and legitimate them.
- With the local institutional setting e.g., local culture, values, motivations and interests of other actors, power relationships.
- With a global setting e.g., global markets, globalised values, concepts and ideologies.

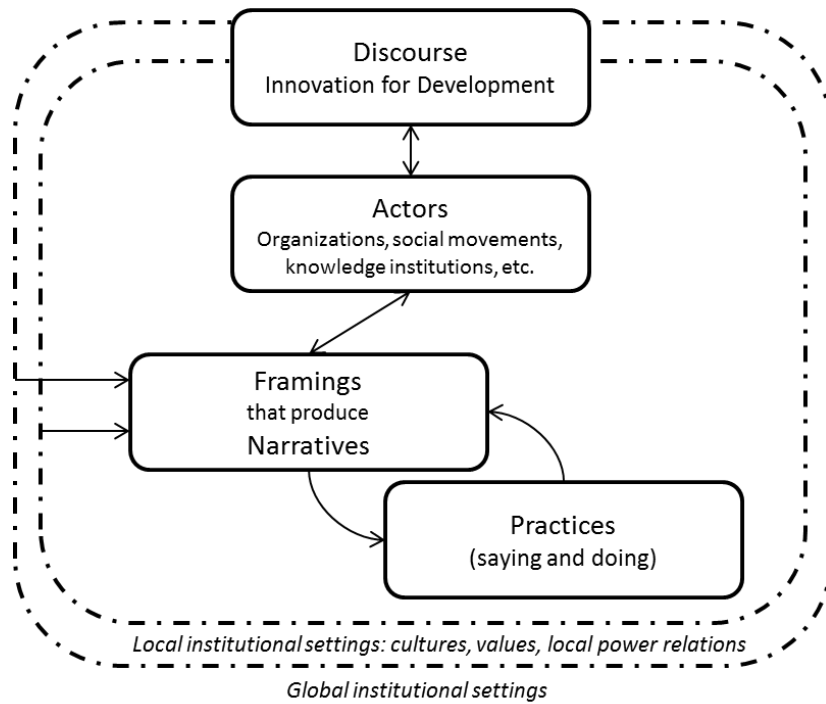


Figure 4 Research Boundaries

As a consequence, the unit of analysis of the present research is composed of three elements: the networks of actors operating in the field of innovation for development i.e. individuals, organizations, companies, NGOs, social movements, knowledge production centres; their frames and narratives; their practices. In a nutshell, the focus is on those actors, how they frame innovation for development and how they enact it in their practices. However, the purpose is not primarily to investigate either the impact on the poor or their perceptions concerning those initiatives aimed at ‘rescuing’, ‘saving’, ‘improving’ and, in the end, ‘developing’ them. This task would require a different ethnographic engagement that for many reasons (i.e. language, time, and access) was not viable.

My research is an attempt to provide an account based on empirical evidence about how the dynamics of construction of the innovation for development discourse occur *on the ground*. To do that, I decided to adopt a multi-case approach, for several reasons. Firstly, studying people and their practices in their environment requires a wide range of observations that the inductive logic

and case studies address in an appropriate way (T. W. Lee, 1999). Secondly, reflecting the methodological positions exposed in the previous sections, since predictive theories and universals cannot be found in human affairs, context-dependent knowledge represents a fundamental and valuable form of knowledge (Flyvbjerg, 2006). According to Flyvbjerg (2006), indeed, human learning is a process of continuous practical interactions with reality that are situated in specific unique and irrepeatable contexts. Furthermore, case studies can be used to generate hypotheses as well as to validate them and can provide useful insights for theory building (Ibid.). Moreover, although the interpretive approach of qualitative case study analysis implicitly assumes that the researcher cannot escape a personal interpretation of the results (Labianca, Gray, & Brass, 2000), the methods 'contain no greater bias towards verification of the researcher's preconceived notions than other methods of inquiry' (Flyvbjerg, 2006: 399). In addition, the rigour in qualitative research can be achieved through a number of principles that include the researcher's total transparency about access and data collection, triangulation of sources (e.g., documents, observation, interviews, other case studies conducted by other researchers, *intersubjectivity*) and a rigorous and systematic analysis of the data collected (Gioia, Corley, & Hamilton, 2012).

The approach to selection of the case studies is also particularly important to guarantee the relevance of a research project, generate relevant hypotheses, test theories or formulate generalizations (Flyvbjerg, 2006). In this research, I adopted a multi-case approach with an *information-oriented selection strategy*. Unlike random selection, *information-oriented selection* seeks to maximize the utility of information, drawing on a small number of relevant cases. The cases are selected '*on the basis of expectations about their information content*' (Ibid: 396). Following this approach, I also decided to adopt a strategy of *maximum variation*, which consists in obtaining information from a very diverse set of samples i.e. different size, location, context, type of organization etc. (Ibid). A multi-case approach allows me to cover a relevant portion of the narratives of innovation for development identified in the literature review (see Table 1). The cases selected and the justifications for their inclusion in the research are described in the following section. The cases selection process has been

designed to cover the following four categories that emerge from the literature review:

- Poor as users/clients: this perspective was firstly popularised by the BOP1 approach. The basic assumption is that the poor represent a vast group of un-served clients. This approach is a call for innovations that address the 'basic needs' of the poor with simple, affordable, scalable and robust solutions. According to Prahalad, those solutions are likely to come from MNCs. Other perspectives, like those of Yunus (Yunus, Moingeon, & Lehmann-Ortega, 2010; Yunus, 2010), agree on large scale actions supported by highly centralised organizations needed to tackle poverty, but advocate for a non-profit philosophy.
- Poor as producers/co-producers/entrepreneurs: This approach advocates for a direct involvement of the poor in the productive activity as producers or entrepreneurs. This perspective is in part present in the narrative of what I call BOP2, but also characterises the narrative of micro-credit (Yunus, 1998) and social enterprise (Ramachandran et al., 2012).
- Promotion of innovative inclusive business models: This category is strictly linked to the BOP1/2 narrative. The focus, however, is on the promotion and diffusion of entrepreneurial initiatives to address poverty issues and achieve inclusion. Those initiatives usually originate in the academic context. Examples are the Santa Clara Frugal Innovation Lab¹⁷, the BOP Global network promoted by Stuart Hart at the Cornell University¹⁸, the BOP learning Lab of the IESE¹⁹ among many others. As described in Chapter 2, those initiatives suggest that the BOP narratives are rapidly diffusing in the Business and Management academic establishment.

¹⁷ <https://www.scu.edu/engineering/frugal/> (last accessed March 2015)

¹⁸ <http://www.bopglobalnetwork.org/> (last accessed March 2015)

¹⁹ <http://www.iese.edu/en/faculty-research/research-centers/cbs/> (last accessed March 2015)

- Countervailing dynamics based on Science & Technology emancipatory processes: This perspective is represented in a small minority in the literature reviewed. The basic assumption is that poverty and exclusion are not the result of unmet needs but the consequence of an unjust distribution of social goods due to asymmetric power relationships. As Schumacher (1973) argues, technology may have an emancipatory role for marginalised people only if helps to address the social issues that cause exclusions. In this regards only few examples of concrete actions based on this perspective are documented in the literature. Examples are the work of Dagnino (2009) on social technology to reshape social relationships in Latin America and the idea of science & technology for social revolution in India (Abrol, 2003) . This perspective represents somehow a countervailing position with respect to the free-market-based approach that characterises the BOP narratives.

In order to cover these four perspectives, I selected four organizations that, at least in their public declarations, seem to link to the narratives described above. My primary intention was to understand how they define themselves with respect to the discourse of innovation for development (*identity*), how they speak about innovation, poverty and development (*saying*) and how they enact their discourse on the ground (*doing*). The cases selected and the justifications for their inclusion in the research are described in the following section.

Data collection and access

Reflecting the methodological positions exposed above, in the approach to the case studies I have employed a qualitative approach based on an ethnographic mode of enquiry, which is an insightful way for *grasping the otherness* of another culture (Ortner, 1984), using non-participant observation (van Maanen, 1988), reflexivity analysis (Czarniawska, 2007; Ortner, 1984), and micro-ethnography techniques (Neyland, 2008). The main source of data in all the case studies consists of audio-recorded, semi-structured interviews. The

recordings were carried out using a Livescribe²⁰ pen, which allows voice recording together with a digitalization of written notes that are then automatically converted into pdf files. This function was particularly useful to record sketches and schemas drawn by the informants. At the end of each interview, I complemented the recording with a summary sheet containing extra notes taken with the Livescribe pen during the interview. I complemented this contact form with personal information about the interviewee, some personal reflections about the interview i.e. main points, not-addressed questions, people to contact etc. (Miles & Huberman, 1994: 51-55). I triangulated the data from the interviews with internal documents, non-participant observation²¹, visual data i.e. photos and videos, and field notes as available. When possible (see the section on ethical issues), I took pictures in the field and video recorded some of the interviews. Following the suggestion of van Maanen (1988), during the field work I kept a research diary where I recorded at the end of the day any details and insights that I considered meaningful. I stored the field notes in a digital format using the web application Evernote²², which is available for desktop PCs and smartphones. Evernote allowed me to record written, video, photo or audio notes at any moment in the field and then upload them on a web platform where my notes were immediately available online. The research diary and the field notes also contained reflections about connections between theory and data that allowed me to refine my conceptual framework as the research progressed. As suggested by Miles and Huberman (1994), I went back and forth from data to theory to refine my theoretical framework.

The field work was carried out in three different phases. An exploratory pilot was conducted in Ecuador during two weeks on October 2012. The pilot was designed to collect information about frugal innovators and their practices in urban and rural areas in Ecuador and help me frame, formulate and refine my research philosophy, questions and methodological approach. Since it was a

²⁰ <http://www.livescribe.com/> (last accessed May 3, 2014)

²¹ A video example is available at: <https://www.youtube.com/watch?v=lcumsN2Hwgl> (last accessed March 5, 2015)

²² <https://evernote.com/> (last accessed May 3, 2014)

pilot and not the main body of my research, I have not included it as a separate results chapter, but provide a summary here.

The pilot was conducted with the financial support of the Ecuadorian Think-Tank Grupo Faro²³. The main objective of the pilot was to identify some cases of frugal innovations in Ecuador and popularise the idea through dissemination events like conferences, radio program and publications. I was invited to give a speech about BOP and grassroots innovation at the 2nd conference 'Ecuador will be sustainable' on October 10th in Quito and I was interviewed by a national radio station about the same topics. The pilot was also designed to develop my capacity to conduct qualitative research in cross-cultural contexts, practise in-depth interview techniques, video interviews, non-participant observation and taking field notes. This preliminary field work focused on three mini-case studies of frugal innovators. The selection of the cases was carried out with the collaboration of two local organizations: FEDETA²⁴ (Ecuadorian Foundation for Appropriate Technology) and Ekorural, an NGO focused on development in rural areas. In Quito's suburbs I interviewed Marlene Amancha and her family. Marlene has designed a community-based composting system to manage the urban wastes of her neighbourhood. In Puyo, in the Ecuadorian Amazonia, I interviewed Christopher Canaday who has specialized in the construction of ecological dry toilets with recycled materials. Finally, in the province of Ibarra I interviewed the workers/activists of Ekorural and the network of farmers that collaborate with them.

The pilot was crucial in that it introduced me to the idea that innovation and technical change can be interpreted in multiple ways by different kinds of actors. The contact in the field and, in particular, with the critical action conducted by NGOs like Ekorural introduced me to the idea that the process of development is far from a neutral, deterministic evolution from a stage of underdevelopment to a higher level, but it is essentially political in its intentions and consequences. The people I encountered during those two weeks introduced me to some of the

²³ <http://www.grupofaro.org/> (last accessed May 3, 2014)

²⁴ <http://www.fedeta.org/> (last accessed May 3, 2014)

concepts (e.g., post-development analysis, post-colonialism, dependency theory) that have guided the formulation of my research questions about the discourse of innovation for development and which I have discussed in previous chapters.

The second and the third phases of the data collection were conducted in the Indian Subcontinent: in Bangladesh during five weeks between October and November 2012 and in India from August to December 2013. Apart from focusing on the data collection within the case studies, I also had the opportunity to spend a few days with Anil Gupta of the Honey Bee Network and his collaborators (see Chapter 3, section 3.1 Example 3). In order to get in contact with the Honey Bee Network, I personally contacted Prof Anil Gupta. We maintained an email correspondence for several months, exchanging documents and information about my research and his activity. I finally visited him at Ahmedabad in November 2013 where I spent 10 days in the campus of the Indian Institute of Management. I recorded two long interviews with Prof Gupta, then I met and interviewed his collaborators of the National Innovation Foundation²⁵, the publicly-funded institution created to support grassroots innovators, and of the 'Society for Research and Initiatives for Sustainable Technologies and Institutions' (SRISTI)²⁶. Finally, I recorded my conversation with Corinne Kumar, post-development thinker and feminist leader of the group Vimochana, based in Bangalore. Those encounters also contributed to the ideas exposed in the previous chapters.

The general details of data collection and access for each case are described in the following paragraphs.

Case 1: Grameen Shakti

In order to cover the perspective of 'poor as users/clients' I selected the case of the Bangladeshi social enterprise Grameen Shakti (GS). Grameen Shakti is a

²⁵ <http://www.nif.org.in/> (last accessed May 3, 2014)

²⁶ <http://www.sristi.org/> (last accessed May 3, 2014)

subsidiary of the well-known Grameen family of organizations grown around the Grameen Bank and founded by the Nobel laureate Muhammad Yunus. Grameen Shakti works in the field of renewable energy. Its primary mission is to provide clean and affordable energy to the poor living in rural areas of Bangladesh. I selected Grameen Shakti for three main reasons. The first relates to context. Despite bad economic performance since independence, Bangladesh shows better human development indicators than its powerful neighbour, India (Economist, 2012). This might be in part explained by the influential and powerful non-profit sector, composed of thousands of NGOs and civil society organizations. For this reason, Bangladesh represents a very interesting place to study the evolution and deployment of development discourse in the field. The second reason is the scale of operation exhibited by GS. Since their inception in 1996, Grameen Shakti has installed more than 1,300,000 photovoltaic solar systems, more than 700,000 improved cooking stoves, around 30,000 biogas plants and trained almost 50,000 people. Grameen Shakti has impacted a remarkable number of Bangladeshi and strongly influenced the perception of renewable energy at different levels in the country. The third aspect that convinced me to select Grameen Shakti as a case study was the commitment to innovation and technological experimentation. In order to achieve such a huge impact, Grameen Shakti draws on the development of innovative managerial skills and technological adaptation. In short, Grameen Shakti gathers all the elements characteristic of the discourse of innovation for development: technological and managerial innovations, impact on poverty, and ideological commitment to development.

In order to access the company, I applied to one of the internship positions that Grameen Shakti offers to foreign and national students every year²⁷. The internship is aimed at engaging students with Grameen Shakti activities. The interns are encouraged to take field trips to collect data for developing case studies. They are also invited to carry out 'assignments such as analysing a program, coming up with new or updated concepts/ programs'. I wrote a

²⁷ A complete description of the internship opportunities at Grameen Shakti is provided at: http://www.gshakti.org/index.php?option=com_content&view=article&id=55&Itemid=84 (last accessed January 11, 2014)

proposal that was accepted by the human resource department at Grameen Shakti and they invited me to spend at least one month at the Grameen Shakti headquarters in Dhaka. I spent five weeks in Bangladesh between October and November 2012. I divided the data collection activity into three parts. The first part was conducted at Grameen Shakti's headquarters in Dhaka where interviews were conducted with chief executives, project managers, human resources managers and engineers. Data were collected in this phase via semi-structured interviews, photography and internal documents. All interviews in Dhaka were carried out in English and verbatim transcribed. Then I visited Grameen Shakti's branches in the departments of Chittagong, Rajshahi and Natore. In this phase, all the interviews were carried out in Bangla by way of an accompanying interpreter and then translated into English. Finally, I accompanied Grameen Shakti personnel during their activities in the field. I observed Grameen Shakti's field worker activities, including SHS installations, promotion and sales, as well as Biogas demonstration and ICS technical services and repairs, complemented by interactions and discussions with users and their families. In total I visited 10 villages and had access to 22 families. During this third phase I did not follow any rigid scheme of interview. Since most of the interviewees were illiterate and not used at all to dealing with foreigners, special attention was given to embedding into the familiar environment of the Bangladesh villages. The conversations with the users were intermediated by the interpreter and the Grameen Shakti's technicians and focused on issues of the users' daily life, their expectations and aspirations. After some initial attempts, I realised that the fact that I was recording our conversations made people very uneasy. For this reason, as regards the interaction with Grameen Shakti clients, I preferred to take written notes instead. In order to reduce the bias introduced by the language barriers, the interviews were later verbatim transcribed by an independent person, native in Bangla, who was asked to double check the correct interpretation of the initial interpreter's real time translation.

Case 2: Mother Earth

The second case has been selected to cover the category of 'Poor as producers/co-producers/entrepreneurs'. The case describes the activity of the

Indian company Mother Earth (ME). Mother Earth is an Indian retail company based in Bangalore which specialises in the commercialisation of rural, artisanal Indian handicrafts. Founded in 2011 by an industrial designer, Mother Earth's mission is to valorise the vast richness of Indian traditional handicrafts through the creation of an urban retail market in which rural artisans can increase their sales. Mother Earth also aims to update the design of traditional handicrafts to attract the rising Indian young middle class. Moreover, in order to make the traditional techniques of production competitive in national and global markets, Mother Earth has introduced several managerial (positional) and technological innovations in the artisans' world e.g., the organisation of individual artisans in Self-Help Groups (SHG), the technological upgrade of traditional handlooms and the introduction of new materials and machinery.

I selected Mother Earth for three main reasons. Firstly, Mother Earth's mission, at least in their declared intentions, is to transform rural settings, leveraging on the entrepreneurial potential of the rural artisan. This narrative of transformative action to modify a reality (e.g., the Indian rural life of the local artisans) - one that is considered unproductive, inefficient, obsolete or sub-optimal - is a crucial element of the development discourse. The fact that Mother Earth represents a case in which a private entity is engaged in this kind of discourse, instead of a governmental or international agency represents a step change in the dominant discourse of development that in my opinion was worth researching. Secondly, Mother Earth is a relatively new company with a huge potential for expansion. This initial stage, I argued, might be very interesting in terms of analysing the motivations and the normative bases of Mother Earth's supporters. Thirdly, Mother Earth has introduced several technological, frugal innovations to improve the productivity of rural artisans, including the development of completely new materials like natural fibres extracted from banana trees and other local plants. For those reasons I thought that the case could provide important insights about how the discourses of rural development, entrepreneurship and frugal innovation to increase productivity are enacted in the field.

The access to Mother Earth was relatively easy. I was introduced to the Chief Operating Officer, Mr Piyush Deogirikar, by Prof Sourav Mukherji from the Indian Institute of Management of Bangalore (see case 4). Mr Deogirikar listened carefully to my proposal to follow the company over four months and kindly gave me free access to any information that might potentially interest me, with the exception of financial data. From September to December 2013 I visited Mother Earth weekly. I started shadowing for 2 weeks two of the production managers to have a basic understanding of the work at Mother Earth, and then I interviewed 18 members of the company. Finally I accompanied the supply chain manager on a field trip to visit a community of artisans in the state of Tamil Nadu. I spent one week with this group observing their activities and discussing these with the members. All the interviews were in English and verbatim transcribed.

Case 3: Indian Institute of Management and Enterprise Incubator

The third case is centred on an educational institution, the Indian Institute of Management in Bangalore (IIMB) and its business incubator, the 'N S Raghavan Centre for Entrepreneurial Learning' (NSRCEL). The BOP, the inclusive business models and the social enterprise narratives have gained momentum in Business Schools, such as IIM-B, that educate the elites in the developing world. As shown by Ferguson (1990), the discourse of development primarily originated within the institutions founded in the post-war era to foster economic growth in the underdeveloped world. As I have described in Chapter 2 the new formulations of development discourses embodied by the BOP narratives and the like have become increasingly popular in the academic communities in the developing world. The IIMB offers courses on Inclusive Business Models and Innovation management. The IIMB faculties maintain several professional contacts with the Indian industrial establishment and, at same time, have a valuable understanding of the development issues that faces the country. Moreover, the incubator of the NSRCEL encourages the creation of innovation-driven start-ups based on inclusion and social responsibility. For those reasons the IIMB offered a privileged perspective to understand how innovation for development is framed and constructed within an academic institution in the developing world.

I approached the IIMB through a research partnership program between the University of Exeter and the Institute. The University of Exeter funded my stay in Bangalore from August to December 2013. During this period I attended the modules on Inclusive Business models taught by Prof Sourav Mukherji and Strategic Innovation Management by Prof Rishi Krishnan. During the same period I also interviewed the faculty members of the IIMB involved in the NSRCEL activities. Through the NSRCEL I got in contact with some of the start-ups incubated within the centre. I selected among them those with a clear social vocation and interviewed the key persons. All the interviews were in English and verbatim transcribed.

Case 4: People's Science Movements

The last category - Countervailing dynamics based on Science & Technology emancipatory processes - is covered by the case of the People's Science Movements (PSM). The PSMs is a network of different social movements that has been active in India since the early 1960s. Its origins can be traced to the numerous educational groups working on the popularization of science in Indian local languages. The primary mission of those groups that initiated the PSMs was to emancipate the Indian people through the popularization of scientific thinking. Between the 1970s and the 1980s, the focus of many PSMs shifted towards the use of Science & Technology for reshaping Indian society, with particular attention to the transformation of the productive relations existing within the Indian industrial sectors. PSMs have conducted several experiments to upgrade the productive capacity of Indian marginalised rural and urban workers in several sectors. The underlying ideas behind those actions is that poverty and exclusion in the country is not due to institutional or technological underdevelopment, but to an unfair distribution of power between castes and the new social classes that emerged in the post-independence period. In this sense, the introduction of appropriate technology to upgrade the traditional productive activities of the poor Indian workers is aimed at reshaping the social relationships that marginalised them. The technological know-how to carry out this transformation is supposed to draw on a new kind of collaboration between the scientists and the poor. Instead of serving industry, PSMs activists argue, scientists should focus on improving the productivity of the lower layers of

Indian society. The PSMs are interesting for several reasons. Firstly, they are composed of a heterogeneous group of activists that come from academia, the public sector, civil society and even from the entrepreneurial world. Secondly, they stem from a counter-hegemonic desire to question the dominant discourse of development embodied in India by the policy of investing in large technological systems (e.g., big infrastructures, nuclear plants, industrial modernization) that characterises the post-independence period. For these reasons, I thought, the PSMs were a good case to understand how the opponents to the discourse of development have developed and conducted their strategy as a counter-hegemonic force.

My contacts with the PSMs activists start at the workshop 'New Models of Innovation for Development' held in Manchester between 4th and 5th of July 2013. In the workshop I approached Prof Dinesh Abrol. Dinesh, formerly a chief scientist of the National Institute of Science, Technology and Development Studies (NISTADS) and currently Professor at the Institute of Studies in Industrial Development (ISID) in Delhi, has been involved in the PSMs for several years. After this first meeting, I met Dinesh in Delhi on October 2013 where I visited him for one week, interviewing some of his colleagues at the Jamia Millia Islamia University. Dinesh then put me in contact with PSMs activists in Bangalore and Kerala. In the months of November and December 2013, I interviewed members of the PSM's of Karnataka and Kerala. Finally, I spent one week in the Integrated Rural Technology Centre²⁸ (IRTC) at Palakkad where I had a taste of the technological projects carried out by the PSM of Kerala. The majority of the data collected consists of semi-structured interviews recorded and verbatim transcribed. In the case of the Kerala PSM, I complemented the interviews with personal observations, videos, photographs and the material published by the Movement.

²⁸ <http://www.irtc.org.in/> (last accessed December 10, 2013)

Data analysis and writing up

The audio/video files containing the interviews were classified with a specific code to be used in the text to guarantee traceability of the data (and in some cases the anonymity of the informants) (see Appendix I for the list of interviews and the associated codes). The data collected were subsequently analysed with the aid of NVivo 9 software, which is widely used to analyse heterogeneous, qualitative datasets (Miles & Huberman, 2003). In the analysis of the data I followed a qualitative Grounded Theory approach based on the methods proposed by Gioia et al. (2012). Designed to demonstrate *rigor* in qualitative research, this approach is today generally accepted by an increasing community of organization and management scholars (Ibid.). Furthermore the method has been proved to be a fruitful and robust tool for theories validation and theories building (Corley & Gioia, 2011). As declared in Chapter 1, my primary audience is (critical) management scholars interested in innovation in resource-poor contexts. For this reason, I think that this approach would possibly increase the chances to disseminate my research in those academic circles. Furthermore, according to Miles & Huberman (2003), the grounded theory approach is widely accepted across many disciplines in social science and, I argue, is compatible with my theoretical focus on *discourses* and *narratives*. This gives me the possibility to speak to other communities such as Science & Technology and development scholars.

The analysis followed two main stages: the creation of a *data structure* and the discussion about the relationships existing between the theoretical dimensions that emerged from such a structure. The pivotal step in this approach is the building of a data structure. The data structure not only allowed me to configure my data into a sensible visual aid, it also provides a graphic representation of how I progressed from raw data to terms and themes when conducting the analyses (Corley & Gioia, 2004). In order to create the data structure, I started with an initial open data coding, maintaining the integrity of 1st-order (informant-centric) terms. As suggested by Miles & Huberman (2003), I performed an initial coding using a set of *a priori themes* extracted from my main research questions: how do the informants frame innovation? How do they frame their identity as innovators (being), their practices (doing) and how do they

communicate their frames (saying)? At a later stage, I included and/or removed in the codes list other categories that were emerging from the data until I reached a manageable number of codes (typically between 20 and 30). After this first step I performed a 2nd-order analysis based on the question: *is there some deeper structure in the 1st-order array?* In this phase I asked whether the 1st-order codes suggested concepts that might help me describe and explain the *narrative* of the informants. This step provided me with a list of 2nd-order (theory-centric) themes that were finally assembled into a number (typically 3 or 4) overarching theoretical dimensions. In this way I built a data structure that has two main functions. The first is to provide a visual synthesis of the analysis I carried out on the original data. The second is to provide the backbone to present a detailed account of this analysis in a *narrative fashion*. In each case study described in the remainder of the thesis, I present the *data structure* at the beginning of the chapter and then describe in depth in a narrative fashion the categories that emerged in the process of coding. The core of the case studies, thus, does not represent a *mere presentation of the data*, but it is the result of the analysis I performed, organised according to the themes described in the data structure. In Gioia et al's. (2012: 23) words:

'The intent of the Findings section is to narrate an informative story that is driving toward some new concept development and theoretical discovery with the careful presentation of evidence. This is one reason why the Findings sections of the articles are suffused with informant quotes—quotes that align with the exemplars shown in the data structure. The meta-message to the reader is, "this is what the informants told us. We're not making this stuff up." The reader should be able to see the data-to-theory connections in the form of linkages among the quotes in text, the 1st-order codes in the data structure, and their connection to the emergent 2nd-order concepts/themes and dimensions.'

In the *narration* of the case studies I decided to adopt different writing styles according to the different settings in which the data were collected. The difference in the writing styles also reflects the evolution and refinement of my engagement with the fieldwork. In the case of Grameem Shakti, my first prolonged contact with the field after the pilot conducted in Ecuador, I adopted an approach similar to what Van Maanen (1988) defines as a '*realist tale*'. In presenting the Grameem Shakti story I mainly draw on interview quotes and public documents provided by the company. In the case of Mother Earth, I engaged in a more *confessional* style (ibid.) in which I described in more detail

my activity of shadowing of the company's workers. The narrative style is thus the result of my refined awareness about 'field approach' after the first experiment of the Ecuadorian pilot and the longer period spent in Bangladesh. In the cases of the IIMB and the PSMs, I mixed the ethnographic writing styles used in the two previous cases with a more historical focus. In both cases, indeed, I focused on a selected group of informants (IIMB faculties and PSMs activists) and I situated the information they provided within the broader historical context of post-independent India with a particular attention to the evolution of the discourse of Science and Technology in the subcontinent. The result is a combination of four narrative styles that, I hope, testifies and reflects the complexity of my research journey in the text.

Finally, at the end of each case study, I present a synthesis of the overarching *narrative of innovation* and development that emerges from the informants. The syntheses are presented according to the approach to *narrative analysis* described at the end of section 3.1. I adapted the interpretative process for narrative analysis proposed by Entman (1993), focusing on four categories that, I argue, can disclose insights regarding the *direction* of the innovation vector in each case: *i) the role of the poor in the process of socio/technical change; ii) the normative stances and goals that guide the practitioners; iii) the innovations implemented; iv) the expected outcomes of the innovation process*. At the end of each empirical chapter, those categories are critically discussed and compared, when possible, to the extant literature I have presented in chapters 2 and 3. Those syntheses are then assembled and compared with each other in the final discussion (Chapter 9). Following the synthesis of the narratives, I critically discuss -referring back to the literature and, when possible, to the other cases- the connections that exist between the major theoretical dimensions that emerged through the analysis. The themes discussed in this final section in each chapter are then critically re-elaborated in the conclusions chapter.

Table 2 Summary of methods used in the case study

Case	Data collected
Grameen Shakti	<ul style="list-style-type: none"> • 7 Semi-structured interviews with GS executives • 6 Semi-structured interviews with GS engineers • 4 Semi-structured interviews with GS branch managers • 2 Video semi-structured interviews • Observations of group meetings, SHS installations, promotion activities, instalments collections, repair services (field notes), photos, videos • Internal documents, dissemination material
Mother Earth	<ul style="list-style-type: none"> • 2 Semi-structured interviews with ME executives • 13 Semi-structured interviews with production managers, designers, change supply managers • Shadowing field notes, non-participant observation, photos, videos • Internal documents and case studies
IIMB/NSRCEL	<ul style="list-style-type: none"> • 10 Semi-structured interviews with IIMB-NSRCEL faculties • 6 Semi-structured interviews with start-ups entrepreneurs
PSMs	<ul style="list-style-type: none"> • 9 Semi-structured interviews • non-participant observation, dissemination material, case studies, photos, videos
Complementary data	<ul style="list-style-type: none"> • 4 Semi-structured interviews with the NIF members • (4+3) Audio/video semi-structured interviews with Ecuadorian frugal innovators (pilot study) • 1 semi-structured with Corinne Kumar director of Vimochana

4.3 ETHICAL CONSIDERATIONS

Conducting research in cross-cultural contexts can involve major ethical issues. Conflicts and frictions can arise due to differences in sociocultural norms and realities, different understandings of research ethics and principles across culture and societies (Appadurai, 2000). A researcher who wishes to conduct an ethical research journey in cross-cultural contexts cannot be exempt from considering how respect is shown in other cultural settings and how research consent is perceived in those contexts (Honan et al., 2013). Furthermore, approaching non-western environments not only implies getting in contact with people who belong to different cultures but also the discovery of different epistemologies, different ways to interpret and perceive the world that require a good dose of humility from the side of the researcher in order for he or she to be assimilated and accepted (L. T. Smith, 2002). Before approaching the field, my research proposal was reviewed and approved by the Ethical Committee of the University of Exeter. My proposal was developed according to the principles declared in the University of Exeter Ethics Policy (2012) the Association of Business School (ABS, 2007) and the code of ethics of the Academy of Management (AOM, 2006). Bearing in mind the issues mentioned above, in this research I focused on four major areas: informed consent, the role of participants, the field work, and data handling.

In approaching the informants I decided to be completely transparent about the aims of my research and my role as a researcher in the field. Before approaching those in the field in the four cases I provided a short written overview of my background and my research proposal. In the case of Grameen Shakti I was explicitly required to provide a detailed proposal about my research and the potential impact on the activity of the company. In the case of the IIM-B, I was required to provide a detailed description of my scientific background together with a research plan. The proposal was also reviewed and approved by the Indian Ministry of Education and Science before delivering my research visa. In all the cases, I was required on different occasions to provide a short overview of my research by email. I faced no particular issues in gaining personal consent to record voice or video. However, I decided to not ask for a

signed informed consent. Although a signature might be important to safeguard informants and researchers, in some cultural contexts it can be quite problematic (Wiles et al., 2005). When I first approached participants in the field, I realised that they were very reluctant to sign an informed consent form. As a consequence, I opted for a verbal consent: at the beginning of any interview I briefly stated the reasons and main objectives of my research and I then explicitly asked for consent to record the interview. I also allowed them to cancel their consent at any moment they wished. At the end of any interview, I invited the participants to ask questions about my research. In many cases, these off-the-record conversations were crucial to gaining confidence and building up trust. The active role of the participants and their willingness to contribute to the research is always crucial for grasping insights in a cross-cultural environment (Marshall & Batten, 2004). For this reason, I tried to engage some key informants in some of the aspects of my research through informal social meetings i.e. social, dinner, coffee breaks. Getting information from the informants in the field always involves an asymmetric situation as regards the benefits of the data produced. Despite an increasing interest and attention to guarantee ethical standards in academic research, according to Bell & Bryman (2007) very few efforts have been dedicated to achieve reciprocity i.e., a condition of mutual benefit from the activity of research. In order to address this issue at least in one specific case, (GS), I was required to give a presentation about the preliminary results of my field work in which I was asked to provide suggestions and comments with regards to the activities of the company. I also contributed to presentations and reports for Grameen Shakti drawing on my engineering background. Furthermore, I always encouraged the informants to ask questions about my research, discuss my ideas, read my writings and send me feedback. In the other cases, I kept a stricter relationship with some key participants, exchanging documents and ideas as the research progressed.

As regards the access to rural areas and contact with stakeholders, I had to be careful to adopt appropriate behaviour to minimise the issues that may be caused by cultural differences. In the Grameen Shakti case, in particular, I ensured that I spent enough time with Grameen's personnel before being

engaged in the research activities. This preparation period was crucial to introduce myself to the company's philosophy and to acquire a minimum understanding of the social and political setting of rural Bangladesh. Since Bangladesh is mostly a Muslim country, I was suggested to pay a special attention to some religious aspects such as dress code and gender issues. In Bangladesh, on all occasions, an interpreter was present during my field trips. He was in charge of explaining my presence and my work to the participants. During these activities I was suggested to approach first the male members of the family and then to ask the permission to address women. However, since my main focus was on Grameen Shakti personnel rather than the villagers, those gender barriers did not really affect my data collection. I had total freedom, indeed, to interview the female engineers in the Grameen Technology Centres and female employees in the Grameen headquarter in Dhaka. With regards the Indian cases, similar to the Grameen case, as my main focus was on middle-class people (e.g. IIMB Faculties, People Science activists and Mother Earth employees) I did not come across major gender issues. Finally, the issues of data storing and processing are also a major concern. The integrity and clarity in data storage and presentation is absolutely crucial (ABS, 2007; AOM, 2006; *University of Exeter Ethics Policy*, 2012). To this end, all the data were documented and stored systematically. All the original recordings and their transcriptions were managed anonymously in compliance with Data Protection Law, and respect for privacy and confidentiality.

CONCLUSION

In this chapter I introduced the reader to my personal research journey. I shared the personal path that brought me from an apolitical and positivistic approach to research to the more complex and reflexive perspective that eventually guided my fieldwork. Then I argued that qualitative methods are usually preferred to research the BOP context. As a consequence, I based my research strategy on a mix of ethnographic methods that consists of non-participant observation and semi-structured interviews, supported by the analysis of internal/public documents and audio-video material. Furthermore, I declared the boundaries of my research project and the unit of analysis: *the actors in non-western environments that reinterpret and enact the discourse of innovation for*

development, their framings and narratives and their practices. In order to cover the diversity that emerges from the literature, in particular the categories that emerged in Chapter 2 and described in Table 1, I decided to adopt a multi-case study method. The cases were selected according to the principle of *information-oriented selection* and *maximum variation strategy* to include at least the most relevant narratives of innovation for development described in Table 1. The cases embrace four different narratives embedded in turn in four communities of practitioners: *the poor as consumers, the poor as co-producers of innovation, the tales of Inclusive Business Models and tale of Science & Technology as an emancipatory process promoted by countervailing social movements.* In the chapter I described how I gained access to these communities and the approach I used to analysed the data I collected in the field: a qualitative Grounded Theory approach. The following chapters tell the stories of my encounters with those communities.

RENEWABLE ENERGY CLIENTS: THE TALE OF THE POOR AS INNOVATION USERS²⁹

5.1 RESEARCH SETTING OF CASE STUDY

“The river erodes one bank and builds another. That’s the play of the river.”

— Bangladeshi proverb

A recent article appearing in *The Economist* depicts Bangladesh as a country with a “dysfunctional politics and a stunted private sector” but with surprisingly good development indicators when compared with its neighbours (*Economist*, 2012). Bangladeshis, indeed, have a life expectancy four years longer than Indians, despite the Indian being, on average, twice as rich. India has grown at a remarkable 8% a year for most of the past 20 years, while Bangladesh GDP has been growing at a more modest 5%. The percentage of the population living under the poverty line (i.e., less than \$2 per day) has dropped from 49% of total population in 2000 to 32% in 2010. From 1990 to 2010, Bangladesh has also been doing incredibly well in reducing child mortality by two-thirds and maternal mortality by three-quarters (*World Bank*, 2013). The Indian Union Minister for Rural Development, Jairam Ramesh, wrote in *The Hindu* on September 2012: “what Bangladesh’s experience shows is that we don’t have to wait for that high economic growth to trigger social transformations. Robust

²⁹ An earlier version of this chapter is in press in the journal *Technology Forecasting and Social Change* (see Appendix II).

grassroots institutions can achieve much that money can't buy" (Ramesh, 2012). The country has a long history of non-governmental groups, professional associations and missionary groups, but only recently has become famous for its extensive development NGO sector (Lewis, 2011). In contrast to many other less developed countries, where foreign agencies dominate the scene, the non-governmental sector in Bangladesh today is led by huge organizations like the Bangladesh Rural Advancement Committee (BRAC) and Grameen Bank (GB), with a strongly indigenous character. Those organizations, which are comparable in size and influence to government departments, cover a wide range of activities from micro-credit to health care and education. For these reasons, I think Bangladesh is a privileged place to study how new ways of framing the relationships between the informal and formal sectors, private and public institutions, state and civil society emerge. It is also, I argue, an interesting place to observe how the discourse of innovation for development emerges and evolves.

5.2 THE CASE OF GRAMEEN SHAKTI

In order to cover the perspective of '*poor as users/clients*', I selected the case of the Bangladeshi social enterprise Grameen Shakti. In my previous job in Bolivia, I experienced the difficulties of carrying out rural electrification programmes in a contexts affected by harsh environmental conditions and very complex social and institutional settings (see also Pansera (2012, 2013)). In this sense, before entering the field, I was very curious to find out if Grameen Shakti had succeeded where other programmes in Latin America had, at least partially, failed. Today Grameen Shakti is a branch of the more famous Grameen Bank and is configured as a social business dedicated to the innovation and diffusion of renewable energy technology for rural Bangladesh. Grameen Shakti was founded to develop innovative solutions for providing energy to the rural poor in Bangladesh. Power supply in these settings is a serious issue. It is estimated that by 2011 only 44% of the rural and urban population had been connected to electricity (Mondal, Denich, & Mezher, 2012). In order to address 'energy poverty', Grameen Shakti has designed a very successful program of Solar Home Systems (SHS), a promising technology to produce biogas and a popular

programme of Improved Cooking Stoves (ICS). By the beginning of 2013 Grameen Shakti claimed to have installed more than 1 million SHS across the country (Grameen Shakti, 2013; Sovacool & Drupady, 2011). Grameen Shakti's second star product is the ICS, an adapted version of a traditional cooking stove that drastically improves fuel efficiency. Another important innovation is biogas plants installation: Grameen Shakti has developed a biogas technology that can be used to transform organic wastes into biogas, fertiliser or slurry (internal document (Kamal, 2012)).

Grameen Shakti started in the early 1990s as a spin-off of the well-known and successful Grameen Bank. The bank's personnel in the field realised that business and productive activities in the rural zones were seriously hampered by the lack of affordable and stable energy sources (Yunus, 1998). A complete coverage of the country with a proper energy supply system has been always perceived as an unachievable fantasy for two main reasons. Firstly, the productive capacity of Bangladesh is extremely limited. The country is not rich in natural energy resources and the endemic lack of financial capital prevents the necessary investment in new and more modern plants to assure a stable energy production (Mondal et al., 2012). Even in Dhaka, the capital, electricity is intermittent and blackouts are very frequent. Moreover, the grid infrastructure is inadequate and the coordination of the production plants is far from efficient. Secondly, Bangladesh is a country covered by water over about 40% of its surface. This proportion is even higher during the monsoon season. The Ganges and Brahmaputra rivers with their feeders every year sweep away arable land and create new patches of highly fertile ground in a process of continuous erosion and sedimentation (Lewis, 2011). In addition, villages are scattered over a vast territory where dense urban clusters are rare and many places are almost unreachable during the rainy season. All these factors challenge the deployment of a standard grid for power supply. The state is not able to address the overwhelming demand and the private sector is not attracted to supplying sectors inhabited by extremely poor people who can hardly pay back, through the electricity bill, the cost of a very expensive infrastructure.

Grameen Bank, thus, started experimenting with solar panels, a practical off-the-grid solution. But PV technology is expensive, too expensive for rural people. In order to overcome this issue, in June 1996 they founded Grameen Shakti, which in Bangla translates as '*village energy*'. Grameen Shakti set up its first demonstration point with a 17W PV system and two lamps in a Grameen Bank branch and a second one in the house of a borrower from the bank nearby (Wimmer, 2012). The first barrier was the prohibitive price of the solar panels, approximately 13,000 Taka (US\$ 317) for a 17W panel in 1996. When one considers that the average income of rural people was about 30,000 Taka (about US\$ 380) a year, PV technology was an unreachable luxury. Grameen Shakti rooted its strategy in the Grameen Bank business model and managed to set up an effective *micro-credit scheme* that turned the original non-profit company into a financially sustainable social enterprise within 4 years of its foundation. At the core of the Grameen Shakti business is a micro-credit mechanism that allows the repayment of a Solar Home System, an Improved Cooking Stove or a Biogas plant over two or three years of monthly instalments. Since 2001, Grameen Shakti has marketed its products in various configurations called *packages*. A package is a specific combination of components like PV panels and lamps combined with a repayment scheme. Packages are designed to address the huge diversity of Grameen Shakti clients and their differing capacity to pay. Today Grameen Shakti offers 14 packages for rural SHS that range between a 10W panel, 2/3 LED light or a 5 watt CFL, a 18AH battery, a charge controller and a frame and cables (9,800 Taka or US\$ 124) and a 135 watt panel, 11 x 7 watt CFL, a 100AH deep discharge battery, a charge controller, and frame and cables (72,900 Taka or US\$ 922). The SHS can be paid according to six options (see Table 3). Similar schemes are applied to Biogas plants and ICS. In order to decrease the number of visits to clients to collect the monthly instalments (and consequently the operational costs), Grameen Shakti is currently developing a mobile payment application to allow the customers to pay with their mobile phone.

The vast majority of Grameen Shakti's clients (90% in 2012) earn on average between 5,000 and 10,000 Taka (US\$ 60 - US\$ 120) a month. They spend around 300 Taka a month for a kerosene dry cell battery or battery charge.

Users can pay a monthly instalment of 669 Taka (US\$ 8) over 3 years, which implies a double cost for energy, but for the next 20 years they will enjoy an almost free source of power.

Table 3: Grameen Shakti's Present Credit Scheme Based on (Barua, 2001; Kamal, 2012)

Down payment	Monthly Instalments	Service Charge
35%	12	5%
25%	24	6%
15% down payment, monthly instalment with Service Charge	36	8%
10% down payment for micro utility system of 20, 40 or 50 Wp	36	5%
25%	12	No Service Charge for worship places
100% cash payment 4% discount on the package price	-	-

Data collection and analysis

As described in Chapter 4, the field work was carried out in Bangladesh during 5 consecutive weeks between October and November 2012 (for more details see Chapter 4). As described at the end of section 4.2 (Data analysis and writing up), I constructed the interviews and then performed an initial coding for data analysis using a set of *a priori themes* extracted from my original research questions: *how do the informants in Grameen Shakti frame innovation? How do they frame their identity as innovators or change makers in rural Bangladesh (being), their practices (doing) and how do they communicate their frames (saying)?*

The first order codes were then grouped in 9 thematic second order constructs that emerged from the triangulation of the interviews, observational data and documents (see Figure 5 for a detailed list of the first and second order codes). Finally, the themes were aggregated into 4 aggregate theoretical dimensions:

i.e. *process of creating Resource-Constrained Innovation (RCI), the 'green' narrative, working institutional weaknesses and creating social value.* The following sections discuss in details those four dimensions.

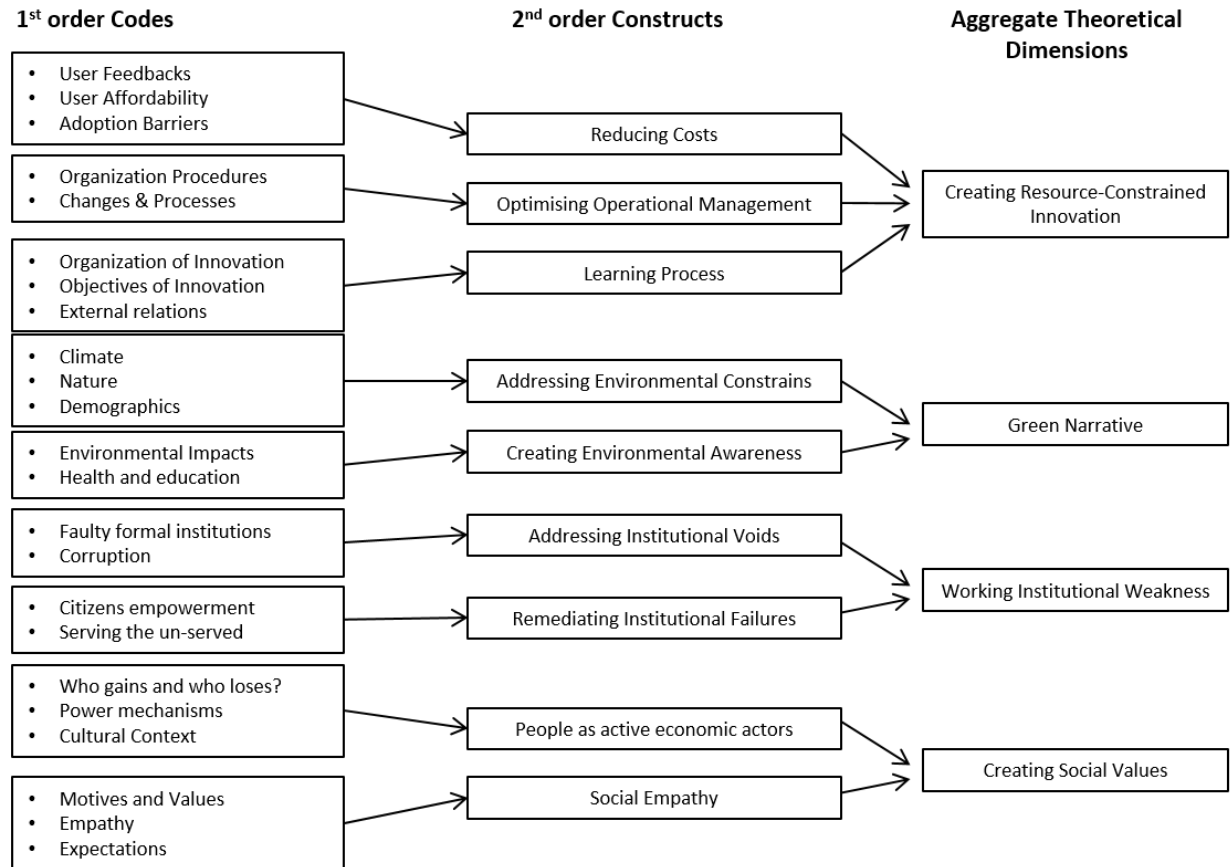


Figure 5 Grameen Shakti Case: Analytical coding process to induce theoretical dimensions

Creating Resource-Constrained Innovation

When I entered the Grameen Shakti headquarters in Dhaka for the first time, the person they assigned me was to show me the main products they produce and deliver. Despite the huge operational scale of Grameen Shakti, the technological artefacts they use are all essentially low-tech. SHS components are simple and robust and the ICS resembles the stoves I had seen in the villages. Even the internet connection in the Grameen Shakti offices is slow and intermittent. As a consequence, the discourse of innovation in Grameen Shakti is essentially constructed around *resource scarcity*. According to the Grameen Shakti managers, the innovation process within the organization continues to be mainly driven by financial and human resource scarcity. To

overcome those constraints, Grameen Shakti has adopted three strategies (see Figure 5): (i) cost reduction of final products, (ii) cost reduction of services through the optimisation of operational activities and service innovation in the field and (iii) a process of learning that comes directly from the field. With no effective R&D department, innovation at Grameen Shakti is not planned but springs rather as a spontaneous, non-linear process of bricolage; it is problem rather than consumption driven. As a Grameen Shakti project development expert in Dhaka stated:

Grameen Shakti has a R&D department, but it seems it is in sleep mode. There is no particular division. [...] You cannot find the systemic R&D here. Everything is like more grassroots. [GS-M-SN]

Hence, R&D in Grameen Shakti is a tacit, informal process based more on a process of trial and error that occurs at the boundaries between the company and the surrounding environment. In Bangla there is no proper translation of the English word 'innovation'. My field interpreter adopted the word '*unniti*', which can be roughly translated as '*change for good*'. As a consequence, the meaning of innovation in that context assumes a wider connotation that includes not only technological improvement but also more normative aspects. The *meaning* and *direction* of technical change in Bangla has to have a positive implication in the lives of those who adopt it. This is reflected in the different perceptions the Grameen Shakti employees have about the company's main innovations. A Regional Manager described the most important innovation of Grameen Shakti as follows:

Solar [home systems] has been the biggest innovation for Grameen Shakti, as people in remote areas could not study and do their works due to absence of electricity. [GS-M-OI]

A similar statement was very common among the senior staff at the company. The Grameen Shakti General Manager stated:

The real innovation of Grameen Shakti is to give very poor people the taste of light. Those people now have a better life and can improve their business. In the dark you can't walk or work. Grameen in Bangla means village. The intuition of Pr. Yunus was to invest in the poor conquering their trust. [GS-M-SMS]

In contrast, Grameen Shakti employees in the field appeared to have different priorities, privileging operational aspects:

We always provide after sales service. When a client reports a problem with the system, we immediately go over and solve the problem. So, we have been successful because our service is better than our competitors. (Field workers' focus group) [GS-F-FG]

A clear example of this mismatch is the case of the charge controller of the SHS. Apart from the photovoltaic cells, the core of a SHS is the charge controller, which is an electronic board that controls the charge of the battery. If the battery is over/under charged, its capacity to deliver a stable and continuous flow of current decreases dramatically and, consequently, its efficiency and time-life shrinks. The charge controller is also the most delicate part of a SHS and the most susceptible to break down. **Error! Reference source not found.** shows the evolution of GS-made charge controllers from a very basic design (right side) to a more sophisticated one (left side). The new charger is more efficient but at the same time more susceptible to malfunctioning. In the field, I collected many complaints about the new version from the Grameen Shakti field workers. They argued that the previous model, although less sophisticated, was much more robust and easy to repair.

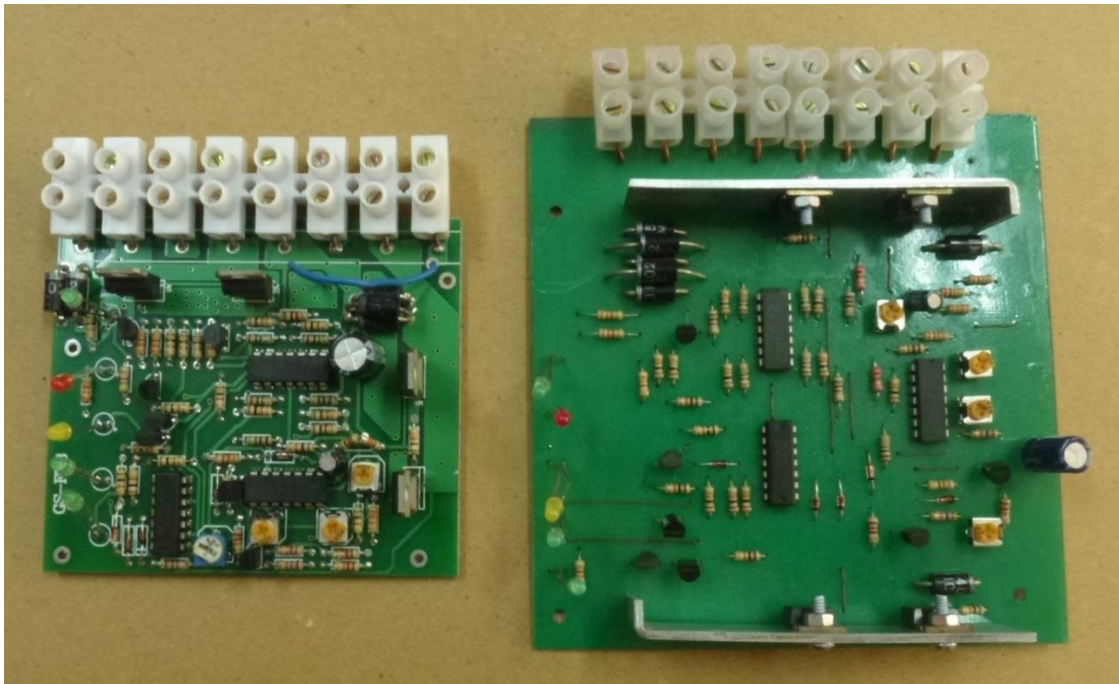


Figure 6 Grameen Shakti charge controller

Those perspectives also reflect the challenge Grameen Shakti has to face to make its business model profitable and scalable. The innovation process in Grameen Shakti, at least in the initial stage, was driven by three factors: (i) the social need to provide affordable solutions, leveraging with external providers to reduce product costs;(ii) to furnish an extremely flexible, quick and cheap after sales service, leveraging on existing Grameen Bank networks and (iii) further leveraging of a public system of incentives for rural electrification. The first challenge was addressed by redesigning existing technologies in a novel, frugal fashion and designing an innovative financial instrument that matches the limited income of rural people (i.e. micro – financing). The frugal re-design of pre-existing technology such as solar panels, biogas or traditional cooking stoves draws on *deskilling processes*, using local materials and local providers. Only the solar panel and the LED light bulbs are imported from abroad, with all remaining components being locally produced and assembled. Even the most complex component of the SHS, the charger controller, is designed to be easily repaired by local technicians that work in the Grameen Technology Centres (GTCs). The price is also kept low by the successful negotiation of good deals with those international providers of solar panels that often find it very useful to associate their brand to social business initiatives like Grameen Shakti. The scale of the activity and the *caché* of the Grameen brand have successfully convinced corporations within the solar industry to accept lower prices for their products. Two examples of those linkages are the collaboration with the Japanese photovoltaic panel manufacturer Kyocera³⁰, the Indian BP-Solar and

³⁰ Grameen Shakti managers maintain personal contacts with Kyocera and BP-Solar personnel. Kyocera provided the first order of solar panels at the beginning of GS's activities. More information about GS-Kyocera links is available at:

<http://solareamerica.com/wordpress/wp-content/uploads/2010/06/Kyocera-Solar-Energy.pdf> (last accessed March 2, 2013)

and the company CSR reports are available at: <http://global.kyocera.com/ecology/catalog.html> (last accessed March 2, 2013)

Kyocera and BP-Solar are also a recommended provider by the Infrastructure Development Company Limited (IDCOL), the state-owned company that funds rural electrification projects in Bangladesh:

http://www.idcol.org/Download/Approved%20Regular%20SHS%20equipments_%2066th.pdf (last accessed March 2, 2013)

the Indian branch of Schneider³¹. Those relationships are a recurrent theme in the interviews. In the words of a Grameen Shakti's project manager:

When we sell a system, for example, if it is an 8,800 tk system to sell, the actual price is not like that. We have a very good relationship with buyers, suppliers within the industry. So, we get all the accessories at a very cheaper rate compared to the other companies in the country. For example, the panels that we buy are just \$1.02/WP. This price is unbelievable in the country. You won't find any other organization can buy the panels at this rate. Because of Grameen Shakti, because of Professor Yunus, we get this offer. So, we can sell the systems to the community at a cheaper rate as well. If you go to other organizations, you will find the same system is not 8,800 tk. It will be like 14,000 tk. Because they cannot offer you a lower price. They have no option. Since we purchase at low cost, we can sell at low price as well. At the same time, when we determine the price, we keep a marginal profit already. For example, the 8,800 tk system cost us like 4,500 tk. [GS-M-SN]

The second challenge of providing an efficient after sales service to customers scattered across the country (and often in remote areas), has been addressed by exploiting the existing Grameen Bank diffusion in the territory (e.g., 90% of Grameen Shakti managers come from Grameen Bank). To this end an engineer at the headquarters in Dhaka stated:

Grameen Shakti is well known for its customer services. There are no major technical faults of the systems, and we provide substitute charge controllers to the users when they are faulty until we have fixed the faulty product. There are 46 GTCs all over Bangladesh, and the GTCs repair the faulty controllers and systems within a very short time. [GS-E-FM]

In the interviews, when asked about the process of seeking new technical solutions, Grameen Shakti people particularly emphasised a *silent informal process* based on a dynamic of trial and error that occurs at the boundaries between the company and the surrounding environment. A recurrent discourse, supported by my personal observations, is that most of the ideas stem from the field. By focusing on the field they come up with innovative ideas like new chargers for mobile phones that can be easily fixed *in situ* and are robust enough to survive in the harsh conditions of rural Bangladesh. As in many parts of Africa, where nobody owns a landline but everyone has a mobile phone, in

³¹ Schneider provides a huge gammet of electronic products. They have a special program called 'Access to energy' designed to provide energy to the BOP (more details at: <http://www.schneider-electric.com/solutions/ww/en/seg/26880986-access-to-energy/26880996-access-to-energy> (last accessed March 2, 2013))

rural Bangladesh mobile communications are crucial. Thanks to favourable economies of scale, the telecom companies are able to offer extremely affordable fees. As a consequence text messages are almost free (around 2Tk with Grameen Telecom). Text messages in Bangladesh are used for any sort of application from market prices information to health care. Even in the more remote villages mobiles are vital. In the villages I visited I saw many Grameen Shakti customers selling the energy produced by their SHS to recharge the batteries of the mobile phones of the entire community. Grameen Shakti engineers, thus, developed a simple and robust mobile charger that perfectly fits for the local requirements. Furthermore, the diffusion of mobile telecoms among the Grameen Shakti clients is likely to reduce the operational cost of the company that is currently very high due to the huge deployment of field workers. In order to decrease the number of visits to the clients to collect the monthly instalments, in fact, Grameen Shakti is developing a mobile payment application to allow the customers to pay with their phone.

In the case of biogas plants and ICS, the service activity does not require special instruments and expertise and it is usually carried out directly in the field. The Grameen Shakti network in the rural areas also allows the testing and deployment of new solutions very quickly. The Grameen Shakti human resource director stated:

The logic is that as we have created a huge network all over the country, with 1,300 offices, we can introduce any new product and start disseminating it in the rural communities. When we started with solar, we thought of introducing biogas and ICS because we had the network, customers, and a good reputation. The top management chose and decided to give a new technology for Bangladesh. The result is a reduced price of the system and an affordable after sales system for the users. [GS-M-FR]

Creating such a network required a long and painful journey and an intricate learning process. The fact that many field workers share the same conditions as their customers – the Grameen Shakti branches I visited in the field were very frugal and the living conditions of the workers I met are not very far from those of their clients - certainly helped to elaborate an effective field strategy, but in many cases the technological know-how needed to be imported from outside the company or created from scratch. In the case of biogas, the initial know-how

was introduced by local consultants who were trained in China. China has been experimenting with biogas plants in the rural zones since the 1970s (Chen, Yang, Sweeney, & Feng, 2010). During the same period the Chinese government encouraged the adoption of household digesters amongst its neighbours. This was the experience of one of the consultants that is currently working for Grameen Shakti:

I was first introduced the Chinese model in 1992 and it was working very well. I learned from a man who went to China to learn about technology. I started disseminating the technology in Bangladesh and in 1994 I also visited China for training [...]. I received training for 2 months at a Chinese government-training centre [...]. Then 2 projects started with my initiative, and 28,000 plants were constructed. In Bangladesh it will continue to progress further. [GS-EAG]

The efficiency of the biogas plants has been increased over time by incremental improvements. The first model had many problems, being expensive, inefficient and with significant gas losses. The plant that Grameen Shakti currently installs is in contrast a highly efficient concrete construction that is able to maintain the gas pressure at a constant level and produces good quality manure. This model was developed by Grameen Shakti consultants who had been experimenting for months on the roof of their houses. They ended up with a cheaper plant that does not lose gas and guarantees 6 hours of cooking a day. Despite its relatively high price (between 25,000 Taka and 35,000 Taka that are between US\$ 300 and US\$ 450), biogas plants are diffusing quickly among small farmers. The potential for further expansion is promising. National dairy companies like PRAN, have already installed biogas plants in their farms with good results. In my journey I visited one of the PRAN farms nearby Natore and video-interviewed the manager [video-interview GS-FV-PRAN]. In 2011, the farm purchased a biogas digester to process the waste from their cattle. They managed to build a network of local clients to sell the surplus gas produced by the plant while the slurry produced is sold as fish feed for a local fishery farm.

Finally, the Grameen Shakti operational costs are reduced by leveraging the public system of incentives for rural electrification programs promoted by the Infrastructure Development Company Development (IDCOL) (IDCOL, 2013). IDCOL is a non-bank, financial institution leader in private sector energy and infrastructure financing in Bangladesh. IDCOL delivers loans that are payable in

8 years at a very convenient interest rate. Grameen Shakti business consists of borrowing money from IDCOL³² to cover the material and operational costs and recovering the money from clients within 2 or 3 years. In the words of one of Grameen Shakti managers:

[Biogas plants] need support, which comes from a government organization called IDCOL. The support comes from SNV, KFW that provides subsidy to the government. Thus IDCOL gives Tk. 9,000 for each biogas plant, under the national Biogas Program. This program is limited from 1.6 to 4.8 cubic meters. The small entrepreneurs have to become members of IDCOL because without being channelized through IDCOL they will not receive any subsidy or grants. They are dependent and therefore cannot develop new items on their own. [GS-M-DI]

IDCOL also manages the project of rural electrification, leveraging different kinds of foreign financial support³³ (i.e. World Bank, IFM). In this way a Grameen Shakti manager describes the relationship between the company and IDCOL:

For each installation, we are getting loan from IDCOL, the loan is payable in 8 years. But, we get this money back from the clients in 2-3 years or even in a year or instantly. What we do is we revolve the money in the business. We get the money once, but we revolve it twice, at least two times. And, for each installation, we have some subsidy from IDCOL as well for SHS or biogas. There are some slabs of subsidy. From 0-200,000 system installation, you will get certain amount of subsidy amount and so on. Now, we have installed like more than 954,000. We are now in a position that we will be getting any subsidy after 2014. So the government does not have the access to the rural village and so thus Grameen Shakti fits in. Government uses Grameen Shakti as a media. And, Grameen Shakti has a brand name of Grameen and Professor Yunus and a huge network in the rural areas; it can disseminate renewable energy technology very quickly. At present, its' monthly instalment rate is about 22,000 SHS, 500 Biogas, 18,000 ICS. It's a huge achievement. No other organization can do it. [GS-M-SN]

Those strategies allow Grameen Shakti to deliver solutions that are affordable for the final clients, robust enough to cope with the environmental specificities of rural Bangladesh and profitable for the company. However, despite the efforts

³² More details about the support to renewable energy programs are available at:

<http://www.idcol.org/energyProject.php> (last accessed March 2, 2013)

³³ The World Bank, for example, directly supports rural electrification programs in Bangladesh through IDCOL. More details available at: <http://www.worldbank.org/projects/P107906/bangladesh-idcol-solar-home-systems-project?lang=en> (last accessed March 2, 2013)

to reduce the price of the products and to provide alternative funding schemas, products like SHS still do not reach the poorest Bangladeshi. This is a recurrent theme among the informants, especially the managers. Here are some examples:

A biogas plant with a capacity of about 3 m costs around Tk. 30,000, and therefore it is not feasible for a small farmer [...] Currently the Solar PV systems are very expensive, so if some improvements are made on the reduction of the costs of solar panels, and reduction of the battery costs, then Grameen Shakti will be able to disseminate these at a more reduced price. [GS-M-DI]

The price of the SHS is still very high and people are therefore still not very interested to purchase the system. [GS-E-FM]

What I observed in the field is that biogas plants and the SHSs are usually purchased by those who are relatively rich or privileged in the village. To overcome those issues in the future Grameen Shakti has two strategies. One is to leverage the scale of sales to provide subsidised prices for those who still cannot afford to pay the monthly instalments of a standard SHS. The second is to reduce the price through technological improvements i.e. develop village mini-grids to sell the energy instead of the systems, reduce the cost of the batteries and other components by setting up local production units *in situ*. However, the price of the most onerous component, the photovoltaic panel, does not depend on internal factors but on international markets. A substantial drop in the panels' price really depends on the foreign manufacturers, a variable that Grameen Shakti cannot control.

The green narrative

Grameen Shakti's *green narrative* draws on two elements: the need to overcome the '*environmental constraints*' that affect the rural areas and the desire to create '*environmental awareness*' (see Figure 5).

The Bangladeshi environment is generous and provides abundant food but it is ecologically fragile and unstable. Water beats the rhythm of Bangladeshi lives. It blesses the land with fertile silt, but it is also hit with the bold violence of the monsoon. Bangladesh lies on a delta formed by the rivers Ganges and Brahmaputra that channel the water flowing from the Himalayas (van Schendel,

2010). Every year periodic floods erode the soil, destroying arable areas and accumulating sediment to create new land. The new land is up to 90% more fertile than before (Lewis, 2011). Those new portions of land, often seasonal islands, are known as *chars*. Although the exact number is unknown, between 200,000 and 500,000 people are believed to live permanently on the chars (Wimmer, 2012). This natural, precarious equilibrium makes the life of the chars' dwellers extremely insecure and unstable. Many people are forced to move every year due to the floods. The instability has increased since the construction of the Farakka Dam on the Padma River on the border with India. According to the Grameen Shakti workers of Rajshahi, the dry seasons are getting drier and the raining seasons are getting more destructive, due to the fact that the Indians close the dam in the winter and are compelled to open the gates during the monsoon. As a consequence, the higher speed of the water is the cause of the increasing erosion of the banks of the rivers. The Padma is the source of the wealth and the misery of thousands of chars' inhabitants. Despite the harsh living conditions, people struggle for the fertile land of the chars. A Grameen Shakti field worker tells:

The river is changing its position as the banks are destroyed and the soil keeps moving. About 500 metres of land are being shifted every year in this process. For example, according to the local people, the Padma River was used to locate about 2-3 km away from Pabna city. Now, the same stream can be found at least 14 to 16 km away. As a result, Pabna has not been developed in the way it was supposed to. That's why people name Padma as 'Sharbanasha' (the destroyer). [...] However, the land is very fertile. People fight for the land. They keep guns with them, they kill each other. This is one of the dangerous places in Bangladesh. [GS-F-CS]

Public infrastructures in the chars are virtually absent. Roads and paths are continuously swept away by the water and deploying a proper energy supply network would be a challenge even for the most cutting-edge Western technology. By contrast, Grameen Shakti sales in the chars are soaring. The Rajshahi field work team knows the local market very well:

There is no chance of national grid connection, and the people knew this and buy Solar Home Systems. [...] The highest number of Solar Home Systems sold is in the Char. We have already installed more than 700 SHSs.[...] 95% of our work is done in the Char. [...] All the houses in these areas are temporary and they have to move every time the water level rises. I had an experience, when I visited a client and I found that their lives are very difficult. I noticed that the

water level was very high, and they made houses on banana plants that helped them from the hazardous exposures. The solar panels were working, which was very delightful to see. [...] [GS-F-CS]

Grameen Shakti found a profitable niche in the chars as the financial conditions of dwellers are much better than expected. Many chars' dwellers indeed market their products across the Indian border and have abundant harvests. Despite their uncertain living conditions, they can often afford a portable SHS to carry along with them in their nomadic existences. Grameen Shakti has even developed an *ad hoc*, innovative solution to introducing biogas in the char, which consists of a fiberglass digester that can be easily installed in the sandy soil and removed relatively quickly in case of flooding. The *char* case suggests that technical and managerial innovations might be also shaped by environmental constraints, as in the case of biogas and the portable SHS.

Furthermore, SHS, the ICS and the biogas plants are designed to reduce the pressure on the local ecosystems that traditionally have provided biomass for lighting and cooking. A rough estimation of the carbon emission reduction of Grameen Shakti activity (SHS, ICS and biogas) based on the data released by the company on January 2013 alleges a saving of 920,000 tons of CO₂ per year ("Grameen Shakti," 2013). For the future, Grameen Shakti has planned to start a program under the Clean Development Mechanism (CDM), the emission trading system defined in the Kyoto protocol (IPCC, 2007). In the words of one project manager:

[GS] it is the only company in the country registering for CDM in case of both SHS and ICS [...] So, developed countries are getting interested in CDM for buying carbon quotas. Grameen Shakti is the frontier in this regard in Bangladesh. [GS-M-SN]

The main argument within the Grameen Shakti green narrative is that RCIs are intrinsically eco-friendly because they aim to minimise the use of energy and raw materials not only in the development of the final outcome but also during the entire value chain. In the words of the Grameen Shakti chief engineer:

Grameen Shakti is contributing to global environment systems by reducing the emission of carbon in all its programs. [...] Through SHS we can save kerosene, while from ICS we can save wood biomass, and Biogas, which is a complete substitution of wood, and without biogas burner would otherwise need traditional

biomass. In these ways Grameen Shakti is reducing global carbon emissions.
[GS-M-DI]

Grameen Shakti also claims that their activities are improving the environmental awareness of Bangladeshis in rural areas. They conduct educational programs and marketing activities in schools to promote their products and raise environmental awareness among young students. These activities have been crucial for penetrating the closeness of local communities. Grameen Shakti field workers use schools, community centres and local markets to illustrate the risks of using biomass for cooking and kerosene for lighting. According to Grameen Shakti personnel, the younger people within the community are usually the first to be enthusiastic about Grameen Shakti and convince their family to contract Grameen Shakti's services. As a project manager in Dhaka stated:

Grameen Shakti started to conduct some school programs, awareness programs with the females. These school children later go to their homes and talk to their moms about the features of ICS. [...] After having listened the message from her children, then she gets interested in and joins the female workshops and fairs, got to know about it and then decide. This is the strategy.
[GS-M-DI]

Institutional Weaknesses

A fundamental pillar of Grameen Shakti's discourse is based on the institutional role they carry out within the country. This emerged from the data in two different ways: firstly, Grameen Shakti staff claimed to '*address institutional voids*' (i.e. the incapacity of the state to deliver functioning energy infrastructure) and secondly, they argued that Grameen Shakti's model '*remediates institutional failures*' (i.e. patronage relations, female segregation and social exclusion) (see Figure 5).

Formal institutions in Bangladesh are closely intertwined with a complex system of informal institutional elements that encompass social, religious and cultural practices. In the political domain, the institution of *patronage* is a dominant practice, not only within the State but also in the daily activity of the informal system of courts known as *shalish* (Lewis, 2011). Within patron-client networks, loyalty to the ruling group hampers any real investment in public activity other than its use to further interests of the party in power. Patronage, often

accompanied by bribery, is the unofficial door to gain access to public jobs and justice. The asymmetric relationship between patrons and clients hinders any independent initiative and disheartens entrepreneurial activity (Mair, Marti, & Ventresca, 2012). Other social institutions, which include the patrilineal system and other kinship norms of behaviour, limit the access of women to the public sphere. By way of example, one Grameen Shakti employee in Podna described the complicated procedure to get access to public service in rural Bangladesh as follows:

In the local government, the Ward member is in the lowest position. [...] The local people elect the ward members by voting every 5 years. Each of the ward members represents 500 families and informs the Union Council about their problems. They are in charge of road construction, and the wellbeing of the village. [If a village wants to claim for a public work] the Union Council passes it on to the UNO [the Upazila Nirbahi Office is the chief executive of an upazila (sub-district)] and thus to the District Council and Division Council, and finally to Dhaka. So if the appeal is positive it goes back to the ward members. It is a long and expensive process too. For example a villager can build the bridge with his own money, or propose it to the ward member who will take it forward to the Union Council and so forth. A budget is allocated for the project, and divided accordingly in each of the levels. But the money is usually not enough to implement the project. There is corruption in every level, and the materials used are not of good quality, so when the bridge is complete it will be damaged after 5 years or so. [GS-F-M]

Apart from corruption, local authorities have very limited resources to deliver public services such as water sanitation, energy and health care to the rural areas. The char is a clear example of institutional voids, but the incapacity of public institutions is evident even in a megalopolis like Dhaka where public facilities and services are extremely limited and faulty. In many cases, NGOs and social businesses like Grameen Shakti have succeeded where formal institutions have failed. But the relations between state and non-state institutions are not straightforward. Government needs entities like Grameen Shakti even though such organizations might threaten the credibility and the authority of the public sector. If on one hand the government uses Grameen Shakti to cope with its weakness, Grameen Shakti also needs government support to implement its actions in the field. As illustrated above, Grameen Shakti's model is profitable for many technical and managerial reasons but it succeeds also because is able to lever on institutional linkages. Apart from the good relations with national and international suppliers mentioned in the

previous sections, Grameen Shakti is able to mitigate the high initial costs of solar technology by leveraging the schemes of incentives offered by the public sector. Most of the initial investments of Grameen Shakti, in fact, have been covered by the IDCOL (IDCOL, 2013).

Another crucial asset of Grameen Shakti is its ability to fit into the local social institutions without creating disruptive cultural clashes i.e. *working* institutional weakness. The case of GTCs is a good example of this process. Gender division of labour is evident in all aspects of life in Bangladesh. Allowing young female engineers to work in a safe and controlled environment is a non-invasive way to trigger a positive social change towards a more equal relationship between genders. I visited two GTCs and video-interviewed the members [video-interview GS-F-GTC]. Women in the GTCs work in a familiar environment, usually a private house where they share food and accommodation. Educated women in the rural areas would hardly find a better occupation. In Grameen Shakti it has been observed that women perform better than men in technical tasks because they are more focused and patient. According to Grameen Shakti's discourse, the GTC work provides an income that empowers local women and makes them more independent from their male partners. Grameen Shakti's GTCs interestingly resemble the feminist utopia described by the Bengali writer Rokeya Sakhawat in the tale '*Sultana's dream*' written in 1905. She describes a futuristic world based on a mirror-image of the traditional practice of *purdah* in which society is dominated by women and run by wonderful machines fuelled with solar energy (Sakhawat Hussain, 1988).

In conclusion, the decentralised strategy for energy production adopted by Grameen Shakti is quite the contrary to the predominant model followed by more developed countries. The solutions that Grameen Shakti offers, in their narrative and intentions, is aimed at empowering their users because they are self-sufficient arrangements (off-the-grid). Despite its limited capacity to produce electricity, the SHS is in principle totally controlled by the user. He or she can decide how much energy to use and how. In the case of the communal mini-grids, the next frontier of SHS in Grameen Shakti, technology is aimed at empowering an entire community to manage a self-sufficient productive unit

without external interferences. Grameen Shakti claims to be able to meet the demand for better institutional services, serving the un-served. Despite these claims, however, as I mention earlier, about 40% of people still cannot afford Grameen Shakti's services.

In summary, the *discourse* of Grameen Shakti as this is related to institutional weakness encompasses three main domains: political, cultural and economic. Table 4 classifies the type of institutional void according to the 3 institutional pillars of Scott's taxonomy (2001) and the strategy deployed by Grameen Shakti to overcome them.

Table 4 Grameen Shakti's discourse to address institutional voids

Domain	The pillars of institutions			Grameen Shakti Strategy
	Regulative	Normative	Cognitive	
Political	Energy infrastructures policy and execution	Patronage and corruption	Asymmetric relationship between patrons and clients	Decentralised and distributed solutions User empowerment
Cultural and Social	Islamic juristic ruling (<i>Fatwa</i>)	Female segregation (<i>Purdah</i>)	Market exclusion for women and low access to work	Inclusion of women (e.g., GTCs) Innovative marketing strategy designed to address female domestic issues
Market	Unclear property rights (<i>chars</i>) Missing bank credit Profit uncertainty	Rural norms and rules	Rural exclusion	Flexible micro-credit schemes Efficient operational management

Narratives of cultural empathy and social values creation

According to Grameen Shakti managers, the micro-credit schemes and affordable prices of Grameen Shakti products explain only in part the wide diffusion of Grameen Shakti activities. People at Grameen Shakti have a very clear idea of what the key to their success is: they succeed because *they understand the field*. The motives and interests of people determine how and why technology is adopted and inevitably shape its use and its evolution (Kaplan & Tripsas, 2008). The network of relations that intertwines technological

possibilities, people's motives and the understanding of those possibilities constitutes a cognitive frame that shapes the socio-technical direction of an organization (Orlikowski & Gash, 1994). In the case of Grameen Shakti, the company has constructed a narrative around two basic elements: (i) a sense of *social empathy* and (ii) the persuasion that social values can be created by leveraging the capacity of people to perform as active economic actors (see Figure 5).

The first element emerged in the data from the motivations of Grameen Shakti people at different levels and with different intensity. The Grameen Shakti Operational Manager for example described why he joined the company in the first place:

The village I am from did not have power or electricity till I passed my university studies. I had to use kerosene lamps for my studies, which has very little light. [...] I got chance to visit a very remote area in Bangladesh, where I followed a staff and a technician. The technician and I travelled 16km by rickshaw to houses where he had to install a SHS. I helped him with the installation, and did not let him know that I was working for Grameen Shakti and was under the impression that I am a visitor. In the evening he asked all the children to come along with some adults too, saying that he would show them something magic. When a huge crowd had gathered he asked who was the youngest among them, and a 2 year old boy came forward whom he asked to turn on the switch for the light. Then all the lights were turned on and everyone started shouting in excitement to see light. Among the crowd there was a very old woman whom we asked if she had ever seen electricity or a switch on a light. She was afraid at first but after showing her how to switch on the light and turn it off, we saw the smile and happiness in the faces of the children and women. This was my motivation, and I thought that we should work to provide people with power as it brings happiness in their lives. [GS-M-AUB]

All the Grameen Shakti employees told me a similar story. Coming from the same background as their customers, Grameen Shakti people claim to share a very similar cognitive frame with those in the rural population. Field workers in local branches even share the same living conditions. They often live in isolated areas, use solar energy and are integrated members of the local community. They also share limited income with their customers because Grameen Shakti wages are intentionally maintained slightly under the market standards to encourage sales. According to Grameen Shakti's discourse, the field worker knows the local ecosystem, family income, problems and aspirations better than anybody else because he is embedded in the *customers'* social context.

The second element that constitutes the cognitive frame in Grameen Shakti is the idea that even the poorest people can perform well if they are offered the opportunity. In the Grameen Shakti narrative the access to energy is an indispensable factor for increasing the productivity and income of the poor. This was a common recurrent idea in the words of the informants and has been widely documented in the field by Wimmer (2012). This idea is borrowed from Grameen Bank and permeates all the Grameen family of organizations. The direct losers of the patron/client structure in Bangladeshi society are those people who are not strongly affiliated to influential groups of power or who are not members of any patronage. Living in such conditions means limited access to basic services like water, education, healthcare and energy. Even if one acknowledges that powerful NGOs or social business in Bangladesh act as quasi non-profit patrons, Grameen Shakti activity is likely to serve a wider group of people and in a more neutral way when compared to the traditional system of patronage. Unlike the traditional mechanisms of power, the interest of Grameen Shakti is to sell as many products as possible to maintain business profitability and sustainability. As a consequence, at least in principle, the opportunity to purchase a SHS, an ICS or a biogas plant is not given on the base of a specific clan membership but only on the capacity of people to pay back the loan with their work. This mechanism has also strong limitations since it excludes *a priori* a huge segment of the population that cannot afford Grameen Shakti products (see above). According to the Grameen Shakti narrative, this is, however, a problem on one hand linked to the high cost of the technology and on the other to the incapability of the Bangladeshi political economy to raise the minimum income of the vast majority of the population above a certain level that would allow it to address their basic needs. In the mind of Grameen's creators, cases like Grameen Shakti have the merit to prove that a business that creates social values and is profitable within certain reasonable limits *is possible* and can have a remarkable impact on the life of millions of individuals.

5.3 GRAMEEN SHAKTI'S INNOVATION AND DEVELOPMENT NARRATIVE

Grameen Shakti's narrative embeds elements of both frugal innovation and BOP narratives, locating these within a market based paradigm as a social

enterprise that is culturally empathetic and which creates social values. A synthesis of Grameen Shakti's narrative based on the notions exposed in section 3.1 is presented in Table 5. Grameen Shakti's people frame themselves (being) in relation to the poor of Bangladesh as product/service providers. The poor, similar to the BOP1 narrative, are framed in terms of customers/consumers. At the base of their action is the idea that energy is an unmet need in rural Bangladesh that the neither the state nor the private sector are able to satisfy.

Table 5 Grameen Shakti Narrative synthesis

Poor's role	Normative Stances & Goals	Innovation	Expected outcome
Poor as consumer of energy in a market economy paradigm	<ul style="list-style-type: none"> • Light and energy are indispensable for development • People need green energy • Need to overcome institutional weaknesses • Need to combine profitability with the creation of social value 	<ul style="list-style-type: none"> • Product Innovation (SHS, Biogas, ICS) • Service Innovation (Energy microcredit, rural based technical service) 	<ul style="list-style-type: none"> • Renewable energy to provide green energy and empower users • Women empowerment through dignified employment

Furthermore, in Grameen Shakti's discourse, 'energy poverty' is due to institutional voids/failures. These issues can be addressed by 'frugal and green' innovations combined with a microcredit philosophy. Poverty is often framed in terms of 'lack of energy' and the role of innovation (meant as a vector) is to provide a *technical fix* to energy poverty. This strategy allows the company to leverage a 'green narrative' and, at the same time, a 'social narrative' in which the poor are framed in terms of unserved potential consumers of energy. Energy thus, in Grameen Shakti's view, almost automatically leads to higher income and a better life.

However, Grameen Shakti's discourse also presents a *hybrid nature*; a characteristic common to many other social enterprises e.g., the pursuit of the dual mission of financial sustainability and social purpose (Doherty, Haugh, & Lyon, 2014). The observed hybridisation is characterised by a number of elements. First, the minimum use of materials and energy: local materials are

preferred where it is possible. This is accompanied by the delivery of 'good-enough' solutions i.e., products/services are deprived of all the unessential features that do not interfere with the main functionality. Grameen Shakti's strategy also draws on 'deskilling processes' e.g., in order to minimise the need for a specialised labour force, those solutions must be simple to learn and easy to repair. Technical innovations are then coupled with operational, service and management innovations e.g., Grameen Shakti has to deploy and diffuse its solutions, including after sales support, at minimum cost. This is operationalized by leveraging on the existing Grameen Bank networks, external providers, rural electrification schemes etc. The efforts of Grameen Shakti are then legitimised by the conviction that access to energy is crucial to improving productivity and increasing the income of the poor. Grameen Shakti considers the access to energy for rural people essential for achieving social empowerment; this constitutes the very core of Grameen Shakti's corporate values. This is also associated with a discourse of empathy e.g. the solutions are supposed to be embedded in the local cultural context, although they often challenge established powerful habits like patronage and, at the same time, are supposed to deliver environmental benefits that are key drivers to attract investors and public support. The whole narrative is supported by the sense that Grameen Shakti's mission is that of working the institutional voids evident in Bangladesh e.g., Grameen Shakti draws on the failure of both public and private sectors to deliver reliable energy services. This is also why Grameen Shakti's founders assume that the needs of low income people are better addressed by market financing mechanisms rather than charitable initiatives.

Those elements are combined in a coherent narrative that constitutes the *raison d'être* of the company. At the core of Grameen Shakti's narrative there is the conviction that innovation in energy provision to the rural poor, in particular renewable electricity and biogas, is indispensable for their development. In this view, energy increases consumption and enhances productivity. As a consequence, it is fundamental to overcome rural poverty. But electricity also changes the life of the villagers. In the words of Yunus:

The social impact is enormous; people have electricity in their homes. They can get connected to the world with mobile phone, TV, Internet [...] this changes the

entire perspective of a village which was not connected to the grid. Before, there was nothing to do in the village after dark. Tiny kerosene lamps provided some feeble light inside village homes; outside the house the moon was the only source of light for a few days a month. After sunset, darkness engulfed the entire village. Now it is going to be very different. (M. Yunus interview in (Wimmer, 2012: 197-198))

In Yunus' words, the darkness that *engulfs* the villages after the sunset becomes a metaphor that describes the condition of deprivation and backwardness of rural life in Bangladesh. Artificial light opens a range of totally new possibilities for the poor. Children can study during the night, shops can stay open until late, economic life can continue in the dark. At the same time, the use of clean energy, in a country where the ecological equilibrium is considered to be so fragile, is a very powerful element to legitimise Grameen Shakti's narrative. The toxic fumes of the old kerosene lamps are replaced by the clean, white light of the LEDs, whereas a more efficient use of biomass in the ICS reduces the pressure of the poor on the remaining woodlands of the country.

On the other hand, as with all processes of discourse construction, the Grameen Shakti narrative offers a simplified, contested tale about the condition of rural Bangladesh: that life without electricity is *empty*, there is nothing to do in the villages after dark, that kids studying during the night is a good, or desirable thing. These concepts repeated over and over again tend to overlook many other social aspects that contribute to the exclusion of rural poor. The timing of rural societies, for example, has a different pace and meaning in comparison to urban settings, or Western settings (see next Chapter where I will explore this in more detail). The activities in the fields are regulated by natural light. The extension of working time with artificial light does not necessarily lead to a better life alone. Moreover, the argument that children can study after sunset often neglects the real factors contributing to educational exclusion, like the lack of infrastructure i.e. schools, books etc., or unequal social relations that prevent disadvantaged classes access to education and the like. The green narrative, furthermore, produces even more disquieting, hidden perspectives that are not taken into account by Grameen Shakti: how to manage the disposal of millions

of photovoltaic panels in the countryside in a country that has no proper waste management system for example.

Another interesting element that emerges from the Grameen Shakti narrative is the disregard for public infrastructures; in particular the capacity of public, state institutions to provide a basic need like electricity to everyone in the country. This is particularly evident in the field, where the workers I interviewed explained that they were convincing the villagers that the state grid will never reach their village. Some people are quickly persuaded, others hold out for the promises of the local politicians to bring electricity to all the voters. In any case, the electrification of the rural settings ceases to be a collective enterprise and becomes an individual responsibility. Individuals, or better still the households, become responsible for producing their own energy. This mechanism - the Grameen Shakti's manager themselves partially admit - results in a further polarization of the use of energy in the villages. The price of the systems, especially the SHS and the biogas plants, is still prohibitive for the poorest in the villages e.g., the landless, the day labourers or the small landowners. As a result, as the managers of the company recognise, the real winners of the energy revolution are those who can pay the monthly instalments to Grameen Shakti. In my research trips in the field, the Grameen Shakti's clients I encountered were all people that have a privileged role within the local community e.g., the teacher, the doctor, the shop-owner, the landlord, the family that lived on the remittances of an emigrated member and so on. In one specific occasion in the district of Rajshahi, I met the local gangster who controls access to the fertile land of the local *char* with guns and extortions. In this area, he and his friends were the best clients of Grameen Shakti.

If electricity is indispensable for the villages' economic growth and a universal coverage guaranteed by the state is improbable, Grameen Shakti – and/or solar energy - becomes a key stakeholder in the rural development of Bangladesh. Similarly to Grameen Bank and BRAC, Grameen Shakti has constructed a model that sets the standards and, at the same time, the boundaries of the electrification programs in this country. This prominent role of the NGO world in such a vital sector of the Bangladesh economy can be explained by the

problematic and controversial relationships between the state and the powerful non-profit sector. As showed in the case of IDCOL, the state uses the GB/GS/BRAC capacity of penetrating into the social structure of Bangladeshi society to deliver the services that is not able to provide i.e. credit, energy, even healthcare and education. The strong international connections of people like M. Yunus are a guarantee to attract funds that are then managed through public, state-controlled institutions like IDCOL. On the other hand, the decisions and the actions of this *third sector* - as opposed to the state and the private, for-profit sector - are not accountable through a process of democratic legitimization. This delicate balance is not new in the history of developing countries – Ferguson (1990) and Escobar (2012) provide a number of detailed descriptions of the relationships between development agencies and the state – but this assumes an extreme connotation in Bangladesh. The role of the macro NGOs like BRAC and Grameen Bank in Bangladesh is a form of *parallel executive power* that opposes both what Bruni and Zamagni (2007: 23) call the welfare-state and compassionate conservatism. In the modern state-nation, welfare is thought to be provided by four basic institutions: states, markets, civil associations and households (Zapf, 1984). Historically every country has been characterised by a different mix of these institutions. But generally two main approaches have prevailed in the developed nations: a *compassionate liberalism* (usually identified with the US model) i.e. a system where the redistribution of wealth is thought to trickle-down from the rich to the poor or is committed to well-intentioned affluent individuals or organizations, and welfare-state (or a European model) i.e. wealth redistribution is in the hands of the state (Bruni & Zamagni, 2007; Hacker, 2002). In the developing world, welfare production was traditionally relegated to the households or more precisely to the community (Ansari et al., 2012). As a consequence, informal institutions have a greater importance when it comes to addressing social needs. Formal Institutions, in fact, are often faulty and inefficient (Khanna & Palepu, 2006), or distressed by different priorities when compared with more developed countries (Maguire, Hardy, & Lawrence, 2004). Institutional failures in the developing world can have destructive outcomes in terms of social inclusion, poverty and equality (Hall et al., 2012). In rural Bangladesh, for example, the allegedly

corrupt system based on patronage relations is thought to seriously undermine the equal distribution of social goods among the poor (Afsar, 2010). In the case of Bangladesh, the institutional voids that emerge from the existing power structures have been addressed by creating a complex, centralised system of non-public services providers (Mair et al., 2012; Mair & Marti, 2009). In this sense, the case of Grameen Shakti can be seen as a further extension of this pattern to the energy sector. The case of Grameen Shakti - but in general this might be extended to many other ventures in Bangladesh – represents a new combination of institutional factors that does not follow the public-oriented nor the private-oriented approach to social welfare. In the words of Yunus (2010):

“[market-based economy can only partially cope with poverty], that’s why many European countries decided to empower their governments to take care of social needs, such as poverty, unemployment, education and healthcare. [...] In the developing world, however, government lacks the managerial ability and material resources to create the kind of welfare state Europeans enjoy. [...] for these and other reasons, a new mechanism is needed. Social Business can be that mechanism“(p.27).

One interesting characteristic that emerge from social business narratives is that they do not really challenge or try to explain social inequalities. This is particular evident in the intention to frame poverty and exclusion in terms of lack of managerial capacity or technology. The lack of light hampers the flourishing of the economic activity in the dark of Bangladeshi nights. Light as a by-product of a technological artefact becomes an instrument of social and economic emancipation. There is no doubt that electricity has a fundamental role to play in the improvement of the material conditions of many people in the so-called developing world. Compared to my experience in Bolivia, Grameen Shakti represents a remarkable success in terms of number of people served and long term sustainability of the services provided. However, if on one hand the company has been able to provide robust and affordable energy services in the rural areas, on the other, they still have an unclear idea about the impact of their action in terms of poverty reduction and social inclusion. The evidence that sold-and-bought energy within a framework of social business represents an effective way to disarm the socio-economic mechanisms that cause destitution and exclusion is still scant and weak.

CONCLUSION

The aim of this chapter was to explore, through empirical data collected *in situ*, a narrative of innovation for rural development framed within a social business model designed to address the issue of poverty through a provider/client schema. The case of Grameen Shakti presents many characteristics of the BOP1 narrative. The poor are described as people in need of being empowered through energy provision and are framed as un-served clients in a market economy. The lack of energy, according to this narrative, is caused by a number of environmental and institutional barriers. At the same time, the poor, in their attempt to cope with energy scarcity, are forced to pollute (i.e. using kerosene lamps) or to degrade their natural surrounding environments by extracting biomass in unsustainable ways. By selling affordable and clean solutions for energy, Grameen Shakti contributes to overcoming those issues and, at the same, creates a highly scalable and profitable business model for itself. On the other hand, the case shows that the Grameen Shakti's narrative also draws on elements typical of frugal innovation discourses. The innovation process, for example, is not carried out within the R&D department of a MNC, but it is rather an iterative process of trial and error that occurs in strict connection with the Grameen Shakti's field of operations. The case also shows that innovations targeted at the BOP populations are driven by a mix of normative frames; from concerns for social justice and environmental sustainability to opportunities for both opening of markets and transfer of technologies, as a means of alleviating the situation of the world's very poor. The case, therefore, suggests that innovation in resource constrained environments such as Bangladesh occurs at the intersection of a complex network of actors and power relationships with multiple, overlapping framings, rather than strictly following only one of the narratives presented in the literature. Such narratives in this case are not mutually exclusive, but co-exist and are, at the same time, the subject of tensions and contradictions: they are pluralistic, recombinant and hybrid.

Finally, the case shows that the Bangladeshi NGO sector is becoming increasingly important in the country, not only to complement the actions of the

state but also to replace its role in the provision of crucial services like energy, healthcare and education. The case suggests, at least within the limits of the data collected, that the objectives to serve the poor and to change the conditions that cause poverty in rural settings through the introduction of new technological artefacts are only partially achieved. The work of Grameen Shakti has certainly drastically improved the access to energy of millions of Bangladeshi, but, to the best of my knowledge, it has not questioned the social dynamics of exclusion that creates poverty in the first place, and it has only benefited some. The benefits of Grameen Shakti technology lightly touch the rural poor. Despite its large diffusion, the microcredit philosophy still remains a highly controversial instrument to reduce poverty (Develtere & Huybrechts, 2005; Hossain & Knight, 2008; Mallick, 2002). Paradoxically, in many cases Grameen Shakti's solutions are reinterpreted and reframed within the contingencies of local power relationships between relatively advantaged and disadvantaged groups. In other words, the strong emphasis on technical aspects (e.g., renewable energy combined with microcredit finance) risks weakening the grounds for pursuing an end of social protection and social justice (Rankin, 2001).

BRANDING TRADITION: THE TALE OF THE POOR AS 'INNOVATIVE MARKET SUPPLIERS'

6.1 RESEARCH SETTING OF CASE STUDY

Handicrafts have an ancient lineage in India. The country is an immense and diverse reservoir of crafts producers, products and traditional manufacturing techniques (Liebl & Roy, 2003). Those productive activities are usually family-based and traditionally serve a very limited consumer base i.e. local or regional markets. In many cases, handmade craft activities are not framed within a market economy but rather have specific religious or social functions. The famous case of Madhubani painting is a typical example in which a complex system of craft skills was not developed for self-subsistence, nor for the market but was underpinned by religious and social motivations (Jain, 1989). Moreover, many craft skills serve a huge range of other productive activities i.e. house building, nets for fishing or tools for farming. Among rural productive activities, handloom weavers have an ancient history in India. Before the introduction of the automatic handloom during the colonial age, the Indian weavers' ecosystem was a vibrant sector in the economy of the country. The introduction of machine-made fabrics and the industrial way of production led to the collapse of the traditional handloom ecosystem (Clingsmith & Williamson, 2004). Traditional handloom weavers, however, still survive at the fringes of the formal economy. In the recent decades, this industry has been periodically struck by deep crises (Niranjana, 2001). As a result, the rural livelihood has been eroded, traditional skills are fading and the displacement of labour is threatening the

socio-economic structure of the rural society (Ibid.). Since independence, the Indian government has attempted to keep alive the traditional craft industry through a number of policy measures (Deepak, 2008). Nevertheless, the artisans who remain in the rural areas continue to follow a way of life based on subsistence agriculture. Scarce demand for their products, competition with modern industry, poor levels of education, no access to market information, bureaucratic inefficiency and corruption are thought to have been a serious barrier to the survival of the sector (Liebl & Roy, 2003; Niranjana, 2001). However, the opening of India to the global economy has also produced a reverse trend with regards to some sectors of traditional handicraft, especially the fabric/garment industry and ethnic home furniture. In reaction to standardised mass-produced goods, middle class customers around the world are increasingly attracted by 'ethnic and culturally specific goods' (Liebl & Roy, 2003). Even in India, where the rising middle class has usually been attracted to western-style products, there is a revival of traditional crafts (Ramachandran et al., 2012). Retail companies that are focusing on bridging the gap between rural producers and the national and international urban markets are mushrooming in the country. This chapter describes the case of one of these companies, a company called Mother Earth.

6.2 THE CASE OF MOTHER EARTH

Data collection and analysis

Mother Earth's case has been selected to cover the category of '*Poor as producers/co-producers/entrepreneurs*' (see Table 1). The data on which the case study is built was collected from September to December 2013 (see Chapter 4 for more details about the access). Apart from field notes, photos and videos, the vast majority of the data consists of semi-structured interviews (see Chapter 4). I personalised the questions according to the role of the interviewee within the company and my observation of his/her activities. In many cases the interviews were conducted on the production lines. As a result, I attempted to engage the informants in a description of what was happening around us. In some cases I interviewed the same employee twice to clarify or deepen new aspects that had emerged as the research progressed. Unlike the case of

Grameen Shakti, I was allowed to mention in my reports the informants' names. However, apart from a few cases (i.e. the COO, the founders), I decided to quote the interviewees only with their first name.

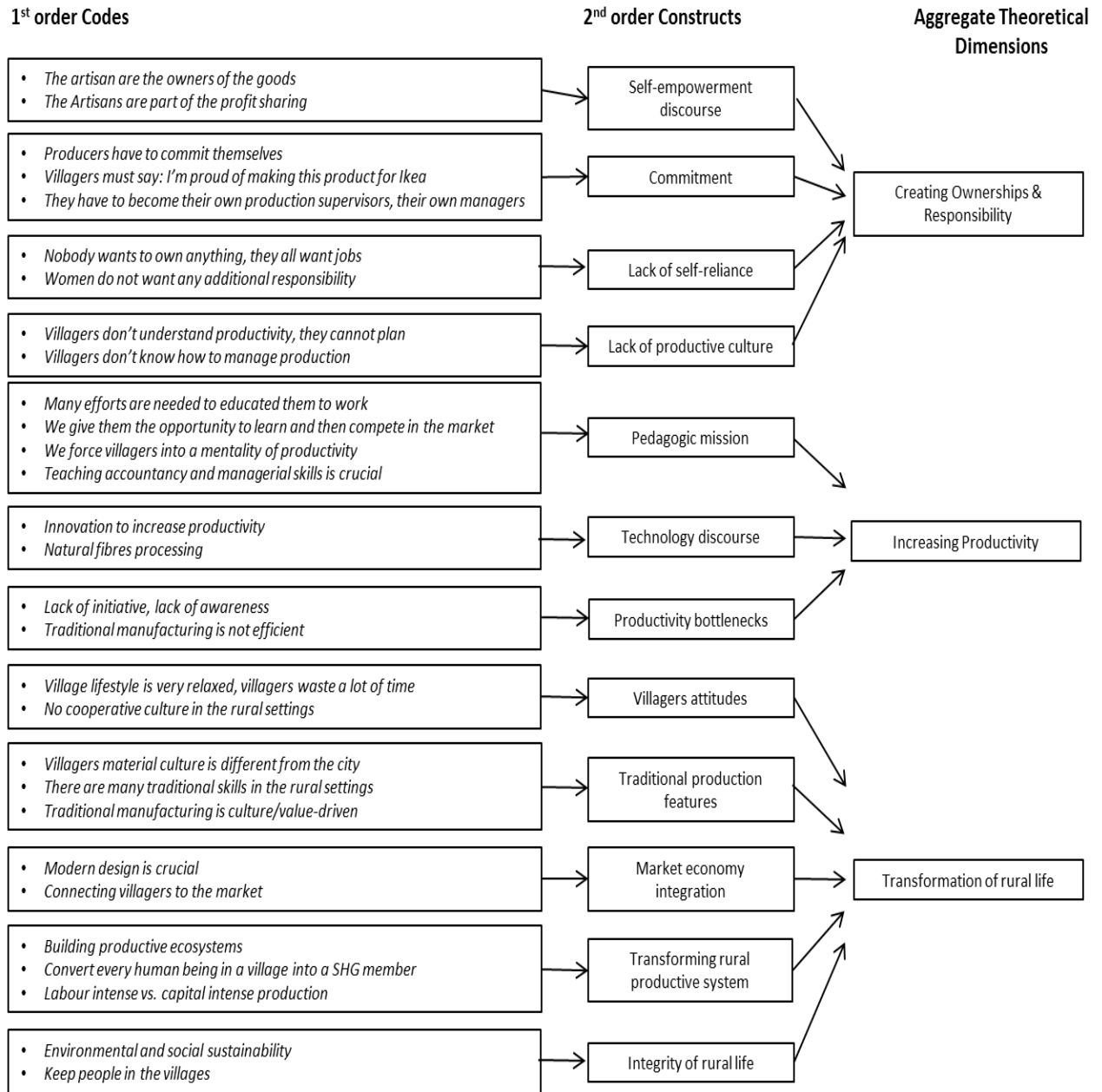


Figure 7 ME: Analytical coding process to induce theoretical dimensions

As described at the end of section 4.2 (Data analysis and writing up), I constructed the interviews and then performed an initial coding for data analysis using a set of *a priori* themes extracted from my original research questions: *how do the informants in Mother Earth frame innovation? How do they frame*

their identity as innovators or change makers in rural or peri-urban India (being), their practices (doing) and how do they communicate their frames (saying)?

The first-order codes were further grouped into 12 second-order codes and then into three theoretical dimensions (see Figure 7): *Transformation of rural life, increasing productivity, creating ownership and responsibility*. The following sections illustrate how those concepts emerged from the data collected in the field and how they are dynamically interconnected in the corporate discourse of Mother Earth. I start by describing my first day in the company and I then continue by analysing the three themes that emerged from the data analysis, drawing on my activities of observation and interaction with the informants.

First day at Mother Earth

Mother Earth's headquarters is located in the frantic peri-urban neighbourhood east of Bangalore called HSR. This is also the location for two other huge factories both working in the garment industry and both exporting for European brands such as Primark and Mothercare. The road is crowded with young female workers ready to start their day. The building is an ample warehouse with a relatively small gate decorated with a plaque: *Mother Earth, Living, Giving, Being!* Mr Piyush Deogirikar, the Chief Operating Officer (COO) and a MBA graduate from the IIM-B, gently invites me to enter his office. Mother Earth's activities, he explains to me, are distributed on four floors. Apart from financial data, he grants me access to any activity and any information I'm interested in. I can hang around wherever I want in the building and talk to anybody who's willing to talk to me. Piyush then introduces me to Anupana. She is in charge of showing me the main activities of the company and introducing me to the key people. She looks at me and smiles. She has noticed I'm wearing a shirt made by Fabindia, a well-known Indian company that commercialises clothes manufactured by traditional artisans³⁴. 'You'll see that our products are much better than Fabindia's stuff...' - she says. 'We are no longer a simple

³⁴ Fabindia was one of the first companies to bridge the gap between rural handloom weavers and the urban market. They have been working for more than 50 years to improve the access of traditional weavers to the market. A detailed account of their history is provided by (Ramachandran et al., 2012).

clone of Fabindia. However, fortunately for us, we rely on a market that they contributed to shape. The market has grown so much in the last 20 years. Now there are many young middle class people that only buy Fabindia style products'.

Anupama's workspace is located in an open space where about 30 employees are busy working. Above her spot there is a collection of pictures of samples of Mother Earth's products, which frames a short notice that tells: '*Sustainability is not just about the environment but also about societies, cultures, traditional knowledge and skills. Earth fashion and Earth home aim to revive and maintain traditional wisdom and techniques*'. Anupama is going to introduce me to two key people who I'll be shadowing during the next four months. One is Mervin who is an experienced worker of Industree, the non-profit foundation that originated Mother Earth. The other is Dave, the production manager of Mother Earth clothes collection. While we climb the stairs she tells me that it would be a good idea to observe closely the activities of the two production units that are located in the building. The main unit is composed of a number that monthly fluctuates between 20 and 30 people who make clothes. The other unit is split into three sub-units dedicated to the processing of natural fibres. The second floor is a chaotic L-shaped hall full of sewing machines run mostly by women. Dave is a tall smiling guy who's in charge of monitoring the production. I shyly tell him that I'm going to shadow him for two or three days a week during the next four months. He smiles and starts telling me some basic details of Mother Earth's business model. The young women surrounding us have been hired in the last one year and half and are going through a process of training. We hastily move to the 3rd floor where Anupama shows me the fibres manufacture. I can see again busy workers, mostly women, assembling river-grass fibre bins, boxes and many other objects. To complete the tour she shows me the store where all the products are ready to be shipped. Everybody seems in a hurry. She tells me that now they are working on an order for Ikea, the famous Swedish multinational company. Ikea has a very strict process of quality management that has significantly challenged Mother Earth's routines. Ikea got interested in Mother Earth products being presented by Neelam Chhiber, one of Mother Earth's cofounders, at an international fair.

Anupama tells me that Mother Earth arose in 2011 from Industree Crafts, a social enterprise that dates back to 1994. The first intention of its founders, Neelam Chhiber and Gita Ram, was to help the rural artisanal sector, which they felt was “*treated as a sunset sector by the government*”. Their vision was to leverage on urban markets to create demand for Indian crafts and reshape them in a new contemporary fashion. In 2011 the Industree project was reorganised by introducing four different entities with four distinct functions: Mother Earth for Retail, Industree Crafts Pvt. Ltd. for manufacturing expertise, design and support, Industree Transform Pvt. Ltd. for Supply Chain and the Industree Crafts Foundation, the non-profit foundation that works with the government and provides training to the artisans. In 2011 Mother Earth opened its first flagship store, an 11,000 square feet hall, in the Indira Nagar neighbourhood in Bangalore. As I write they have 6 shops and 250 employees. The company plans to add a further 40 stores by 2015 and reach a turnover of Rs. 1500 million (about US\$ 25 million). The birth of the brand Mother Earth was backed by the Future Group, which has a 53% equity stake in the company and has provided its expertise in India’s retail sector. Future Group is an Indian corporation leader in the retail industry³⁵. They run several chains of large discount department stores and employ around 30,000 people.

Anupama tells me that Neelam started as a designer studying at the National Institute of Design in the 1980s. She was fascinated by traditional Indian aesthetics but soon realized that the rising young middle class was largely influenced by western sensibilities. Anupama goes on to tell me how Neelam was so fascinated by artisan life that she decided to invest her time living with them to understand their world. She spent a year living in a village and learning the ancient iron casting techniques that came directly from the Bronze Age. By working with traditional rural artisans Neelam realized that, despite their valuable skills in many manufacture sectors, they were not able to sell their products. Their traditional markets were disappearing and this was leading many of them to shift manufacturing to urban areas. There was a rampant

³⁵ A detailed description of the Future Group is available at: <http://www.futuregroup.in/> (last accessed February 10, 2015)

migration, which had impoverished the rural artisans. But the newcomers had neither found a way to apply their skills in the modern manufacturing industry nor to locate their products in the urban markets. Anupama tells me that what really struck Neelam was the supply–demand mismatch in the home furniture sector. The economic liberalization that followed the decade of the 1990s exposed India to global competitors and their products. Plastic bins, mats and plates are cheaper and more resistant than their traditional fibre-made equivalents. Suddenly they realised that they had local production, which they were exporting and local demand for which they were importing. The idea of connecting rural artisans and urban consumers pushed Neelam to look for investors. With the support of the social investor Gita Ram and co-founder Poonam Bir Kasturi, Neelam founded Industree Crafts in 1994. The company was set up as a private limited firm selling contemporary items made by rural artisans from traditional craft techniques. The products were designed in-house but produced in the villages. The crafts were sold through Industree boutiques. The first shop opened in 1996 in Malleswaram, Bangalore and several shop-in-shop formats in upscale lifestyle stores then appeared. At the same time Neelam started to participate in international fairs all over the globe in order to promote Industree products. Over the years, they created a niche in the natural fibres segment, exporting to over 25 countries in Europe and in the United States. Nowadays, the Industree family is a hybrid entity that connects different kinds of stakeholders (see Figure 8). Its non-for-profit soul, Industree Foundation, was founded to provide technical training and financial support to groups of rural artisans who were willing to form independent Self-Help Groups with the purpose of selling their production to Industree Crafts, the for-profit branch of the family. The products, manufactured following traditional techniques, are designed, branded and marketed by Mother Earth. Today Mother Earth offers a huge choice of male/female apparel, furniture, natural fibre - based objects, home linen, crockery and accessories³⁶. Monita, who leads the design team, tells me that they deliver 9 collections every year [interview ME-MNT]. Every year they choose a theme that will be used for the

³⁶ ME's website is available at: <http://motherearth.co.in/> (last accessed February 10, 2015)

autumn/winter and spring/summer collection. Apart from that, they have classic themes based on traditional Indian design, which are used every year and are especially sold during the festival periods.

While Anupama sums up Mother Earth history, the storage area is a continuous movement of workers labelling and packing. Ikea is waiting for a shipment of 2000 bags and sofa-cushions made out of river-grass by a cluster of villages based in the next state of Tamil Nadu. Ikea, in Anupama's view, helped to raise ME's standards. Ikea consultants periodically visit from Sweden to participate in the design process, measure the luminosity of the workstations, the work schedule, lunch breaks and other factors affecting the working conditions of the employees.

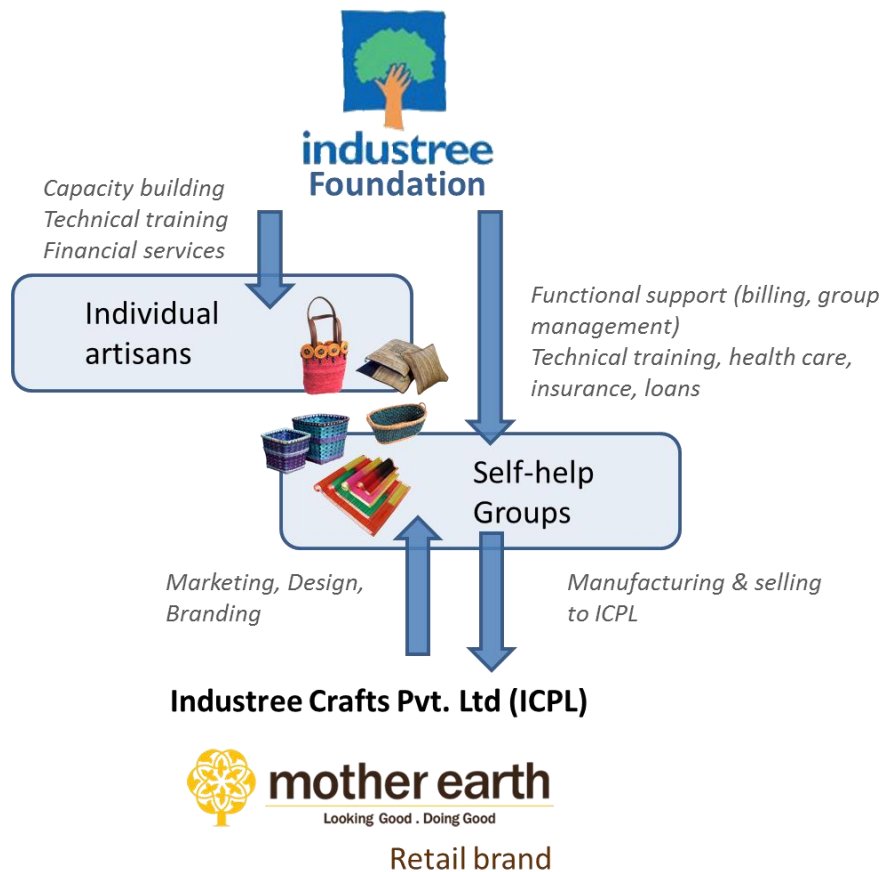


Figure 8 Mother Earth/Industree stakeholders' interaction model

Over the next four months on average I visited Mother Earth three times a week. I shadowed the production managers in their daily activities in the Bangalore factory and in the field and interviewed most of the people involved in

the design, training and supply-chain activities. My journey starts with Dave. After thanking Anupama for her introduction, I meet Dave again at the 1st floor of the building in the middle of a heated discussion. The hall is an L-shaped open space. One side is occupied by a double line of sewing machines on which women, the great majority of whom are young women, are stitching under the supervision of two older women. In the middle of the lines a cloth is hanging as a model for the workers. The other side of the L is occupied by a smaller group of people who are sewing faster than the others. They have clearly mastered tailoring. The rest of the ambience is a busy swarming of people, some barefoot, cutting, stitching, tidying up, labelling and folding clothes. A poster with the elephant-headed Ganesh and his brother Kartikeya is hanging on the wall. Dave is quarrelling with animosity with another guy. When they stop, he approaches me and says: 'look... this is the typical behaviour you'd see in the standard garment industry'. A supervisor bullying the workers is a common scene in the garment industry. He's been working seven years in the garment sectors and he's seen similar scenes countless times. I'm puzzled. Dave, anticipating my question, explains to me that on the same floor two very different models coexist. The guy Dave was arguing with is a contractor. The skills and the productivity capacity of the villagers sometimes are not enough to satisfy the demand of Mother Earth's retailers. To cope with this, they need to subcontract a part of the production, mostly clothes production, to external contractors. In order to supervise the quality and the working conditions, Mother Earth hosts the contractors under its roof. The contractors have no obligations to Mother Earth apart from meeting the deadlines and the quality standards required by the company. Many contractors are people who come from the garment industry. They work piecemeal and get used to producing in a very stressful and demanding environment. Their only interest is delivering and moving on as soon as possible. Dave, who is visibly irritated by this situation, starts telling me about the garment industry. He takes a sheet and draws a pyramid. A typical garment factory, he says, has a pyramidal structure. In this conventional factory design at the top is the CEO or the Managing Director. They are the ones who make the money, the owners of the company. At the base of the pyramid are the workers. In Bangalore they earn around Rs. 10,000

(around US 160) per month on average. The middle of the pyramid is occupied by supervisors who are under the pressure of the management to deliver as quickly as they can. Abuse, physical threats and even violence are the norm. After his graduation in industrial textile engineering, he worked for many European and American brands. He learnt how to deal with short deadlines, extremely strict quality requirements and psychological pressure. He's talking about production lines composed of 500/600 workstations that run simultaneously. The work is challenging and exciting, they pay well but at the end of the day everybody is exhausted, he argues. In Dave words: 'see...it is basically a typical Fordist model. What happens is that, suppose they get a garment order for \$10 per piece, the aim of the owners of the company is to reduce the production costs and pay the salary, so whatever amount of profit is made is not shared with them, I mean with the people who actually work in the machines. Here the concepts are different, here you know what happens? The pyramid is inverted. The manufacturers are the owners of the goods, in conventional factory the owners of the goods are CEO and MD, here the manufacturers are the owners of the goods. You understand? That's the big big reverse'. [ME-DVE]

Mother Earth's inverted pyramid model is based on a network of Self-help Groups (SHG) spread all over the country. According to Neelam, the model has been borrowed from Grameen Bank, which popularised the creation of women's SHG micro-credit loans to set up small businesses in rural Bangladesh. The model, which is quite diffused in the Indian sub-continent, consists of a group of 10-20 individuals who share the risks and the benefits of small entrepreneurial ventures. Mother Earth's SHGs are composed mainly of women living in rural or peri-urban areas. They elect their own leaders who are in charge of providing the raw materials for production and acting as an interface between the Mother Earth and the group. They are supposed to share the profits equally among the members and save a small amount of them monthly. The savings can be used for the mutual assistance of the members in case of necessity. Mother Earth's products are provided by SHGs spread all over the country that are trained by Industree's employees to meet the company's standards. In a few cases, the SHGs are trained at Mother Earth's headquarters in Bangalore and are then

encouraged to establish an independent workshop in the peri-urban areas around the city or in their original rural setting.

As a member of an *Adivasi* group known as Kodava that inhabited the wooded region of Coorg, Dave tells me that he is empathetically close to the villagers that comprise the SHGs³⁷. Dave deals with the SHGs on daily basis. He's enthusiastic about the model and wants me to appreciate its revolutionary implications:

'in practice what happens is that... see let's say I give them an order of a shirt for \$10 per piece... so I give them a price, say you finish it in this price, and they themselves as a group, they have a margin, which they share among themselves. I don't pay them a salary, instead I give them a price in which they can manufacture the goods, and they themselves source the raw material. We help them to source the raw materials, they produce the goods but they decide the amount of the margin they are willing to get... so they are also the part of the profit sharing. You understand? They can choose to have a reasonable margin or save as much as possible on other costs to take as much profit as they can on... and that profit is shared among the group'. [ME-DVE]

In reality, he confesses, there are many practical difficulties to implementing such a model. Many rural artisans have many different skills but not all those capabilities match with Mother Earth's production needs. Although Mother Earth aspires to bridge the gap between rural producers and urban consumers, its market is fundamentally the same as the mainstream garment industry. People want to see shop windows with plenty of new appealing clothes every season and to serve this demand one has to be flexible and productive. The SHGs, Dave argues, *need to be trained and educated to a new pattern of production*, which is quite alien for them as rural dwellers. That is why Mother Earth management tolerates the co-existence of SHGs with contractors under the same roof. In order to train and make a SHG unit independent to be able to supply for a modern garment industry, Dave needs to follow them for six months. In the meantime he has to manage the increasing demand that comes from the Mother Earth shops spread all over the country. He tells me that, for

³⁷ Adivasi, literally *autochthonous inhabitants*, is an umbrella term for tribal groups considered to be the aboriginal population of India, i.e. the groups that inhabited the subcontinent before the migration of Dravidians and Indo-Aryans (Steir, 2009).

the moment, it is virtually impossible to do it without the help of contractors. External contractors, usually highly experienced people coming from the conventional garment industry, guarantee a constant flow of production that SHGs in the clothes business cannot guarantee. Dave is clearly uncomfortable with this situation because the way workers are treated by the contractors is not very different from the way the workers are treated in the conventional factories. Pressure, stress and the need for a meaningful job are the reasons that drove Dave to accept Neelam's offer to join the company and become in charge of clothes production. He explains to me why he joined Mother Earth:

'in my previous job I felt good because I never knew this model. There everything is good... salary and everything, but the deep inside you are not happy. You know that you will have to suppress somebody and get your things out. You are always bossing around to comply with your supervisors, so what happen... the person below you is dump with lot of work. Here it is almost reverse, they down the work back on me. Then I came here and saw that the producers are the owner of the goods, that concept really hit me. [...] when first I met the founder Neelam she told that the things are different here... I didn't had the concept in... she showed me the SHGs, where these people come together, they commit... so it's totally different where the manufactures are the owners of the goods and they get paid well and there is a need of anybody who will to grow... there are groups who grown really well who have left us and started their own business, they have become own vendors, and they are financially well of that [...] so that gives inner satisfaction to me. You may get the money, everything you will get... but deep inside you will see, you are not happy because you will become self-centred selfish... everything is for you, don't give, the moment you start give you start feeling happy, that's my personal view again, the more you get... you have a family, its regular routine... but that thing of giving... philanthropy... the giving nature come from within, and once that starts... the money is less compared ... I feel much happier, I still feel happier in two wheeler, than a 4 wheeler'. [ME-DVE]

The primary mission of Industree Crafts Foundation, the non-profit soul of Mother Earth, is the incubation of SHGs. If it is true, as Dave claims, that SHGs are the owners of themselves, it is also true that they are exposed to an uncertain, unpredictable and, even more importantly, unknown market. What struck me from Dave's tales is the faith he has in 'personal commitment'. He says that Mother Earth encourages personal development and ambition within the SHGs. Unlike the conventional industry, if a worker has the potential for professional growth she or he 'must commit'. Some people, he tells me (pointing at a group of Nepalese women who have just migrated to Bangalore and are attaching labels on some kurtas), are happy to slightly improve their

condition but are not willing to advance more. 'Those ladies that you see, for example, barefoot seating on their legs attaching Mother Earth's labels... they used to live on one meal a day. Now they can afford a rent and have three meals a day and they are happy. They do not want further commitments'. According to Dave, if you have been exposed to entrepreneurship and to modern life, you would be more willing to improve your condition and it is a primary Mother Earth responsibility to support you to achieve your aspirations.

While we talk we hear the contractor shouting at one of the workers. They are having a tiff. Dave looks at me and smiles with a bit of embarrassment. This is not supposed to happen in Mother Earth. That is why they are making the effort to '*convert people to the SHGs philosophy*'. He confesses to me that the contractors are not always keen on working for Mother Earth. In many cases the people the contractors hire prefer to get involved in a new SHG rather than working under an intermediary. This is the case for the women that come from North India; after a few years working under a contractor, moving from one place to another in Bangalore, they have decided to join a SHG. Dave points to one of them and says that she has the potential to become a master. A master in the garment sector is a person skilled enough to be able to sew alone an article of clothing from nothing. Given a blueprint, a master is able to deliver whatever item of clothing without any external support. Good masters take years to emerge from the batteries of common, underpaid workers in the conventional factories. Usually the SHGs are led by one or two masters who have the whole vision of the production of any kind of clothing. In the production lines concerned with the training of future SHGs, there are two masters, two older ladies that move continuously from one corner to another. The chain is quite linear and simple to grasp. There is a master cardboard cutter. He's seated in a corner with a tape measure hanging on his neck. He receives a folder in which there is a detailed description of each fabric patch for a specific garment. The instructions encompass, size, measures, shape, type of fabric, colour and the number of items to be produced for each size (e.g., how many M, L, XL, etc.). The cutter meticulously cuts the shapes out from the cardboard and passes them to the fabric cutter. The fabric cutting is performed in a huge worktable where several layers of tissues are piled and ironed. The

cardboard templates are used to transfer the shapes of the fabric patches on the tissue with the help of a chalk. Then a master cutter uses an agile Chinese cutting machine that hangs from the ceiling to cut off the tissue, following the chalk-drawn layout. This apparently quite simple task is actually a crucial step that determines the quality of the garment. The fabric patches must be identical and precise by the millimetre. The tissue patches are finally distributed to the tailors who are organised by the kind of stitching they can perform, which in turn depends on the part of the garment they assemble. The skills of a good production line in the garment industry cannot be replaced by machines. That is why, despite the dramatic innovation rates in the sector, the industry still remains a very labour - intensive business.

Dave is willing to show me the core of the Mother Earth business, so we move down to the storage area where he starts browsing in the shelves, looking for any kind of home products made out of natural fibres. Then he starts: “So this is the typical laundry bin... In their villages they don't have the concept of a laundry bin, because it is a very urban product. They just don't have a concept of a laundry bin at all. What they have is a concept of sitting mat (i.e. yoga mat). This is a sitting mat. See there? Just put it on the floor and they sit. And they have their meal or whatever. They have their prayers or whatever. All the life is on here. [...] They don't have the concept of design. They can just make a basic product like this, but the problem in a village is that if you make this stuff you can sell only a minimum quantity of this. You don't find market for this anywhere. Not in urban city. Urban city everywhere it's plastic. You'd rather go for a polymer chair for sitting”. [ME-DVE]

In the city people have different habits. They have washing machines, so they need laundry bins. They have all sorts of modern gadgets in their house that are unknown to the villagers. Picture frames, for example, are a very modern object that villagers ignore. They hang on their walls all sorts of images, but they do not see the point of using a frame. On the other hand, urban dwellers would never use a yoga mat to sit and have lunch in their city flats. It is in this mismatch between urban modern life and the traditional way of living of rural India that Mother Earth designers found an opportunity. They ask rural artisans

to use their skills of working natural fibres to meet urban consumer's needs. Dave tells me that the artisans seem sometimes puzzled by the utility of the craft they produce for Mother Earth, but at least they have a market. A market for products that, in Dave's view, they do not fully understand.

Dave finally finds the box he was looking for. He takes it from the shelf and gets what seems to be a pair of flip-flops. This is a product they recently started to manufacture for a Dutch company specialised in 'eco-friendly design'. The Dutch designers realised that the bark of the Areca palm (*Areca catechu*), used in many South-East Asian countries to make plates and bowls, could be used to make footwear fabric. Dave tells me that Mervin from Industree developed a process to collect, dry and process the bark that makes the fibre suitable for making good quality flip-flops. They've just shipped the first order to The Netherlands where the Dutch company will supply a chain of local hotels with the flip-flops as an eco-friendly substitute of the plastic slippers they presently provide to their clients.

After this first day I shadowed Dave several times over the following four months. In those four months the activity was frenetic. A couple of contractors came and left, new SHGs were trained and flew the nest and the workspace was refurbished and reorganised.

Transforming villagers as a productive force

A first theme that emerges from the data is the necessity of transforming rural life to adapt it to the productive structure of Mother Earth (see Figure 7). The basic idea is to preserve the *integrity of rural life* i.e. keep people in the countryside in Neelam's words. This task implies the transformation of *villagers' attitudes* and their *traditional production activities* to make them compatible with a *market-driven economy*. According to my informants, the daily life of a typical SHG mostly overlaps with the daily life of the villagers. The traditional artisans that one finds in any corner of the country, Mother Earth's workers argue, did not exactly adopt any specific form of organizational structure. Many of them would in fact use the income generated by their artisanal skills to complement the work in the fields. Weavers, river-grass collectors and handicrafts makers

do not consider those works the main source of their subsistence but rather a complementary income. In many cases the SHGs that actually supply the Mother Earth products are composed of self-sufficient households living and producing at home. These are little networks of families living in the same village or in the surrounding countryside. The orders are shared among the network and managed by the leaders. The idea itself of a SHG is something novel for those communities. In an interview Neelam told me: 'the concept of SHG was originated by Mohammad Yunus in Bangladesh. Then the Indian government took it and said... let's convert every human being in a village into a SHG member. We took that model because it makes easier for them to get financial support. This is a model that is universally understood. If you create your own model, nobody is ever going to be convinced about it, especially banks' [ME-NLM]. The SHG is a formula that makes the artisans visible to the institutions of the formal economy. Through the SHG they acquire an economic identity that allows them to get loans, to pay taxes and get access to social security and pensions. An anonymous group of villagers that lives on subsistence agriculture and the occasional trade of handicrafts becomes part of the formal economy by gathering into a SHG. The Indian government has encouraged the creation of SHGs in the 11th Five Year plan prepared by the Planning Commission³⁸. It proposed to develop clusters of 20 to 500 artisan families to increase the income, employment and the productivity of the units and workers in the rural areas. Moreover, it proposed the identification and establishment of '*growth poles*' to bring together a number of such clusters in a region to exploit economies of scale. Those recommendations encouraged the collectivization of the artisans in SHGs and also proposed the creation of a national fund (NAFUS) initially supplied with Rs. 50 billion to cater to the requirements of micro and small enterprises in agriculture and non-agriculture sectors that were not served by Small Industries Development Bank of India (SIDBI) and National Bank for Agriculture and Rural Development (NABARD) (Bhagat et al., 2011).

³⁸ "Eleventh Five Year Plan (2007–12), Inclusive Growth", Vol. 1, Planning Commission, Government of India. Retrieved January 2, 2014, from http://planningcommission.nic.in/plans/planrel/fiveyr/11th/11_v1/11th_vol1.pdf

One of the attractions of the SHG model is the conviction that the rapid urbanization of the rural population is hampering the sustainability of the social fabric in India. In short, the people who can sustain themselves in the rural setting should remain in the countryside. Neelam is very clear on this point: 'See... in India there are two types of sustainability that are critical. One is environmental and the other is social sustainability. Unless you provide employment for these people at village level they all are going to migrate to the city. You cannot do anything about your traffic and your footprint. 50 million people are in the cities. Right now, only 30% of our population is the cities. By 2050, 50% of our population will be in the cities. One of the ways to keep the country economically and environmentally viable is to keep those people in the villages. So that's what we do'. [ME-NLM]

Furthermore, as many Industree employees told me, the villagers would prefer to live in their villages rather than moving to the city. Mervin, an Industree employee with two decades experience, explained to me the transformational role that the SHG model has played in the field. Villagers, he told me, historically prefer to work in their domestic environment. However, keeping the production in the rural settings represents a big challenge for a retailer company like Mother Earth. Production on a large scale carried out by scattered units of households is very difficult to monitor and optimise. Mervin told that in his experience he faced countless problems of getting production ready on time and to a specific quality. They have tried all sorts of things. For example, in order to achieve a uniform quality of the manufacturing they have tried to group them under the same roof. 'We make them to hire a common working centre, like a shed and we place them in there. We link them to loans institutions, like social microfinance people and then we make them to purchase machinery, table and tools and gave design and ask them to work on that design'[ME-MRV]. The first time I met Mervin, he was in the upper floor of the Mother Earth factory. This floor is the working space for three SHGs that process natural fibres: banana, river-grass, coconut and Areca nut. The former is used to produce the flip-flops that Dave showed me my first day in Mother Earth. Mervin told me how he struggled to set up a network of villagers for the harvesting and manufacturing of the Areca frond.

The Areca is a palm tree very common in South-East Asia where its nuts are largely consumed. Chewing a mixture of areca nut, betel leaf and other spices is a tradition and sometime a ritual which dates back thousands of years. The Areca's fronds, which fall down between November and February, are traditionally used to make plates, bowls and other rudimental containers. Each tree provides around 5 fronds every season. Once the fronds are on the ground they must be collected and stored. Even one night on the humid ground can cause a fungus infection. Mervin observed that the fronds were sporadically collected by the locals, especially certain lower castes that have the right to harvest and use common resources like pastures or fishing grounds. More recently the fronds acquired a market price that is between 50 paisa and Rs. 1 depending on the quality and the state of preservation. In one acre of land there could be around 3000 trees. Mervin told me that in a week the villagers can collect up to 1000 fronds. In a span of 6 months they can get around 30,000 fronds. If they carefully store the fronds, the locals can easy earn a minimum of Rs. 15,000. This is a significant extra income. After observing how the fronds were traditionally collected and managed, Mervin did some maths and decided to convince the villagers to create small groups devoted to the harvesting and manufacturing of Areca fronds. He told me: 'So we tell them to collect the fronds, we tell them to store in proper way, how they have to be dried and stored. We tell them the kind of extra income they can earn as farmers selling the fronds to a third person. That person should collect and purchase the fronds according to the quality. So if they don't work on a particular time bound, this extra income won't be there. They cannot wait too long to pick the fronds up from the grounds. They have to take into account the quality and the deadlines' [ME-MRV]. The traditional ways of storing palm fronds are not suitable for mass scale production. Even more important, the fibre delivered does not meet any commercial standard. In order to cope with these issues, Mervin and his team spent months on the fields observing the activities of the palm farmers and eventually introduced new sets of routines to collect, dry, store and process the Areca fronds. Once the fronds are properly dried and stored, they must be cut in a specific size and shape. Then the fibre is soaked for 72 hours in a solution and becomes palm leather. The solution is made from a combination of chemical reagents that are the result of a long series of failed experiments.

Mervin goes on: 'we call it palm leather but this fibre has to be tested again to remove the remaining moisture. Then it goes for the die cutting then it has to be stitched in a proper size. Then after that, it has to store in a proper place and they have to keep it like a dry thing and observe it for a week time. So when the moisture level is very controlled they will pack it and send it to the buyer' [ME-MRV]. According to Mervin, as the fronds collection is not the farmers' main activity, they tend to neglect many important details of this process. The major problem was correct storage. Most of the farmers did not take seriously the drying procedures and lost up to 50% of the fibres because of fungal attack caused by the dampness. In many cases the fronds remained uncollected on the ground because the farmers were busy farming, receiving guests or celebrating festivals. 'We tried to teach them that even for very simple distraction they can lose hours of work and lose money' [ME-MRV]. Step by step Mervin built up a network of farmers trained to deliver good quality palm leather. He selected a villager that used to collaborate with a local NGO dedicated to micro-credit projects and created a SHG around him. 'We caught hold of that person and we educated him. We told him, apart from doing your work you do this extra work for us. You will store and sell and you will become a business man for us' [ME-MRV]. He became an interface between the Areca farmers and the villagers that process, cut and pack the fibre. Mother Earth is using the palm leather to make different kind of products like the flip-flops Dave showed in the Mother Earth's storage (Figure 9). Palm leather is resistant and elegant and it's totally biodegradable.



Figure 9 Palm leather flip-flops

But the main concern for Mervin in the field is not the quality of the fibre, not even the capability of the locals to carry out the manufacture: rather his main concern is the villagers' *attitude towards productivity*. 'But productivity... they don't understand.... they don't understand the costing and the organization of tasks... If they understood the costing... then they would try to change their positions' [ME-MRV] - he said. As most of the activities needed in the palm leather manufacture are carried out in a domestic environment, almost all the members of the family are involved. However the way they distribute each task is far from efficient. A typical situation observed by Mervin and his team in the field consists in what he perceives as being the wrong allocation of tasks and time. Suppose raw material enters the house, most of the family members will start cleaning and cutting the rough fibres, leaving one or two members on the manufacturing side. Since a significant part of the labour force moved to one single task, the flow of production slows down or can be even interrupted. A production that can be easily delivered in 8 hours can take up to 3 days. For Mervin, the locals are not used to production and need to be educated: 'The reason is that they cannot plan. They don't know to plan, there is no forecast planning, so whenever they see physically it happened then only then they move to the next task. There is no planning. The simple thing is that there is no planning. For this reason you see in the SHGs many people doing nothing...so they waste time. They don't know how to manage production that's why we have to educate them'. [ME-MRV]

Naveen is a young engineer who joined Mother Earth 9 months before my first visit. He has been trained as a mechanical engineer in the UK. Back in India he worked for several garment brands before joining the company. He is in charge of production management in Mother Earth and is really concerned about the productivity of the SHGs: 'They can work. But they are ultimately unorganized. Where to start and when to stop... Hmmm that is real problem, a challenge. They do not know what action perform first. How does a sequence follow? They would not understand all this. Managerial things basically. If the process line is cutting, attaching, stitching, finishing. They will be cutting something else which would not go here. So other people will be sitting idle.... without work' [ME-NVE]. They are able to work but not in an organized way. That is a kind of problem'. This situation is quite evident also on the production lines in Mother Earth's factory in Bangalore. Here people are not working in their domestic environment but haven't totally lost their 'domestic' attitude. It's very common to see piles of semi-finished products waiting for a next step while the bulk of the workers are working on a different task or just waiting idly.

Keeping production running is the main concern of Vinay. A graduate from Minnesota University, Vinay has spent a few years working for Infosys in the US. He's the supply chain manager for Mother Earth and gave me a bird's-eye view of the kind of productivity issues that the company is facing in the field: 'They don't understand what productivity is... they want to do the work and get paid from us... that's the challenging we have... not all organization having this kind of challenge...' [ME-VNY]. He explained to me that, as a company, Mother Earth cannot survive if the productivity of the SHGs on which it relies is not going to improve drastically. The supply chain of a retail company is an intricate, complex mix of very dynamic and flexible processes. The providers should be able to deliver in a reasonable timeframe whatever design the company wishes to transmit through the chain. That means that the prototyping phase must be as quick as possible and the production flow virtually uninterrupted. In order to cope with the bottlenecks that Industree found in the field, Mother Earth managers have been trying different solutions to improve the productivity of the SHGs. Vinay showed me all sorts of machinery that have been introduced to upgrade the technology of the local artisans. In most of the cases they provided

simple modification to pre-existing technology, but in a few cases they imported more modern machines from outside. In those cases the machineries were easily copied and counterfeited by local workshops, which in some cases provided remarkable adaptation to local necessities. The SHGs that process river-grass, for instance, modified a weaving machine that initially was designed for wool, adapting it to process the rough fibre that grows on the South Indian rivers banks.

Technological improvements have lubricated the supply chain but have not really transformed the villagers' attitude towards productivity. According to the fieldworkers this is basically due to the subsistence existence most of the villagers carry on. According to my informant, the villages in which Mother Earth works are an entangled mixture of traditional values, habits and social practices based on the annual cycle of subsistence agriculture that involves, with different levels of engagement, the whole social fabric. The organization and rhythm of life in the villages follows a very different pattern compared to industrialised societies. Consumption and production are not separated. Activities such as farming, animal breeding, cooking or housekeeping are all embedded in a complex, uninterrupted whole. Dave nicely summed up this concept for me: 'many times they seem to be more interested in their own leisure and they don't keep up the time.... Working at home they are not so productive because if somebody comes to visit them their work ceases to be a priority, the guest becomes the priority or, if there is a marriage, the wedding becomes the priority' [ME-DVE]. He argues that the manufacture of handicrafts for Mother Earth usually is not their main source of income; as a consequence they do not feel so bothered to dedicate themselves to an indefatigable, productive life. In a nutshell they are not totally persuaded by the idea that a disciplined work ethic would increase their livelihood. In Dave's words: 'they would not tell that upfront.... but there will be in the back of mind... let me do that tomorrow day after. Let me take the money later' [ME-DVE].

Shyam is a veteran of the field. Born in Kerala and raised in Gujarat, he has been working for two decades with rural artisans all over the country and knows very well the life in the villages. He also knows very well which kind of

challenges the rural context presents to companies like Mother Earth: 'if you are working in a village, your festivals, marriages, all those are very important. So you cannot force the community to stay in the production, if somebody dies everybody has to go to. So your entire production is dead' [ME-SHA]. According to Shyam, religious festivals are fundamental in India and are usually combined with the seasonal cycle of agriculture: sowing and harvest time. There are all sort of regional and national festivals in India and the diversity is incredibly high. The average duration is around one week. That means that for many days during the year the villagers are in a festive mood that implies visiting relatives, pilgrimages, shopping and a huge variety of religious rituals. During this period the artisans tend to neglect the work and it becomes quite challenging to manage a constant production. In Shyam's words: 'when we start working with a new group we try to follow the industrial way of organization. If it's holiday you take a gap of two three days but you let us know. At the beginning they just vanish! A lot of efforts are needed to make them understand and educated them to work' [ME-SHA]. After years of experience, Shyam is convinced that rural people are not easily persuaded by the industrial way of production unless they see a concrete personal benefit: 'when you're training a group of thirty people, only four or five will turn up for actual production. And rest of them will wait and watch and see the benefits the others reap' [ME-SHA]. Only when they realise that the ones who stuck out with Mother Earth are getting a stable income, even though they are working 8 hours a day, they start changing their attitude. The average artisan, in fact, usually sells her products in the local markets. Those markets are seasonal and do not provide a source of stable income to the rural artisans. They are often compelled to come back to farming to cope with the lack of orders. This affects their productivities and their revenue. According to Shyam, the villagers who are getting regular orders from Mother Earth and do not have to look for extra work in the field, represent the best incentives for those who have not been persuaded by the work in the SHGs.

People like Shyam have learned to deal with the issues that the rural context presents through a very practical engagement with the field. When he was working in Kerala as a freelance consultant for a local and relatively new SHG, he received an order of cushions from a foreign company. Not only was the

group inexperienced in natural fibre manufacture, they were also completely unprepared for export orders. The group was originally formed by young women who had been previously involved in part-time productive activities such as flour milling and basic weaving. A few of them at that time were working in a local small scale industry doing motor binding for stabilizers. They were grouped and trained in making natural fibre products. That was the time when Industree was trying to promote non-commercial fibres like banana bark and Areca fronds. The coir and jute had established markets and their production process was well established, whereas non-commercial fibres were an uncharted territory. When Shyam started working with them they were quite reluctant to accept the basic notions of productivity. He had to arrange the production according to certain criteria of cost and quality. Given the very strict margins of benefit, the profitability of this kind of export orders is linked to the productivity of labour and capital. That means that even the minimum waste of time and material must be avoided, otherwise it is easy to exceed the planned costs. This was tough for the members of the SHG to digest because they were used to the local small markets where the volume of items delivered is much lower and the margins are wider. In this new kind of export order model, to achieve a reasonable margin, one has to consider even the small details. Saving 10mm of adhesive tape per piece, for instance, might have important consequences on the final costs. Shyam and his team found it extremely difficult to transfer those principles to the members. The waste control was particularly problematic. The fibres they were using are mostly considered an abundant source of animal food or manure. Banana barks, for example, had no economic value at all. The villagers traditionally use banana fibre to make simple floor mats, as food dishes and for rough packaging (see above). They were now using something that had no real economic value for the workers. As a consequence the workers were not concerned about wasting it at all. When they started the production, the cost of the raw material, which basically covered the cost of collection and transportation, was something around Rs. 10 per kg. As soon as the fibres providers realised that the raw material was actually used in the production of exportable products, the price shot up by more than Rs. 30. The increase of almost 200% in the fibre price in a very short period of time seriously affected Shyam's plans. They had originally negotiated the order price based on the low

economic value of the banana fibre. In order to cope with something that they couldn't foresee, they had to focus on other factors to cut down the costs as much as possible. The optimization of raw material waste became crucial. The price of something earlier considered a valueless material suddenly became the key factor that could jeopardise the profitability of the order.

Another issue, though a predictable one, was the reluctance of the SHG's members to work consecutively for 8 hours a day. It turned out that the villagers, especially women, prioritised many different activities over the work. Women had to attend to their families, finish off their household tasks and send the kids to school. Men often attended to guests or were busy in other activities related to agriculture or their local communities. The average uninterrupted time dedicated to cushions production was less than 4 or 5 hours a day. A typical situation occurred when a woman had to attend the family and work at the same time. After cooking, cleaning the house and sending the kids to school, she had to move to the production centre, a shed nearby the village, and work for a few hours. Then she had to come back to her house and cook the lunch for her husband, other family members or visitors. In many cases she had to bring the food to the field where her husband was working the land. The production of cushions could be resumed only in the evening when many women sat and worked at home. This pattern clearly hampered the productivity of the enterprise and put the quality out of control. Even the most *primitive* production line needs to be properly managed to deliver on time. The impossibility of planning production accordingly to a fixed, stable and predictable number of hours worked prevented the Shyam team from meeting many important deadlines. The fact that many workers continued their work at home made the control on quality almost impossible. Size, colour and many other features changed depending on the single worker. At the end the order revenues could barely cover the production costs. As Shyam put it: '*Productivity is not our cup of tea*' [ME-SHA].

Shyam claims to have a very clear understating as regards the villagers' attitude: 'Village lifestyle is very relaxed. When I go into a village what I really do is trying to force them into the productivity mentality' [ME-SHA]. According to

Shyam, in comparison to industrial societies the village economy follows very different rules, it is a subsistence economy. Every village, he explained, is located in a network of very small markets that rotate weekly. The function of those markets is to trade the surplus of the village production and complement their subsistence. 'If I know how to make mats, I would consume only one or two mats a year, the rest of the mats will be supplied to the local market. So earlier it was like that, if I am housewife who makes mats I will supply to a small local market' [ME-SHA]. Once or twice a year, bigger markets for cattle and agricultural machinery are organised but still, these are very isolated events. The modern idea of the international market, which has the function of providing goods that are not directly available locally, is quite unusual. 'see... in Pattamadai everybody knows that there are very special mats. If my uncle's daughter is getting married, I'll move there and buy a Veervalnur mat' [ME-SHA]. Furthermore, in Shyam's view, a typical habit in traditional communities all over the country is the customisation of symbolic objects usually used to establish or reinforce certain social linkages. The objects that constitute a traditional dowry are carefully selected months before the wedding and embody profound religious meaning. For example, the ancient art of sheetal pati, which is a traditional technique to weave natural fibres, requires the artisan to pray during the entire manufacturing time. Not only does the client buy a highly personalised product, but she also expects to have the blessing of the maker. It is not difficult to see here that the productivity of the artisan is far from being a central concern in the villagers view. In short the traditional life does not rely on the market. As a consequence the organization of time for production is a concept that is very hard to instil in the villagers minds. 'Basically they are different, they waste a lot of time. If you go to a village at any time you will see huge groups of guys sitting around, doing nothing. They are wasting a lot of time, especially the youth'. [ME-SHA]

Although the Indian population is rapidly moving into the cities, more than a half still lives in rural villages. Modern habits, products and media are slowly penetrating everywhere and mobile phones are ubiquitous. However the pace that characterises the invasion of modernity into the rural settings does not equal the pace at which social habits change. Mocking the title of a 1974

Bollywood movie, Dave told me that the villagers' only wants are '*Roti Kapda Aur Makaan*' (food, shelter and clothing). They don't worry about walking barefoot, comfort, brands or style. This romantic frugality of the rural dwellers, according to Dave, is partially due to the Hindu fatalism that persuades people that their condition is not determined by the actions they perform in this life but rather by the acts they have done in a previous existence.

The co-founder of Mother Earth, Gita Ram, has a less philosophical explanation of villagers' attitudes. I met her in Chennai at the Annual National Expo of traditional handicrafts that gathers together hundreds of Indian artisans every year. Gita has long experience with rural and traditional handicrafts and is one of the main investors in Mother Earth. She told me that, according to her experience, most of the problems Mother Earth faces on the ground are due to the isolation and the social exclusion that rural people have suffered from time immemorial. They are farmers and artisans at the same time who have never been exposed to complex market mechanisms. On the other hand, when they get in touch with the possibility that the city offers, they start desiring a better future for their children. At the same event, I spoke with Mahadiv, a worker of Industree who has been working for many years in Mervin's team. He introduced me to some of the artisans that Industree supported through the years. He told me: 'the village people that you see here have traditionally 2 or 3 skills. The first is farming, traditional farming. Then they have secondary skills like weaving, iron or clay working and thing like that. Those skills provide them with secondary incomes. Every village you go you will find some extra skill that is useful in their daily life like weaving coir from coconuts to make roofs or any other practical skills. Those skills are old and are basically eco-friendly and have been passed on for their livelihoods. When they have a surplus they get an extra income by selling it, but it's a secondary income' [ME-MHA]. Mahadiv's explanation of the villagers' attitude towards productivity is that their needs shaped their wants. Mervin told me something similar: 'if they want money then they work hard. Otherwise they relax ... forcible work is not there in their life. This attitude is even encouraged by the government' [ME-MRV]. He referred to the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), which is an Indian law that guarantees the right to work in rural areas by

providing at least 100 days of guaranteed wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work³⁹. According to Mervin, since many of the traditional manufacturing activities in the rural settings are not considered 'skilled manual work', most of the rural artisans are entitled to apply for the guaranteed wage. In ME field workers' view, in the overwhelming majority of the cases, the people get a salary for doing nothing. According to Mahadiv, at least in the state of Tamil Nadu, a network of middlemen is in charge of creating fictitious jobs to earn the government allowance without carrying out any real work activity.

In general, Industree employees told me that getting the local artisans to work in an organised SHG is not sufficient, they need to be, in their words, '*educated to commit*' and comply with the rules of a flexible and productive supply chain. This is particularly difficult because many villagers are reluctant and offer resistance to the structured organization of daily work in the SHGs. In Vinay's words: 'they do not think for the next 10 years. Resistance is basically resistance to change... which is the main issue here. You find it everywhere even in big organizations like Microsoft. If they have to change from X to Y, they will have some resistance to change... The only difference is that in the urban context this change is easily doable because people are educated. They understand, they got a formal schooling, they know what they want to achieve. But here in the rural areas... the people are not formally educated, only when they come here in Mother Earth they get awareness... here they are exposed to things called decision management, accounts, things like that'. [ME-VNY]

This commitment to the education of the villagers underlies a corporate discourse shared at all the levels within the company. When I first met Neelam, I asked her what the biggest innovation of Mother Earth was and she replied: 'Everything we do is always linked to productivity. To improve productivity you have to introduce technical innovation, even small. However I think our biggest innovation is this whole thing of "it is your production to start, it is not my

³⁹ The MGNREGA act is available online at: [http://rural.nic.in/sites/downloads/right-information-act/02%20CIC_PartII_MG_NREGA\(F\).pdf](http://rural.nic.in/sites/downloads/right-information-act/02%20CIC_PartII_MG_NREGA(F).pdf) (last accessed January 10, 2014)

production. I'm not running this company for me. I'm running this company for you, to give you a market". [ME-NLM]

The language used by the Industree/Mother Earth employees to describe the activity of training and organization of the SHGs sounded to me like a schooling jargon. Their approach to the villagers is structured on two basic levels. One is the improvement or upgrade of the artisans' skills. In the case of unskilled people their action results in a capability building process. This aspect is easily visible in the training process in which a set of practical skills and technical, managerial or financial capabilities are transferred from the company to the SHGs members. The second aspect is more subtle and concerns the transformation of the artisans as villagers into *productive, market - ready individuals* i.e., able to meet the standards Mother Earth needs to compete on the national/global markets. This process does not involve a concrete transfer of knowledge, information or practical skills but a *mind-set*, an attitude towards the work and productivity that is somehow alien to the locals but necessary if they are to take their place in, and benefit from, a globalised supply chain. For the trainers, the villagers have not been exposed, at least the vast majority of them, to the possibilities that the city or the foreign markets offer. In order to realise those opportunities, they need to educate them. According to Mervin for example, the villagers' mentality is slowly changing, especially through the exposure of the younger generations to the new values coming from the outside world. But quite interestingly the construction of productive individuals requires them to pass through an obligatory passage point by acquiring practical understanding of the mechanisms that govern the company and its role in the market. Things like the costing process, financial accounting and planning are dissected step by step with the intention of shaping a new set of practices in the daily life of the artisans.

'See this mentality actually changes... [...] That kind of education right now is not there. So we are trying to make them understand whole productive cycle and how it works. We analyse together their activities and how they work. Then we ask them to guess about the costing for example. How much does it cost to produce this and that in one week? Could you complete it on time? Then we show how much time they have wasted and how much money they lost. You told me that you need 80 rupees or 100 rupees per day, but the product that you make in one week costs much less. How is it possible? We have to make them

feel that they have wasted time. If you did it efficiently instead of this one week work you could have done in 2 days work. Why? Those are the kind of questions we ask them'. [ME-MRV]

Naveen explained to me: 'when those situations happened we sat together. We said what's the problem? [...] basically we want them to understand how to coordinate the production, how to balance it. If you do too much of one thing, you won't have enough people to do attaching for example. You should balance it in such a way that all the processes work parallel. So that should not be any people idle. [...] but to get this awareness they should be proud. One should say: I'm proud of it. Yes, I'm proud of making this product for Ikea. He should understand that is giving and receiving. So this kind of attitude makes them sit and work... maybe you need 2 or 3 years until you proudly say... yes, my product is going to Sweden, it is going to Germany. Such people are using my product. Until you take that initiative in your product or in your process you won't be happy about yourself. [...] They are very poor in account, bookkeeping, financial aspects of a business. To understand that... they have to understand the big picture. What is financial and bookkeeping for? They have to understand the targets and the plan to achieve them' [ME-NVE]. Shyam described those two levels of education even more clearly:

'So far we have been training them in the skills of producing. Now we have to change, train them in the skill of doing variations and market access. So you need people not only to do production. First they need to understand that they have to work. I mean, you cannot earn just by sitting at home. Second, whatever you are doing has some value. I mean it's not below dignity level and this is how you will get dignity, people will not just come and give it you. You have to show it to them'. [ME-SHA]

Vinay, as a supply chain manager, is particularly concerned about the mismatch between the requirements of Mother Earth and the need for a change of attitude of the artisans:

'My daily concern is getting them to make production and making them independent. We're trying to make them to understand what productivity is.... We give them some expertise in terms of how to make things work, which in turn gives them the opportunity to learn and then compete in this market. If left alone, they wouldn't know what to do and what not to do. We are dealing with lack of initiative, lack of awareness. How to approach and talk to the buyer, how to pitch my sales. They don't have the experience; they don't have this awareness. Because it's a continuous learning, it will take years for them to understand what

quality actually is. We have to keep training them; we have to keep imparting knowledge. Apart from that, they need to change their mentality'. [ME-VNY]

The productivity of the Self Help Groups (SHG)

A second theme that emerges from the data, the need to *increase productivity* of rural artisans, is directly connected to the previous one, i.e. the intent to '*transform rural life*' (see Figure 7). The traditional production routines that characterise rural artisans are perceived as a *bottleneck* for Mother Earth value-chain managers. As a consequence productivity must be increased in two ways: through frugal innovation (*technology discourse*) and through the education/training of the artisans (*pedagogic mission*).

Under the pressure of a highly competitive market such as the retailers business is, Mother Earth had no choice than to improve productivity and quality control in the field. Determined to understand their strategy in the field, I decided to visit a SHG located in the state of Tamil Nadu. I spent one week in the area observing and speaking with the locals. The SHG is located in a village, which is 30km away from Erode, a busy cluster of textile industries. The people of this village and the other surrounding villages have been weavers for many generations. They used to weave with traditional wood-made handlooms in their houses. The SHG's location is on the main road to Erode. It is a big tin and wood structure surrounded by a wall. The group is composed of a variable number that oscillates between 15 and 20 women. The number varies for different reasons. Some members prefer to work only certain periods of the year or have all sorts of social obligations that do not guarantee her stable presence within the group. Those communities alternate traditionally seasonal farming with weaving (see above). However nowadays, many of the members' husbands are migrant workers employed in the garment industry in the nearby clusters of Erode and Coimbatore. A bus picks them up at 8am in the morning; they work on average 12 hours and come back in the night for Rs. 200/250 (US\$ 3-4) a day, a miserable salary according to Mother Earth's workers.

When the group was formed and trained by Industree, they kept working individually from home. After 3 years, they told me, they had gained enough

money (around Rs. 300,000) to build a common structure and unify the production under the same roof. Vinay, who escorted me during my trip, told me that having everybody working in the same place was the only way to achieve a standard quality of the fabric. According to Vinay, by grouping them, the productivity is not really improved but they are now able to control the quality. The problem of working at home is that the women are continuously distracted by their kids, guests and family duties. As a consequence, production cannot be planned and the quality is impossible to control. Furthermore, the centralisation of the production enabled a stricter control on the deadlines and optimised the distribution of the raw material.



Figure 10 Erode SHG shed

When I visited the SHG, they were making banana fibre fabric that is used by another SHG in Bangalore to make bags and cushions for Ikea. The landscape is covered by paddy fields and banana plantations so the raw material is near and abundant. The banana's bark is purchased at Rs. 1 per piece and then split in tiny threads that can be either twisted or stretched. Then the threads are woven in the huge rudimental wooden handlooms. In order to improve the process, the Industree team introduced two simple machines to speed up the twist and stretch process. Mervin in person designed the machines and tested it in a local workshop. The banana's bark is not traditionally used for weaving; it is

normally treated as a biomass waste. When Industree created a demand for banana fibres, bark dealers mushroomed in the village. The group is managed by a leader and supervised by Giri, an employee of Industree. He is in charge of controlling the production and supplying the raw material to the group. Every worker is committed to produce 8 meters of fabric a day. The working time seems quite flexible. Some women come only in the afternoon; some others work only a few hours in the morning. There are always 2 or 3 children around. After an entire afternoon spent with the SHG I was exhausted but I couldn't refuse a flash introductory session to handloom weaving⁴⁰. After half an hour of clumsy work I had delivered what an average weaver produces in less than 5 minutes. Giri smiled and, passing me an Areca nut mixture rolled in a betel leaf to chew, told me: 'look... there is no tension and no stress here. They are so happy to work in this environment. They can easily earn Rs. 5,500 a month and get close to their houses and their families'.

In order to find out more about the strategy Mother Earth is using to improve the productivity of the SHGs, back in Bangalore I interviewed Naveen again and got in contact with Rony, a trainer of Industree. We sat around a worktable in the middle of 2 noisy SHGs that were busy stitching together river-grass fabric pieces. They told me that training, education and organization have drastically improved the work of the SHGs but they are not realising their potential. To explore this alleged potential Naveen and Rony together with their teams have carried out several experiments to test the attitude to change of the SHGs' members. The first set of experiments consisted in some role games. The technique they used is a ballgame. Naveen took my Livescribe pen and started drawing a table surrounded by 8 dots. They gathered the 8 members of an SHG around a table maintaining a distance of 2 feet between each other. Then they asked the person 1 to throw a ball to the person 3, then the person 3 to throw the ball to person 5 and so on (see Figure 11). When the ball came back to person 1, she had to throw the ball to person 2, who had to throw the ball to person 4 and restart the circle following the same logic.

⁴⁰ <https://www.youtube.com/watch?v=lcumsN2Hwgl> (last accessed February 5, 2015)

Before starting the game they asked the members how many times they expected to complete a full circle (from person 1 to person 1 back) in 1 minute. They workers expected to complete at least 5 circles. The first time they could not even complete a single circle. Somebody dropped the ball, others threw the ball to the wrong person and others inverted the rotation. A typical mistake was that after the first rotation, the person who started the game rarely remembered that she had to change temporarily the passing pattern to start the second rotation (see the blue arrow from 1 to 2 in Figure 11). Only after 9 attempts were they able to complete 2 entire rotations. Thus Naveen and Rony decided to give them some time to think about a better arrangement to improve their performance. They discussed the situation and came up with a different disposition of the people around the table. They identified the weakest points in the chain and replaced them with the members who were supposed to be more focused for that particular task.

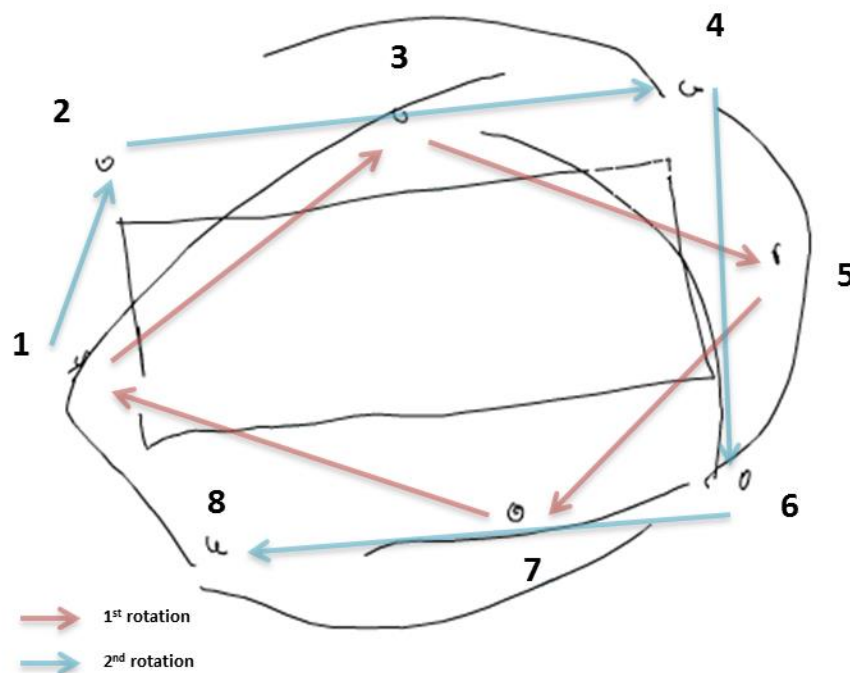


Figure 11. Ballgame based on Naveen's drawing

When they tried again there were able to complete 4 rotations in a minute. In the following games the members started communicating with each other, a fact that drastically improved their performance. Once the people mastered the

game, Naveen told the leaders to play the same game with 8 balls at the same time. The leaders organised the group but they failed at the first attempt. So again they took their time to come up with a solution and finally decided that each player should call the name of the person she was about to throw the ball. In this way each member was forced to focus only on the person who threw the ball and the one who had to receive it. At the end of the training the members were able to complete 45 rotations in 5 minutes, a figure they wouldn't have ever imagined. The experiment highlighted 2 important points: the lack of communication between the members of the group and the fact that during each task of receiving-throwing the ball each member was distracted by the activity around her and did not focus on her task. When certain roles were established and the attention was focused only on the task of receiving-throwing, their performance drastically improved. This is what occurs in their daily activity, Naveen concluded. Each task in the production process is randomly allocated. Moreover, instead on focusing on one specific task, the workers are more or less involved in many different activities in the process. This behaviour leads to the piling of unfinished products so often observed in the production lines that creates bottlenecks in the chain and eventually delays the whole process.

The experiment was repeated replacing the ball with an actual production line. Rony arranged the game to simulate the production sequence of several home products. The game had 2 distinct phases. First, the group received a blueprint of the product, the raw material and the tools. They have to figure out how to organize and complete the production with the minimum waste and time. Then Rony analysed the sequence and came up with alternative routines to speed up the production line. Those procedures were filmed to produce a training kit that is now used to train other SHGs.

According to Naveen, the opportunity to test this methodology arrived when Mother Earth received a huge order by an important Indian retailer. They were asked to provide 1250 home trays made out of natural fibres. This is a typical gift article that is very popular during the Diwali festival when the Indians exchange gifts and usually put them in small boxes or trays. The order had to

be delivered in less than 10 working days. The ME's management decided that, in order to be profitable, the production should have been completed in no more than 4 days. Naveen's team, thus, had to convince a SHG to accept the order. They decided to go for the two groups that had participated in the experiments. Those groups are located in the Mother Earth factory in Bangalore on the 3rd floor. They are expert in working natural fibres like river-grass, banana and Areca tree. One group refused, the other was very sceptical. The second group is led by a North East Indian woman called Vandana. She comes from a tribal group with Burmese origins that traditionally works bamboo and other natural fibres with exquisite precision. Vandana's group, which at that time was composed of 14 members, decided to accept the order. They split the group in 3 subgroups and set up 3 lines of production. They organized the production according to the lessons they had learnt during the experiments. As a result, they delivered the order in one and a half days.

Building ownership and responsibility

The third theme that emerges from the data is the necessity to *create ownership and responsibility* within the SHGs (see Figure 7). This is a direct consequence of the fact that Mother Earth creators assume that the rural artisans suffer from a *lack of productive culture, a lack of self-reliance and commitment*. For these reasons, in order to guarantee the success of the SHG model, it is crucial to create a sense of *self-empowerment* within the artisans' communities. The SHGs must understand that they are the owners of their production and the *artisans of their own fortune*. The promising experiments carried out by Naveen and Rony teams have shown to the top management that the traditional training that Industree had been using for almost 2 decades is no longer sufficient to guarantee a stable flow of new products from the artisans to Mother Earth. Furthermore, the responsiveness that a modern retail company requires can only be achieved by a flexible supply chain that is able to adapt very quickly to new designs and new techniques of production. Poolam and her colleague Rashimi explained to me in detail the type of work Industree has been carrying out with Government support. Poolam is a young woman from Gujarat. Despite her young age, she has a profound knowledge of the artisans' communities

acquired through long, uncomfortable fieldtrips. She told me that Industree has been collaborating for many years with the local and national governments in training groups of traditional artisans. As the Government was interested in conserving and revitalising the traditional manufacture, in the 1990s they started several financial programs to support the local artisans. The programs usually provide soft skills training such as basic financial and accounting skills and some timid attempts to explore alternative markets for the traditional handicrafts. The products of the artisans all over the country were exposed in public showrooms but rarely achieved a vast clientele. According to Poolam, the weakest point of government action was the lack of planning and vision. All the initiatives were designed to provide only a financial contribution to the artisans. The planners were not interested in creating networks of suppliers and consumers or exploring new markets. As a result, the long term profitability of those experiments was not guaranteed at all. Over the years Industree has developed a huge variety of curricula that included visual training with videos and demos and a deeper understanding of the networks in which the artisans are embedded. This experience has convinced the management that the activity of training should be designed to achieve a higher productivity and the capability to reach new markets. But even more importantly, Neelam and her entourage are convinced that training can be profitable for Industree.

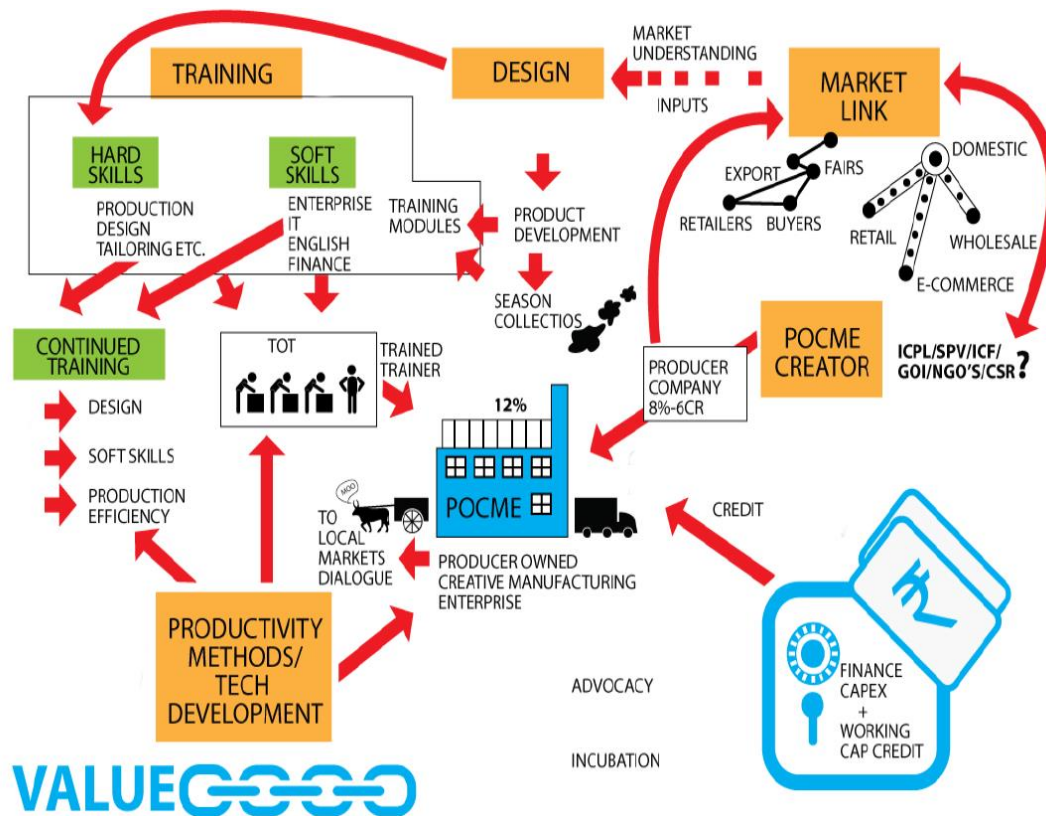


Figure 12 Industree Skills Transform value chain. Source: internal documents.

When I first met Jacob, Neelam's husband, he was quite nervous about giving a presentation for a group of investors for the new company he was setting out: Industree Skills Transform (IST). Like Neelam, Jacob is a designer from the National Institute of Design (NID). He has run his own company for 15 years focused on retail branding, product design and marketing. The aim of IST is to offer paid training to individuals or groups of artisans who want to upgrade their business. According to Jacob, the traditional training programs haven't really incentivised a proper entrepreneurial spirit among the artisans. Being totally free, only a small portion of the people who participated in the training was actually interested in setting up a business. IST would select and train those artisans that have the potential to become productive members of the community that supplies Mother Earth. The company would initially pay for the training or connect the artisans to micro-credit funds. The artisan will later pay the loans back to IST when their business will take off. IST is a small part of a bigger project that the creators of Industree have in mind. Jacob showed me a diagram that describes how the rural producers can be embedded in a modern

value chain (see Figure 12). The idea consists of expanding the Industree/Mother Earth model, involving almost all the manufacturing activities that are performed in the rural context. The axes of this project are threefold. The first is the training structure that involves hard skills designed to enable production (tailoring, stitching, carpentry and so on) and soft skills designed to support the production (English, financial and accountancy, etc.). This aspect is supported by an incubation process that is supposed to improve and shape the productivity capacity of the artisans according to the insights provided by the experiments performed by the Industree employees. The role of IST is to deliver independent and productive units that are able to pay back their training through the vent of their production. The second axis is the design and brand making machine. This aspect is covered by the Mother Earth team together with its partners (Future groups, Ikea, Habitat and so on). The last axis is the access to the market, which is also covered by the activity of retailers like Mother Earth but also by the development of tools like e-commerce platforms for national and international markets.

Making this ecosystem work is the present priority of Mother Earth. According to Jacob, the success of Mother Earth's business model and its social commitment depend on a *new kind of economic organization of the rural world*. Making rural artisans productive and flexible enough to support Mother Earth business together with an innovative brand promotion that draws on social and environmental values is the challenge that Neelam and her collaborators are resolved to take up.

When I visited Neelam for the last time, she communicated her motivation and aspirations very clearly to me. 'I worked with many government organisations to design new products using the artisans' skills. But I saw that those products never reached the market. The government paid, they get new designs, but they never put it in their showrooms. So I decided the only way to do this was to open a shop. We would design new products and we would set the order to the artisans. We'll get the product put it in a shop, sell it and paid the artisans. Since 1994, for 13 years I ran a very small boutique in Bangalore. We made losses for the first five-year and then I started making a profit in 2001. [...] So in 2006 I was

reasonably profitable. I was at a breaking point. So I decided that I needed to impact more artisans, I needed to scale' [ME-NLM]. From 2000 to 2006, Neelam exported to more than one hundred countries and participated in all the major expos of traditional handicrafts all over the globe. Suddenly she realised that the export business, although quite lucrative, was never a consistent and stable market. Industree was not able to get a continuous flow of orders to export. 'In 2007, I decided to scale up. It became very clear to me that if we wanted to work with the artisans we needed to move them up in the value chain. They have to become their own production supervisors, their own managers. [...] Our model is very simple. The SHG group should not have any external supervisor. They should supervise and manage their production and quality control by themselves. There is a supply chain team. The overhead cost of the supply chain team will be booked on those producer companies. So by the time my producer companies get the \$ 2-\$ 3 million in sales they can afford the supply chain team... That is it. And the front end, that's Mother Earth, should just build a market' [ME-NLM]. In order to make this model feasible the artisans should be willing to pay to get their training. Since the government distorted the market by offering free training programs, nobody is willing to pay and the whole process, according to Neelam, has been encumbered by those who were trained but had no interest in becoming independent entrepreneurs. Still the biggest obstacle is the villagers' attitude, a recurring theme for the case study as a whole: '[the biggest obstacle we face on the field is] ownership. Nobody wants to own anything, they all want jobs. [...] You tell them, you own this unit... they do not want to take the responsibility of owning the unit. Because they have not seen the benefits of ownership. Especially women. Women do not want any additional responsibility. Men are okay with it. Men get it much faster. Women find it very inconvenient. They have to cook and look after the husband and kids and you ask them to look after their company... They are not interested. I understand that. You can do it only if you have a lot of security behind you. So they don't have it. It is ok. But we are predominately woman focus. We are not men focus because men do not cooperate. You don't have man SHGs. We tried to make male SHGs. But they split up at the smallest provocation... So, this whole SHG movement relies only on women' [ME-NLM]. According to Neelam, a cooperative culture is totally missing in the rural world,

especially among the male villagers. She mentioned to me several cases of master artisans who turned into middle men and started exploiting their artisan fellows. She argued that as soon as an artisan learns how to access the market, he uses this advantage to exploit his colleagues who are excluded from the market for the sake of his personal profit. In this regard, to Neelam, a local entrepreneur with enough knowledge about the new emerging urban markets can easily turn into an exploiting capitalist. Ownership and responsibility are Neelam's main concerns. She is committed to holding together the ecosystem that Industree has created in the last 20 years, promoting a metamorphosis of the rural setting. Ownership, responsibility, productivity and entrepreneurship are her key words.

The future of Mother Earth

After four months in Mother Earth, their vision, strategy and discourse began to be revealed to me. The decision of Industree to scale up to reach as many artisans as possible projected the company into the highly competitive market of the retail industry. Such a new context requires a totally different organization of production and, above all, implies the optimization of a supply chain that does not have productivity and competitiveness in its DNA. But even though the new scenario is the wild arena of emergent Indian capitalism, Mother Earth founders do not advocate for an industrialisation of the rural world. As Neelam said to me, Indian companies are scared by labour-intensive sectors; on the contrary Mother Earth's mission is to be a successful labour-intensive business. Since the transformation of rural life in Mother Earth's creators' minds does not involve the confinement of the villagers into the factory, their emancipation cannot be achieved by any kind of unionization. Their empowerment arises through a sense of collective ownership and responsibility. They have to become entrepreneurs who are responsible for their production and proud of their work. The Industree family, on the other hand, is a catalyser and a bridge that links the rural world to the modern market. But in the end, the final beneficiaries are the artisans and the employees of Industree/Mother Earth who collectively own the companies and collectively will enjoy the equity as soon as Mother Earth will be financially strong enough to distribute dividends to its stakeholders. This is in

a nutshell the Mother Earth's corporate discourse. In order to understand where Mother Earth sees itself in the next years in my last week in the company I interviewed the COO Piyush Deogirikar. After gaining his MBA in the IIM-B, Piyush declined a good offer from Nokia to join Mother Earth. As he told me, he was looking for something meaningful to do in India, close to his family. Mother Earth offered him the possibility to combine his philanthropic vocation with an exciting business opportunity. Piyush also decided to accept the job at Mother Earth for another reason. He was convinced that the retail industry in the country was about to boom. A young brand aimed at young consumers with a social and environmentally appealing marketing was exactly what he was looking for. The new season of economic liberalization inaugurated in India in 1991 opened a vast range of opportunities for new innovative businesses. In the last 20 years, Piyush explained to me, a lot of people joined the new Indian middle class. Those people have already satisfied their basic needs and now desire better cars, better clothes and new food habits. The retail market is growing so fast and Mother Earth is the perfect candidate to benefit from this growth. According to Piyush, even if the village economy is more sustainable from a social and environmental perspective, the traditional life based on subsistence farming is incompatible with economic growth. '*Economy must grow*. Economy cannot grow with a satisfaction economy. The economy can only grow when you have this dire need of market and consumption. More of the 40% of the world's consumption of goods happens in US because they have an increasing hanger of needs' [ME-PYC]. Piyush feels that the Indian society is bound to leapfrog towards a consumerist society and Mother Earth is taking advantage to distribute the benefits of this development among the rural population. The whole country is changing because of big public programs, the job creation by private actors and the exposure to the media. To Piyush, Mother Earth's mission is to support this change and give its tiny contribution to the transformation of the rural world. The challenges, in fact, are in the mismatch between the artisans' production and the endless desire of urban consumers. A retail company, he illustrated to me, is profitable only when it is able to renew continuously its shop windows. The people keep buying only when they see a stable and continuous flow of new products entering the showrooms. In this regard the current production approach of Mother Earth is not an advantage but

a critical weakness. This explains the need for external contractors that guarantee a stable flow of production, sacrificing in part the principles on which Mother Earth philosophy is based. Mother Earth needs to show increasing profits in the next few years to its investors. This is going to be possible only if the ecosystem that the Industree family is building will be able to be at least as efficient and flexible as its competitors. This in turn it will be only possible if Mother Earth will be successful in transforming the traditional groups of artisans that constitute its productive base into dynamic entrepreneurs.

6.3 MOTHER EARTH'S OVERALL NARRATIVE

The Mother Earth case study presents many aspects of the typical social enterprise model. As described by Doherty et al. (2014) in their analysis of social enterprise philosophy, at the core of Mother Earth's narrative there is the dual mission of financial sustainability and social purpose. Unlike Grameen Shakti, Mother Earth encompasses many of the features typical of BOP2 narrative described in Chapter 2, e.g., synergies with local actors, *poor as producers, co-creation of innovation*. Mother Earth's narrative, synthesized in Table 6, is based on the assumption that artisans work and knowledge can be upgraded to make it compatible with the retail industry. Rural artisans, thus, can be transformed into producers able to serve national and global markets. In order to achieve this transformation, the low productivity and efficiency that characterise the rural setting should be boosted through a reorganisation of production. This objective can be only partially achieved by introducing process, organizational and product technical innovations. In order to become able to serve Mother Earth, the artisans have to re-arrange their working time and space and redefine the meaning of their productive activities.

Table 6 Mother Earth Narrative synthesis

Poor's role	Normative Stances & Goals	Innovation	Expected outcome
<i>Poor as producers</i> of goods in a market economy paradigm	<ul style="list-style-type: none"> Rural handicraft is fading, rural incomes shrink, artisans must be helped Rural artisans are not competitive Rural artisans must 	<ul style="list-style-type: none"> Product Innovation (new fibres products, new designs) Process Innovation (frugal machinery, new processes for fibre) 	<ul style="list-style-type: none"> Artisans must learn how to be competitive, raise productivity, acquire ownership and access urban markets Empowerment of

<p>compete on global markets whilst being environmentally and socially sustainable</p> <ul style="list-style-type: none"> • Villagers must remain in the rural setting • Villagers must be more productive and be 'market ready'. 	<p>manufacture)</p> <ul style="list-style-type: none"> • Positional Innovation (new ways of serving national/global markets through rural artisans) 	<p>women through ownership and responsibility of production</p> <ul style="list-style-type: none"> • Re-arrange time, space and meaning of production
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As exposed above, the narrative that emerges from the data appears to be constructed along three theoretical axes that are dynamically connected: *Transformation of rural life; increasing productivity; creating ownership and responsibility*. At the base of Mother Earth's narrative, there is the conviction that the rural handicrafts heritage should be preserved not only for cultural-historical reasons but, above all, because of the potential to emancipate economically the artisans who are living in despair for the erosion of their traditional livelihood. In order to valorise this fading, intangible capital, the artisans need to explore new markets to sell their products. The increasing volatility and uncertainty that characterises their traditional markets and the complementarity with other productive activities like farming are seen as dangerous threats for the sustainability of rural life. The subsistence existence of the villagers is considered an obstacle to the development of their communities. As a result, Mother Earth's narrative is constructed on at least three elements that are supposed to trigger a transformation of rural life: *rearrangement of time, space and the very meaning of production*. Given the family-based nature of the artisans' production, the organization of time is currently strongly influenced by the needs and the dynamics of the households. Production is not linear and never planned to be efficient i.e. to obtain the maximum output with the minimum effort. This is because production is usually embedded in the social life of the family group. Furthermore, handicraft production in many cases is a complementary activity that supports other activities i.e., mainly farming. Social events and obligations are also prioritised over production. All those factors when combined together hamper the stability and sustainability of the value chain of companies like Mother Earth that rely on

rural producers. To overcome these bottlenecks, Mother Earth shapes the local production in three ways.

First, similar to Grameen Shakti, Mother Earth leverages a number of *frugal product innovations* (e.g. new fibre products, new cloth collections) and process innovations (e.g. improved machineries, upgrade of traditional handlooms). The case also presents an example of '*position innovation*' i.e., changes in the context in which the products/services are introduced (Tidd & Bessant, 2009: 21). Mother Earth, in fact, aspires to move the position of the traditional Indian handicraft from their cultural settings (i.e. local markets and religious festivals) to a cosmopolitan middle class, opening new national and international markets. In this sense, innovation (*meant as a vector*) is a process that serves two purposes: i) boost productivity and efficiency; ii) open up new markets repositioning pre-existing products in new contexts. The key feature of this change is the idea of reshaping rural production by providing the artisans with modern design while, at the same time, maintaining a traditional appearance. In this way, rural producers are not forced to move into factories; on the contrary, they are encouraged to remain in the rural setting. However, those dynamics of change have profound implications for the life of the villagers.

Second, the company encourages *a transformation of the organization of time* based on Fordist principles embedded into rural life. Villagers should understand how to *plan* and *manage* their activities to meet deadlines, boost efficiency, save costs and time. The idea is particularly evident in the way Mother Earth workers are trying to rearrange the organization of the time of the artisans through training, planning, control and assessment. In many cases, they also attempt to convince the villagers that their incomes eventually depend on the way they use (or waste) their time. As I discussed in Chapter 3, citing the work of Sahlins (1992a, 1993), in order to 'develop' the villagers have to

understand that the way they traditionally arrange their time is somehow *wrong* and, thus, they are tempted to disregard, or even despise, their usual habits⁴¹.

A third dynamic is the rearrangement of space. Being a family business, handicraft production is usually situated within the domestic space. That means that, on one hand the domestic activities interfere with production. On the other hand, it implies that production is isolated, distributed and non-uniform. In order to produce high numbers of items of the same quality, production needs to be centralised and controlled under the same roof. Rearranging time and space of rural production is crucial to increasing efficiency. Finally, villagers should understand that they are producing for a different kind of customer that constantly demands new products and new designs. The self-subsistence mentality that limits the production of handicrafts to a complementary source of income should give way to a mind-set focused on productivity. Time and space have to be reorganised according to a new meaning of production, which is constructed around the concept of commodity i.e., something produced with the only goal of being sold. This mechanism needs to be routinized and become part of the social practices of the rural communities. The organizational form in which this transformation occurs is the SHG. The SHG is the construct that allows the formalization of rural production within the *canon* of legality and formal economy. The SHG breaks up the invisibility of rural production and gives it a legislative identity. But it also introduces apparently new concepts such as self-commitment, responsibility and ownership. If a SHG wants to succeed (e.g., increasing their income by selling their products), they need to commit, and assume the responsibility to address deadlines and the standards of quality dictated by the market. Hard work and commitment pay off in the world of SHGs. In order to support this transformation, Mother Earth aims to create an ecosystem that is designed to interconnect all the functions that are supposed to allow the change of the rural world: *training, the development of methods for productivity increase, links to the market and financial credit* (see Figure 12). Mother Earth/Industree is the actor that supports and binds together

⁴¹ Humiliation for transformation is a key element in the discourse of development; see also (Robbins, 2005).

markets and rural producers. Unlike Grameen Shakti, which drew on microcredit to increase the poor's *consumption*, Mother Earth's system of incentives aims at creating dynamic individuals or groups of entrepreneurs as *market ready, productive producers*.

Similar to the case of Grameen Shakti, in Mother Earth's narrative the concepts of social justice and social structures as causes of exclusion and poverty are virtually absent – a characteristic shared with the BOP1/2 narratives. As Neelam clearly states in an interview [ME-NLM], the aim of Mother Earth/Industree is not to create unionised workers but independently - productive units able to compete on the market. The underlying idea is that the subsistence life – subsistence in this case is synonymous with poverty - that characterises the overwhelming majority of rural dwellers can be overcome *by transforming them into efficient producers within a market economy*. At the same time, new relationships of dependency (i.e. dependency on Mother Earth for market connections, dependency on the trends of fashion and market evolution, dependency on the junctures of the global markets) are considered an acceptable risk when compared to the miseries of subsistence life in rural India⁴². This seems to be an important and interesting point of Mother Earth's narrative construction process. In other words, Mother Earth sets the boundaries of rural poverty by identifying its causes in the subsistence life and in the incapacity of the villagers to engage in rationally planned production. This framing is in contrast with other ways of framing Indian rural life that identify the origin of rural destitution in factors that are essentially social and political. Gandhi himself had celebrated the virtue of rural self-subsistence and constructed his discourse of technological progress around the proportional and limited upgrade of rural means of subsistence (Abrol, 2014; Gandhi, 2008). For Gandhi, rural subsistence had to be preserved from industrialism – although he was aware of the necessity to improve the condition of the rural poor - because

⁴² To the best of my knowledge, the informants do not seem to be concerned or aware of these new forms of dependency. However, in her interview Neelam [ME-NLM] explained to me that the decision of focusing on the national market was due to the volatility of the global market. This suggests that ME's founders are aware of the risk of exposing rural producers to international competition.

it was the only way to preserve the spirit of the country and, at the same time, allow a more equitable development. Apart from Gandhi's idea of the village-based economy, the equation *subsistence equals poverty* has never been straightforward. However, according to Damodaran (1992) the forms of rural subsistence that characterised India in the pre-colonial age presented very different features when compared with the present. He argues that the boundaries of rural communities encompassed a vaster range than the single village. They actually overlapped with ecological boundaries that guaranteed environmental integrity and biodiversity. Social systems such as the caste hierarchy or the tribal enclaves maintained the integrity within those boundaries. Subsistence in this scenario was possible through the reciprocity of the interchange existing within the ecological boundaries that assured the biodiversity necessary for a self-sufficient life. The British rulers replaced the Panchayat networks – this is the name of the traditional districts – with districts that were designed for the convenience of revenue administration but that did not necessarily overlap with the ecological boundaries in which subsistence was possible. When the British realised that communal lands were rich in resources for the industry back in their homeland, they embarked upon a massive programme of appropriation of common lands by constituting them as *state forests*⁴³. They replaced community law system with individual rights and then encouraged exploitation of natural resources over the limits of local self-subsistence. In many cases, ecological areas were replaced by development units and the diversity and specificity of local knowledge were lost because the colonial administration needed standardization (Gadgil & Guha, 1994). In this perspective, poverty, destitution and scarcity are not necessarily a by-product of subsistence life but the result of a historical process that encompasses social and political dynamics of social exclusion (Martinez-Alier, 2002). This does not mean that the pre-industrial subsistence life was a heaven on the earth. On the contrary, the social structure within a subsistence society can often be very rigid and oppressive. On the other hand, the transformation of a subsistence

⁴³ For a detailed account of the 'Ecological History of India' see also Gadgil & Guha (1993) and Guha (2000)

economy into a market-based system is not a sufficient condition to transform the social relationships that cause poverty and exclusion. In some cases, those dynamics can even exacerbate the unequal distribution of wealth and social goods like natural resources (Damodaran, 1992; Martinez-Alier 2002). In other cases, this *war on subsistence* results in the disappearance of valuable forms of what Rahnema and Robert (2012) call '*subsistence knowledges*' i.e., the whole of locally-situated empirical, theoretical and spiritual knowledge that makes subsistence possible. Furthermore, as Federici (1992, 2001, 2004, 2010) extensively documented, the social autonomy guaranteed within certain limits by subsistence agriculture has become the battle field of the countervailing forces opposed to neoliberal expansion in the global south. In this scenario, the commodification of commons such as land and natural resources has become a major threat for pre-industrial forms of social organization. The suppression, or at least the marginalization, of subsistence ways of living is a direct result of these dynamics. Federici also notices the *feminization* of rural subsistence economies due to the periodic migration of the male population close to the industrial poles that serve the global market in the developing world - a phenomenon that I observed in Ecuador, Bangladesh and, in this case study, in India. Is the rhetoric of 'empowering women' embodied by the SHG model a further extension of what Illich (1981) calls the war on subsistence? The evidence collected on the ground is still insufficient to draw such a conclusion. However, what the case suggests is that the increasingly popular organization of rural productive activities in the formula of SHG, a model that is directly promoted by the central government, is an attempt to reshape the rural life within a new dynamic relation with the urban, industrialised world. Whether this new relation will favour or not in the long run the interests of the villagers this is still unclear.

CONCLUSION

This aim of this chapter was to show a case in which the poor are framed in terms of producers (or co-producers) in a market economy. The case of Mother Earth illustrates a model that is becoming increasingly popular in India and that has been proved successful in a number of cases (i.e. see the case of Fabindia

mentioned at the beginning of the chapter). Mother Earth was founded to connect the world of traditional handicraft, which is under threat of disappearance in India, with the urban middle class interested in modern, appealing design without renouncing tradition. The main intention of Mother Earth is to provide a stable source of income to the rural producers by also guaranteeing the financial sustainability of the company. In order to achieve this objective, Mother Earth has to transform the way the artisans organize and conceive production. This transformation occurs by increasing productivity through the introduction of frugal innovations and the reorganization of space and time of rural production. At the same time, this process implies a process of transformation of rural life from a subsistence existence to a life in which commodities production is central. Since its foundation, Mother Earth's revenues have been constantly increasing and it is likely to impact the life of more people in the future. On the other hand, the case shows the controversial attempt to fight poverty – often generally framed in terms of a subsistence way of life - in the rural settings without focusing, and sometime rejecting to focus, on the social and political causes of destitution. In this sense, the case reflects the tendency to depoliticise poverty, which is a fundamental characteristic of the BOP1/2 discourse.

THE TALE OF THE ‘INCLUSIVE INNOVATION BUSINESS MODELS’

7.1 RESEARCH SETTING OF CASE STUDY

Bangalore is a frenetic city of more than 10 million inhabitants in the southern state of Karnataka in India. In the last two decades the city has become a globally important hub for the IT industry. The concentration of international software companies is so high that the city has been called India’s Silicon Valley. Today Bangalore hosts the South Asian headquarters of global enterprises like Accenture, Infosys, IBM, Microsoft, and General Electric among many others. The region also attracts talent from all over the country to work in the expanding and highly innovative local IT industry. Together with other Indian cities like Hyderabad and Gurgaon, Bangalore presents one of the densest concentrations of Business Process Outsourcing (BPO) enterprises on the planet⁴⁴. At the same time, being the headquarters of the Indian Space

⁴⁴ BPO industry usually refers to the process of outsourcing to a third-party service provider of operations and responsibilities that are traditionally performed within the companies. These functions are typically categorised into ‘back office outsourcing’ i.e. human resources or finance and accounting, and ‘front office outsourcing’ i.e. customer-related services such as contact centre services. The Indian giant Infosys, founded in Bangalore in 1981, is a classic example of a BPO enterprise.

Research Organisation (ISRO)⁴⁵, Bangalore hosts an important centre of aeronautic research, which is the engine of the Indian space race. However, according to Parthasarathy (2004), the region has been struggling to move from a labour-intensive model of global services provision to a hub that produces new technologies and products. In an effort to trigger such a transformation, the creation of R&D centres promoted by public and private entities has boomed. As a result the focus on innovation processes - and the popularization of the concept of technological innovation - is gaining momentum not only in the vibrant sector of the IT industry but also in the political debate about the formulation of Science & Technology and development policies. Chaminade & Vang (2008) have documented the process of Regional Innovation System (RIS) development in Bangalore by focusing on the interaction between policy makers, Small-Medium Enterprises (SME) and MNCs. If on one hand the study confirms the process of upgrading in the global value-chain of local enterprises based on the accumulation of technical and managerial knowledge, on the other hand it reveals a strong dependency on the MNCs that dominate the global markets. Another aspect of this process is the mushrooming of business incubators, accelerators, science parks and innovation centres. Unlike other parts of the country, in Bangalore the creation of business incubators has been relatively successful (Phan, Siegel, & Wright, 2005). A strong emphasis on innovation is clearly detectable in the corporate sector as well as in the discourse of the public Science & Technology policy agenda. The central government regularly calls for the creation of centres of excellence within the Indian universities to foster research and innovation and catch up with the rising private sector that is now competing in a hyper-Darwinian, global market (Bound & Thornton, 2012).

The 'Universities for Research and Innovation Bill' of 2012 declared the intention to pursue this objective by upgrading the existing universities to the status of research-intensive centres devoted to the delivery of a continuous flow

⁴⁵ <http://www.isro.gov.in/> (last accessed January 10, 2014)

of innovation⁴⁶. One interesting consequence of this development is the increasing popularity of the word *innovation* among local institutions. Nowadays, the word innovation is on everyone's lips in Bangalore. For instance, in order to carry out my fieldwork in Bangalore I needed to register in the local Foreigner Registration Office (FRRO). The process generates long queues from the early morning until the evening and exhausting waits. When I entered the office for the first time, I was struck to see a huge placard with the sign stating the Vision and the Mission of the office. The sign declared that the office is committed to integrity, dynamism, courtesy, excellence, collaboration and innovation, which is '*to encourage new ideas, methods, processes and practices*'. My personal experience was quite far from those statements. I had to come back two more times, the officers were extremely rude, they shouted at me and even expected me to ease the process with a bribe. Despite these blatant inefficiencies, the word innovation was proudly exposed on several signs in the offices. The classic mission/value statements borrowed from the 'strategic planning' discourse clearly do not sit easily with the bureaucratic nightmare of the Indian government offices.

7.2 ACADEMIA AS A DISCOURSE PRODUCER: THE CASE OF THE INDIAN INSTITUTE OF MANAGEMENT BANGALORE (IIMB)

Data collection and analysis

The growth of Bangalore as an international hub for IT industry is in part sustained by the availability of talented people in the fields of computer science and management. The city hosts first-class educational institutions like the Indian Institute of Science (IIS) and the Indian Institute of Management (IIM). As my primary intention was to understand how the discourses of innovation (and associated with this the discourse of inclusive business models) are constructed

⁴⁶ The bill was delivered to '*to provide for the establishment and incorporation of Universities for Research and Innovation and for enabling them to emerge as centres for ecosystems to develop as hubs of education, research and innovation and to promote research and innovation in learning and design, development and delivery of solutions and for matters connected therewith and incidental thereto*'. The complete text is available at:

<http://www.prsindia.org/uploads/media/Universities%20for%20Research%20and%20Innovation/Universities%20for%20Research%20and%20Innovation%20Bill,%202012.pdf> (last accessed January 10, 2014)

in an academic context (see section 4.2), I selected the IIM-Bangalore (IIMB) and the NSRCEL incubator as a case study (see Chapter 4 for more details about access to the field). I interviewed a selected group of faculty members who are *innovation scholars* and are also directly involved with the NSRCEL activities. Among the companies supported by the incubator I selected those with a clear social vocation (i.e. those start-ups that intend to address BOP issues) and interviewed key persons. I interviewed the founders of the social enterprises Mithilasmitha, WonderGrass, and GoCoop. I complemented these interviews with an interview with the policy analyst of Selco, a social enterprise specialising in renewable energy solutions for the poor, and the director of the Microsoft's research centre for Technology for Emerging Markets (TEM). The interviews were designed to address three major themes: *the origin of the innovation discourse in the Indian context, the role of academia in the debates about innovation management and the discourse of innovation for the poor in relation to the notion of Inclusive Business Models and finally the role of the IIMB in the construction of the discourse of development around the notion of 'Inclusive Business'*. The interviews were complemented with IIMB business case studies, internal/public documents of the companies and field notes.

As described at the end of section 4.2 (Data analysis and writing up), I performed an initial coding for data analysis using a set of *a priori themes* extracted from my original research questions: *how do the informants in IIMB/NSRCEL frame innovation? How do they frame their identity as innovation scholars/promoters and/or innovators (being), their practices (doing) and how do they communicate their frames (saying)?* These 1st order codes were then grouped in 2nd order constructs and finally assembled into 3 aggregate theoretical dimensions: *the mission of academia, the innovation sources/barriers and Inclusive Business Model discourse* (see Figure 13). The following sections describe how those dimensions emerge from the data.

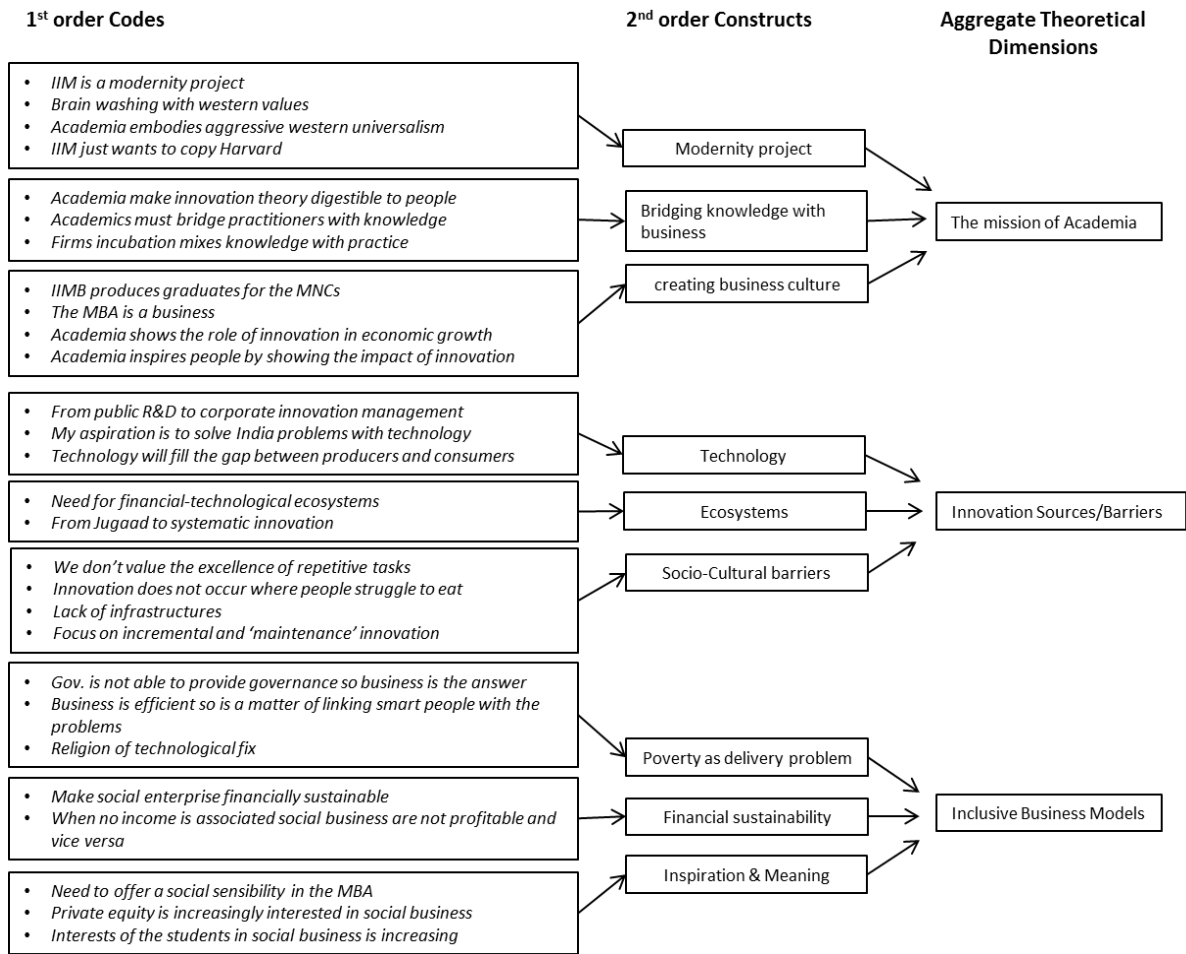


Figure 13 IIM-B/NSRCEL: Analytical coding process to induce theoretical dimensions

The mission of Academia between modernity and postmodernity

The first theme that emerges from the analysis is the *mission of the IIMB*, which is at a crossroads between its original mandate of harbinger of modernity in India and the necessity to search for an 'Indian way' to achieve modernity (see Figure 13). This tension is visible in the words of my informants that were polarised between those who maintain the idea that the IIMB should follow its original function of being a promoter of a business culture shaped on a Western model and those who call for a renewal of academia that takes into account the different interpretations of modernity in contemporary India.

Founded in 1973, the IIMB is a world-class business school that attracts talent from all over India. It is part of a network of management institutes established by the foundation of the first IIMs in Ahmedabad and Kolkata in 1961 by the

central government of India. The IIMs were inspired by the model of the most prestigious North American business schools and were supposed to fulfil the demand for highly specialised managers in the private sector (Narayanaswamy Balasubramanian, 1999). In 1959, the Planning Commission invited Prof George Robbins of the University of California to support the creation of a new class of Indian Business Schools. Based on his recommendations, the Indian government decided to set up two elite management institutes, the first two IIMs in Kolkata and Ahmedabad (Bhargava et al., 2008). A few years later, as remuneration in the public sector started to rise, the Indian government decided to make large investments to strengthen the quality of its managerial elites. As a consequence, the IIMB in Karnataka was designed to provide qualified young managers to the expanding public sector. By 1991, the process of economic liberalization and the globalization dynamics had reshaped the original mission of the institute (Ibid.). With the boom of the IT industry, the IIMB became a key centre for the training of a new young class of Indian managers that operate in the vibrant private sector of the region. The IIMB is also characterised by a strong focus on innovation process and, a rare case within the IIMs network, on the study of the BOP dynamics.

The focus, curricula and programmes, especially for the prestigious MBA, are western-imported. As Dr Vinay Dabholkar, founder of Catalign Innovation Consulting and visiting scholar in the IIMB said: 'in general the training and all the MBA courses are mainly western-driven; there is no doubt about it' [IIMB-VD]. In the words of the chief mentor of the NRSCEL, Nagaraja Prakasam, and the institute 'merely just wants to copy Harvard' [IIMB-NP]. Prof A. Damodaran went even further, arguing that the IIMs are the fruits of the western quest for modernity. 'The IIMB is a modernity project. It was created to train the techno-managerial elites of the country' [IIMB-DA], he said. According to Damodaran, indeed, the institute embodies the spirit and the desire of modernization that characterised the Nehruvian post-independent India. The faith in progress, matured through the long sojourns of Indian elites within the British circles, persuaded the father of the country and its first prime minister to push India toward a fast modernization path that implies two parallel processes: the secularization of all the sectors of the state and the centralization of the state

bureaucracy. This project required the training of a huge class of managers that Nehru imagined would be guided by the principles of scientific positivism. In Damodaran's words:

'Modernity was introduced by Nehru. He thought that India was a backward country. That is how it is. What happened was... that Nehru thought: we are backward so we will bring industries here. Backwardness is against the notion of modernity.' [IIMB-DA]

However, such a notion of modernity only partially overlaps with the idea of technical progress. According to Prof Ramnath Narayanswamy, the notion of modernity imported in India is based on four pillars:

First, markets. The other is technology, in all modern societies economy meets technology. It may be small, it may be high. It may be 'appropriate' but technology is needed and markets are needed. The third is state regulation. And fourth is public welfare. Now they present themselves in the given society or economy. [...] You can't say this must be 25 per cent and other one must be 25 per cent. In some country this may be 75 per cent and other one may be 15 per cent. Why? Because all these are determined by external contexts. You may be dealing with the country like say India which has a long experience with markets. We had long experience with commodity markets, money markets and Bombay stock exchange is the only exchange in Asia. On the contrary, China doesn't have that long experience with markets. It started only with the turn of the 20th century. So all societies are different [...] but broadly modernity means embracing these [four concepts]. [...] Today there is more unanimity in the world about this. We need to be modern. [IIMB-RN1]

According to this view, the historical process that led to the creation of institutions like the IIMs within a postcolonial setting in the new independent nation-state of India was the desire to implement a modern structure of governance over the ruins of the British Empire. This process drew on pre-existing institutions e.g., the tradition of local-regional commodities markets, but also on the introduction of almost totally new elements. Those elements were constructed around a conception of the state that was fundamentally *centralistic* and became the centre of economic life for the nascent nation. Together with the construction of a strong central state, the notion of universal welfare also caught on. The fourth pillar, and maybe the one that is most commonly associated with modernity, is technological progress. This, as Damodaran suggests, came basically in the forms of big centralised technological projects e.g. big dams, nuclear programs, heavy industry [IIMB-DA].

The role of academia in the pursuit of modernity in this frame is to create and reproduce the knowledge needed to operationalize the outcomes of science and technology and connect them to the markets: the creation of the IITs and the IISs, together with the IIMs, embody the philosophy behind the effort of modernization operated by the central government since independence. The introduction of modern educational institutions is thus crucial for bridging abstract knowledge with the practitioners operating in the state's bureaucracy as well as in the corporate sector. Academia, as the director of the NRSCEL prof Sabarinathan said, is the way '*we make [theory] digestible to people*' [IIMB-SB]. The role of the IIMB/NSRCEL as it emerges from the interviews has a dual function: it connects managerial knowledge to the world of practitioners on one hand and contributes to spreading and reproducing a business culture on the other. In this sense the institution is becoming an important centre for the corporate discourse that gained momentum after the season of economic liberalization started under the government of P. V. Narasimha Rao and his finance minister Manmohan Singh. According to Prof DVR Seshadri [IIMB-SE] indeed, the IIMB is quickly adapting its programme to the neoliberal orientation that has characterised the economic reforms of the last two decades. As a result, the institute has become an important source of talented people for the corporate sector. According to its 2014 placement season report, graduates from the institute are mainly hired by international banks, global consulting companies, MNCs operating locally and the IT industry⁴⁷.

But the process of absorption of the imported principles of modernity have met some resistance and created tensions. Prof Seshadri, for example, does not hesitate to define the introduction of the MBA-based management education as a sign of westernization of the Indian economy. In his words:

Frankly if you ask me, there is a lot of confusion right now. Somewhere there is a tremendous embrace towards what can be called western universalism. What can be called very aggressive materialism and this is seen as modernity... to get ahead in life at any cost. [...] In any MBA school... anywhere in the world what

⁴⁷ The report is available at http://www.iimb.ernet.in/sites/default/files/u181/Press%20Release_FP2014..pdf (last accessed December 10, 2014)

are participants doing from day one? Purpose of an organization is to maximize profits and therefore if you are a manager in an organization by extension, while you are working to maximize profits of your company you are also working toward maximizing your personal wealth...And this is a source of greed ...So all [our] values have been flushed aside and I see that happening. [IIMB-SE]

According to Prof Narayanswamy, the fact that the corporate elites and the academic intelligentsia have apparently embraced the principles of western modernity is the cause of a sort of schizophrenic dualism within Indian society.

He said:

In India, modernity was literally transplanted, principally though not exclusively through British rule. It was "fractured" because this transplantation was not in consonance with either our history, or our native genius or our traditions, all of which were and are very different. [...] Accordingly, our sense of modernity is quintessentially derivative, that is to say, we are always insecure in relation to it. This occurs at two levels: at either the level of the Westernized sensibility in us or in grappling with our own traditions to discover what is modern in them. But in both cases, what we are taking or appropriating is not the experience itself but the form. [IIMB-RN3]

In this sense, the contrast existing between the two actual versions of the country – one rural and traditional, the other modern and urban – are now mixed in a dual identity that is visible underneath the appearance of the business suit and tie:

This is tantamount to admitting the fractured nature of our experiences in two worlds: our emotional life for example is very Indian, while our intellectual life is predominantly Western. If we look at the matter more closely, our identity is indubitably dual. And we are perfectly comfortable with this duality: there is no sense of tension. [IIMB-RN3]

According to Prof Damodaran, the modernity project in India has only partially succeeded. This is because the process of modernization in the forms of free markets, technology, central state and universal welfare are naturally contrasted by a galaxy of heterogenous local alternatives. The Indian tradition opposes the process of continuous novelty production, through what Damodaran calls a '*culture of maintenance*'. In his words:

Nehru believed in technology and science. He did not talk about the incremental things. Whereas the entire culture of India's tradition of resource management was based on innovation in maintenance. It was not based on innovation in terms of new creations. Maintain.... Keep it. [...] That is what people now call jugaad. But management is the art of working the idea of capital asset creation.

It was alien to the Indian culture. It was, you know, you have an asset brought as given you that. The nature has given you the asset. Use it. But don't try to transform and disfigure nature. [IIMB-DA]

In his book '*Encircling the seamless: India's climate change and the global common*' (Damodaran, 2010), Damodaran describes India as a sort of postmodern hybrid where the double identity created by the introduction of Western modernity and its amplification in the form of globalization usually cohabit:

[In India] We have one stream on maintenance and one stream of massive construction. Both are going on. They have not been able to eliminate each other. Modernity products have not completely succeeded. [...] Today the postmodern has taken over most of the country. Postmodernism is what? Postmodernity is a form of cultural attitude where you are very uncomfortable about extreme stands. You can have innovation Jugaad going on in some places and then large projects going on in other places. That is the postmodern. [IIMB-DA]

In this view, the post-modern India is visible at a rural level where farmers are able to control market prices on their mobile phones. At the same time, the modern/tradition syncretism is also very evident within the Indian elites. The number of managers and academics - I met several in my stay at the IIMB - that visit spiritual guides such as gurus is incredibly high. In Damodaran's opinion, the IT sector of Bangalore is postmodern par excellence.

IT is Postmodern. Bangalore is postmodern city. It has got its spaces which are very traditional. It has got its spaces which are very modern. All the IT professionals unlike the modernity engineers of 1960s and 1970s are greatly religious. They go to the temple. They pray every day and come back and then make business. [...] early morning between 6:30 and 8:30 they will pray for our nation. This is a postmodern condition... nothing is crystalized [...] Say my students... they are software engineers. They are all very religious. [...] they use the C language to create new religious icons with graphics and all that. In my generation, everything either you talked about learning or you talk about religion... If you are with learning you cannot go to the temple. Today it's perfectly accepted. When we are going to temple and being a communist or you can be a capitalist and still be looking at tradition. [IIMB-DA]

But the awareness of this new form of *liquid* intellectual attitude towards the modernity project is far from universally accepted by the traditional academic establishment. According to Damodaran, although the rapid changes in the Indian society are influencing academia, the duality modernity/tradition is still seen as a *fracture* between two incompatible worlds by many scholars.

According to Prof Narayanswamy this fracture is only visible through a western lens which does not admit incoherencies and contradictions in the process of identity construction. The Western mind, to Narayanswamy, finds it very hard to explain the lack of tension in Indian duality. The risk of the Indian intellectual today is to deny one aspect of this duality, leading to affirm one at the expense of the other. In his words:

Admitting this fracture is to understand and recognize that our modernity is not contrary with that duality. [...] When we deny the Western aspect of the fracture, for example, we tend to regress into an ahistorical affirmation of our “roots” or retreat into the mythical notion of a “golden age” which never was nor will there ever be. This happens because we feel compelled in the face of palpably superior Western systems and processes to affirm our own, which though not grounded on the present, can be comfortably grounded in the past. Conversely when we deny the Indian aspect of the fracture, feelings of inferiority inevitably dominate. This is squarely because everything comes from somewhere else, usually the West. And since we have appropriated only the form and not the experience of the West, this has the consequence of making us reactive. [IIMB-RN3]

The image of the IIMB that emerges from the analysis of the interviewees is that of a fluid body in a state of evolution between its original mandate of harbinger of western universalism and the postmodern condition that originates from the clash with the Indian specificity. Admitting and accepting this fracture is an essential prerequisite to the construction of an 'Indian way to modernity'. On the contrary, rejecting this duality would imply a submissive tacit acceptance forced by the globalization process of the '*inevitability/desirability/necessity of becoming modern*' [IIMB-RN3].

Business Incubation and promotion of Innovation

The second central theme that emerges from the analysis is the *rise of the notion of innovation*, its sources and bottlenecks in the Indian context (see Figure 13). The theme emerges from an initial focus on the social-cultural aspects of Indian society that favoured a conservative attitude towards technological change that created a process of *routinized maintenance* that, according to some of the informants, slowed down the process of modernization in the independent India. As a reaction, in contemporary India innovation is framed as an activity to be fostered and encouraged through the creation of

incubators and the formulation of public policy (i.e. creation of *innovation ecosystems*). Finally, technology emerges as a crucial element to fill the gap that exists between the high-tech India of Bangalore and the 'backward' rural setting.

Academia is the place where the notion of innovation as a fundamental ingredient for economic growth has been assimilated from a theoretical and historical perspective. But the idea that technical change is something that needs to be encouraged, steered, and managed dates back to the pre-independence period. According to Dr Dabholkar, the first attempt to stimulate innovation creation was conducted by Gandhi himself with the institution of a public contest to redesign the charkha, the traditional spinning wheel. Gandhi's announcement was published in the weekly newspaper called 'Young India'. Dr Dabholkar spent some time going through the Young India issues of 1920 at the archive section of Sabarmati Ashram, the Gandhi residence from 1915 to 1930, in Ahmedabad. He discovered that in 1916, Vinoba Bhave, a well-known nonviolence activist and spiritual successor of Gandhi, conducted an experiment in Wardha to measure the productivity of the Indian traditional charkha. He concluded that the maximum per day income of a charkha weaver could not be more than two annas (i.e., 1/16 rupee). Gandhi thought that this could not be acceptable. Hence, he announced an open challenge to design an improved charkha in 1920. A prize of Rs 5,000, a considerable amount for that time, was to be assigned to the inventor of a charkha ten times more efficient than the traditional spinning wheels. The challenge received several entries from every corner of the country. However, no invention could fit the strict requirements. Gandhi repeated the contest in 1929 without any success. He was inspired by the idea of self-sufficient villages empowered by simple and frugal technology. The challenges inspired many inventors and eventually Gandhi's requirements were met in 1954 by Ekambarnath in Tamil Nadu who invented the Amber Charkha that is still used by Fabindia to produce the traditional Khadi fabric [the story is told in the interview IIMB-VD].

In the post-independence era the mainstream discourse of technical change – with few exceptions (e.g. see Chapter 8) - moved away from the Gandhian

vision of self-empowerment and remained essentially within the boundaries of the modernization process that encompassed the creation of the first national heavy industries. At the same time, the first processes of innovation management appeared in the corporate sector, in particular within the Tata group, in the 1940s and 1950s. In this period, big Indian industry started to copy the Western companies that were implementing suggestion boxes for their employees to improve their productive processes (Dabholkar & Krishnan, 2013). However, according to Prof Rishi Krishnan, for a long time innovation in India has remained synonymous with public R&D:

For a long time innovation in India was almost synonymous of R&D. So R&D in India is of relatively recent origin. As you know when we become independent we decided that a lot of the important industrial sectors will be in the public sector, the government sector. So the steel, fertilizer, petrochemical and all of this were designed by the government. [...] In the early years, the challenge was essentially how to first build the capability to produce everything. We had a big focus on what we call self-reliance. We wanted to do everything locally. [IIMB-RK]

Fully-fledged R&D departments appeared in state companies (i.e. Bharti electric and Indian Oil) around the 1970s, hence more than 25 years after independence. Rishi explained to me that the government also shyly encouraged the private sector to invest in R&D, but for a long time the big private companies of the country were limited to buying technology from abroad. The typical example is the automobile sector dominated by the two public companies: Hindustan Motors and Premier Automobiles. Both companies enjoyed protected markets and imported technology from Morris Oxford and Fiat, implementing only minor changes. Their models remained virtually unchanged for almost 30 years. The situation only changed in 1983 when the Maruti Company, backed by the government, created a joint-venture with Suzuki. The Japanese manufacturer, in an effort to raise the quality of the Indian subsidiary, revolutionised the sector by introducing the first standardised process of quality control. Until economic liberalisation in 1991, foreign firms were obliged to create partnerships with Indian companies to sell their products in the country. During the season of economic reforms that started in 1991, this situation drastically changed. Indian companies found themselves alone in facing the competition from technologically advanced companies coming from

abroad that no longer needed a local partner. This shocked the Indian business ecosystem, and it started thinking that the development of indigenous capabilities was crucial to survival. As a result, from the decade of the 1990s the notion of 'innovation management' slowly started to diffuse in the Indian private sector. At the beginning of the new century the word innovation became hugely popular among the business community.

Nowadays innovation centres, incubators or accelerators are mushrooming in the country. Virtually every IIM has its own centre for innovation and business incubation. The IIMB business incubator, the NSRCEL, founded in 2002 was the first initiative of this kind within a non-engineering institution in Bangalore. Other incubators have been created before in the IIS and other engineering schools with the aim of improving the technological feasibility of the technology that those institutions delivered. The NSRCEL was born to provide innovative entrepreneurs with an ecosystem composed of not only technological experts but also investors, business mentors and management scholars. The incubator was initially supported by a generous grant by Mr Nadathur S Raghavan, co-founder and former Joint Managing Director of Infosys Technologies, a leader in Business Product Outsourcing services. As the chairperson Prof Sabarinathan explained to me, the centre has been created to support start-ups that comply with three criteria: they must be innovative i.e. offer a clear new service or product, they must have a clear financial and/or social impact, and they must be reasonably feasible [IIMB-SB]. As K Kumar professor of Entrepreneurship and Strategic Management of New Ventures and member of the advisory board of the centre summarised to me, the incubator is designed to deliver '*innovation, implementation and impact*' [IIMB-PK]. The centre is also supported by a board of nine mentors, including professionals and entrepreneurs with experience spanning a wide range of sectors.

'*My aspiration is to solve India's problems with technology [IIMB-NP]*' said Mr Nagaraja Prakasam the chief mentor when we met the first time. He told me that the idea of innovation is becoming more and more popular because people see in it a way to overcome the persistent problems that have caused Indian backwardness. According to Mr Prakasam, the Bangalore environment is

characterised by three kinds of innovation forms. The first is influenced by the western 'new economy' and consists in copying the business models implemented by the IT industry of the Silicon Valley. In this sector he only saw incremental innovation and outsourcing attracted by cheap, high-qualified labour. The second form, which is also incremental, is characterised by highly-educated people, usually engineers who quit big industry and set up social businesses. The third form is what he calls 'disruptive innovation', a radical change in the way something is produced or distributed that really makes a difference. He was convinced that a country like India with a huge impoverished population desperately needs a radical technological leap forward. Unfortunately, Mr Prakasam argued, in India the only thing in sight is the adaptation of foreign technology to the local context with mediocre results. He thinks the Indian elites are obsessed with replicating western development models based on rapid urbanization and monetization of economic life. They urge replacement of traditional buildings with glass and steel, kurtas with suits, open patios with air conditioners. While waiting for radical disruptive Indian innovation, Mr Prakasam has dedicated his efforts to scouting for social business. He suggested that I meet the founders of the companies Mithilasmita⁴⁸, WonderGrass⁴⁹, and GoCoop⁵⁰. I first met Ihitashri Shandilya, the founder of Mithilasmita in her boutique in Bangalore. She has dedicated her life to preserving the ancient art of Madhubani painting in the Indian state of Bihar. Dating back at least twenty centuries, Madhubani art consists of handmade paintings executed by women for domestic or ritual purposes. The practice was rediscovered by western anthropology in the 1930s, but only in the 1970s, when the high rates of migration in the area threatened to erase this ancient tradition, did the Indian government attempt to revive the Madhubani art by encouraging the commercialization of the paintings. This traditional mural painting was adapted to be performed on canvas or wooden tables and started to be much appreciated in art galleries all over the world. At the same time,

⁴⁸ <http://www.mithilasmita.com/> (last accessed December 10, 2014)

⁴⁹ <http://www.wondergrass.in/> (last accessed December 10, 2014)

⁵⁰ <http://gocoop.com/> (last accessed December 10, 2014)

counterfeiting and exploitation of the painters by intermediaries and middlemen boomed. Ihitashri has developed a web-based platform to connect the last genuine Madhubani artists with the international markets [NS-MI].

A similar mission is the one embraced by Siva Devireddy, the founder of GoCoop. A former director of the R&D centre of the consulting giant Accenture, Siva quit the company in search of a meaningful occupation. Drawing on his previous experience in the IT sector, he created a web-based platform to connect rural artisans (e.g. weavers, potters) directly with national and international retailers. The platform already connects more than 3000 cooperatives of producers to sellers and individuals across India and abroad [GC-SD]. Unlike Mother Earth, GoCoop aspires to eliminating any mediation between the artisans and the final clients. WonderGrass is another company based on the idea that it is possible to provide a sustainable market for traditional Indian producers through technological upgrade. Masters in bamboo building, they are committed to introducing traditional Indian construction techniques into the mainstream construction industry. Their marketing and sales manager, Samit Mukherjee, told me that with the support of the NSRCEL, WonderGrass is trying to apply modern industrial design techniques to improve the quality of their bamboo works and explore new fields of application [WG-SA].

The creation of incubators to support these kinds of initiatives originates from the desire to create an ecosystem to support new ideas with technology and financial resources. According to Rishi Krishnan, India is a country of family businesses that are essentially owned by people that have been traders for generations before becoming industrialists. As a consequence, innovation in India is synonymous either with the imported/adapted foreign technology of big industry or of the '*maintenance*' attitude of jugaad [IIMB-RK] (see discussion above). To Rishi, both attitudes are detrimental for the future development of the country: what is needed is to move from family businesses and jugaad to systematic and planned innovation. In order to achieve this transformation, a proper working ecosystem for entrepreneurship and innovation is desperately needed. As Rishi systematically preaches in the press, innovation together with the development of managerial skills is the key to scaling up Indian industries

(R. T. Krishnan, 2012). Educational institutions, academia and industry are not properly connected in Rishi's view. For this reason, not only has he pioneered the teaching of innovation management modules in the post-graduate courses and in the MBA at the IIMB, he also organises intensive executive programmes for senior top managers. In these modules, he shows that systematic innovation is crucial for the survival of any type of enterprise and suggests how to set up an innovation pipeline to routinize the innovation process within the firms⁵¹.

Apart from infrastructural issues, from the interviews, a number of socio-cultural barriers also emerge that allegedly hamper the formation of an indigenous system for innovation. First and despite the positions presented in the literature review presented in Chapter 2, according to Prof Kumar, innovation cannot occur when people are still struggling to meet their basic needs [IIMB-PK]. There are then other cultural attitudes that are supposed to hinder the creation of a dynamic environment for innovation. Above all, it is the attitude of the Indian elites to favour state jobs over corporate positions and engineering roles over academic research. As Prof Sabarinathan argues for example, traditionally Indian business environments have not valorised '*the excellence in repetitive tasks*' [IIMB-SB], on the contrary they prefer to maintain their position through small incremental changes. According to Mr Dilip Mehta [IIMB-DM], a senior mentor of the NSRCEL, the socio-cultural structures that hinder economic development are slowly fading in cosmopolitan environments like Bangalore. In the dynamic IT sector, people from all the corners of the country and from all the castes can mingle, disregarding the social norms that used to govern the traditional ways of doing business.

The discourse of Inclusive Business Models

Another central theme that emerges from the data is the discourse of Inclusive Business. This topic emerges, according to some of the informants, from the

⁵¹ Prof Krishnan and Dr Dabholkar have recently published the book '*8 Steps To Innovation: going from jugaad to excellence*' (Dabholkar & Krishnan, 2013). The book is the basis for the executive programme module of 'Strategic Innovation Management'. In the book the authors suggest implementing an innovation pipeline of 8 steps that are designed to stimulate new ideas, select them and eventually launch them to the market.

necessity of business scholars and practitioners to reframe the meaning of their actions towards more socially acceptable goals. The problem of poverty, however, is usually framed in terms of delivery issue i.e. a mismatch between the offer of the market and the needs of the poor. In this view, the role of the business scholar is to get smart entrepreneurs to formulate financially sustainable market-driven solutions to alleviate poverty (see Figure 13).

The discourse of Inclusive Business appears, at least in part, a further evolution of the notion of jugaad/frugal innovation. Recent years have seen the rise of jugaad as a new popular trend in management and business reports in India (Birtchnell, 2011). The terms jugaad and frugal innovation have become increasingly popular not only in the business literature but also in the BOP discourse (Singh et al., 2012). Since the 1990s, apart from the famous case of Anil Gupta in the IIM-Ahmedabad, the academic business and management literature has mainly focused on the application of jugaad in the corporate sector. The publication of Prahalad's book eventually set the scene for a new relationship between the notions of innovation and BOP. To the best of my knowledge this link was further developed by Mashelkar with the formulation of the notion of 'Gandhian Innovation⁵²' (Mashelkar, 2010; Prahalad & Mashelkar, 2010). At the same time, in the business environment the notion of Inclusive Business Models has gained momentum. The idea first appeared in the United Nation Development Programme (UNDP) report titled 'Creating Value for all: Strategies for Doing Business with the Poor'. The report defines the notion as follows:

Inclusive business models include the poor on the demand side as clients and customers, and on the supply side as employees, producers and business owners at various points in the value chain. They build bridges between business and the poor for mutual benefit. The benefits from inclusive business models go beyond immediate profits and higher incomes. For business, they include driving innovations, building markets and strengthening supply chains. And for the poor, they include higher productivity, sustainable earnings and greater empowerment (*UNDP, 2008: 14*).

⁵² On Gandhian Innovation also see the examples of narratives in section 3.1

The notion can be considered as an extension of the original idea of BOP2, complemented by a more detailed analysis of the externalities that business initiatives entail. In particular, the focus is on 'human development impact' meant as an increase of income and access to basic goods such as health, housing, water and sanitation but also on the '*financial feasibility, sustainability and scalability*' of those initiatives. Interestingly, the report also draws on the discourse of sustainable development and introduces the notion of innovation to overcome the issue of poverty. In line with the BOP narrative the report suggests that:

[...] Inclusive business models can lead to innovations that contribute to a company's competitiveness. For example, to meet the poor's preferences and needs, firms must offer new combinations of price and performance (Ibid. 16).

The IIMB offers a module called Inclusive Business Models taught by Prof Sourav Mukherji. He told me that his course is quite an exception in the Indian schools of management but that the topic is slowly becoming popular in the business community at large [IIMB-SM]. He also told me that he set out the module for a number of reasons. The first was the necessity to connect the present/future managers that are attending the IIMB programmes to the realities facing the Indian poor. He argues that the profit-oriented style of the MBAs needs a new form of social sensibility. This intuition has been enforced over the years by the increasing enthusiasm of the students that attended the module. Furthermore, private equities and the corporate sector in general are extremely interested in the idea of Inclusive Business to expand their strategy of social commitment beyond the impasse of CSR [Ibid.]. Unlike traditional CSR initiatives, the idea of the inclusive business offers a more proactive image of the private sector that is very far from the paternalistic approach that characterises many social responsibility actions within the corporate sector. Finally, the corporate sector hopes to expand their saturated markets by including the consumers at the BOP.

The module starts with the simple consideration that the last edition of the best-seller novel Harry Potter has gained in a week ten times the money allegedly needed to defeat malaria in the sub-Saharan Africa. In other words, as Prof

Mukherji explains to his students, the failure in addressing the problems caused by poverty is not due to a lack of funds but is a *delivery issue*. In India, the financial resources collected by the state are largely insufficient to guarantee universal welfare and, according to Prof Mukherji, this situation is not going to change in the next 20 years. If the government is not able to provide basic services, private business can be the answer. The business world is more efficient and attracts talent that might also be better connected with the problems of the Indian poor. The module is essentially based on a number of case studies that show how inclusive business models have been created, made financially viable and the impact these have had on the lives of the poor. One of the most inspiring cases is Selco⁵³, a company founded in 1995 to provide clean energy to the poor (Mukherji & Jose, 2011). The founder Harish Hande, a PhD from the University of Massachusetts, has won the Ramon Magsaysay Award for 2011, often regarded as the Asia's Nobel Prize, for his efforts to deliver affordable and clean energy to the poorest in the state of Karnataka. Unlike Grameen Shakti, Selco is a small company with no ambition to scale. Its business model is based on strong relationships between the field workers and the users. The company offers a number of Solar Home System packages and is now slowly moving into the urban areas, selling lighting solutions in the slums of Bangalore. Similarly to Grameen Shakti, they also draw on microcredit; however the funding is not coming from the company but from a network of rural banks that over the years have been trained for this purpose by Selco's employees. The company also receives financial support from European NGOs and USAID. Surabhi Rajagopal, the principal analyst of the Selco Foundation⁵⁴ dedicated to the development of new technological solutions and policy formulation, told me that the highest aspiration of Selco today is to create a rural ecosystem of entrepreneurs able to replicate thousands of times the Selco model with the support of public policy [SE-SU]. In line with the philosophy of inclusive business to connect brilliant people directly

⁵³ <http://www.selco-india.com/> (last accessed December 10, 2014)

⁵⁴ <http://www.selcofoundation.org/> (last accessed December 10, 2014)

to the problems, the Selco's office in Bangalore is populated by talented engineers and interns from the MIT, Harvard and Yale Universities.

One of the basic objectives of Prof Mukherji's course is to show under what conditions social business can be financially viable and sustainable over time. By comparing several cases from healthcare to education, from energy provision to BPO, Prof Mukherji reached the conclusion that doing business with the poor can be viable and feasible only if there is an immediate income increase for the beneficiaries. The evidence, he argues, is that if the business model implies a visible and clear source of income for the poor – e.g. electric light to extend their working hours – it is more likely to succeed. If, on the contrary, the expectation of an increasing income is more uncertain or too distant in time – e.g. education – the rate of success drastically drops. An interesting point is that Prof Mukherji and many of the protagonists of his case studies look at the inclusive business as a temporary solution that is supposed to cope with the failures of the state, the local institutions or communities. Similarly to the case of Grameen Shakti described in Chapter 5, the ultimate goal of these initiatives is to temporarily relieve the situation created by the deficiencies of a dysfunctional state. In this view, the inclusive business model idea is a *transient process* that has its ultimate goal in the creation of a modern state coupled with a functional market able to deliver public and private services/products universally i.e., a transitory status towards modernity.

7.3 CONFLICTING NARRATIVES: WESTERN MODERNITY VS. INDIAN MODERNITY

The scenario that emerges from the data collected from IIMB faculties, NSRCEL members and social entrepreneurs, reflects I argue, the dynamism and complexity of Bangalore's environment. In the IIMB, as in the city, tradition and modernity coexist in a dynamic equilibrium. Considered as a modernity project, the IIMB today aspires also to address the increasing demand for *inclusive businesses* that, according to some of the informants, characterises a new generation of entrepreneurial elites. More and more IIMB students or alumni are interested in social business as a way to address the problems of

the disadvantaged groups in the countries. The focus on classical R&D programmes to foster industrial innovation in the country (e.g. see Prof Krishnan's work on innovation) is now complemented with a strong interest in the creation of social enterprises or what Prof Mukherji calls '*inclusive business models*'. The underling overarching narrative that emerges from the data (see Table 7) appears to be a hybridised version of BOP1 and BOP2. The poor are framed both as consumers and producers in a market economy paradigm in which social enterprises present a transient solution. In most of the cases, *poverty is framed as a delivery issue*, i.e. a mismatch between the needs of the poor and the kind of offer that the market economy currently delivers. The solutions are usually framed in terms of affordable products/services that can include the poor in the market both as consumers (similar to Grameen Shakti) and as producers (similar to Mother Earth).

Table 7 IIMB/NSRCEL Narrative synthesis

Poor's role	Normative Stances & Goals	Innovation	Expected outcome
<i>Poor as consumer and/or producers in a market economy paradigm underpinned by inclusive business models</i>	<ul style="list-style-type: none"> Majority of Indians live in backward conditions because there is no culture of innovation and no incentive to innovate Western vs. Indian modernity Business-as-usual can be made more inclusive i.e., it can lead to a more equal distribution of social goods 	<ul style="list-style-type: none"> Product Innovation e.g., new affordable construction material (Wondergrass), new electricity devices (Selco) Service Innovation, e.g. web platform for rural artisans (Gocoop) Positional Innovation e.g. new positions in the market for rural handicrafts (Mithila) 	<ul style="list-style-type: none"> Individual entrepreneurs or companies able to address BOP issues by developing innovative technologies and business models that are inclusive and financially viable at the same time

Behind this overarching narrative, during the time I spent at the IIMB I observed two clearly conflicting dynamics. The first dynamic – and, according to the overall intellectual production and the research outcome of the institution, the most dominant until now – is very much aligned with the original mission of the institute: to create an elite of highly-skilled managers to lead the economic development of the country. The second dynamic assumes a typical counter hegemonic discourse that questions, although with different nuances, the basic assumptions of Western theory of business organization and management.

Within this dynamic there is the implicit recognition that the process of development and modernization has not delivered the outcomes it promised, in particular for the marginalised sectors of Indian society. This frustrating reality has led some to reframe the business-as-usual mantra in terms of 'inclusive business'. This in turn has provoked the reactions of others who advocate for an 'Indian way to modernity'. Behind those tensions there is the undeniable fact that Management and Organization Studies (MOS) need to be considered within the boundaries of the development discourse: as some of the informants clearly stated, the IIM-B is a modernity project. In this sense, a number of scholars have theorised that the entire field of MOS might be seen as a discourse strictly related to the discourse of development, modernization, industrialization, in short all the fundamental ingredients of the grand narrative of modernity (N. Srinivas, 2012). According to Jack et al. (2011), for example, concerns with development issues were central in the emergence of the MOS discourse and its introduction in the global south. Westwood & Jack (2007) argue that the universalism of the discourse of development and its late formulation in terms of globalization, does not only imply a common effort to structure industrial production and economic development in a standardised and universal way but also a common form of organising and managing as well as a shift towards common work regimes and work-related attitudes and values⁵⁵. Interestingly, those frames became highly influential during the decades of the 1950s and 1960s in parallel with the process of construction and expansion of the development discourse. In this regard, at that time, the work of the Inter-University Study of Labour Problems in Economic Development (I-USLPED), a consortium of leading USA universities, produced influential research that became foundational for MOS⁵⁶ (Westwood, 2006). This work was strongly inspired not only by *'the development/modernisation discourses but also by economic thinking equating economic efficiency and rationalism with social development'* (Ibid.: 95). According to Westwood (2006), the MOS

⁵⁵ The same impulse to standardise practices, routines and values is evident in the case of ME described in Chapter 6 as regard the Indian villagers.

⁵⁶ Mainly Harvard University, Princeton, University of California, MIT, and the University of Chicago.

discourse should be framed within a postcolonial discourse that encompasses at least four characteristics. Firstly, it is directly connected to the postcolonial narrative of development and industrialization originating in the 1950s. Second, it draws on discourse and practices developed in the metropolitan centres in the USA – or more generally in the Anglo-Saxon culture – that stress the idea of '*transferring knowledge to the others*' as well as educating to manage and organise the productive and social systems of *the others*. Third, as the development discourse, the MOS is specially located, historically, culturally politically and geographically but it represents itself as universal. At the same time, it tends to marginalise and silence other pre-existing or alternative forms of organization, management routines and values. This aspect is confirmed by the perception of the almost total impossibility of publishing research based on alternative views on MOS in the top academic journals by those scholars in the IIMs who question the dominant model⁵⁷. Finally, the MOS discourse is dominated by what Westwood calls '*structural functionalism*', that is the tendency to believe in objective and values neutrality and to neglect the politics and ethics of research practice. As a result, MOS discourse tends to construct essentialist framings of the attitude of 'the others' towards business and organization. This aspect is visible in the interviews, where the informants tended to make essentialist claims like: 'Indian culture hampers innovation', 'Indians favour public jobs', 'Indian businesses favour incremental changes over radical innovation' etc. In a nutshell, MOS can be deconstructed with the lens of postcolonial studies in a similar fashion to the ways post-development scholars have attempted to deconstruct development discourse. In the words of Westwood and Jack (2007):

Western science is one type of knowledge system which was fostered by, but also played a central role in, colonial practices and relations of domination: management and organization studies and international management and business studies are rooted in this history [...] Postcolonial analysis clearly demonstrates the constitutive role of non-Western knowledge systems in Western ones. Western knowledge systems, often as part of the colonial project were appropriative of others' knowledge systems, often effacing the debt to

⁵⁷ Prof Damodaran [IIMB-DA], Seshadri [IIMB-SE] and Narayanswamy [IIMB-RN1], for example, have complained about the tendency of American and European journals to reject their researches that question the assumption of universalism of MOS.

those systems and frequently denigrating, marginalizing and even destroying them in the process. Such hybridizing and violent aspects of Western knowledge have been purged in order to fuel the myth of a superior, universal and unitary Western knowledge (Westwood & Jack, 2007: 248).

In this perspective, the original mission of Prof George Robbins from the University of California, who was invited by the Indian Planning Commission to supervise the creation of the IIMs, might be seen as a further attempt to perpetuate a colonial order in the new revived form of intellectual conquest. In this view, as Spivak (1994) argues, western intellectual production is often complicit with western international economic interests. The introduction and *normalization* of management practices, originated in the western corporate sector, in the Indian business community through institutions like the IIMs have the fundamental role of reinforcing and legitimising the international commercial order that finds in the globalization process its apex. At the same time, a fundamental aspect of this process, as Banerjee & Linstead (2001) show in their analysis of globalization dynamics and the MOS discourse, is the acceptance by the local elites of a reconfiguration of the international capitalist order that ultimately reinforced their dominant positions in their own settings⁵⁸. The boom of Indian consulting and BPO companies perfectly integrated within the global corporate sector is a clear example of this process.

On the other hand, these dynamics are contested and increasingly opposed by a number of scholars that advocate for a deeper reflection about the socio-cultural positioning of the researcher and the researched - an *epistemological reflexivity* - within the field of MOS (Jack et al., 2011). This demand, though a minority view, was present in some of the statements of the interviewees, some of whom were in open opposition to the initial mission of the IIMB. According to Prof Damodaran, for example, the IIM remains formally an instrument of the modernity discourse, but it is increasingly becoming postmodern in its practices. This is due to the fact that the modernity project has lost much of its original credibility. Despite the acceleration of economic liberalization of the 1990s and

⁵⁸ As W. Sachs (2010) observed reviewing the post-development literature 10 years later the publication of the 1st edition of 'The Development Dictionary', the ideology of development has definitely conquered the imaginary of the elites of the 'developing world' (see also Chapter 3).

the boom of new industries like the IT, Indian economic growth cycles still reflect a semi-feudal basis of capitalism which has only been exacerbated under the current neoliberal policy regime, with the result of producing ever increasing inequalities (C. Das Gupta, 2010). Scholars like Seshadri openly denounce the invasion of Western, materialistic values under the cloak of the MOS discourse, whereas people like Damodaran are convinced that India is moving towards a new form of modernity. Others, like Narayanswamy, advocate explicitly for an 'Indian modernity'. The picture that emerges from the case study is a scenario fractured by the tensions between the imposition of a postcolonial intellectual discourse and the necessity to elaborate an 'Indian way' to MOS. In this scenario can be located the emergence of the inclusive business, and associated innovation discourse that, as Prof Krishnan argues, is slowing finding its way within the business and academic communities. The innovation discourse gained momentum in the shift from a centrally-planned R&D towards a more market-oriented society. The novelty of the Indian re-framing of the innovation discourse is *that it spans from the corporate sector to the BOP, through the idea of inclusion*. Within this frame, I argue, it is possible to locate the increasingly popular notion of Inclusive Business models or Inclusive Innovation. If modernity, at least in the West, with its notion of universal welfare and the state nation, has failed to solve the problems of the Indian poor – in some cases even exacerbated them – the times are ripe for a change in the model. If the private sector has proven successful in providing financially sustainable solutions in many sectors of the Indian economy, it is also likely to solve the problems caused by poverty, or so it goes. This legitimises the boom of the social enterprise discourse and the focus on financial sustainability that characterised the rhetoric of inclusive business. The strong emphasis on technology and financial sustainability is evident in the cases of inclusive business models incubated by the NSRCEL.

At the same time, the formulation of poverty as a *delivery issue* shifts the focus from the socio-cultural dimensions of *underdevelopment* to the managerial skills needed to achieve financial feasibility and sustainability. Furthermore, this

frame tends to emphasise the idea that it is always possible to find a technical fix to tackle poverty independently from its cultural and social causes⁵⁹. Ed Cutrel, the director of the TEM Microsoft centre, calls the hope for a technical fix that is widely diffused in the Indian corporate and public sectors, the '*religion of technology*' [TEM-EC]. This technocratic orientation is well summarised by the famous statement of Nandan Nilekani, the cofounder of Infosys, who said 'The world is flat', a compelling metaphor for viewing the world as a plain space in terms of trade, where all competitors have an equal opportunity. This was an idea further developed by the American journalist Thomas Friedman who, inspired by the IT boom in Bangalore, argued in his book 'The world is flat' that India's knowledge economy will rescue the rural poor and bring them into a world of 8% growth rates and abundant clean energy (Friedman, 2005). The book was very successful and won the first Financial Times and Goldman Sachs Business Book of the Year Award in 2005. The same ideas applied more specifically to the Indian contexts are preached by Nilekani who, in another highly influential book '*Imagining India, ideas for the new century*', advocates that it is absolutely necessary for India to abandon its socialist traditions in order to achieve economic growth (Nilekani, 2009). In line with the neoliberal wave, Nilekani also calls for limits on governmental regulation, so as to encourage entrepreneurship and private investments.

CONCLUSION

The IIMB case study provides an example of the process of narratives construction in an Indian academic environment with regards the discourse of innovation for development. The case shows that the IIMs, although originated within a the paradigm of modernization, are the centre of a contested and dynamic debate between the western project of modernity - based on imposed foreign managerial values and practices – and postmodern stances that stem

⁵⁹ One of the fathers of Evolutionary Economics and of the Innovation Systems Framework, Richard Nelson has recently warned against the ideology of the 'technical fix'. In a commentary published in Nature, Nelson and his colleague Daniel Sarewitz argue that science '*is most likely to contribute decisively to solving a social problem when it focuses on improving a standardized technical core that already exists*' [...] '*Technological fixes – they claim - do not offer a path to moral absolutism, but to technical resolution*' (Sarewitz & Nelson, 2008: 872).

from the necessity to combine the local specificities with the dominant discourse. In this scenario, the discourse of inclusive business models underpinned by innovation emerges, backed by the desire to move from a centrally planned economic model to a more pro-business environment. In this discourse, innovation spans across from the corporate sector to the BOP as part of the idea of 'inclusion' (see chapter 4). The former is encouraged to abandon 'jugaad' for a more systematic management of innovation in order to routinize the process of novelty production – reorganise time and space in the case of Mother Earth (see Chapter 6) - and achieve an ever increasing productivity. As regard the issues at the BOP, the innovation discourse then appears to be framed in terms of inclusive business models or inclusive innovation. This perspective tends to frame poverty in terms of *services delivery failure* and generally neglects the politics associated with exclusion and marginalization of the poor, favouring technical or managerial solutions over the social understanding of the complex reality of poverty. At the same time, following some postcolonial thinkers, I suggest an interrogation of institutions like the IIMs via postcolonial theory is useful. As the development discourse provided the basis for colonial *governmentality*, so MOS serves the interests of international western business management within the globalization process⁶⁰.

⁶⁰ Foucault forged the term *governmentality* to describe the capacity of language as social practice to govern and control the actions of third actors (Foucault, 1977, 1984). He suggests that discourse can be used to legitimate, reinforce or exclude specific social practices. The introduction of the notion of *governmentality* in the analysis of development politics discloses the role of formal institutions i.e., governmental agencies and universities (e.g. IIM-B) in the legitimation of science-based policy making. By reframing development as a highly complex system that can be understood only by experts, the debate on what human development is ends up excluding vast sectors of civic society.

THE PEOPLE'S SCIENCE MOVEMENTS: SCIENCE & TECHNOLOGY AND INNOVATION FOR SOCIAL REVOLUTION

8.1 RESEARCH SETTING OF CASE STUDY

The People Science Movements (PSMs) are neither a monolithic body nor a dispersed group of activists, but rather a network of different movements that appeared on the Indian scene in the early 1960s. Its origins can be traced to the numerous educational groups working on the popularization of science in the regional languages of India, some of which date back to the pre-independence period (Parameswaran, 2013). The primary intention of the groups that originated the People Science Movements was to emancipate Indian people through the popularization of scientific thinking. As Prof KP Kannan, member of the Centre for Development Studies in Kerala argued to me, the founders of the first People Science Movements believed that the Western compartmentalisation of knowledge into several branches was artificial. This fictitious organization impedes the understanding of the essential unity and complementarity of human knowledge. According to the intellectuals that initiated the People Science Movements, experience shows that there is a natural science content in every social issue. On the other hand, science and technology are also the expression of complex social phenomena that include class dynamics, power relationships and cultural structures (Kannan, 1990). By *disclosing* those relationships, the activists of the People Science Movements wanted to use science and technology as an instrument of social struggle in favour of the disadvantaged classes.

The intellectual origins of the People Science Movements can be traced to the vibrant debate about science, technology and innovation in pre-independence period India. In this crucial moment of Indian history, during the process of shaping the institutions of the future free country, there was plenty of space for the experimentation of different models of development based on a very diverse range of ideological perspectives. There were several different positions as regard the development of new institutions for knowledge production, knowledge mobilization and innovation promotion. The freedom movement played a central role in shaping the direction of development and technical change in this period and in the following formative period of post-independence. During the period of the 1930s to 1950s the debate focused on the creation of a set of institutions for learning and competence building, designed to address the legacy of poverty that colonial domination had left. It was in this moment that the concept of 'pro-poor innovation' gained momentum in India. In this debate, the People Science Movements played a central role (Ramani, 2014).

8.2 THE CASE OF THE PEOPLE'S SCIENCE MOVEMENTS (PSMs)

Data collection and analysis

Unlike Grameen Shakti and Mother Earth, the People Science Movements are not one centralised organization, but rather a group of interconnected organizations with different backgrounds. In order to understand their narrative I decided then to follow some of the People Science Movements leaders all over India. As a result, I could not use the same methods (e.g., micro-ethnography, shadowing, and non-participant observation) I used in the other cases. My approach consisted in approaching a group of selected senior members and engaging in a discussion about the origin and evolution of the movements. My primary intention was to understand the evolution of the movements within a wider scenario of competing narratives of Science & Technology in post-independence India. My first contact with the leaders of People Science Movements was in Delhi. At the end of October 2013 I was invited to attend the conference '*Science in Society and Development: Nehru & Beyond*' organised

by the Centre for Jawaharlal Nehru Studies of the Jamia Millia Islamia University in Delhi. The centre was established in 2004 with the objective of conducting research and teaching on development issues. My primary motivation for attending the event was to meet and interview the founders of the People Science Movements. At the conference, I got in contact with some of the founders of the People Science Movements scattered all around India and had the opportunity to discuss and record some interviews. In the months of November and December 2013, I then followed the work of the groups on location in Karnataka and Kerala. I interviewed older and younger members of the PSM's in Bangalore where I visited the facilities of the ASTRA group (now Centre for Sustainable Technologies hosted by the Indian Institute of Science (IIS)). Finally, I spent one week in the Integrated Rural Technology Centre⁶¹ (IRTC) in Palakkad, the experimental centre founded by the PSM of Kerala to upgrade the traditional technologies of the region. The vast majority of the data collected consists of semi-structured interviews recorded and verbatim transcribed. In the case of the Kerala PSM, I complemented the interviews with field notes, videos, photos and the material published by the movement itself.

⁶¹ <http://www.irtc.org.in/> (last accessed December 10, 2014)

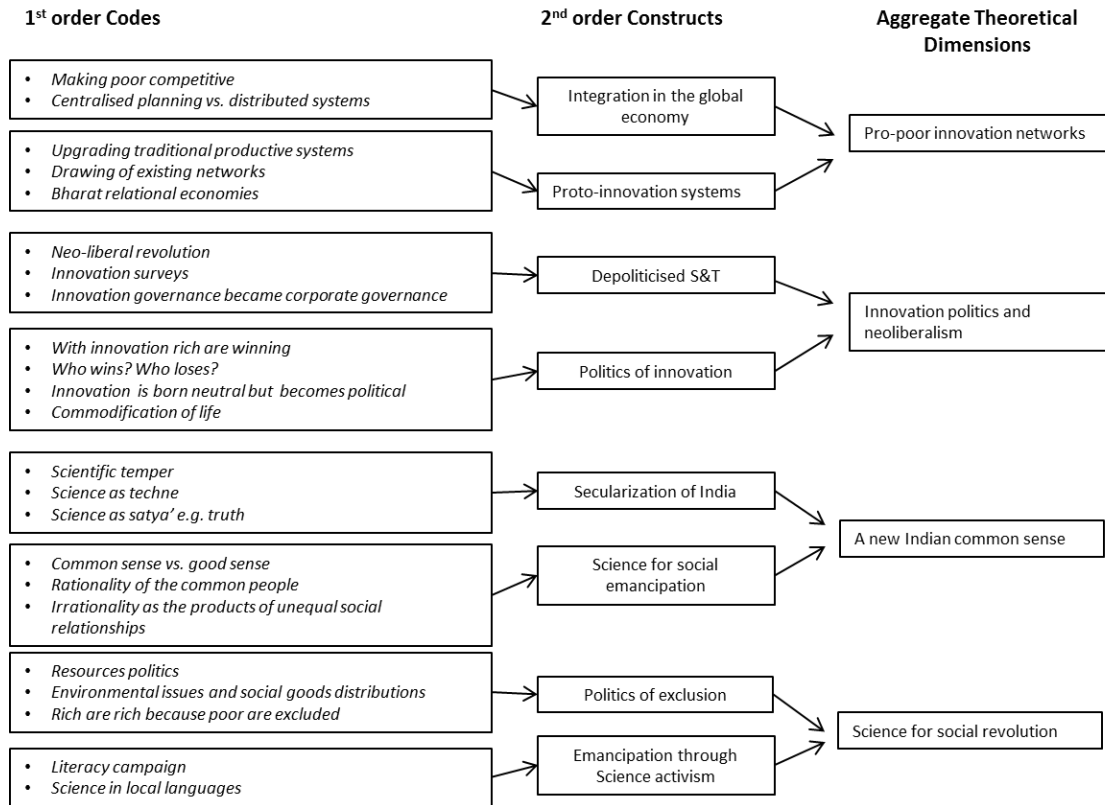


Figure 14 PSMs: Analytical coding process to induce theoretical dimensions

All the interviews aimed to disclose the way People Science Movements has been framing their narrative of Science & Technology and its relation with development issues. In particular, in the interviews I attempted to record the history of the movements, the philosophy underlying the movements (saying) and their experiments on the ground (doing). As described at the end of section 4.2 (data analysis and writing up), I performed an initial coding for data analysis using a set of *a priori themes* extracted from my original research questions: *how do the People Science Movements activists frame innovation? How do they frame their identity as innovation scholars/promoters and/or innovators (being), their practices (doing) and how do they communicate their frames (saying)?*

The 1st-order-codes were grouped in theory-centred 2nd-order- first order codes and then assembled into four theoretical dimensions (Figure 14): *Pro-poor innovation networks; Politics of Innovation and neoliberalism; New Indian 'common sense'; and Science for social revolution.* In the following sections,

before analysing those four themes, I first introduce the historical settings in which the debate about science, technology and development have been framed since Indian independence. This context, described through the accounts of some of the early People Science Movements members among other sources, I argue, is fundamental to understanding the position of the People Science Movements narrative of development and innovation in relation with the mainstream discourse that characterises institutions like the IIMs and social enterprise like Grameen Shakti and Mother Earth. In the next section, thus, I briefly summarise the historical context in which the People Science Movements emerged by drawing on my interviews with Prof Dinesh Abrol [PSM-DA1/2] and contrasting them with the extant literature on Indian recent history. Then I analyse the themes illustrated in (Figure 14).

Competing narratives of development in the independent India

One of the key leaders of the movement is Prof Dinesh Abrol, formerly a chief scientist of the National Institute of Science, Technology and Development Studies (NISTADS) and currently professor at the Institute of Studies in Industrial Development (ISID) in Delhi. Apart from being a key figure in the People Science Movements, Prof Abrol has carried out research to disclose the role of the counter-hegemonic movements in the creation of modern India. He analysed the political melting pot of post-independence to understand how the politics of science and technology evolved in the subsequent period. He argues that:

‘The politics of attainment of counter-hegemony against colonialism required the leaders of the national freedom movement to build a multi-class alliance on the ground. Therefore, the leaders of post-independent India were very much ready to practice diversity and people oriented directions in the conduct of their politics of knowledge production’ (Abrol, 2013:5).

At this peculiar moment of Indian history three major narratives or political traditions struggled for affirmation, with three very different views of development. As Prof Abrol remembers, they had very different conceptions of ‘socio-technical imagination’, ‘vision of path of development’ and ‘social carriers of innovations’. Those were the Gandhian, Nehruvian and Left traditions.

The Gandhian idea was based on the notion of a self-reliant, village economy. This model gives a central role to the village, defined as a self-sufficient unit of social life (Gandhi, 1959). Gandhi dreamed of a country composed of millions of autarchic villages ruled by heterogeneous forms of self-government. It was basically a non-party model of local democracy totally opposed to the centralised power characteristic of the classical European national state (Terchek, 1998). In Gandhi's view, the land assigned traditionally to the upper castes had to be redistributed to the landless people belonging to the lower castes. This principle was promoted in practice by the Bhoodan Movement that attempted to persuade the landowners to voluntarily give a percentage of their land to the landless people. The Gandhian model also opposed the grand narrative of industrial progress that had gained momentum in the post-WWII period. Gandhi advocated for a model of *decentralised industrial development based on the upgrade of traditional and local knowledge and technology* (Mishra, 1999). The Gandhian way stressed the importance of the *small scale and the limits of technological development*, setting the scene for what became famous as the Appropriate Technology Movement (Jequier, 1976) (see also chapter 2 on grassroots innovation). He prioritised the individual or collective small scale industry and the cooperative organization of both producers and consumers. The supporters of the Gandhian way were quite reluctant to accept the Western model of development that was promoted by the first prime minister of the new independent India, Jawaharlal Nehru (Visvanathan, 1988).

In opposition to the Gandhian tradition, the Nehruvian idea of development was based on the establishment of large technological systems through the introduction of a sort of state-planned capitalism. A strong state, in Nehru's vision, was necessary to scale up small Indian industry and allow the emergence of big business as a major player in the economy. As a consequence, Nehru's supporters advocated for the establishment of a strong national industry to import, substitute, and in total modernise the agricultural sector and promote endogenous economic growth (Varshney, 1998). The import - substitution policy was based on a strategy of replication and imitation of foreign technology or on the replacement of imports through the development

of self-reliant Science & Technology institutions. Of course, the Nehruvian project implied the construction of modern infrastructures like bridges, roads, power stations and irrigation systems. The problems of social justice and poverty, were addressed by introducing the concept of universality of welfare guaranteed by the state (Ehmke, 2011). The state, thus, had to provide universal schooling and health access as well as the financial support for the creation of small and medium business all over the country.

Finally the Left tradition was more influenced by Marxist and anti-imperialist positions. Its supporters advocated for the establishment of centrally coordinated, large technological systems managed by the workers (Ramani, 2014). This project had to be realised through a radical distribution of assets, especially land. The Left supported the creation of modern heavy industry, the modernization of agriculture through the green revolution and the construction of big infrastructures to feed economic growth. As with the Nehruvians, they also supported the establishment of a strong central state responsible for the creation of universal education and health systems. This tradition, however, was far from being an organised movement with a clear leadership. The positions of the members of this intellectual community diverged on many crucial points. In some cases, as in the Southern state of Kerala, the Left was amenable to a more decentralised planning approach based on the promotion of technological models for local economy development, i.e. a more Gandhian vision (Heller, 2001).

According to Prof Abrol, during the 1950s the space for political action based on a pluralistic debate that involved those three traditions was still very much open. The negotiation between national planning and self-reliance positions was still visible within the political leadership. Several experiments to introduce concepts like pro-poor innovation were considered and even carried out to accommodate the different views and aspirations of the people who came from different traditions. It should not be forgotten, indeed, that at the time of independence, a pre-industrial subsistence way of living was the dominant model in India. Subsistence agriculture in the form of cottage industries employed the vast

majority of Indians. On the other hand, the nascent heavy industry was not able to absorb the surplus labour that the modernization of the agricultural industry would have caused. For this reason, the Nehruvian leadership found it politically convenient, even necessary, to accommodate the Gandhian tradition through the protection of the cottage industries and other subsistence forms of life (Mishra, 1999). As a consequence, the protective role of the state, its economic support and the incremental technological upgrade of the traditional manufacturing sector became a consistent aspect of the first Nehru government in parallel with heavy industrialisation (Parthasarathi, 2005).

In his reconstruction of the following years, Prof Abrol identifies in the crisis of the 1960s a critical moment of closure (Abrol, 2014). In that period, India faced extreme pressure in the form of both a food crisis and a crisis in foreign exchange rates. The state of emergency created by those crises gave the opportunity to the Nehruvian leadership to close the debate and consolidate the development strategy of the country around models of large technological systems, which even today remains in place as the dominant frame.

However the 'closing down' process initiated by the internal and external crises was interrupted again at the end of the 1960s. By the end of that decade it was reasonably clear that those who benefited most from this short season of reforms based on the promotion of large technological projects were big business and the landed gentry. After the electoral debacle of 1967, the Prime Minister Indira Gandhi was compelled to revisit the official anti-poverty strategy. The congress introduced a new agenda using the slogan 'Garibi Hatao' (Get rid of poverty) to reconquer the disappointed voters. The new political wind allowed accommodation of the Gandhian tradition of pro-poor innovation policy and the idea of the centrality of the state advocated by the Left. Many coal plants, banks and other strategic industries were nationalised and several programs to support small farmers and local producers were put in place. By the end of the 1970s, the Congress Party lost power at national levels. The traditional Marxist left won the election in West Bengal (where it remained in place for three decades), and in Kerala. The appropriate technology movement gained momentum again from this political change (Abrol, 2014). Even when Indira

Gandhi came back to power in the 1980s, the principles of appropriate technology and pro-poor innovation didn't lose their centrality in the rural development programs of the state.

In the following decades, while neoliberalism came to occupy a dominant position within the government, niches for the establishment of non-mainstream institutions for the promotion of pro-poor innovation were created. A few examples are the Application of Science & Technology in Rural Areas (ASTRA)⁶² in the Indian institute of Science, the Gaon Ka Karigar and Science in the Council of Scientific & Industrial Research (CSIR) system of laboratories and the People Science Movements (Ramani, 2014). As Subuddhi (2002) has also documented, the idea of those experiments was to connect the scientists and engineers working in the public institutions (e.g., the Indian Institute of Technology (IIT) or Science (IIS), the CSIR) and engage them with the problems of the Indian poor.

Pro-poor innovation for productive networks

The first theme that emerges from the data analysis is the notion of productive networks. According to the People Science Movements narrative, pro-poor innovation should be encouraged through the creation of proto-innovation systems that would allow the poor to be integrated in the national and global economy (see Figure 14). Since their origin in the 1970s the People Science Movements encouraged scientists and activists to participate in the making of socially-motivated, pro-poor innovations networks (Varma, 2001). The membership of the PSM's drew from different traditions and collaboration was on a voluntary basis through activities of different kinds. They constituted a network of people working in different sectors related to science, technology and policy making (Jaffry et al. 1983). As Prof Abrol told me:

⁶² See the Annual Reports of the Indian Department of Science and Technology available at http://dst.gov.in/about_us/ar01-02-sp-science_technology.htm (accessed April 14, 2015)

'Like the Gandhians, we had our own understanding of what local economies are. But we turned Gandhi upside down because, as Marxists we wanted neither to subordinate ourselves to the pre-existing model of feudal relations nor to subordinate to the market. We wanted to create new structures. We were also aware of the fact that the centralised planning systems have their own weaknesses. Although we saw the role of the state, we wanted a multi-level planning that allow the local economies to influence the national level. [...] We were not pure centralist. You know... there is nothing in this particular country which is not hybrid' [PSM-DA1].

People Science Movements in a way differed from the Marxist tradition and at the same time questioned the Gandhian concept of self-sufficient villages that influenced the Khadhi Village Industries Commission⁶³ (KVIC). They wanted to develop a counter-hegemonic discourse opposed to the mainstream logic of both centralised, industrial development and neo-traditionalism. In Dinesh's words:

'We saw local economies as providers of economies of scale. We thought that they could even compete with the transnational corporations and the big business. [...] Only the 30% of the Indian poor have some land, but they can do something. They are embedded in networks of production. How do we work with them, how do we empower them? And how do we empower them in a manner that they can actually become competitive to the transnational corporations? Petty producers cannot compete on their own without cooperating among themselves, it is not possible. [...] We supersede the Gandhian conception. The KVIC tried to make the individual producer competitive, but they will never be able to compete with the big businesses' [PSM-DA1].

The People Science Movements model of development was focused on pre-existing networks of productive units. In order to compete with the inevitable pressure of market capitalism, the local economies had to be dissected and analysed to identify their value chains, the links and relationships that held together all the single producers. Unlike Gandhi, the focus of People Science Movements activists was on the *network of horizontal and multi-sectorial links that connects not the individual artisans but village economies*.

⁶³ The Khadi and Village Industries Commission (KVIC) is a statutory body created by the Government of India in 1956'. It is an organization controlled by the Ministry of Micro, Small and Medium Enterprises designed to "*plan, promote, facilitate, organise and assist in the establishment and development of khadi and village industries in the rural areas in coordination with other agencies engaged in rural development wherever necessary.*" The act that establishes the KVIC can be downloaded at:

<http://www.ari.nic.in/RevisedKVICACT2006.pdf> (last accessed February 2, 2014)

'In the village nothing is made by one artisan. Everything is made by the participation of the whole village and the contributions of the next villages, where there are the capabilities of repairing, maintenance or other kind of services. There is a whole structure of local economy in which the mechanism of the mercantile capital are very weak. [...] Gandhi saw them as individual producers. We started seeing them actually as individual producers being embedded in networks. We use concept of network even before Castells⁶⁴. Before network economy became a rage in the world. Before even the national system of innovation framework came' [PSM-DA1].

According to Dinesh, the post-independent wave of development ideology was fundamentally based on the notion of *competitive individual producers*. The approach of promoting small producers to become individually competitive by using labour intensive, small scale intermediate technologies has, in his opinion, proved totally inadequate for the achievement of technological efficiency in a dynamic sense. This view he argues is guided by a primitive notion of competitiveness, which stresses the role of isolated agents in idealistic, competitive markets. This approach simply neglects the fact that production, even more the traditional way of production, is always embedded in wider cultural and social contexts.

In order to explore alternative paths for the development of pro-poor initiatives, the People Science Movements promoted their agenda within Indian universities and research centres. The early initiatives were oriented to the interface between science and the traditional society. Prof Abrol summed up their strategy in two fundamental questions: *How do we use science to improve our traditional technologies? How can we upgrade our pre-existing systems of production to become globally competitive?* [PSM-DA1]

The theoretical approach the People Science Movements began to explore is not very different from the concept of the Innovation System framework (chapter 4). In this frame, the single, small and isolated farmers cannot scale their activities to compete with big business unless they become part of a network of producers. By discouraging competition within the local economy and

⁶⁴ Manuel Castells is a Catalan scholar who introduced the notion of Network Society (Castells, 1996).

encouraging collaboration in networks of rural producers, the People Science Movements activists were convinced they could make the rural economy more competitive vis-à-vis the bigger urban industry. The practical applications of this idea are the People's Technology Initiatives (PTIs), a sort of 'proto innovation system' applied to the Indian rural world. The creation of the PTIs emerged from the conviction that the mainstream thinking only focuses on how to remove the barriers that encumber the interactions between research organizations and the practitioners' world in the limited context of public-private relationships. The mainstream innovation policy, in the People Science Movements view, totally neglects the question of participation and equality of access from the weaker sections of society. The villagers' role is merely to make their land and labour available for agricultural production, or at best, to participate in the process of value creation as lower-end producers in long value chains controlled by large scale private/public organizations. While the Innovation System approach seeks to *replace* the existing relations between the productive forces of the economy with more efficient technological systems, the PTIs attempt to do the opposite: to build technology system *around* local knowledge and resources.

But, in Dinesh's view, maybe the most important reason for experimenting with alternative ways of organising the rural economy was the failure of the many national programs to address the needs of the poor. Those failures include the shortcomings of the Green Revolution paradigm (i.e. degradation of land, pollution, exclusion of poor farmers, dependency on big agro-business for pesticides and fertilizers (see also the extensive work documenting the politics of the green revolution in (Shiva, 1991)) and the limits of the rural development plans promoted by the central government (i.e. framing traditional farmers as competitive individuals). Nevertheless, the PTIs were also a reaction to the failure of the appropriate and intermediate technology movements to restructure the relations between technology and development. The appropriate technology movement, indeed, by placing too much emphasis on technological aspects, failed to understand that the real problem of the rural settings is the way in which the production is organised and the relationships that govern it. Thus, the PTIs rejected the notion of stand-alone small-scale producers and suggested a

network-based approach. At the same time, the PTIs approach rejects the dependency on intermediate actors like GS, ME, GoCoop or Selco. The ultimate goal of the PTIs, indeed, was to empower the producers and built up network of producers who could *independently* deal with local, national or international markets.

People Science Movements promoted feasibility studies to validate the PTIs model. Those studies showed that the rural poor can have a chance to become competitive if they implement *taluk-wide*, area-based, multi sectorial, large-scale networks of production⁶⁵. The PTIs are based on the idea of participatory networks of producers that operate at taluk scale in the hope that a large number of small producers would eliminate mutual competition among them and enable economies of scale in production. In order to create such systems they needed to bridge Science & Technology agencies and their laboratories, financial institutions and government bodies. The strict collaboration between scientists and Science & Technology activists would allow the development of new adapted technology through a process of adaptive research shaped by the peculiarities of each context. In this sense, the PTIs recall the Leach & Scoones (2006) idea of the *slow race* (see also section 3.3). Prof Abrol listed several PTI experiments carried out by the People Science Movements with the help of formal institutions like the CSIR and the NISTADS. When they started those experiments in 1980 they didn't even use the word 'innovation'. However they were innovating in products, processes, services and organizations. They worked on 16 sectors in 7 Indian states (Abrol, 2003, 2004, 2005, 2014; Pulamte & Abrol, 2003). Each initiative involved about 200–300 households spread over about 30 rural and semi-rural settlements. Unfortunately as Prof Abrol sadly confessed, the PTIs have received only very limited exposure in the innovation literature. The approach, indeed, is virtually absent from general debates on agricultural technology and development in India.

⁶⁵ A Taluk is an administrative unit equivalent to a sub-district and usually includes an area containing approximately 250 villages.

As an illustrative example, Prof Abrol described the case of the leather industry. When he was employed at the NISTADS, he extensively studied the ecosystem of the leather producers in several states in India. The first link in the leather's value chain is the collection of cattle corpses. The Hindus worship cows, as a consequence butchery is not popular in the vast majority of Indian communities. A lower caste, which belongs to the Dalit i.e., the untouchables, is traditionally designated to collect the cattle that die in the fields and skin the dead animals. This activity is a demeaning job and those who are compelled to live on it are looked down as untouchable scavengers. The skins are then processed by other castes that are interwoven at village levels with a complex network of tool makers and dealers of all sorts of products that are involved in the leather manufacture. The Centre for Leather Research Institute (CLRI), an institution controlled by the CSIR, designed a digester to separate the skin from the bones of the animals. The carcasses are chopped and cooked in a specially designed cooker under 35 psi pressure for 3 hours. The tallow is tapped off and cooked flesh separated from digested bones. The bones are then crushed in a crusher and passed through vibratory sieves to make bone meal for poultry feed or bone ash as excellent fertiliser. This low-cost plant would cover 12 villages with 4 carcasses per day. The CLRI also developed an improved, eco-friendly process of vegetable tanning. However they had failed to commercialize the process in the mainstream channels of the big leather industry. But when the process was proposed by the People Science Movements activists on the ground, the tanners' communities accepted it and implemented it with success.

The politics of Innovation and the advent of neoliberalism

A second central recurrent theme in People Science Movements narratives is de-politicization of innovation discourse. According to the informants this process started in the 1990s with the rise of the neo-liberal agenda that tended to neglect the politics of technological development in the country. For example, Prof Abrol argues that the wave of neo-liberal thinking that struck the country in the 1990s marginalised the influence of the People Science Movements and diluted its influence within the formal institutions of India. 'Vested-interest science', as he calls the use of scientific rationality to legitimise controversial

technologies like Genetic Modified (GM) food or nuclear power, has been extensively used to justify the disenchantment of central government with the pro-poor innovation policy. The notion of free-market-driven innovation has, he argues, substituted the vision of pro-poor technological upgrading. In Prof Abrol's view, this has occurred because the liberalization process has changed the structure of the production system in the country. Innovation has become something that needs to be measured, managed and fostered, but, in this paradigm, not governed. This new trend initially involved the mainstream of development discourse based on the design of large technological regimes but was reformulated and overturned from its original Nehruvian formulation. The development project was certainly pursued through the implementation of modern and gigantic infrastructures but, unlike the centralist and paternalistic state dreamt by Nehru, a new class of captains of private industry will better serve the purpose. More recently, this view has also colonised the field of pro-poor innovation-making. New words such as inclusive growth, inclusive business models and inclusive innovation have appeared. In Dinesh's words:

'In this new season sexy words have created. We never used the word innovation. Innovation was itself a sexy word and now inclusive business is another sexy word. Now frugal innovation is another sexy word. [...] See this inclusive business concept is adverse inclusion. It is profit seeking and accumulation processes. So, what is inclusion to me? What is it inclusive business? You increase your market for 10 more consumers in some rural area whom we give a model of mobile which is different from the one used by Mukesh Ambani, that's inclusion? They do not want any inclusion. We don't want any inclusion, we want equity, and we want empowerment. Inclusion cannot do empowerment. The inclusion in the market means that the dominant power remains where it is'⁶⁶ [PSM-DA1].

To Prof Abrol the emergence of this new discourse of pro-poor inclusive business models is the last frontier of the expansion of neo-liberal ideology in India. In short, they promote the idea of the poor producing for themselves and becoming integrated in a market economy where the state assumes a marginal role of mediator. On one hand, this vision advocates for the inclusion of

⁶⁶ Mukesh Dhirubhai Amban is an Indian business magnate. He is the Chairman, Managing Director and largest shareholder of Reliance Industries Limited (RIL). He occupies the 38th position in the Forbes ranking of world's billionaires.

independent poor producers and consumers in a global market by the withdrawal of any kind of state subsidy. On the other hand, under the aegis of the WTO agreement, they subsidise big business. Prof Abrol continues:

'One cow gets more subsidies than an Indian human being in the Europe and the United States. It's like a new kind of political project. Within the neoliberal frame you say inclusion, frugal etc. They even use Gandhi. Dr Mashelkar uses Gandhi for example! One day they will use Marx also, for them everything is a commodity' [PSM-DA1].

At this point Prof Abrol mentioned Dr Mashelkar, the present director of CSIR and the author of the book 'Timeless Inspirator - Reliving Gandhi' (Mashelkar, 2010), to illustrate the penetration of neo-liberal thinking into academia and research institutions in India. Dr Mashelkar is also the ideologist, together with C.K. Prahalad, of the BOP approach. Both of them rejected public support to poor producers in favour of business-driven solutions. They also argued that the MNCs should accept the challenge of serving the Indian poor with affordable products (chapter 4, textbox 1). Both of them are members of the steering board of Unilever Hindustan, a company often cited as a good example of pro-poor innovations provider. Prof Abrol argues that this conflict of interest is an emblematic example of the pervasive influence of neoliberal thinking in the new pro-poor innovation policy.

Since the early 1980s the People Science Movements have been able to attract many people from the Indian academic establishment. Surprisingly enough, they also had a role in shaping the Science & Technology debate in the country just before the period of economic liberation. In order to understand more of this process I interviewed Prof PVS Kumar, a former scientist of the NISTADS with more than 30 years of experience in STS studies. Kumar started by telling me that the Science & Technology tradition in India began with the adoption of a central planning philosophy that the Russians had pioneered during the Soviet Union period. Resources must be allocated amongst research centres, governmental labs and private industry to build up a science-driven economic system. A very similar approach was also initially adopted by the Science Policy

Research Unit in UK, he argues⁶⁷. The planning approach was based on technology assessments and direct investments in scientific programs. According to Kumar, a shift occurred when neoliberal thinking became dominant not only in the global North but also in the developing world. The low-profile public sector that the neoliberal ideology was promoting was in open contrast with the Indian central planning approach. The academic discourse changed accordingly from the study of Science Policies to what is known as Innovation Policies. The focus shifted from the public intervention to the market and firms. In Kumar's words:

'The role of the state lost its centrality, it became a regulator. So everybody in India started looking at those innovation statistics. They took the Frascati or the Oslo manual, all those innovation surveys that Europe was doing, and started to implement it here⁶⁸ [PSM-PVS1].

Innovation surveys replaced the technological assessments and India's academia followed the way the European Union was assessing the innovative performance of its countries.

'We didn't question the model, we just imported the concept and methodology and then we copied and pasted in India. We dismiss local knowledge and Indian journals... we wanted to publish in the foreign journals. The people in India accepted blindly some flawed concept like measuring innovation through patents. To equate patent with innovation is criminal! People are happy... they can count the patents... you can see what the hegemony of Western science has done to us... even in the STS' [PSM-PVS1].

Kumar joined the People Science Movements because he thought the new wave of academic thinking was forgetting a fundamental truth of Indian society: the fact that India is not a nation but a multicultural melting-pot of nations and world views. The India that the new ideology wanted to prioritise is the urban vibrant business community. The Bharat, the real rural India of villages and ancient traditions was totally neglected. In Kumar's view, the innovation

⁶⁷ Science and Technology Policy Research (SPRU) is an academic centre at the University of Sussex, Brighton, UK. Founded in 1966, SPRU specialises in science, technology and innovation studies for policy and management.

⁶⁸ Oslo and Frascati manuals are documents published by the OECD that contain guidelines for collecting and using data on industrial innovation (see also (OECD, 1992)).

discourse that dominates is based on the development of services and products and their marketization⁶⁹. Innovation scholars never bothered to look into the rural India because '*It is not sexy not glamorous, It does not sell in academic world*' [PSM-PVS1]. The main difference between those two worlds is that the market that ultimately becomes the yardstick to judge whether innovation has succeeded or failed in the rural settings does not exist. One has no meter to measure innovation in the rural context with the innovation survey approach. This approach failed to provide any insights concerning the impacts on people of Science & Technology and innovation. Kumar even suggests that the introduction of the notion of innovation itself, a word that was not used in the early times of People Science Movements, has been used to divert the attention from public-driven policy to depoliticised, business-driven activities. As Sabyasachi Chatterjee, an astrophysicist from the Indian Institute of Astrophysics Bangalore (IIA-B) and activist of PSM in Karnataka stated, neo-liberal thinking has shifted the commitment for scientific temper to subjecting science and technology to the laws of the marketplace [PSM-SBC]. As a result, innovation scholars started making innovation surveys to accommodate the indicators to big business and closed down the possibility of involving in the debate other approaches e.g. the People Science Movements approach and the grassroots movements. By removing the informal sector from the surveys, they also excluded those activities that are not formally classified as R&D.

A new Indian common sense

A third crucial theme that emerges from the interviews with some of the key People Science Movements members is the need to reframe the notion of science and technology in a form that is accessible to, and makes sense to, common people: the emergence of a *new Indian common sense*. This is possible through a process of *secularization* of the country and through the use of *scientific rationality as an instrument for social emancipation*. Although

⁶⁹ Bharat, Bharath, Bharata, Bhārat, or Bhārata may be a transliteration of either Bharata (Sanskrit: भरत, lit. "to be maintained").

nowadays the critique of neo-liberalism has become central to the People Science Movements discourse, the early focus of the movement was in fact on the quest for the popularization of science. The notion of modern science in its Western formulation was promoted in India by Nehru himself, who forged the term 'scientific temper' (Nehru, 2004). Educated in England, Nehru aspired to modernise India by instilling scientific rationality in every Indian mind. The quest for scientific temper went beyond mere secularization of Indian traditional institutions that, according to Nehru, at that time were still enmeshed in the enchanted mechanisms of thousands of local superstitions. Nehru's aim was to apply scientific rationality to everything in life to create a new nation of free human beings unrestrained by the prejudices of religious feelings (Ibid.).

The creators of the first People Science Movements were particularly worried about the elitist turn that the quest for scientific temper had taken in post-independent India. They thought that, in order to trigger real social change, science must reach to the very bottom of Indian society. To understand the original discourse concerning scientific reasoning of the People Science Movements activists, I contacted Prof K.N.Ganesh. Prof Ganesh teaches history at Calicut University in Kerala and belongs to the first generation of PSM activists. He explained that the debate that took place in Europe in the 18th century about the foundations of modern science and its role in the industrial revolution never occurred in India. The contraposition between faith and reason, rationality and feeling, modernity and tradition was never debated in India. In the colonial age, Indian understanding of science was basically derived from the *experience* of contact with technology. Science and technology were understood in the form of ports, roads and railways, aircrafts, factories and the machines that were actually employed in the factories. Indian understanding of science was, at least from the people's perspective, *the deployment of technology* – what Aristotle calls *téchne* - rather than science per se (*episteme*). Furthermore, the theoretical formulation of western science encountered several difficulties for another reason. According to Prof Ganesh, modern science in the European sense has been traditionally based on scientific realism. The facts described by science are real and constitute the real world. In

other words, the success of science in describing and predicting is due to its capacity for describing reality. Prof Ganesh, drawing on Gramsci's realism, argues that the concept of reality in the West is paradoxically rooted in a theistic basis. Surprisingly indeed, according to Prof Ganesh the notions of reality and the real, crucial in scientific reasoning, originate in the Judeo-Christian tradition. The real is given by God, God is real, and then whatever that god created also will have to be real. Therefore the real was never questioned. Religious people and the atheists agreed about what the real is. The whole tradition of 19th century positivism is based on scientific realism, Prof Ganesh argues. But in the case of India, the conception of the real was something very different. In Prof Ganesh's words:

'The Indian's conception of the real, what we call 'satya' in the Ayurvedic, Buddhist or Jain traditions, is a real that is not related to a creationist reality of the Europeans but to a spiritual concept of truth'. [PSM-GA]

Truth and reality are defined by the same spiritual concept of *satya*, which does not necessarily coincide with the scientific truth. The word is often translated into English as 'unchangeable', 'absolute truth' or 'reality'. The achievement of the *satya* is only possible through a spiritual quest. As a consequence the real and the spiritual were not separated. As most of the Indian philosophers considered the real as a spiritual real, they interpreted science in its practical technological formulation as a part of a higher quest for truth. He mentioned Gandhi as an example. Gandhi's experiments with truth, where the truth is *satya*, are not something that is related to scientific realism. *Satya* had to be realized in the human mind. *Satya* had to be realized possibly in *Satyagraha*, the force of the truth of the non-violent struggle. In Ganesh's words:

'This distinction between truth and the scientific real, which is the distinction between truth and technology, became part of the entire ethos that developed during the post-independent age as far as we can see. So we don't have a clear rationalist kind of intelligentsia. There was an interpreted rationalism in the form of instrumental rationality, in the form of a rationality which was embedded in the machine once again. We find that all the discussions on science in fact were related to basically the whole question of developmental quest...' [PSM-GA]

As a result, the original meaning of the quest for scientific temper assumed a different connotation that was no longer related to the concept of scientific

rationality or scientific realism, but with the agenda of the emerging secular, democratic state that came into existence during the beginning of 1950s. This scientific temper became the part of an entire agenda of national reconstruction that looked at the practical manifestation of science in technology as the central engine of national development. If science was identified with technology, development was identified with industrial machines and large technological regimes. This political agenda formed a kind of ideological structure that, under the key word of scientific temper, pointed to a new kind of scientific consciousness, which was supposed to convert the people, particularly all the educated people, into new, free human beings.

According to Ganesh, the quest for scientific temper inaugurated by Nehru became an elitist project because it dismissed the inclusion of the lower layers of Indian society. He told me that in India the concept of traditional and local knowledge mattered in all aspects of social life. Is traditional or indigenous knowledge a valid form of scientific knowledge? This he argues is a pointless question in the practical life of many Indians. The Nehruvian mission neglects traditional knowledge as being un-scientific, whereas the Indian bourgeois elite dismissed it as a common prejudice. Nevertheless, from a very practical perspective, traditional knowledge did matter for the common people. In terms of traditional knowledge Ganesh refers to all the practical, social and technological arrangements that people need for living. People Science Movements activists were interested in the empowerment of the lower classes of the society and faced the dilemma of combining scientific rationality with local traditional knowledge. In order to do that they elaborated the Gramsci notions of '*senso comune*' (common sense) and '*buon senso*' (good sense) to state that even the least educated person can act rationally if empowered to think critically (Patnaik, 1988). Gramsci people think and act according to what he calls common sense. Common sense is the '*philosophy of the non-philosophers*' or a narrative of the world which is '*uncritically absorbed by the various social and cultural environments in which the moral individuality of the average man is developed*' (Gramsci (1975) translated by Nun et al. (1986: 202)). Common sense draws on past ideas, beliefs, prejudices and traditions; but it also

continuously evolves to give meaning to new interpretations of reality, solve new problems, and unravel new dilemmas. Far from being a rigid narrative of reality, common sense is intrinsically incoherent, containing stone age elements, principles of advanced science but also prejudices from all past phases of history (Gramsci, 1975). For these reasons, common sense is always fundamentally contradictory. It tells not one narrative, but several conflicting 'stories' clumsily stitched together. Common sense refuses to resolve the conflicts between what Gramsci calls its 'stratified deposits' of concepts and ideas, preferring unsystematic and simplified forms of popular philosophies. In this sense, the Gramsci notion of common sense fits with the concepts of *frame* and *narrative* exposed in Chapter 3. Nevertheless, under the sedimented strata that constitute this common sense, Gramsci sees what he calls a 'healthy nucleus' i.e., a set of rational and coherent principles that underlie any construction of reality. This is what Gramsci calls 'good sense'. Citing a well-known passage of Manzoni's novel '*I promessi sposi*', he says:

Manzoni distinguishes between common sense and good sense. Speaking about the fact that there was certainly somebody who did not believe in the 'untori' but cannot sustain his own opinion against the popular shared opinion, he says: «There was a secret surge of truth, a domestic confidence: good sense still existed but it was kept concealed for the fear of common sense. »⁷⁰ (*Gramsci, 1975: Q 8, 19, 949 translated by the author*)

According to Gramsci, the 'good sense' is innate in human nature. The historical role of the Marxist thinker is to create a new common sense based on the universality and rationality of the good sense. Similar to the Foucauldian notion of discourse, for Gramsci the idea of common sense becomes the site of political struggle; to change the unequal structures that express the common sense a new common sense based on the notion of good sense – that in this case overlaps with a sort of scientific rationality – is necessary.

⁷⁰ The 'untori', literally the *oilers* or *greasers*, were individuals accused of spreading bubonic plague during the pestilence of Milan in 1630 by oiling public spaces with a yellowish substance, which was supposed to contain germs. This popular belief, although totally unfounded, rapidly spread among the exhausted and scared population instigating a witch-hunt that led to the torture and assassination of several alleged 'untori'.

The core of People Science Movements philosophy is the extension of this Gramsci elaboration to the Indian context. Instead of transferring scientific rationality, People Science Movements activists argued that the ordinary person is somehow *intrinsically rational in her personal practical life*. People have a rational understanding of the practicality of their lives, developed by carrying out the activities that keep them alive in a meaningful way. The fact that ordinary people show irrational thinking, according to this line of reasoning, is due to the fact that they are influenced by various kinds of forces like religion, superstitions systems, the state or the ruling classes. In Prof Ganesh's words:

'If this proposition is correct, then it means that it is possible to imbibe an ordinary person completely by any kind of scientific rationality. He will understand. There is no problem. We think that is possible for science to be made the common sense of the people'. [PSM-GA]

If marginalised people can understand scientific rationality for themselves they can also gain awareness of their condition and act for social change. This process of awakening cannot be forced or imposed by a central power like the state. According to People Science Movements philosophy, no society accepts scientific thinking if it does not solve some practical problems. That is why they advocated transforming science as an organised body of social knowledge into the common sense of people. Only through this process can science act as an agent for social transformation.

Science for social revolution

Linked to the above, a fourth theme in the narrative of the People Science Movements is what the KSSP leaders in Kerala call '*Science for social revolution*', which is the idea that the popularization of scientific rationality would eventually lead to a process of social transformation. This idea draws on two basic themes: the recognition that *the roots of social exclusion are essentially political* and the assumption that the underlying causes of exclusion can be disarmed through 'science activism' i.e., *the popularization of scientific thinking among the poor* (see Figure 14). People Science Movements realised that, despite the efforts of the central government to create a modern secular state in the post-independence season, by the late 1970s the overwhelming majority of

Indians were still illiterate. The popularization of science could not begin unless a significant part of the population acquired the capability to absorb the message of scientific rationality. To achieve this objective, the early People Science Movements engaged in several campaigns for rural literacy which originated in the state of Kerala and had an enormous success (Parameswaran, 2008). According to KSSP leaders, those campaigns contributed to the fact that today Kerala literacy indicators are the highest in the country, around 95.5%⁷¹. The Kerala People Science Movements, unified under the organization called Kerala Sasthra Sahithya Parishath (KSSP) – meaning *Kerala Science Literature Movement* – focused its efforts on the translation of scientific literature from English to the local language, the Malayalam. The network of KSSP activists and its publishing, the core of their scientific divulgation activity, are today present and active in every district of the state. Being a volunteer-based organization, the main funding source of the movement comes from the sale of books to schools, public libraries, small shops and individuals. KSSP built up its structure through a capillary network on the ground that follows a strategy aimed at approaching the rural and urban population with social events like street theatre, music events, door-to-door campaigns, and activities in the rural schools. As a result, over the years KSSP created a rural intelligentsia initially formed by teachers, educators and students, then by doctors, engineers and other professionals. George D'Cruz, one of the early activists of KSSP described to me their mission:

'[...] the people have to decide their destiny. For that there should have a weapon to fight against those who are against them. And the weapons should be science. Knowledge, so we have to equip people with the weapon. Namely, knowledge and science.' [PSM-GD]

After this initial stage of alphabetization of the rural population, the KSSP elaborated a second strategy that they called 'Science for social revolution' (Parameswaran, 2013). This renewed strategy drew directly on the idea of

⁷¹ An estimation of Kerala total literacy rate is available at: http://www.kerala.gov.in/index.php?option=com_content&view=article&id=3670&Itemid=2958 (last accessed March 2 2014)

creating a new common sense, in the Gramsci meaning, that could possibly endow the people the rational awareness for changing their social environments. The materialization of this idea was to connect the scientific activity carried out in the laboratory with the issues faced by the rural poor. The same idea was behind the experiments of the PTIs described above by Dinesh Arol. Unlike the experiences of the PTI that originated from the collaboration between the CSIR, People Science Movements activists and rural communities, the KSSP promoted its actions through the networks they had created over the years. These initiatives culminated in the creation of the IRTC. This was inspired by the feeling that the diffusion of scientific literature was not enough to emancipate rural populations. Once people have been endowed with the instruments to understand science, they should *use it* to transform their social contexts. This implies the application of scientific rationality to the local systems of production. In the words of the present director of the centre, Dr Lalithambika:

'Introducing some scientific literature alone will not work. Whatever we say we have to demonstrate it... make it practicable and bring it to [the poor]. [...] Suppose I said you can be self-reliant. You can do this and you can do that. Nobody will believe me. Unless I show that there is a way to be self-reliant. Then these people who started the scientific literature diffusion, they thought that there should be a research organization to support and promote whatever they preach. That can be practiced. It has to be brought into practice. So, in that way in 1995 this centre was established.' [PSM-LA]

At the beginning of December 2013 I spent one week at the IRTC observing their activities. The IRTC is located in a beautiful place in the middle of paddy fields nearby Palakkad in the state of Kerala. The IRTC consists of seven buildings built with locally available materials and following a mix of traditional and modern techniques. In this sense, the centre is a small monument to frugal innovation and appropriate technology. The main office is powered by a 2kw photovoltaic system. The office is totally run by open-source platforms; they use a Linux distribution called Debian. All the buildings are equipped with locally designed and produced biogas systems fed by food wastes. The main kitchen is provided with a huge biogas plant that is able to produce 5/6 hours of cooking gas. Rainwater is collected through a system that interconnects the roofs and is stored in a tank to be redistributed within the building with a solar-electric pump.

The centre is also equipped with a mechanics workshop, a chemical lab, a pottery workshop, a plant to produce vermin-compost from market wastes, a plant to process natural rubber, a fish farm, a mushroom farm and a congress hall. The centre also hosts several local grassroots organizations, organises and hosts training courses of all sorts. In the intentions of its creators, the IRTC is a popular laboratory to apply scientific knowledge to the rural settings. Over almost two decades of activity, the IRTC developed a wide range of technological artefacts and processes with the intention to upgrade the productivity of the rural communities in Kerala. A former scientist from the CSIR, Dr Lalithambika explained to me the 'KSSP approach to Science & Technology' by telling me the story of the industry of soap. She told me that in Kerala the production of soap traditionally occurs at a domestic level. Soaps traditionally are produced in the households using locally available raw materials, mainly coconut oil. With the introduction of industrial soap, the cost of raw materials increased and the attraction of homemade soaps drastically decreased. Industrial soaps are cheaper and come in all sorts of colours, shapes and fragrances. According to Dr Lalithambika, however, the soap industry drove the price of coconut oil to unaffordable levels for the rural poor. Moreover, industrial soaps often contain unknown chemical compounds that threaten the quality of local aquifers. For these reasons, at the IRTC they developed an improved process to make soap based on traditional techniques. The process has been standardised and it is diffused through the KSSP network in the territory. The KSSP activists present in every *panchayat* of the state are in charge of promoting the soap making technology on a volunteer-basis. The people who are interested, mainly women, can spend a few days at the IRTC to learn the process. In order to control the quality and improve the efficiency of the process, the IRTC has developed a 'soap kit' that contains all the raw materials in the right proportions. People can then personalise their soap by adding locally - available natural oils. The kits have been designed to produce soaps that are remarkably cheaper than the industrial soaps. However, unlike the cases of ME and IIMB, the aim of the centre is not to scale the process or create a market for the KSSP soap, but rather to *foster the consumption of locally-produced commodities*. In the words of the IRTC director:

I can make soap sitting in my house. It takes only one or two hours for 20 soaps. They can purchase the kit from here. And they can take coconut oil from their own yard, their backyard coconut where they can produce these oils. This soap, which they are making, is partly for self-consumption and partly for neighbourhood selling. Thousands of people we have trained from here. [PSM-LA]

The same mechanism is applied to other technologies like pottery, waste management, biogas plants, rubber manufacture, cooking technologies and other farming technologies. All the innovations and the improvements made on pre-existing traditional processes are not explicitly designed to be competitive on the market but rather to substitute non-local with self-produced products. However, the centre does not preclude the possibility of competing on the markets. A major source of income for the IRTC, indeed, is the supply of soaps to hospitals and schools in Kerala. They also manufacture and sell different kinds of machineries for small scale local workshops.

As Sabyasachi Chatterjee told me, the IRTC is a monument to people's subsistence and survival [PSM-SBC]. The core of the KSSP philosophy resides in the assumption that human societies are not homogenous but composed of heterogeneous groups with interests that are sometimes in conflict. In particular, society is split into a vast majority of impoverished people and an increasingly rich minority. The slogan 'Science for social revolution' was forged from this basic assumption and is clearly stated in the People Science Movements Manifesto:

The majority that was getting impoverished were increasingly able to see and understand how the minority is using its knowledge and skills to perpetuate its hegemony and, consequently, resist it more and more effectively. The ultimate success of the majority to stop and reverse this impoverishment is termed as "social revolution" and led to the adoption of the slogans "science for social revolution." (*Parameswaran, 2013: 131*)

As a result, the hegemonic dynamic of technological change is seen as a *political process* that does not necessarily benefit the underprivileged majority; on the contrary, it usually favours a *manipulative, revolutionary* minority. This aspect is very common in all the expressions of People Science Movements narrative. According to the KSSP, the transformation of traditional subsistence

life in Kerala, for example, did not result in an improvement of the life-style of the locals, but rather replaced the pre-existing power relationships with even more unequal power asymmetry. As D'Cruz told me about the backwater fishermen in Kerala, the traditional industry has been disrupted by technological innovations introduced in the name of traditional fishery [PSM-GD]. In order to protect the local fishing industry, the government of Kerala delivered a special legislation designed to benefit the traditional fishermen vessels. One of the criteria that define traditional vessels is the presence of an outboard motor. This quite vague definition has given the possibility to register any kind of high-tech boat as a traditional vessel on condition that it is equipped with an outboard motor regardless of its power, size and electronic equipment. As a consequence, ultra-modern vessels with the latest navigation technology can be classified as traditional vessels. This policy has benefited new free rider investors, who, despite having no previous experience in the fishing industry, monopolised the sector by investing a huge amount of capital in 'traditional vessels'. This situation has drastically decreased the competitiveness of the traditional fishermen who in many cases were compelled to sell their boats and ended up being hired by the new comers. According to D'Cruz, the industry boomed because of a dramatic increase of fishing efficiency but the benefits were concentrated in only a few hands. The fish catches are also slowly but constantly decreasing due to overfishing and pollution of the backwaters. Similar to my observations in many villages in Bangladesh, technology – electric power or modern fishing boats – can actually reinforce the privileged status of those who already occupy dominant positions in the community.

The conceptualization of socio-technical change as a non-neutral process has been forged within the People Science Movements narrative over years of collective action and campaigns. At the beginning, the urgency to struggle against the semi-feudal culture that was so deep-rooted in Indian society manifested itself in a strong emphasis on the scientific outlook. Then the movements realised that the 'incorporation of Science & Technology in the production process was not taking place in a vacuum but within the parameters of a profit oriented society' (Parameswaran, 2013: 22). It was in the decade of

the 1980s that the People Science Movements became aware that Science & Technology can become a means for exclusion, abuse and environmental degradation. This awareness resulted in the mobilization against several development projects promoted by the central and local government as well as big corporations. Examples are the campaigns against the construction of a spillway in the delta of Kuttanad, the construction of the a dam in the Silent Valley National Park that threatened to flood an important reservoir of wildlife and innumerable anti-pollution struggles conducted in the industrial poles of Kerala⁷² (Ibid. 22-29). The objectives of those campaigns were to educate people to understand how to interpret the data coming from scientific research and use this to *disarm* the logic behind the development projects. In the great majority of the cases, the KSSP's actions were opposed by several groups like the local Catholic Church, local business associations and the central government [PSM-GD].

Drawing on those experiences, the People Science Movements, in particular the KSSP, has elaborated a countervailing anti-capitalistic discourse that surprisingly combines typical Marxist positions (e.g., the emphasis on class struggle) with anti-modernist stances (e.g., self-reliance, local subsistence economies). In order to explore this intriguing synthesis I visited one of the fathers of KSSP, Mr M.P. Parameswaran, in his house in Thrissur. M.P., as he is fondly called among the People Science Movements activists, is a former nuclear engineer that was involved in the first Indian nuclear programs in the 1950s at the Bhabha Atomic Research Centre in Bombay. In 1975 he resigned his job after getting in touch with the anti-nuclear movement that at that time was emerging all over the world. After his resignation, he joined the new born KSSP in his home country of Kerala. After the success of KSSP alphabetization campaigns M.P. took steps to extend the activities of the movement at a national level. His role was fundamental in the setting up of the All India People's Science Network (AIPSN), the common platform that connects all the

⁷² For the history of KSSP campaigns see also (Parameswaran, 2008).

Indian People Science Movements. I met him at his house in the centre of Thrissur, we had a long conversation then he showed me the local KSSP library and the vegetable garden maintained by the volunteers. He began telling me his point of view about the irrationality of the notion of never-ending economic growth that affects modern capitalism. He argues that the logic of the capitalist productive system stands on profound irrational assumptions that threaten to destroy the basis of human sociality. The first assumption is that well-being coincides with material growth and as a result the system is designed to increase industrial output without limits. The second assumption is that technology advancements are always desirable and neutral. He explained this point using the following words:

[...] when you develop certain devices, certain processes, you develop technology. You do that to solve your problems. If you ask rich people to develop technology, they will select their problems [that is] how to become richer [...] now, most of the governments and the scientists in CSIR ask the questions of the rich people. How the rich can be richer. There should be places where poor people questions are asked [...] so, innovation is just an English word that shows that something new is being created, but what is objective? [PSM-MP]

His answer to this question is straightforward:

Purpose of innovation can be to reduce your material requirement [...] It can reduce your energy requirement. It can reduce your labour time requirement. It can improve your health in one particular way or another way. Giving you more nutrition or making you safer from diseases. Or cure your diseases. So there are all these things that improve your quality life. [...] Ultimately, what is the quality of life? Is it going on consuming? [...] It cannot be working long time. You cannot go on. So, one has to cut consumption and redefine the concept of development and quality life. [PSM-MP]

To M.P. the reconceptualization of development as self-reliance was attempted by Gandhi but it failed miserably because the zeitgeist of time was moving towards another direction:

Gandhi appeared to be as going backward. Though there were a lot of progressive elements in Gandhi [thought] which even Gandhi could not differentiate [from his conservative arguments] [...] Whereas Nehru and other people wanted India to be like England, Germany, and France. Go forward... modernize. [PSM-MP]

But in M.P.'s mind the modernisation project is framed by the interests of the dominant classes which openly collide with the interests of the poor. In the race for innovation triggered by the globalization process the rich are winning.

In India as well, there is no space for innovation for the poor because, after liberalization of the economy, innovation management became synonymous with the corporate world. As I described in Chapter 7, apart from the rare interests of a few academics, the scientific community frames innovation within the market economy dominated by big business. As a consequence, the innovation efforts are concentrated on expanding the needs of middle class people. As with Dinesh Abrol, M.P. has quite sharp opinions about the new trend represented by the concept of inclusive business models and inclusive innovation:

[Inclusive business] is a subsidiary concept. Business needs to be exclusive. It needs to exclude the majority of people [...] because that is the only way to make money, because you have to. [...] rich are rich because poor are excluded. [PSM-MP]

The argument here, in line with the Marxist tradition, is that the interests of capital are diametrically opposed to the interests of the classes that have no other sources of income but selling their labour. However, unlike the pure Marxist thinker, the issues created by the unequal class structure are not resolved by reversing the ownership of the means of production but *changing the way of production from centralised industrialism to small scale self-reliance*, a process that M.P. calls *rurbanization*⁷³. It is in this scenario that the idea of local, interconnected self-reliant economies is combined with a planned reduction of consumption and industrial throughputs to guarantee the long term

⁷³ To the best of my knowledge the term *rurbanization* appears in the development literature in the 1940s and refers to a phenomenon of urbanization of rural settings (Balk, 1945). This process characterises the hinterland of the big urban conglomerates of developed countries in which around the countryside becomes to be inhabited by people who are not involved in farming of any other activity traditionally related to rural life. The term is increasingly popular in India. Even the present pro-business PM Narendra Modi advocates for rurbanization of India countryside to limit the growth of India megalopolis (see for example <http://narendramodivision.com/rurbanization-rural-urban-connection/#.U4iiMnJdVBk> (last accessed March 10, 2013)). Modi defines it in Hindi as *Gaon ka atma, shahar ka suvidha* that translates to *soul of a village and the facilities/amenities of the urban town*. A similar concept can be found in ME's narrative when the founders advocate for a return of the artisans to their original locations in rural settings.

sustainability of human society. In this frame the role of Science & Technology is to upgrade, improve and interconnect the network of small scale self-reliant communities.

8.3 PEOPLE SCIENCE MOVEMENTS' OVERALL NARRATIVE

The People Science Movements are not a centralised movement with a structured ideological background. They are rather a highly fragmented mosaic of regional groups, initiatives and academics that share the idea that science (and scientific rationality) can be used as an instrument for the emancipation of disadvantaged groups. Despite this diversity, from the analysis of the data collected in the field, all the informants shared an overarching narrative of innovation for development (see Table 8). Unlike Grameen Shakti, Mother Earth or the IIMB, the poor are not framed in terms of being consumers/producers but as a *disadvantaged social class*. In other words, their identity (being) is not defined in relation to their role in a market economy paradigm but on the basis of their *class membership*. In People Science Movements' discourse, the poor are poor because they belong to a marginalised class which has been traditionally excluded from the benefit of the development enterprise. In this view, *including* them in the market economy would not be sufficient unless a radical transformation of the social structure is also achieved. According to my informants, this transformation can occur through the popularization of science among the disadvantaged classes of Indian society as a vehicle for self (or rather community) empowerment. Furthermore, scientific rationality would give room to a reframed process of technical change and innovation (meant as a vector) focused on the achievement of self-sufficiency and autonomy through the use of *down-scaled or appropriate technology*. Ideally in the mind of the People Science Movements ideologists, the direction of this change is towards a more equal and fair distribution of social goods among the Indian poor.

Table 8 People Science Movements Narrative synthesis

Poor's role	Normative Stances & Goals	Innovation	Expected outcome
Social transformation through science and technology through an upgraded, self-sufficient and community based economic paradigm	<ul style="list-style-type: none"> Majority of Indians excluded from the benefits of the development project Oppressive social structures hamper equal distribution of social goods Markets cannot be inclusive, industrial development is an exploitative enterprise that jeopardizes social and environmental integrity Call for a new <i>Indian Common Sense</i> 	<ul style="list-style-type: none"> <i>Product, process and services innovation</i> (People Technology Initiatives cases) <i>Social Innovation</i> e.g. new forms of organizations to deliver social goods such as literacy, and scientific education (KSSP) <i>Paradigm innovation</i> i.e. new forms of autonomy and subsistence based on local knowledge and appropriate technology 	<ul style="list-style-type: none"> Autonomy, self-sufficiency, local communities of producers, appropriate technology

Moreover, two major axes emerge from the overall People Science Movements' narrative. The first discursive element draws on the characterisation of a society that is essentially heterogeneous i.e., composed of relatively powerful sectors and relatively oppressed groups. These framings, which in turns draw on a Marxist perspective of society (Stallybrass, 1990), is applicable to the semi-feudal conditions that characterise many rural contexts in India but, at the same time, can be extended to the process of industrialization and modernisation. In a first phase, the People Science Movements focused their efforts on the struggle against the traditional feudal order that ruled the country. In a second stage, they formulated a renewed narrative that sees in industrial capitalism the fundamental mechanism of perpetuation of the social exclusion of the poor. In this view, the modernization of the country through the deployment of large technological systems and the centralization of Science & Technology policy of the Nehruvian period and, at a later stage, the rise of the corporate sector *fundamentally served the interests of the privileged classes*. The result of this process, according to the informants, pursued through the systematic depoliticization of Science & Technology policy, led to a reinforcement of the status quo or, paradoxically, to create new forms of oppression and exclusion i.e. rural-urban migration, export-driven production, natural resource commodification and depletion.

Second, People Science Movements support the construction of a new 'common sense' in a Gramscian formulation. The assumption is that the poor can be emancipated from their condition of oppression by enhancing their intrinsic rationality, one that exhibits in their daily practices. This process might be supported through the diffusion of literacy and science literature. By removing the irrationality of traditional beliefs and credos that are beneficial to the oppressors and often promoted by the dominant classes, people can decide to start a new life based on self-reliance, supported by technology. A second step of this process of self-empowerment is then creation of local networks of productive units based on pro-poor innovation, a *reframed version of 'appropriate technology'*. In order to be competitive with the mainstream industrial system, the efficiency of rural production must be improved with the tools of modern Science & Technology. For these reasons, People Science Movements activists advocate for a strict collaboration between the public centres of scientific research and the rural poor. These ideas have been experimented in public organisms like the CSIR but also in grassroots organizations like the IRTC in Kerala. Apart from preserving the integrity of rural life, the objectives of these initiatives is to create a counter-hegemonic paradigm opposed to free market capitalism, one that has in the concept of community *self-reliance* its central characteristic. On the other hand, the People Science Movements also embed other libertarian features like the critique to the regime of intellectual property, an anti-modernist position as regards economic growth and environmental issues. They also energetically refuse the relativistic stances of the post-development analysis. For example, they strongly reject the new 'revivalist' trends that praise the moral superiority of traditional Indian ancient knowledge over the scientific method (see for example the chapter 'Learning from the past and looking to the future' in (Parameswaran, 2013: 67-79)). The underlying ideas behind People Science Movements narrative *is that the process of knowledge accumulation, which finds in the scientific method its apex, can be universally applied to transform the structures that cause inequality within the society*. Unlike the other cases, the People Science Movements explore the relationships between socio-technological change and the *causes of exclusion* of the poor, and so they are distinct in terms of both

contextualizing and politicizing science and technology. The movements, especially in the remarkable example of KSSP, have played an important role in the debate about Science & Technology and development. On the other hand, their actions have been largely obscured by the hegemonic discourse of the mainstream of Science & Technology, and in particular in its neoliberal renewed formulation. The proof of this is that the People Science Movements experiments have been almost totally neglected by the innovation literature and are virtually absent in the Business and Management literature. The challenge for the future of the People Science Movements is to reverse the condition of marginality vis-à-vis the neoliberal expansion and, above all, the aspirations of a raising Indian middleclass that is more interested in the Western model rather than the self-reliant *rurbanization* advocated by the movements.

CONCLUSION

The aim of this chapter was to decipher the discourse about Science & Technology and innovation of the People Science Movements, a variegated group of social movements committed to the diffusion of scientific thinking in India. The movements' birth can be traced back to the post-independence period in India in which the debate about Science & Technology was still open to alternative paths to development. During this period at least three different frames were debated: the Nehruvian modernization process based on centralised big technological systems, the Gandhian way based on the idea of self-reliant villages and the Left model in line with the Marxist tradition of the time. Over the years, overall the Nehruvian model eventually prevailed. Nevertheless the unfulfilled promises of the Nehruvian modernization process in the late 1970s opened up again the space for reframing the relationships between Science & Technology and development. It was in this period that the People Science Movements emerged as a countervailing force opposed to the state capitalism that characterised post-independence India. The idea behind the movements' actions was that the fruits of scientific progress must be shared with the lower sectors of Indian society. The condition of ignorance and backwardness of the rural poor was not due to a natural condition but to a

system of class oppression - a position that the People Science Movements share with post-development and post-colonial scholars. By educating people to understand Science & Technology and by connecting the public research institutions of the country to the poor, the People Science Movements aimed at empowering the rural poor, triggering a social revolution to reverse the system of exclusion that marginalised the lower sectors of the Indian society. Unlike other Marxist traditions that advocate for a proletariat-driven, mainly state form of modernization, the People Science Movements however formulated a Science & Technology narrative based on the upgrade of the pre-existing networks of production in the rural settings. The main objective was to create a process of empowerment of local communities based on self-reliance. In some cases the initiatives conducted by the People Science Movements were extremely successful. The case of the campaigns for rural literacy conducted by the KSSP in Kerala is a remarkable example. On the other hand, the experiments of PTIs remained largely marginal and have been almost totally ignored by the innovation literature in India and abroad. According to its founders, the People Science Movements view nowadays is strongly challenged by the neoliberal credo that has penetrated the institutions of the country and, above all, the imagination of the ascendant Indian middle class.

DISCUSSION AND CONCLUSIONS

“All knowledge that is about human society, and not about the natural world, is historical knowledge, and therefore rests upon judgment and interpretation. This is not to say that facts or data are non-existent, but that facts get their importance from what is made of them in interpretation [...] for interpretations depend very much on who the interpreter is, who he or she is addressing, what his or her purpose is, at what historical moment the interpretation takes place.”

— Covering Islam (Said, 1997: 154-5)

In so-called primitive societies, as well as in complex industrial civilizations, language and its multiple interpretations fulfils a crucial role in the process of sense-making. Words are bent and bowed, sometimes forged from scratch, to build up meanings that give sense to our daily lives. The conceptualisation and practice of development and the community of practices that encompass the professional/experts of development – with their practices, reports, statistics and figures – do not escape this logic. As Said (1997) argued, facts and data interpretations are very much dependent on who interprets, how and for what purpose. The aim of this research is to show that – similarly to what post-development scholars have shown for the notion of development - notions such as pro-poor technology and innovation are also the subjects of a similar interpretative battles. The purpose of this thesis, then, has been to expand and

enrich the present knowledge about how the discourse of innovation is constructed and implemented in the theory and practice of development. In particular, the research was designed to provide insights about how the discourses of 'innovation for development' are constructed, adopted and negotiated in non-western environments; how different actors re-interpret, re-purpose and reframe these discourses, for what reasons and by which strategies; and how those narratives emerge in the practices the actors perform and how do they influence them. In order to achieve those objectives, in Chapter 1 section 2.1 I first reviewed the literature of 'innovation for development' analysing the evolution of the academic thinking as regards the role of innovation in the process of economic development. At the end of section 2.1 I acknowledged the emerging 'cross-pollination' between the fields of development and business, management and innovation studies. In section 2.2 I focused on the emerging literature of pro-poor innovation identifying and analysing the broad dominant trends: poor as consumers (BOP1), poor as co-producers (BOP2), frugal-bricolage literature, grassroots innovation and the discourse of inclusive growth/innovation. On the basis of those emerging trends, in Chapter 4 I designed four case studies that are used to reflect on the construction and operationalization of four innovation narratives: poor as recipients of innovation (Grameen Shakti case in Chapter 5); poor as co-producer (Mother Earth case in Chapter 6); the discourse of inclusive innovation/business models (Indian Institute of Management case in Chapter 7); innovation from the grassroots (People Science Movements case in Chapter 8). In each case, I carried out research on the field that included micro-ethnography techniques, non-participant observation, semi-structured interviews, documents and artefacts analysis. The data collection was designed to understand how the subjects observed adopted, re-interpreted and reframe the notion of 'innovation for development' and how their practices were shaped and influenced by their own interpretation of the discourses of technology and innovation. The data were then analysed using a qualitative Grounded Theory approach and 'narrated' – as declared in section 4.2 - using different writing styles according to the different modalities and settings in which the data were collected. The difference in the writing styles also reflects the personal journey of my engagement with the field. The result is a combination of four narrative styles

that reflects the diversity and complexity of the field as well as the different approaches that I used to engage with such diverse groups of practitioners. By reflecting on the cases analysed in the previous chapters, in the following sections I refocus on my initial research questions to discuss how words like innovation are absorbed and re-interpreted in practices on the ground. The first section of this last chapter intends to assemble the reflections provided at the end of each case study into an overall critical discussion. The second section provides a summary of the main contributions of the thesis, its limitations and the questions that remain unanswered.

9.1 THE PROCESS OF BUILDING NARRATIVES IN DISCOURSE AND PRACTICE

As for the development discourse, the discourse of innovation is cluttered with evocative words and utterances designed to convey powerful meanings and politics, generate expectations or diffuse ideologies. According to Cornwall (2007), for example, the rise and fall of *buzzwords* is an important characteristic of the development discourse. Similar to the idea of *umbrella terms* in Science and Technology Studies (Rip & Voß, 2013), buzzwords shelter multiple political agendas and, at the same time, provide room for manoeuvre and space for contestation: they are interpretively flexible. According to Scoones (2007), who analysed the use and abuse of the word 'sustainability' in development discourse, buzzwords are conceptual bridges between different discursive worlds and the actors that populate them. In order to be effective in this task, they have to remain contested, ambiguous and vague. Often buzzwords - see for example the notions of 'sustainable development' and 'inclusive growth' - appear trans-ideological even if they are often densely populated with ideological projects and positions (Fox, 2007). Their ideological goals and implications are disclosed only in the *context of their use* by particular, situated social and political actors. In some cases, buzzwords are vulnerable to appropriation and manipulation that twist their original meaning to serve political agendas far from those of the original individuals that popularised them. According to Leal (2007), the notion of 'participation', originally conceived as a form of counter-hegemonic approach to radical social transformation, has been

appropriated and reduced by the neo-liberal agenda to a 'series of methodological packages and techniques' (Ibid.: 539) that distort its original philosophical and social meaning. Isolated from politics and practice, buzzwords in the discourse of development appear as neutral, de-politicised, overarching concepts that pacify, or quench, any ideological conflict. Words like inclusion, poverty alleviation, gender equality, environmental sustainability, transparency, capability building, or citizenship are virtually impossible to question when they appear in their apolitical form in slogans, campaigns and international reports. But their meanings and implications assume highly contestable connotations in development practices *on the ground*, in the real world beyond the reports and academic literature. Rist (2007) suggests in this regard the need to disentangle the normative and the empirical in the use of development's jargon and focus on the actual practices and how they interpret or distort the buzzwords that inspired them. This then has been my project in the case studies described here.

The word *innovation* – with all its prefixes described in this thesis such as frugal, grassroots, BOP, inclusive, blow-back, reverse, Gandhian, jugaad or resource-constrained – might be suitably welcome in the family of buzzwords associated with the '*über buzzword*' of development. Innovation owns all the characteristics of a typical buzzword itself. It conveys a reassuringly positive meaning loaded with expectations about a bright future i.e., the new is always better and the future will be better than the present. It is, at face value, an apolitical and trans-ideological term (e.g. agnostically signifying the translation of ideas and inventions into some sort of value) that attracts the attentions of a wide range of actors from rival ideological backgrounds. As a buzzword, the word innovation bridges seemingly separate, discursive worlds such as the discourse of development and the discourse of Science & Technology. The ascendancy of the buzzword 'innovation' in Development discourse is relatively recent and interestingly - perhaps not co-incidentally - overlaps with the rise and affirmation of a neoliberal discourse since the 1980s as a dominant narrative among development practitioners, international donors, public institutions and scholars. This thesis had two specific objectives. The first one was to understand narratives of innovation, and within these ideas of socio-technical change,

within the wider discourse of development. In Chapters 2 and 3, I argued that with the rise of the neo-liberal agenda in the 1980s, the development discourse has progressively engaged with management and business scholars and has been progressively enriched with discursive elements that prioritise the role of markets and the creation of competitive environments underpinned by innovation, and in which the so called 'BOP' is framed as fertile ground for opening up new markets and is itself a melting pot within which innovation occurs. 'Underdeveloped countries' have in this frame been cast with the stigma of being 'less innovative countries' or 'non-competitive' countries. I described how ideas of inclusion (inclusive growth, inclusive innovation, and inclusive business models) have been introduced with the aim of engaging, and empowering, the poor in addition to making profit for those on the international market.

However, this is not a simple framing: a highly fragmented corpus of knowledge presents loose clusters of organization, and divergent and contested normative, political anchoring e.g., Bottom of the Pyramid vs. bottom-up, inclusive growth vs. de-growth, sustainable development vs. *buen vivir*. The second aim then was to disentangle, in Rist's (2007) words, the normative, political nature of these narratives and those actors who propose them as a way to solve the issues of development and to understand the actual practices of 'innovation for development' in their real-world contexts. In order to do that, I analysed the discourse of practitioners in four empirical case studies, in Bangladesh and India.

Comparing the four case studies

From the cases, it emerges that the rural poor are at the centre of a contested battleground for innovation and development discourse. The centre of this *discursive trading zone* - the expression forged by Galison (1995) to describe the boundaries between two or more discursive worlds - is sought after by a number of actors. Some, such as international donors, NGOs and development agencies and development scholars, have been in the arena for decades. Others, such as MNCs, small and medium private companies and Business and

Management scholars, have only more recently entered the scene. The actors that appear in the cases show subtly different - in the case of PSM quite radically different – sensibilities, as regards the role of science, innovation, inclusion and markets, and how they can be combined in different ways and directions (e.g., poor as consumers vs. poor and producers) to deliver social goods and political goals. In a nutshell, they frame the direction of the *vector innovation* in a number of different ways. In turn, they construct those framings according to world views underpinned by specific subjective judgments e.g., interests, values and goals and which, in the field, are influenced by the context in which they become domesticated e.g., local and global political agendas, relationships with other communities of practices, cultural or geographically contingencies (Ibid.). The outcomes are narratives that are far from stable: on the contrary, they are dynamic, locally malleable, often contested and continuously re-elaborated (see Table 9).

Table 9 Framings in the case studies: Competing narratives of innovation and development

	Poor's role	Normative Stances & Goals	Innovation	Expected outcome
Grameen Shakti	<i>Poor as consumer of energy in a market economy paradigm</i>	<ul style="list-style-type: none"> • Light and energy are indispensable for development • People need green energy • Need to overcome institutional weaknesses • Need to combine profitability with the creation of social value 	<ul style="list-style-type: none"> • Product Innovation (SHS, Biogas, ICS) • Service Innovation (Energy microcredit, rural based technical service) 	<ul style="list-style-type: none"> • Renewable energy to provide green energy and empower users • Women empowerment through dignified employment
Mother Earth	<i>Poor as producers of goods in a market economy paradigm</i>	<ul style="list-style-type: none"> • Rural handicraft is fading, rural incomes shrink, artisans must be helped • Rural artisans are not competitive • Rural artisans must compete on global markets whilst being environmentally and socially sustainable • Villagers must remain in the rural setting • Villagers must be more productive and be 'market ready'. 	<ul style="list-style-type: none"> • Product Innovation (new fibres products, new designs) • Process Innovation (frugal machinery, new processes for fibre manufacture) • Positional Innovation (new ways of serving national/global markets through rural artisans) 	<ul style="list-style-type: none"> • Artisans must learn how to be competitive, raise productivity, acquire ownership and access urban markets • Empowerment of women through ownership and responsibility of production • Re-arrange time, space and meaning of production
Indian Institute of Management Bangalore	<i>Poor as consumer and/or producers in a market economy paradigm underpinned by inclusive business models</i>	<ul style="list-style-type: none"> • A Majority of Indians live in backward conditions because there is no culture of innovation and no incentive to innovate • Western vs. Indian modernity • Business-as-usual can be made more inclusive i.e., it can lead to a more equal distribution of social goods 	<ul style="list-style-type: none"> • Product Innovation e.g., new affordable construction material (Wondergrass), new electricity devices (Selco) • Service Innovation, e.g. web platform for rural artisans (Gocoop) • Positional Innovation e.g. new positions on the market for rural handicrafts (Mithila) 	<ul style="list-style-type: none"> • Individual entrepreneurs or companies able to address BOP issues by developing innovative technologies and business models that are inclusive and financially viable at the same time
People Science Movements	<i>Poor as producers</i> Social transformation through science and technology through an upgraded, self-sufficient and community based economic paradigm	<ul style="list-style-type: none"> • Majority of Indians excluded from the benefits of the development project • Oppressive social structures hamper equal distribution of social goods • Markets cannot be inclusive, industrial development is an exploitative enterprise that jeopardizes social and environmental integrity • Call for a new <i>Indian Common Sense</i> 	<ul style="list-style-type: none"> • Product, process and services innovation (People Technology Initiatives cases) • Social Innovation e.g. new forms of organizations to deliver social goods such as literacy, and scientific education (KSSP) • Paradigm innovation i.e. new forms of autonomy and subsistence based on local knowledge and appropriate technology 	<ul style="list-style-type: none"> • Autonomy, self-sufficiency, local communities of producers, appropriate technology

As treated in section 3.1 and then recalled at the end of each empirical chapter, the analysis of the narratives presented in the case studies can be summarised according to four categories: *i) The role(s) of the poor; ii) the normative stances and goals that guide the practitioners; iii) the innovations implemented; iv) the expected outcomes of the innovation process.*

With regard to the poor's role in the innovation process, the cases present at least three variations – with strong similarities to those variations observed in the review of the literature. In the case of Grameen Shakti, in line with the BOP1 literature, the poor are mainly presented as *unserved customers*. They often provide feedback to the company, but they typically remain framed in terms of clients and/or consumers of products (e.g. the solar and biogas systems) and services (e.g. post-sale assistance). An exception is the case of the Grameen Technology Centres that were designed to provide semi-qualified technical jobs to women. In this case, the intention of Grameen Shakti is to provide the possibility to young women with technical degrees to be included in the activities of the company whilst remaining in the rural settings. Despite this hybridity in the framing of the role of the poor, at the centre of Grameen Shakti's narrative remains the conceptualisation of the poor as *unserved consumers of energy*.

In contrast, the role of the poor in the case of Mother Earth is virtually the opposite. The artisans are depicted as skilled workers who have lost their traditional markets. The role of the company is not to sell them a product or a service but to provide them with access to new markets and make them visible to such markets. This process occurs through a strict interaction between the company and the local producers: the company provides the logistic, design and access to the markets arrangements and the artisans produce the goods. In this sense, Mother Earth frames the rural Indian poor as producers or, better, as co-producers.

In the case of the IIMB the frames of 'poor as consumers' and 'poor as co-producers' are usually co-present. The cases supported by the IIMB present both frames of poor as consumers (e.g. the case of Selco) and poor as co-producers (e.g. the case of Gocoop of Mithila). Finally the case of the People Science Movements appears to frame the poor as independent and self-organised producers configured for

community self-reliance. In the People Science Movements narrative, moreover, the 'poor producers' should be supported by public-funded research institutions with the purpose of upgrading rural technology. The role of producers attributed to the poor by the People Science Movements' narrative does not at face value appear to be far from the Mother Earth framings. However, while Mother Earth's discourse claims to include the rural artisans within a globalised market economy, the central goal of People Science Movements, as it emerges from the data, is to restructure the social relationships that underlie production in the rural setting by spreading the principles of 'scientific rationality' among the poor.

The four cases also differ in their normative stances and preconceived assumptions. For Grameen Shakti energy is indispensable for development. They assume that 'green energy' would eventually favour the rural settings, providing both social and environmental benefits. The company also assumes that the state is unable to cover the energy requirements of the rural population and that this 'institutional weaknesses' can be overcome by combining profitability with the creation of social value within a model of social enterprise. Mother Earth's (and indeed People Science Movements') focus, on the other hand, is on the productive capacity of rural artisans. According to Mother Earth's informants, rural producers can't compete in the global markets because of their very limited productivity and the incapacity to adapt their products to the preferences of the new emerging Indian middleclass. The underlying assumption is that, in order to preserve the capacity of traditional skills to provide livelihoods, rural artisans have to become productive and eventually to be able to compete on global/national markets. In a similar fashion, the IIMB starting assumption is that a majority of Indians live in backward conditions because there is no culture of innovation and no incentive to innovate. At the same time, poverty is usually seen as a delivery problem, which is the incapacity to create an adequate offer to meet the demand for products and services by the poor. This normative view assumes the credo that business-as-usual can be made more inclusive i.e., it can lead to a more equal distribution of social goods. Despite a similar focus on the productive capacity of the poor as Mother Earth, the People Science Movements normative position deviates remarkably from all the other cases. According to the informants the majority of the Indians are excluded from the benefits of the

development project because of oppressive social structures that hamper equal distribution of social goods. Global, markets can never be inclusive, industrial development is an exploitative enterprise that jeopardizes social and environmental integrity. Moreover, the informants claim that the Indian poor can be ‘transformed’ and empowered as independent producers by replacing their traditional belief systems – the *common sense* that makes them oppressed - with scientific rationality.

As regards the innovation dimension, the cases present at least five typologies: products, services, process, positional and paradigm innovation (on this taxonomy see also Tidd & Bessant (2009)). Grameen Shakti presents classical examples of frugal product innovations (e.g. Solar Home System, Biogas and Improved Cooking Stoves) but also service innovations (e.g. energy microcredit and rural-based technical service). Apart from product innovations (e.g. new fibres, new designs), Mother Earth also shows process innovations (e.g. new processes for fibres manufacture). Moreover, the company presents an interesting case of positional innovation i.e., a new ways of serving national/global markets by leveraging on rural artisans. In other words, by reshaping the design and the productive process, the company is able to reposition traditional artefacts in totally different markets. The IIMB cases present all the varieties described above: product innovations, e.g. new affordable construction material (Wondergrass) and new electricity devices (Selco); service innovation, e.g. web platform for rural artisans (Gocoop); positional Innovation e.g. new positions on the market for rural handicrafts (Mithila & Gocoop). Similar innovations are found in the case of the People Technology Initiatives (PTI) promoted by the People Science Movements. At the same time, the case also presents interesting examples of social innovations e.g. new forms of organizations to deliver social goods such as literacy, and scientific education (KSSP). Furthermore, the kind of innovation that the People Science Movements supporters pursue can be classified as ‘paradigm innovation’ i.e. changes in the underlying mental models which frame what organizations do (Tidd & Bessant, 2009).

Finally with regard to the expected outcomes of the innovation process – which is also the direction of the *innovation vector* - the actors’ narratives are usually constructed around key concepts, buzzwords or more precisely around *constellations of buzzwords* (Cornwall, 2007) (see Table 10). It is actually in these

constellations of words and concepts that the notion of innovation can assume very different practical implications, depending on which relative position – which world view - it occupies. According to Grameen Shakti, one solution proposed to alleviate poverty and exclusion in rural Bangladesh is to provide green energy and empower users by offering stand-alone solutions. At the same time, Grameen Shakti's innovations are also designed to provide dignified employment in the rural settings to semi-skilled workers. In this case the word innovation is embedded in a constellation of buzzwords that includes *microcredit, self-empowerment and renewable energy*. In the case of Mother Earth, innovation is functional to increase competitiveness, raise productivity, acquire ownership and access urban markets. The process of change/innovation is usually associated with buzzwords such as *productivity, efficiency, empowerment of women, ownership and responsibility*. The main goal of this process is to re-arrange time, space and the meaning of production i.e., re-orienting it towards the paradigm of the market economy. Similar to the previous two cases, the IIMB's narrative of innovation for development focuses on individual entrepreneurs or companies able to address BOP issues by developing innovative technologies and business models that are inclusive and financially viable at the same time. Innovation process is then surrounded by buzzwords such as *financial sustainability, inclusion or inclusive capitalism/growth, social enterprise*. Finally the expected outcome of innovation process in the case of the People Science Movements is to restructure the power structures that govern production in rural India. For this purpose, innovation processes are usually associated with buzzwords such as *social justice, autonomy, self-sufficiency, local communities of producers and appropriate technology*.

Table 10 Buzzwords constellation around the notion of innovation

Case	Buzzwords constellation
Grameen Shakti	Microcredit, self-empowerment and renewable energy
Mother Earth	Productivity, efficiency, empowerment of women, ownership and responsibility
IIMB	Financial sustainability, inclusion or inclusive capitalism/growth, social enterprise

PSMs	Social justice, autonomy, self-sufficiency, local communities of producers and appropriate technology
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As I attempted to show, the notion of technology/innovation is then *functional* to other normative concepts e.g., the poor should be empowered by becoming consumers, the poor should be empowered by becoming producers in an international market. In my opinion, those normative concepts that emerge from the data can be summarised in three overarching themes: *the self-help mantra, the mantra of inclusion and, even if largely marginal, the discourse of autonomy or self-sufficiency.*

9.2 THREE OVERARCHING THEMES: SELF-HELP, INCLUSIVITY AND SELF-SUFFICIENCY NARRATIVES

The Self-Help mantra: 'ready for market'

As discussed in Chapter 5, the self-help group model originated in rural Bangladesh in the 1980s from the work of Grameen Bank in the microcredit sector. The model is now highly popular among development practitioners' circles and countries like India have already modified their political agendas to include the philosophy of self-help within their legislation. As Nelaam, the founder of Mother Earth, sharply stated in the interview, the Indian government aspires to turn every rural dweller into a SHG member. As with most of the buzzwords, the SHG notion conveys principles that are difficult to question, or even easy to agree with, if considered in their abstract formulation - e.g. women's empowerment, cooperation, income increase and self-organization. The cases of Grameen Shakti and Mother Earth are mainly constructed around the notion of SHG. Despite its centralist and top-down governance, Grameen Shakti promotes the creation of SHG among its clients and organises its activities in the field following the model tested and deployed by Grameen Bank. The Grameen Technology Centres managed by rural female engineers are emblematic examples. Within ME, the SHG discourse occupies a central place. The social aim of the company is to preserve rural knowledge through the creation of productive and competitive units of production modelled on the SHG. Despite their differences, in both cases the notion of the SHG leverages concepts such as autonomy, individual and collective responsibility and economic independence.

Nevertheless, the apolitical appearance of the SHG concept acquires very concrete political meaning when it is used by actors in their real practices. In the field, the SHG in fact appears to share many characteristics with the neoliberal agenda e.g., focus on entrepreneurs as a definition of successful individuals, focus on value creation in the context of domestic (Grameen Shakti) and international (Mother Earth, IIMB) markets, often underpinned by micro-financing initiatives, the rationality of self-interested, economic agents, and the rationalization of production within a monetized economy (Gershon, 2011). Although the SHG model preaches collaboration within groups, surprisingly enough, the examples of success usually exhibited are heroic personalities like Neelam of Mother Earth, Prof Yunus and the smart women that populate his books. The notions of participation and cooperativism lose their original function of social transformation and become absorbed by the logic of competing independent units of production within idealistic free and competing markets. It has significant implications for rural life, which it seeks to transform, e.g. through the re-organising of time to enhance production, often with an emphasis on women and their roles in rural societies.

This approach at face value sidelines the fact the production is always embedded in wider cultural and social contexts. But this is in fact not the case: self-help set within a market economy is in fact intentionally, explicitly, and non-uniformly motivated by social, environmental and political goals of e.g. empowerment, raising living standards, sustainability, set within the geopolitical context in which it finds itself e.g., a context of institutional voids where the state has failed (Grameen Shakti) and in which market based social enterprise is perceived as being the only way. Self-help then draws on a process of hybridisation of innovation narratives (chapter 5).

In doing so, the organization of productive activity within the mantra of 'self-help' may or may not provide immediate benefits for the people involved but it certainly serves the purpose of transforming the social tissue for *the establishment of a market society in which the distribution of social goods is mediated, in the overwhelming*

*majority of the cases by monetary transactions*⁷⁴. This accords with the observations of Scott (1995), who suggested that the new neoliberal turn of the development agenda of many international institutions and governments of developing countries imposed the need to create a pool of productive individuals *ready for the market*. This governmentality approach, to use Foucault's term, is designed to construct rational economic women and men *who function efficiently in the context of the market*, and in doing so empower themselves and improve their standard of living. Within this scope, the discourse of SHG appropriates and, perhaps insidiously, manipulates, the feminist language of female participation and empowerment to align individual personal goals with those of economic, market based reforms. According to Rankin (2001), the myth of the rational, economic woman has been used in Asia to deploy an aggressive policy centred on the women self-help narrative. In her view, the subjectivity of rational economic women within the microcredit project has proved to be elusive and in many cases has simply served to exacerbate existing social hierarchies. Similar, as Muhammad (2015) has noticed in the case of Bangladesh, the NGO model of development, often associated with microcredit schemas based on SHGs, can be seen as a convenient option for working with poor people while avoiding structural solutions to poverty. As in the case of Grameen Shakti and Mother Earth, the rhetoric of SHG can, from this viewpoint, be used in an apolitical fashion to depoliticise the poor or, in the best case, to discourage a deeper analysis of the social and political causes of destitution and marginalization of the rural poor. At the same time, the SHG's narrative generally overlooks the role of women in traditional societies and the diverse forms of knowledge they embody in their traditional social practices. As Corinne Kumar told me in her interview, the neoliberal agenda for development has dismissed and negated that special kind of women's knowledge, wisdom and ways to survive present in every traditional society, rather reframing their role as a function of the patriarchal ideology of individual producers/consumers [interview VIM-CK].

⁷⁴ Drawing on the work of Ivan Illich and René Girard, Jean-Pierre Dupuy (2002) describes the process of replacing subsistence production with the market as the '*detour of production*' i.e., the detachment of human work from his/her consumption/needs. In his view, the primary goal of industrial society – a principle that also shaped the first wave of development – has become the *production of production detour*, which means *work for the production of the need of more 'necessary' work*.

In this scenario, technology and innovation are domesticated within the narrative of markets, competitiveness, individual/ collective responsibility and ownership and financial viability characteristic of the SHG discourse, and in so doing support the intended transformation of rural life (e.g. the paradoxical desire to retain artisanal traditions by reorganising time into a Fordist model of production for markets (Mother Earth): the poor need to learn how to produce in an efficient way, which is also financially viable, upgrading their productive capacity through innovation. In this way, the innovation for development discourse suits the agenda pursued by the SHG proponents. It also serves to connect other key buzzwords like sustainability to the world of development practices. In Grameen Shakti, the notion of green technology is repeated over and over again to legitimise the use of foreign technological solutions like the PV panels. In the case of Mother Earth, sustainability is used together with the notion of frugal technology to raise the desirability of Mother Earth's products among rich and educated clients in India and abroad.

The mantra of inclusion: fixes for inclusion in the free market economy

The roles of technology and innovation assume slightly different orientations when associated with ideas of inclusion. The notion of inclusion is most certainly present in the narratives of Grameen Shakti and Mother Earth and it is central in the case of the IIMB/NSRCEL. As with the SHGs, most of the examples of social enterprises described in the cases are constructed around the figure of the hero entrepreneur e.g., the founder of Selco Harish Hande or Shiva of GoCoop. Their mission is to *include* the poor in benefiting from those resources that are considered basic human needs e.g., energy, formal education, universal welfare, housing, water and sanitation. In this case the role of innovation is clear: innovation (of technologies, of business models, or of repositioning) is indispensable to provide solutions for those who remain currently excluded. The discourse of inclusive business models automatically constructs two arguments: one is that of business-as-usual where goods and services are produced by empowered individuals in an economic and efficient way, and one in which this logic is considered as being currently non-existent or somehow flawed: *it needs to be fixed (IIM-B)*. This distinction in turn implies the need for a community of people who participate in 'normal', market based economic activity (as consumers, as producers), a community which is currently

*excluded*⁷⁵. This logic is yet another crucial element that characterises neoliberal expansionism within the development discourse. The idea that there are sections of society – in this case the underdeveloped – ‘the others’ that need to be embraced in the comfortable, understandable and Western realm of free market economics is a fundament of neoliberal thinking⁷⁶. This anxiety and restless urge for expansion is often framed in terms of *scalability*. The urgency to find scalable, universal solutions is also an important element of the mantra of inclusivity and the obsession with scalability and reproducibility of business solutions is often a major feature of the discourse of inclusive business models. This characteristic can be traced back to the inherent problems at the core of Western capitalism ideology. The very idea of inclusive business or inclusive capitalism, unlike other buzzwords forged by social movements and then manipulated for other purposes, is a reaction to the well-known and now endemic polarisation of society that capitalism inevitably creates. On 27th May 2014, Lady de Rothschild, opening the summit on Inclusive Capitalism stated:

‘At its core, Inclusive Capitalism is concerned with fixing the elevator of the economist Larry Katz’s famous analogy that portrays the American economy as an apartment block in which the penthouses have increased in size, the middle apartments are more and more squeezed, the basement is flooded, but what “gets people down the most” is that the elevator is broken⁷⁷.’

In her view, there is no alternative to expansion; growth and expansion are the *raison d’être* of the system, but what is needed is ‘inclusion’. Inclusion supports cognitive dissonance: to reverse growth and expansion would imply a refusal of the whole system.

⁷⁵ The idea that the *deviant* has to be reduced, standardised or *included* in the *norm* is recurrent in the work of M. Foucault. Through normalization - or *inclusion* – individuals are organised in hierarchies, split into those who are capable and those who are incapable, those who can be corrected and those who can’t be. According to Foucault (1977) a process of normalization is necessary within the market organization of capitalist economies because it is the only mechanism that assures an efficient organization of productivity (See also (Foucault, 2012: 30-46)). In this view, the ideology of inclusive capitalism appears a sophisticated mechanism to exclude alternatives to market economy rather than sharing the benefits of market economy with the poor by including them in the productive system.

⁷⁶ This dynamic is well described by Polanyi (2001) in his famous passage on the *fictions of land and labour* as commodities. He argues that the creation of a labour market and the transformation of land into a commodity that can be sold and bought were crucial to create an industrial capitalist society. Those two social artefacts, which nowadays are considered unquestionable truths, have constituted the base of the *economization* of the social life of the *others* first through the colonial order, later through the ideology of the *state nation* and now through the market economy. A similar process is described by Illich (1981), Federici (2010) and Rahnama (1991) when they describe the capitalist expansion as a ‘*war against subsistence*’.

⁷⁷ Available at: <http://www.inclusivecapitalism.org/what-we-believe/> (last accessed April 2013)

Within the constellation of buzzwords that constitutes the mantra of inclusion, innovation now occupies a special role. Innovation in its vagueness is crucial to enforcing the idea that exclusion is a problem that requires a *technical fix* rather than a social, political transformation: the political is not up for discussion. Development in this frame is again reduced to a problem of management and delivery of financially viable, innovative solutions. This approach excludes fundamental political questions that are never posed such as: who to include and where? Are people willing to be included and if so for what reasons? Are they free to decide? Can people refuse to be included and, if so, what would be the consequences?

For those who are concerned with the problems of the poor and the excluded, these are fundamental questions. Furthermore, as White (1996: 6) argues, '*sharing through participation* - or co-production of consumption goods - *does not necessarily mean sharing in power*'. The problem is that the market economy and the ideology of the technical-fix are generally more likely to deliver inequality and exclusion rather than equality and inclusion. The recent research of Graham et al. (2012; 2014) suggests that even the promising ICT sector is not delivering the expected results in terms of inequality reduction and equality access to information. From their analysis of internet access around the globe and the process of contents creation in Wikipedia, it emerges that technology might actually enforce power asymmetry between privileged users in the north and their followers in the south. The study shows that, despite the expansion of web access, the process of content creation and distribution is still strongly controlled and managed by a relatively few people living in the industrialised world. As a consequence, different kinds of knowledge, views and perspectives are underrepresented, misrepresented or even silenced. The authors conclude that better connectivity is a necessary but not sufficient condition to guarantee a plurality of knowledge sources on the internet.

This focus on inclusion within the business-as-usual paradigm also risks silencing alternative solutions that are not marketable because they are designed to be outside the logic of the market. For example, in a personal interview [NIF-AG ½], Prof Anil Gupta wondered why the Indian press, academics and politicians were so enthusiastic about the research programmes on connectivity for the illiterate carried out by IBM and Microsoft and yet completely ignored the fact that in the state of

Gujarat alone the Honey Bee Network has discovered more than a hundred educational innovations to speed up alphabetization, determinedly carried out by rural teachers without any governmental support. As in the case of literacy campaigns conducted in Kerala by the KSSP, those initiatives are based on local knowledge and local social networks that escape any market logic.

What emerges from the BOP1/2 narratives I reviewed in chapter 2, narratives which are central to these ideas of inclusive innovation, is not a neutral approach to development but a very normative ideological view of the world. The emphasis on such concepts as profit, customers/clients relations, markets, business ventures etc. tends to hide the existence of countervailing types of discourses of development, and within this innovation, that traditionally focus on concepts like social justice, equality or democracy (e.g. People Science Movements). As a result, these kinds of narratives have had important consequences in shaping social practices and, in particular, promoting specific political agendas. This is particularly evident in the process of policy making. In India for example, the BOP discourse has influenced the activity of the National Innovation Council, which announced in 2013 that it will allocate the remarkable sum of Rs 5000 crore (around 800 million US dollars) to the India Inclusive Innovation Fund (IIIF). The webpage that advertises the initiative says⁷⁸:

'The Fund will focus on providing risk capital funding to enterprises that create and deliver technologies and solutions aimed at enhancing the quality of life at the Bottom of the Pyramid [...]The best entrepreneurial and technological talent, across the world, has tended to focus on the problems of the rich. The Inclusive Innovation Fund will break this convention, investing in a new generation of Indian entrepreneurial talent, capable of innovating in products, processes, and business models: successfully combining profitability and business excellence, with transformational socioeconomic impact'.

The influence of the BOP narratives is clear in the declaration of intents of the IIIF. The worldview expressed in the BOP Discourse, as showed in these examples, is however not a mere representation of reality that remains on paper but has a

⁷⁸ Information about the fund can be found at: http://www.innovationcouncil.gov.in/index.php?option=com_content&view=article&id=52&Itemid=34

(last accessed March 2013)

constitutive nature in the sense that it is able to, and has, influenced innovation policy in the context of India.

Community rather than market: Autonomy, self-sufficiency and social transformation

The mantras of self-help and inclusion, have gained momentum within the practice of development. As buzzwords they have also served the purpose of bridging the development discourse with the discourses of innovation, business and organization management as showed by the ample literature on the topics presented in Chapter 2. The study of 'innovation at the BOP' seems to be the new trend of the moment in the business community. My research leads me to argue that this increasing enthusiasm risks de-politicizing and hampering the possibility of a more profound analysis of the challenges that a future 9 billion people world is going to present and, maybe even more importantly, it silences the countervailing voices (e.g. People Science Movements) that incessantly have denounced the distortions of the *tale of development*. Those voices have focused on political questions rather than technical fixes aimed at enabling market inclusion. Recalling the Aristotelian approach of *phronesis*, they call for new (but often old) frameworks of interpretation of the social that put forward the questions of *who wins and who loses* in the quest for development.

The last case analysed, the People Science Movements, is an example of such a countervailing, albeit minority, discourse that survives despite its marginalization. The reasons that their fight is kept alive are rooted in the many failures of the mainstream development discourse to deliver the benefits it has promised. In India, first with the green revolution and then later with the big-projects-oriented model of development, the social factors that have excluded large portions of society from the benefits of capitalism have remained almost totally unchallenged. According to the People Science Movements activists that I interviewed, the recent focus on innovation represents a new wave of this development-driven ideology, shaped as it is on the global expansion of a Western, neoliberal agenda. In their view, this new trend is more likely to create new forms of social domination rather than reshape the social relationships that create exclusion in the country. Concepts like self-help and

inclusive business can increase the vulnerability of 'poor producers', exposing them to the volatility of a free market economy and creating new forms of dependency: structural dependency has given way to a new breed of '*market dependencia*' under the banner of self-help and inclusion. Furthermore, the imposition of new political agendas based on concepts like the SHG might actually act as a self-fulfilling prophecy that can potentially reshape, with unexpected outcomes, the social organization of these communities e.g. how time is organised. In other words, flawed assumptions concerning the creation of a new wave of economically rational, market dependent women and men that has become crystallised in public policies in India and beyond could inhibit or even dismantle previous social practices with uncertain, or unknown, consequences.

The opposition to the post Truman development project continues to be multiple and fragmented. In the case of the People Science Movements, the counter-hegemonic discourse of development is centred on the notion of science and, later in their history, in technology as ways to provide autonomy and community self-sufficiency through a different, non-Western paradigm of an Indian 'common sense' belief system. These are the buzzwords around which the discourse of the People Science Movements is constructed. Within this frame, the notion of innovation acquires a very different meaning when compared to those of the self-help and inclusivity narratives presented in the other cases. Society is a ground of contestation and conflict; power distribution is polarised and any social and economic activity is influenced by this unequal distribution. Science and technology are a means to reshape the pre-existing social structure and create new forms of (in PSM case local) production and consumption of social goods. The constellations constructed around the buzzwords self-help, inclusivity and autonomy can be analysed, to use an expression forged by Laclau (1997), in a *chain of equivalence*, where the position of each word in relation with the others give a special and unique meaning to the whole chain. In the chain of equivalence with *unequal distribution of social goods, unequal power relations, autonomy, self-sufficiency, social justice and social transformation*, words like *innovation* or *technology* assume altogether a very different meaning from their use in conjunction with markets, *productivity, competitiveness, scaling up, ownership and results-based management*. The (re)discovery of these alternative chains, in my

opinion, can revitalise and enrich the notion of innovation, opening up a space for a more legitimate and fair debate about the meaning and the goal of development.

9.3 CONTRIBUTIONS OF THE THESIS

The original contributions of this thesis can be classified in two categories. The first concerns the theoretical understanding of the broader discourse of development and its recent evolutions and hybridizations with narratives of innovation. The second consists in the empirical descriptions of pieces of life from the field in which the discourses and practices of development and innovation come alive in complex and hybrid forms.

Theoretical contribution to the study of the development discourse

Starting from a post-development position, the thesis suggests the function of innovation as a bridge between the discursive worlds of development, Science & Technology, business management and organization studies. My analyses of the extant literature on the topic of 'innovation for development' reveals that the notion of innovation – and to a lesser extent the notion of technological change – is having a crucial role in connecting development practices to the world of markets, business management and organizational studies. This evolution in the discourse of development is parallel to the expansion of the neoliberal agenda in the field. In this sense, innovation represents a new buzzword and is a crucial element of the last frontier of the discourse of development. The notion of innovation matches quite well the neoliberal ideology that frames development as a sequence of technical problems to be fixed by implementing managerial approaches such as inclusive business models to deliver financially viable solutions that simultaneously empower and improve the lives of the poor and transform rural communities and ways of life. Here, market dependency becomes domesticated in the language of, for example, consumers, or as optimal, Fordist producers of artisanal products for international markets.

At the same time, my research reveals that, due to its interpretive flexibility as a buzzword, the meaning of the word innovation is continuously contested by different actors for different reasons i.e., innovation for development can be, and is, framed in

multiple ways. As a consequence, the increasing literature on this topic is highly fragmented. From a theoretical perspective, my research shows that in order to understand how innovation is framed in the practice of development, it is useful, indeed imperative, to analyse the constellation of concepts which surround the notion of innovation *in the field*: i.e. in the context of application. My research shows how different *chains of equivalence* give room to very different meanings of words like innovation and technology in situated practice. Those findings intend to contribute to the field of development studies but also to all those scholars interested in the analysis of the politics of Science & Technology.

Empirical Contribution to the study of discourse in practice

The contribution of this thesis can be situated within the critique of the Prahaladian BOP approach. As with some of the authors mentioned above (e.g. (Arora & Romijn, 2011; Karnani, 2011b; Peredo, 2012)), my work intends to provide a critical perspective about the limitations and issues that market-driven initiatives present in addressing poverty and social exclusion. Starting from those premises, this thesis intends to fill one of the gaps identified in the state of the art: the need to understand the empirical in order to provide a non-essentialist perspective of innovation and development at the BOP. The literature has plenty of examples of how innovation occurs at the BOP under resource-constrained conditions and is full of 'success cases', often framed in terms of heroic, entrepreneurial characters. This thesis provides some insights based on empirical observations about the way innovation and technical change are inserted into development practices on the ground. The research validates some of the conclusions of the literature of innovation in resource-constrained environments. Innovation does spring from resource constraints and is often driven and shaped by faulty formal and informal institutions, biased market mechanisms and a weak private sector. It is also driven by traditional knowledge, empathy, and cultural elements. Thus, it has a hybrid nature. At the same time, the empirical observations show that the notion of innovation can be used by very different actors for very different purposes. The outcomes in terms of delivering social goods can also be very different.

Furthermore, this thesis also intends to post-development analysis acknowledging that the evolution of the discourse of development is still on going. This evolution is encompassing new disciplines and new communities of academics and practitioners i.e. business, organization and innovation scholars, entrepreneurs and Multinational Corporations. This cross-pollination between different disciplines and fields, to the best of my knowledge, has not been directly addressed by post-development scholars and might represent a fruitful topic of further research and analysis to understand how the discourse of development will evolve in the future. Moreover, the thesis seems to confirm – as W. Sachs has already noticed (see section 3.2) - that the ideology of development, at least in the discourse of my informants, has conquered a central position not only in the language of the formal institutions that govern the ‘underdeveloped’ but also within their entrepreneurial and academic elites. This would complicate the search for ‘alternatives to development’ that animate the work of many post-development scholars. However, the findings also call for inclusion into the debate of development, (and even more importantly into the contribution of business management and organization scholars), a *plurality* that at the moment in the field is desperately needed. In this sense, despite its hybrid nature, innovation and development remains rooted in a world that is indeed flat. Some countervailing voices call for a different imaginary. And the empirical work shows that in reality the framing, social construction and normative basis for innovation in non-western environments is plural, hybrid and does not necessarily fit the simplistic models of the theorists of the BOP and their normative visions. But my research suggests these are minority voices. Normative diversity, multiple framings and multiple epistemologies are essential to avoid the closing-down into an apolitical over-technification of the discourse of development, a Truman part 2, or new state of market *dependency*. In an age still characterised by the expansion of the neoliberal globalization project that privileges quantity over quality and plain descriptions of society over countervailing conflicting frameworks, such diversity is highly needed.

Limitations of the Research

The primary focus of this research was to analyse the discourses of those who claim to speak in the name of the poor, for the poor and for sake of their ‘development’. The *domestication* of the rural poor, the slums dwellers, the small farmers, the

artisans is the object of an increasing number of actors that span from international donors and development scholars to local governments and NGOs and, more recently, Business and Management scholars. Surprisingly enough, despite being the centre of controversial political and academic debates, they, the so-called poor, are rarely allowed to speak themselves without intermediation. For a number of reasons (e.g. language barriers, time and financial constraints) this research is no exception. The main limitation of this thesis is the comprehensive lack of the usually un-heard voices of the poor. Consequently, a crucial methodological limitation of the present research has been the impossibility to carry out longer ethnographic work to engage with the beneficiaries of the initiatives above presented. Learning the language and deeply engaging with local habits and culture would have provided a more complete perspective from the 'poor side'. With regard future research, my intention is to overcome these limits not only by engaging in longer fieldwork activities but also inviting members of the communities observed to review my reflections, provide feedbacks and even co-author research reports and publications. This approach is increasingly popular in the grey literature about grassroots movements. The studies on the notion of *Buen Vivir* or *Sumak Kawsay* (Acosta, 2010; Dinerstein, 2014; Lang, 2012; Thomson, 2011; C. Walsh, 2010), the wave of post-colonial feminism across the global south (Federici, 2001; Kumar, 2013), the study of social movements in Latin-American (Escobar, 2010), just to mention a few, seem to point in this direction.

Furthermore, by limiting its scope to the study of the practitioners discourse, my research does not provide any insights about the effectiveness of the initiatives carried out by the informants. What is the real impact of Grameen Shakti activities in rural Bangladesh? Do solar panels and biogas systems increase the productivity of the users, their children literacy or the sustainability of their natural environment? What is the impact of Mother Earth activity on the income and the welfare of the rural artisans engaged in the Self Help Groups? What is the real impact of the Inclusive Business Models promoted by the IIMB? And what is the impact of the People Technological Initiatives supported by the People Science Movements? These are fundamental questions that remain unanswered. Despite the anecdotal evidence provided in some cases, the measurability and the significance of the impact of the

cases described remain unclear. By focusing almost exclusively on the discourse of those who claim to speak in the name of the poor, my research has not been able to produce an objective assessment of the actual outcomes of narratives of innovation presented by the informants. As a consequence, this thesis does not deliver a set of guidelines or good practices to be followed to use science, technology and innovation to alleviate poverty. My intention is rather to provide insights about the contested, plural and hybrid field of innovation for development. More sophisticated ways of comparing and appraisal of innovation discourses and their outcomes have been provided by Post-Normal Science tradition (Escobar, 1984; Frame & Brown, 2008; Funtowicz & Ravetz, 1994) and, more recently, by the STEPS group at the University of Sussex (Demeritt et al., 2011; Stirling, 2008; Stirling et al., 2007). Finally, it goes without saying that the research only covers in depth four case studies situated in the Indian subcontinent. More studies are needed to understand how the discourse of development and innovation hybridise and evolve along cultural and geographical dimensions.

CONCLUSIONS AND FUTURE CHALLENGES

“Pangloss enseignait la métaphysico-théologo-cosmolo-nigologie. Il prouvait admirablement qu’il n’y a point d’effet sans cause, et que, dans ce meilleur des mondes possibles, le château de monseigneur le baron était le plus beau des châteaux et madame la meilleure des baronnes possibles.”

— Candide (Voltaire, 2007: 1)

In the last three decades, the word ‘innovation’ has conquered the non-Western imaginary. It embodies a renewed optimism, a reinvigorated faith in progress, a brilliant future with plenty of novelties. Similar to the idea of development, innovation renews the promise of a never ending progress in which tomorrow will be better than today. As Pangloss, the *omniologist* teacher repeats over and over again to the naive Candide: *in this best of all possible worlds, everything is for the best*. In the best of all possible worlds, the ‘globalized world’, the words development and innovation mix up and confuse. I have intended to show that the recent evolution of the discourse of development is increasingly intertwined with elements that originated in other discursive worlds. The focus on technological change and in particular on its neoliberal formulation framed in terms of innovation and competitiveness has become central in the development practice, with only a few,

important exceptions. The original mission of 'development cooperation' has turned into the 'development competition'. The examples illustrated show that in the so-called developing world this task in practice is being manifested through a slow transformation of the pre-existing social practices in which key ideas of time and space are being challenged and reconfigured. This change is supported by powerful narratives that legitimise the new practices and present them as desirable and inevitable. In this regard, the Business Schools of the West, and many of the non-West, have been instrumental. The overall discourse of innovation for development that emerges is one where the poor must be market ready and market engaged, more productive, more competitive, more organised, more educated; they must have access to and use more energy, they must consume, or produce, more market ready products and services. Nevertheless, those narratives are often contested, and (as in the case of People Science Movement) sometimes rejected. Words like innovation, technology and development are twisted and enlisted to serve different world views that emerge only when one focuses on the localised practices in the field. The case studies show that the two concepts of innovation and technology, which are usually presented as neutral and apolitical and fundamentally a 'good thing', assume different connotations when associated with these other discursive elements. They become political. The analysis of the *crosspollination* of the development discourse with new elements such as innovation suggests that the struggle for the best of all possible worlds continues. At the same time, the muted opposition to this project reminds us that there are indeed possible and viable alternatives. The opposition of *the others* to fit the category of *homo oeconomicus*, of *market dependence*, is not a sign of a failed attempt at modernity or failed attempts to be Western. They are unique manifestations of the multiple ways human beings make sense of their lives and of the contexts that surround them. I argue in favour of preserving and protecting the variegated forms of survival, subsistence and autonomy typical of non-western societies because they represent a unique pool of diversity. In a world of 9 billion people under the threat of climate change and ecological collapse, in my opinion, such narrative diversity might prove vital.

APPENDIX I

List of interviewees and codes of the interviews

Case	Code	Name and Date
Grameen Shakti	GS-E-AG	Md. Abdul Gofran 21.10.2012
	GS-E-FM	Eng. Firoj Mollik 21.10.2012
	GS-E-QH	Mr. Quamrul Haque 22.10.2012
	GS-E-RI	Eng. Rezaul Islam 18.11.2012
	GS-F-CS	N. Mamun Char Story 31.10.2012
	GS-F-FG	field Focus Group 02.11.2012
	GS-F-M	M. Mamun 31.10.2012
	GS-F-RMM	Rashed Muhammad Nur Mamun 31.10.2012
	GS-F-SR	Md. Saidur Rahman 05.11.2012
	GS-M-AUB	Md. Ahsan Ullah Bhuiyan 22.10.2012
	GS-M-DI	Dr. Islam 21.11.2012
	GS-M-FR	Md. Fazley Rabbi 22.10.2012
	GS-M-MDAK	Md. Abser Kamal
	GS-M-NU	Md. Nasir Uddin 31.10.2012
	GS-M-OI	Obaidur Islam 02.11.2012
	GS-M-SMS	SM Musa 21.10.2012
	GS-M-SN	Mrs Shehla Nasreen 18.11.2012
	GS-PRA	Video interview 2012-11-03
	GS-F-GTC	Video interview 2012.11.03
Mother Earth	ME-DVE	Dave 09.17.20
	ME-GR	Gita Ram 10.01.2013
	ME-JCB	Jacob 11.14.2013
	ME-MHA	Mahadiv 10.28.2013
	ME-MNT	Monita 10.29.2013
	ME-MRV2	Mervin 10.16.2013
	ME-MRV1	Mervin 09.18.2013
	ME-NLM	Neelam 12.09.2013
	ME-NVE	Naveen 09.18.2013
	ME-PYC	Piyush 11.14.2013
	ME-RNY	Rony 10.21.2013
	ME-RSH	Rashimi 10.18.2013
	ME-SHA	Shyam A. 11.20.2013
ME-VNY	Vinay 10.31.2013	
IIMB/NSRCEL	GC-SD	GoCoop Siva Devireddy 11.12.2013
	NS-MI	Mithila 09.19.2013
	SE-SU	SELCO Surabhi 10.19.2013
	TEM-EC	Ed Cutrell 10.09.2013
	WG-SA	Wondergrass Samit 09.27.2013
	IIMB-DA	Damodaran A. 12.17.2013
	IIMB-DM	Dilip Mehta 12.13.2013
	IIMB-NP	Nagaraja Prakasam 10.30.2013
	IIMB-PK	Kumar K. 12.11.2013
	IIMB-RK	Rishi Krishnan 12.02.2013
	IIMB-RN1	Ramnath Narayanswamy 11.11.2013
	IIMB-RN2	Ramnath Narayanswamy 11.11.2013

	IIMB-RN3	Ramnath Narayanswamy 11.11.2013
	IIMB-SB	Sabarinathan G 11.13.2013
	IIMB-SE	Seshadri 11.21.2013
	IIMB-SM	Sourav Mukerjee 12.12.2013
	IIMB-VD	Vinay Dabholkar 11.15.2013
PSMs		
	PSM-DA1	Dinesh Abrol 10.25.2013
	PSM-DA2	Dinesh Abrol 10.23.2013
	PSM-GA	Ganesh N. 10.23.2013
	PSM-GD	G D'Cruz 12.04.2013
	PSM-LA	Lalithambika 12.04.2013
	PSM-MP	MP PSM 12.05.2013
	PSM-PVS1	Kumar PSV 10.23.2013
	PSM-PVS2	Kumar PSV 10.23.2013
	PSM-SBC	Sabyasachi Chatterjee 11.30.2013
Complementary data		
	CHC-EC	Chris Canaday 30.09.2012
	HO-EC	Horacio Narvaez 10.2.2012
	PE-EC	Pedro Oyarzun 10.01.2012
	YK-EC	Yolanda Kakabadze 09.28.2012
	CK-VM	Corinne Kumar 12.12.2013
	NIF-AG1	Anil Gupta 11.08.2013
	NIF-AG2	Anil Gupta 12.08.2013
	NIF-KM	Kumar S 11.08.2013
	NIF-NI	Nitin 11.06.2013

APPENDIX II

Articles and book chapters published during my PhD journey

Pansera, M., & Owen, R. (2015). Framing Resource-Constrained Innovation at the "Bottom of the Pyramid": Insights from an ethnographic case study in rural Bangladesh. *Journal of Technological Forecasting and Social Change*, 92(2), 300-311. doi:10.1016/j.techfore.2014.10.004

Franceschini, S., & Pansera, M. (2015). Beyond unsustainable eco-innovation: The role of narratives in the evolution of the lighting sector. *Technological Forecasting and Social Change*, 92(2), 69–83. doi:10.1016/j.techfore.2014.11.007

Pansera, M., Owen, R.(2014). "Eco-innovation at the 'Bottom of the Pyramid'" in the book: "Collaboration for Sustainability and Innovation in the Global South: A role for South-driven Sustainability?" Eds. Vazquez D., Sarkis J., and Cordeiro J. Springer series. 2014

Pansera, M. (2013). Frugality, Grassroots and Inclusiveness: New Challenges for Mainstream Innovation Theories. *African Journal of Science, Technology, Innovation and Development*, 5(6), 469-478.

GLOSSARY

- BOP:** Bottom of Pyramid
- BOP1:** Bottom of the Pyramid in Prahalad (2010) formulation
- BOP2:** Bottom of the Pyramid in London and Hart (2004) formulation
- BPO:** Business Process Outsourcing
- BRAC:** Bangladesh Rural Advancement Committee
- CDA:** Critical Discourse Analysis
- CDM:** Clean development Mechanism
- CEPAL:** Comisión Económica para América Latina y el Caribe
- CLRI:** Centre for Leather Research Institute
- CSIR:** Council of Scientific and Industrial Research
- FDI:** Foreign Direct investment
- GS:** Grameen Shakti
- GTC:** Grameen Technology Centre
- ICS** improved Cooking Stoves
- IDCOL:** Infrastructure Development Company Limited
- IIMB:** Indian Institute of Management Bangalore
- IRTC:** Integrated Rural Technology Centre
- IS:** Innovation systems
- IST:** Industree Skills Transform
- KSSP:** Kerala Sasthra Sahitya Parishath
- ME:** Mother Earth
- MNC:** Multi National Corporation
- MOS:** Management and Organization Studies
- NISTADS:** National Institute of Science, Technology and Development
- PSMs:** People Science Movements
- PTI:** People technology Initiatives
- PV:** Photovoltaic
- RCI:** Resource-Constrained Innovation
- RCT:** Randomised Clinical trial
- RCT:** Randomised Clinical Trial
- SCOT:** Social Construction of Technology
- SHG:** Self-Help Group

SHS: Solar Home System

STI: Science, Technology and Innovation

STS: Science and Technology Studies

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