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## Locating capabilities in the built environment: socio-spatial products and processes and the capability approach

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**Abstract.** Spatial form is intimately related to the social processes that create it and which are enabled by it, with powerful implications for spatial and social justice. Through developing a diagram framework, this paper investigates how low-income communities in Thailand shape space in order to pursue a kind of urban development that is beneficial to them. The paper

bases the exploration of the dynamics of shaping space in the capability approach, a development paradigm that emphasizes people's well-being and agency in achieving 'the good life.' This approach reveals a link between socio-spatial processes and products that is based on human diversity in values, opportunities, and meaning that are attached to spatial form.



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# 1. Introduction

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Spatial form is intimately related to the social processes that create it and which are enabled by it. Despite several recent controversial statements from big-name architects expressing that spatial form should be removed from considerations of social justice (Wisniewski, 2014), the dynamics by which social processes affect spatial form and vice versa have powerful implications for equitable development. Harvey declared that space is a “container for social power” (1980 cited in Kallus, 2001, p.131) and Foucault suggested architecture can resolve social problems if it coincides “with the real practice of people in their exercise of their freedom” (Rabinow, 1991 cited in Dong, 2008, p.87). Following the early era of town planning which “did not yet acknowledge or even attempt to understand the mechanisms that might link spatial form to social process,” (Batty and Marshall, 2009, p.553), there has been a growing interest among architects, planners, philosophers, and urban scholars in defining and unpacking the increasingly evident, yet still elusive, nature of the relationship between the physical environment of the city and the invisible forces that shape it.

For the field of Urban Design, the relationships between social and spatial processes and their outcomes are particularly important. Sometimes characterised as a hybrid between architecture and urban planning, urban design simultaneously tackles physical form, the traditional domain of architecture, and the political, cultural, economic, and managerial processes that have been claimed by urban planning. Madanipour (1997, p.17) defines urban design as “a process which deals with shaping urban space; and as such is interested in both the process of this shaping and the spaces it helps shape.” Encapsulated in his interpretation is yet another distinction that urban scholars are tackling: process, as the forces and decisions that go into the shaping of space, and product, or the tangible outcome of those processes. If Madanipour’s definition is accepted, then urban design locates itself at the crossroads of socio-spatial processes and socio-spatial products that are manifested in the built environment. But, how to trace which processes result in particular urban outcomes, and how does the built environment simultaneously influence those same processes? Recent work on deciphering the interrelationships between process and product in urban design derive from a range of entry points, including exploring behavioural responses to sensory experiences of the city, community organising around urban projects, and the effects of digitally-based urban design tools and systems of urban governance.

Meanwhile, urban growth in the global South is proliferating at an unprecedented rate with informal, low-income settlements composing the greatest part. Equitable urban growth may be one of the most serious challenges of the next century (UN-HABITAT, 2009). While low-income urban dwellers have frequently built for themselves, increasingly, low-income communities are taking building for better into their own hands, producing powerful political and social implications. If development urbanists want to support and strengthen grassroots initiatives, it is imperative to address socio-spatial processes and products from the perspective of these communities. The “everyday urbanism” perspective (Chase et al, 2008) extends the concept of urban design to ‘non-designers’ by recognising urban design as a synthesis between urban dwellers’ handling of economic, political and social situations in space and urban designers’ interpretation and re-producing those forms. Yet, while urban design in development contexts has become more tactical, localised, and people-centred in order to deliver or imagine bottom-up responses based on users’ needs, the designs taken under consideration to make up the empirical basis of the field are largely the ones done by architects and planners. Given the scale of urbanisation, and that the instances in which regular citizens transform space far outnumber those in which design or development professionals do, understanding the process and product link in informal or ‘everyday’ cases done by ‘non-designers’ brings us closer to understanding how the majority of urbanisation happens, and closer to supporting the needs and desires of its millions of makers.

As the urban design and planning fields become more aware of the limits to social change effected by top-down processes (Batty and Marshall, 2009), wider participation and bottom-up approaches have gained traction in urban projects with social goals. The capability approach, a development paradigm that is interested in people’s well-being and agency in achieving ‘the good life,’ opens this door wider for considering how human development can flourish or decay with spatial form. A capability approach to urban design provides the theoretical space to question people’s and communities’ capabilities to shape their environment. This paper builds on urban design theory and the early advances of the capability approach into design theory to find that concepts from urban design can be translated into a capability approach framework. This method sheds light on the linkages between processes and products in the built environment from the grassroots

viewpoint. Simultaneously, an urban design focus from within capability approach theory reveals greater scope within the latter to address collective action and better envision group capabilities.

As a mechanism to discern these linkages, the paper develops a diagram to explore how low-income urban communities shape their local spaces. Diagrams are conceptual tools that help to explore questions that are difficult to conceptualise and encourage new ways of thinking about known issues. For the problem of unpacking socio-spatial products and processes, diagramming is therefore a promising vehicle with which to explore what is hypothesised, yet still not quite tangible. While diagramming as a tool has been picked up frequently in the urban design field, it has tended to focus on representing various forms

of 'hard' data or models or social and cultural networks (Schwarz and Lewis, 2012). The diagram developed here, and the ones discussed throughout the paper, instead explore the interaction of theories that might shed new knowledge on how urbanisation takes place.

This paper first examines three perspectives from the urban design field on the relationships between process and product in shaping the city. The capability approach and its relevance for the design discourse are then discussed. A conceptual diagram is introduced to explore processes and products in the built environment from the perspective of low-income communities and a case study is used to further illustrate the diagram. The last part is a reflection on diagramming and an evaluation on what new insights can be gleaned from this paper's approach.

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## 2. Review of socio-spatial processes

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The literature surrounding urban design, as both a professional field and as an organic process, has roughly distinguished social processes, spatial processes, social products and spatial products as the basic elements in the shaping of space. The relationships between these elements are revealed in different ways, depending on the focus of the research and its motivations. Agency, meaning, and participation and power relations are three conceptual areas within urban design of particular relevance for unpacking the linkages between the spatial and the social, between urban processes and products. While these areas are certainly not comprehensive of the ways this question has been addressed in urban design literature, they are discussed with the objective of setting up a basis for reflection on socio-spatial processes and products, and of establishing conceptual entry points for using the capability approach in urban design.

### 2.1 Agency in the built environment

The work of Turner (1976), Dovey and King (2011), and Rapoport (1977, 2005) illustrate the role that human agency has in shaping the built environment, mainly through the study of the choices people make in shaping space. Turner's well-known phrase, not what housing is, but "what it does" (p.61), stems from his view that maximising people's agency to shape their environments will enable them to achieve wider goals. Noticing the mismatch between institutional housing providers' priorities and beneficiaries' needs, Turner advocates putting the process of building houses into the hands of individual households, limiting government agencies' role to providing the necessary resources for households to make their own choices on how to build. In a similar vein, Dovey and King (2011) see spatial forms in informal settlements resulting from different configurations of the poor's resources, including abundant social and cultural capital. The seemingly haphazard and chaotic morphology of slums is the result of the agglomeration of individual choices that creatively and flexibly maximise these resources, resulting in highly tailored outcomes. Turner's and Dovey and King's arguments suggest that poor people can and should intensely manipulate spatial products to achieve tangible social ends.

Within the field of Environment Behaviour Studies, Rapoport (2005) describes the built environment as the accumulation

of systematic group choices. These choices are determined by cultural filters; thus, the range of real design choices available is narrowed to a limited set of perceived choices, as ideals, values, and norms effectively eliminate all but a few culturally appropriate design scenarios. Rapoport offers an evolutionary perspective, where environments are shaped over long periods of time and people continually search for the habitat that meets their culturally specific needs and values. This argument portrays people exercising some degree of agency in choosing which environments to inhabit and how to shape them, but their agency is based on ingrained preferences. Rapoport claims that people are not "somehow placed in environments that then have an effect on them" (2005, p.11), rather, environments facilitate or inhibit certain behaviours that are culturally or innately inscribed. However, this position is not shared by other urban scholars, as will be shown in the next section on meaning.

### 2.2 Meaning of space

In response to the architectural tendency for 'abstracting' space, (Kallus, 2001) there has been an emphasis on the "subjective reading of urban space" (p.129) based on people's everyday experiences of moving through and living in space. The meaning of space has since proved a well-used vehicle for discussing socio-spatial relationships and process-product linkages, especially on the topic of public space. Many authors (Kallus, 2001; Low & Niel, 2005; Landman, 2005; Rios, 2008; Madanipour, 2010;) argue that when people attach a particular meaning to space this produces significant repercussions on what then happens within and to that space. For example, Madanipour (2010) finds that people's perception of the accessibility of a public space, formed by group relations and perceptions of the proper purpose and users of the space, may encourage or deter particular groups of potential users. The sense of accessibility of a place can be formed by physical features, such as permeable perimeters, and symbols that trigger different ideas for different publics. Madanipour concludes that for accessible public spaces to exist, there must be inclusive processes that bring them about.

Landman (2010) finds that people's interpretation of built form can prompt them to undertake spatial change to affect social ends. She traces how South African gated communities produce the fragmentation of the urban fab-

ric when various neighbourhood organisations closed off street access to non-residents, attempting to create islands of security in response to their fears of crime. Her example and framework (Figure 2.1) of continuous spatial transformation explain “the process of social drivers influencing spatial change, leading to specific social interpretation and response” (p.134), based on the interplay of spatial form, function, and meaning that people attach to space. Low and Smith’s (2005, p.6) claim that the “the spatiality of the public sphere potentially transforms our understanding of the politics of the public” support Landman’s findings. These arguments suggest that attaching meaning to space is an important cognitive and societal mechanism through which social understanding is translated into spatial form, and through which spatial products in turn affect the processes that act upon space.

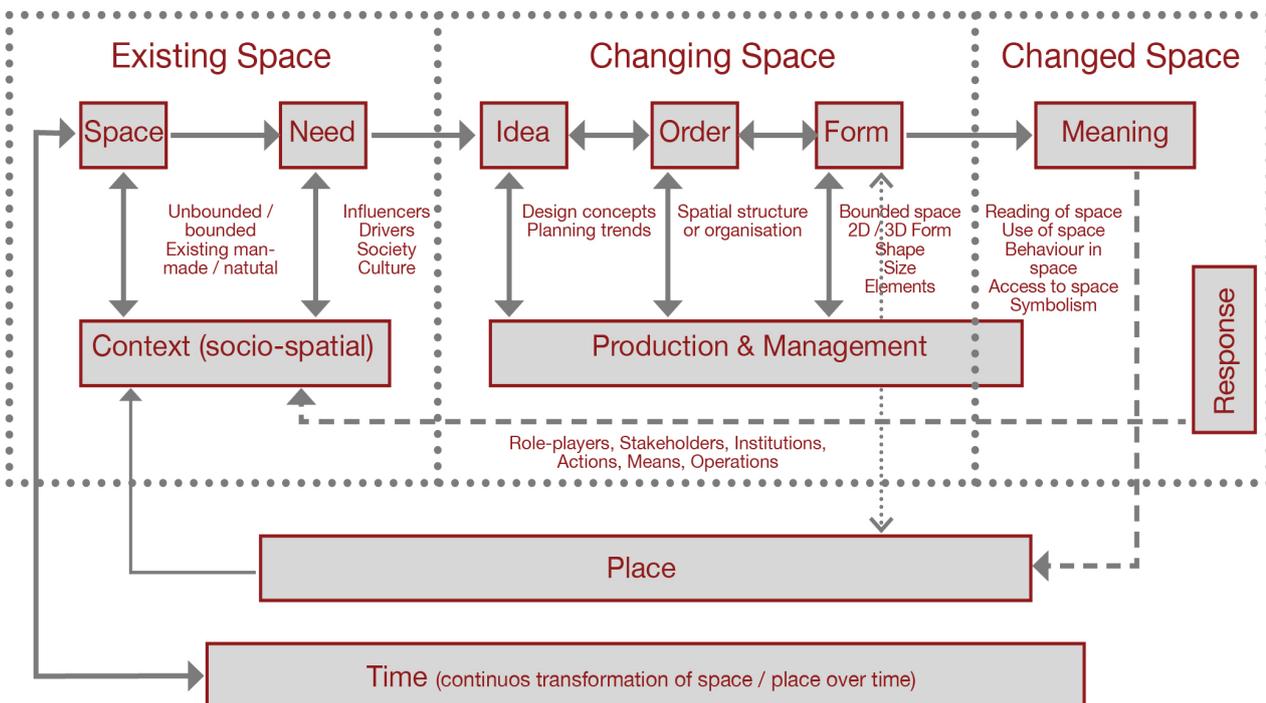
### 2.3 Power Relations and Participation

A constituency within the urban design and planning fields have demonstrated how spatial change can transform social relations, focusing on notions of democracy, citizenship, and processes of deliberation in the urban realm. Participatory design processes and co-production are two practice-based concepts that aim to bring about more equitable relationships between groups via spatial arrangements and conscious organisation of urban initiatives. Through the example of re-designing a

transit plaza in San Francisco, Rios (2008) shows how a participatory urban design process that involved conversation and consensus-building among different users resulted in more inclusive political scenarios. Reflecting the previous arguments on agency and meaning, Rios suggests that participatory design processes can produce more meaningful spaces that more closely reflect the needs of different users, thereby becoming more inclusive. He argues that in addition, participatory processes of spatial transformation can be the means to wider social transformation, locating space as the medium through which social processes occur and have the possibility to be magnified.

The co-production of service provision to marginalised urban communities has been explored as a method of widening the political arena to become more inclusive of diverse publics (Mitlin, 2008). Although co-production, with citizens and the state sharing the production of public services, is a pragmatic way for local governments to address the basic needs of underserved populations, it has been adopted by some grassroots organisations as a strategy to secure relations with the state that enable negotiations for greater benefits to take place. Co-production can have major democratic implications when residents and the state come to see the communities as centrally located in the decision-making process. Through the process of co-production, service provision also evolves from a standard bureaucratic endeavour into a “process of social construction where actors in self-organising systems negotiate rules, norms, and

Figure 2.1. Landman’s (2010) framework for spatial change



institutional frameworks instead of taking the rules as given" (Bovaird, 2007 cited in Mitlin, 2008, pp.357-8). In other words, shaping the city through service provision can have profound consequences for the formal and informal institutions that shape those processes.

Taken together, the above notions suggest that urban design happens on a micro-level, with individuals making decisions about their built environment based on available resources and in accordance with preferences, structures, and meanings accumulated over time. Additionally, urban design can be a conscious and collective endeavour by regular citizens and 'non-designers' as a way for a particular group to advocate for its interests or

for diverse groups to better work together or coexist. Of the three lenses explored for unpacking the relationships between space and society, the participation and power relations lens is the most supportive of attempting urban change. Yet, as Frediani and Boano (2012) note, while design process and design product have been explored with regards to participation in urban design, they have been explored independently of each other, resulting in social and physical determinism in participatory design practice. Once again, this highlights the need for a more integrated theory on social and spatial processes and products. The rest of this paper attempts to bridge this gap by framing the discussion on each of the above lenses within the capability approach.

### 3. The capability approach and urban design

Although urban design and the capability approach have not been extensively studied together, there is a growing body of literature that suggests the capability approach is useful for analysis of the built environment and the design process. The capability approach has been applied to studying the effects of the built environment on health (Lewis, 2012) and to unpacking the role of place in evaluating poverty (De Hert and Marivoet, 2011). Dong (2008) advocates for a capability approach to design policy in order to fulfil the potential of participatory design processes. As will be shown in further detail, Frediani and Boano (2012) find the capability approach useful for unpacking the relationship between process and product in participatory design. Additionally, applications of the capability approach to the field of technology design, particularly in ICT for development (ICT4D), offer potentially useful concepts that can be applied to design in the built environment context.

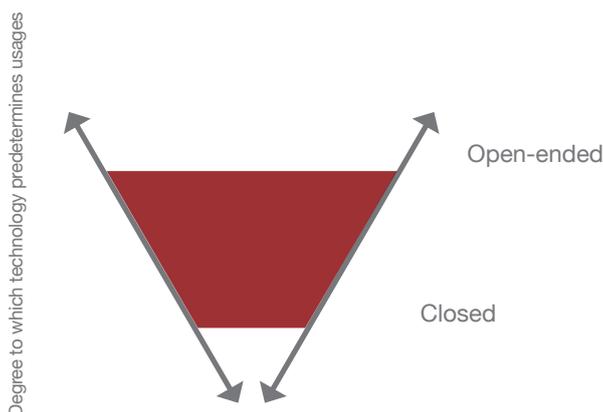
The capability approach has become recognised as a powerful discourse because it can capture some of the theoretical aspects of development that are not easily explained in other theories. With regards to ICT4D, Klein (2010, p.675) argues, “mainstream ICT4D discourse remains heavily focussed on economic growth, which is too narrow to capture the impacts of ICT.” Traditional ICT4D theory also views people as passive receivers of new technology that is supposedly good for them (Oosterlaken, 2012a, p.12) instead of as actors in pursuing certain outcomes and influencing change. These are some of the gaps in ICT4D that the capability approach can fill by

emphasising well-being and agency. On the other hand, the capability approach has been critiqued for focussing too narrowly on individual agency and capabilities, ignoring the importance of power structures, institutions, and groups in development issues (Oosterlaken, 2012a; Stewart, 2006). The following explorations on the applicability of the capability approach to urban design issues expound these concepts further.

Recent work in applying the capability approach to ICT4D has yielded some interesting directions for design. One example is the concept that choice is imbedded in a technological device. Klein’s Determinism Continuum (Klein, 2011) (Figure 3.1) suggests that the more that specific uses are prescribed and ideologies imbedded in a particular technology at the moment of its origin, the fewer the choices users will have when using it. Oosterlaken (2012b) explains this framework with the example of a programme that distributes devices to cattle raisers in Zimbabwe in order for them to obtain relevant agricultural information through podcasts. The devices could be used to access the specific podcasts but not any other kind of information, partly because the Zimbabwean government was concerned that the devices could lead to political mobilisation in rural areas. The Determinism continuum allows us to conceptualise how the possibilities for the device to advance a wide range of capabilities valued by the cattle raisers were stunted from the design of the device and the programme. In the same vein, the Choice Framework (Klein 2010) (Figure 3.2) sees the expansion of choices as the most important development outcome as this increases an individual’s agency and makes social structure more supportive of individual empowerment. Although the Determinism Continuum and the Choice Framework were developed in the field of ICT4D, the notions that choice is imbedded in an object that will be used by someone to achieve well-being and agency, and that the expansion of choice has reverberating effects on the individual and on society, resonate with the goals for urban design in development.

Oosterlaken (2009) introduces the concept of capability-sensitive design, building on value-sensitive design developed with regards to ICT. Value-sensitive design aims to satisfy the user by delivering the fulfilment of certain values, such as comfort, excitement, or usability, through the design of the product. Oosterlaken argues that this does not necessarily contribute to expanding users’ capabilities. Capability-sensitive design, however, operates

**Figure 3.1.** Klein’s (2011) Determinism Continuum



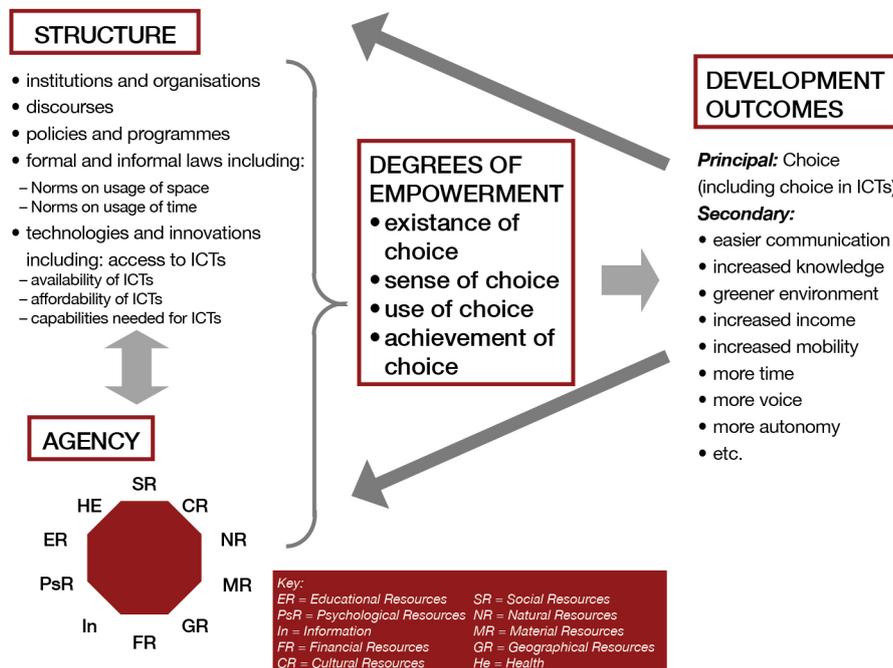
on a more interesting ethical level, as its aim is to increase the capabilities of the user and is grounded in the notions of human rights and dignity. Capability-sensitive design has potential to step beyond its cradle in ICT and into urban design theory. Borrowing an example from Lewis (2012), capability-sensitive urban design could address design standards from the perspective that good design facilitates equitable benefits to people. A neighbourhood park, for example, should be conducive to all local children achieving good fitness and health by accounting for the human diversity that puts some at a disadvantage for turning this resource into a capability.

The above body of literature suggests that the capability approach has great potential for exploring the design of spatial products, but its scope for contributing to design processes is also being revealed. Dong (2008) argues for the capability approach to be used to develop a pluralistic design policy that enables people to be able to “do” design. “People have the right to user participation in design only if there are effective policies that make people truly capable of design” (p.77). Based on the ‘capability to control one’s environment’ in Nussbaum’s list of central capabilities for well-being, Dong flushes out a Design Capability Set (information – knowledge – abstraction – evaluation – participation – authority) (see Figure 2.3) that covers the basic capabilities required for people to achieve the capability to design. Dong advocates for truer public deliberation on designing the built environment, claiming that political deprivation of capabilities hamper democratic production of space, even in the most advanced democracies. It is important to note,

as Nichols and Dong (2012) do, that design does not only mean the production of a physical object. They use the term to mean “a projection of possibilities, of the creation of a world that does not yet exist” (p.191), acknowledging the processual as well as object-related aspects of design. Tackling the public design process with the aim of expanding capabilities and suggesting that certain capabilities form the backbone for participatory design are two notions that show how the capability approach could inform design policies aimed at supporting more inclusive urban design.

Frediani and Boano (2012) take up Dong’s notion of the capability to design in a framework that includes both processes and products in participatory design, addressing the process of acquiring the capability to design and the effect of the spatial outcome of participatory design. In the Capability space of participatory design diagram (Figure 2.4), they link process freedoms with product freedoms in participatory design via a common set of values or functionings that citizens pursue with regards to “the deliberation and production of design” (p.212). Under process freedom and product freedom, they identify three components (choice, ability, and opportunity) that together help account for context and internal and external factors on multiple scales that might affect citizens’ freedoms in participatory design process and product. Drawing from critical theory, the authors examine the notions of marginality, recognition and solidarity, and coalition through dissensus as values that help to navigate “through processes of transformation and tyranny ... [and] guide thinking and application of participation in the

Figure 3.2. Klein’s (2010) Choice Framework



process of design.” (2012, p.219) In their view, aiming for ‘processes for just products’ requires examining power relations, ideologies, and social structures that influence the production of space, with special attention to the ability of groups to collectively achieve valued functionings. This is an important contribution to the literature on capabilities, which is often criticised for focussing too narrowly on the individual’s agency.

This chapter has outlined several ways that the capability discourse affords new perspectives on urban design questions of how space is shaped and the imbedded interplay of product and process. First, the capability approach positions objects as a vehicle for achieving non-material objectives. In the literature on socio-spatial processes, this relationship is also recognised, for example, in the idea that inclusive public spaces enhance perceptions of citizenship. The Determinism Continuum and the Choice Framework take this further by offering the notion that previous external choices are also imbedded in physical objects, affecting the users’ potential to achieve capabilities that are directly and indirectly related to using the object. By highlighting how physical barriers (Oosterlaken, 2012b; Klein, 2010; 2011) as well as power structures (Frediani and Boano, 2012) can restrict or enhance capabilities for achieving valued outcomes, this discussion also opens the door wider for exploring the limits on the agency people can exercise in shaping space.

Second, the pivotal role human diversity plays in converting resources into functionings in the capability approach implies that spatial form needs to be flexible enough to be appropriated by a diverse public. Spatial form can only be capability-enhancing for a diverse public if that public is involved in producing space in the first place. The discussion on citizens’ achieving capabilities to ‘do’ design also relies on acknowledging human diversity in envisioning what and how to design, or when to refrain from doing design. Finally, the capability approach, although it is imbedded in philosophical liberalism and holds the individual as the primary unit of concern (Robeyns, 2005), is able to account for the effects of social structures, including institutions and groups, on the capacity for people to be agents in the built environment. Dong’s (2008) pursuit of a publicly held capabilities to participate in designing the city and Frediani and Boano’s (2012) discussion of collective agency demonstrate that capabilities can, in some cases, be created or enhanced when they exist on a group level rather than within individuals. With the current preoccupation for participatory design approaches in urban design, probing publicly held capabilities to effect more just spatial form should be a high priority. Conceptualising socio-spatial processes and the process-product relationship within the framework of the capability approach is still in its infancy, but has a promising future to which this paper attempts to usefully contribute.

Figure 3.3. Dong’s (2008) Design capability set

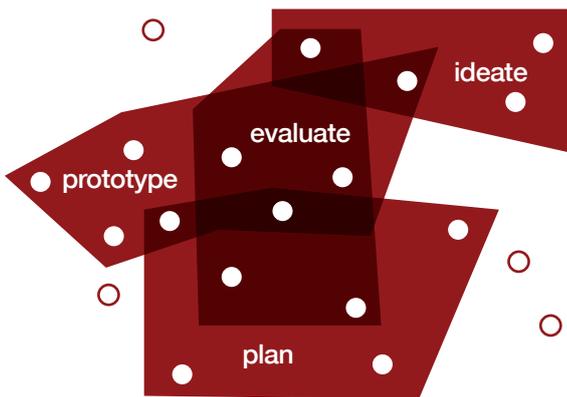
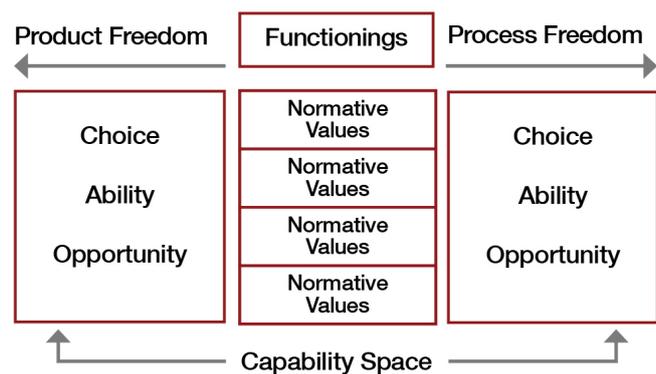


Figure 3.4. Frediani and Boano’s (2012) Capability space



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## 4. Towards a conceptual framework

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This paper formulates its contribution to operationalising the capability approach in the urban design field by way of diagramming the socio-spatial processes in low-income urban areas that undergo spatial change. As discussed below, diagrams offer unique advantages to theory building. The diagram that is developed further on in this paper is based on several diagrams that have been discussed in the literature on the capability approach and socio-spatial processes and products. This strategy is intended to reveal more nuanced dynamics in the way low-income communities create space.

### 4.1 Why Diagram?

Diagrams are recognised as an important tool and method in many fields due to their helpfulness in exploring complex or unknown subjects and in communicating ideas. According to the Open University (2012), diagrams “allow us to think in new ways and approach problems differently” and are helpful in “exploring areas we normally aren’t able to think about.” While ‘scientific’ diagrams attempt to determine relationships and components to arrive at a correct answer or analysis, ‘semantic’ or ‘syntactic’ diagrams are not as concerned with finding an answer to a problem as with inventing new problems or framing problems differently (Lueder, 2012). Both purposes rely on diagrams to help clarify thinking and arrive at otherwise unattainable conclusions. Cognitively, diagrams are more related to meaning than other forms of communication, and thus are easier to understand. “[Diagrams] may be incomplete, ambiguous, difficult to interpret, yet on the whole, they are more directly related to meaning than, say, language” (Shah & Miyake, 2005, p.22). Therefore, although often they include text or exist as annotations to text, diagrams can be useful for both concrete and abstract themes that otherwise would be more difficult or time consuming to explain.

While several of the diagrams shown up to this point in this paper illustrate how conceptually complex ideas are rendered much simpler through diagrams (for example, Klein’s [2011] Determinism Continuum, Figure 3.1), Landman’s framework on spatial change (Figure 2.1) demonstrates how diagrams can uncover new pathways for thought. While the diagram may appear confusing without a textual explanation, it lends an interesting perspective to the question this paper attempts to address, perhaps unintentionally. In creating a framework that investigates and

explains the process of spatial change via social drivers, Landman’s diagram connects spatial components (such as form, space) with social components (need, idea, order) without placing parameters on these categories. Furthermore, her diagram describes a process that includes product-like components (form, place, space), depicting them as moments in an ever-continuing cycle of urban change. This offers a potential pathway to erasing the “unhelpful dichotomy” (Frediani and Boano, 2012, p.204) between process and product and integrating social and spatial processes without having to tread the treacherous path of defining their boundaries first.

While diagrams can take thought in new directions, they are simultaneously entrenched in their ontological context. “Diagrams are both the instrument of thought and its mirror” (Vidler, 2006 cited in Lueder, 2012, p.215). Foucault’s claim that prevailing discourses impose ways of thinking and acting, producing the world as we see it (1980 cited in Rose, 2001), would suggest that someone’s interpretation and depiction of something has as much to do with their historical and geographical context as with their individual thought process. This argument is particularly relevant when diagrams, such as the one developed further on in this paper, seek to interpret processes that exist in contexts foreign to the author. Nevertheless, Rose (2001) points out that it would be a mistake to interpret diagrams simply as reflections of their context; while they do exist within and because of certain discourses, they also have their own effects, and, sometimes, the power to create new discourses.

As shown in the previous chapters, research on urban design and the capability approach has frequently employed diagrams. The following section develops a diagram that attempts to manifest the qualities of a useful diagram as discussed above, visually representing the content it tries to explain, and providing an outlet into new thought processes.

### 4.2 The Capability Locus Framework for Socio-spatial Change

This diagram (Figure 4.1) attempts to explain how people and communities shape space in informal settlements. It builds mainly on Klein’s Choice Framework (2010; 2011), Landman’s framework for spatial change

(2010), and Frediani and Boano’s capability space for participatory design (2012), while also reflecting the discussion in on social and spatial products and processes in Chapter 2. The diagram can explain an individual’s interaction with product and process, but its focus is in describing how communities collectively produce space. First, a quick overview of the diagram’s components is presented, followed by an in-depth explanation of the ideas behind each.

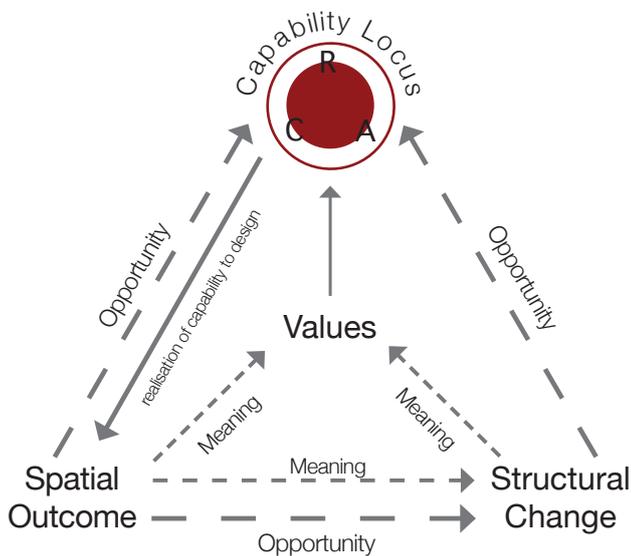
At the top, the capability locus is composed of the determining factors of a building or spatial form: resources at people’s disposal, the choices they make among the available alternatives, and their ability to achieve their choices by appropriating resources. The capability locus is influenced partly by people’s values for what constitutes a good life. Spatial outcome is determined by the choices, resources, and abilities of the people shaping it. The spatial outcome of people’s efforts goes on to effectuate change in social structure on a household scale, community scale, city scale, perhaps even on a national or global scale. Spatial outcome and structural change affect values and the capability locus through the twin forces of opportunities and meaning.

In the capability locus, resources, ability, and choice together produce capabilities, the principal capability for this diagram being the capability to shape space. “Resources can, depending on individual conversion factors, structural conditions, and crucially, an individual’s own choices, be converted into capabilities” (Klein, 2011, p.123). In this diagram, structural conditions are seen as a less direct factor in the actions they take to shape their environments, affecting them instead through opportu-

nities. Nevertheless, the resources communities have at their disposal and their ability to use them in meaningful ways form a direct link to their decisions in shaping space. The Choice Framework distinguishes ten kinds of resources – material, natural, geographical, educational, psychological, cultural, and social resources, as well as health and information. The Sustainable Livelihood Framework identifies just five types of capital – human, natural, financial, social, physical – to convey the same idea. The important thing is to recognise that poor people can be rich in non-material ways that help them achieve valued capabilities (Klein, 2011). The capability approach’s focus on resources as an instrument for freedoms avoids giving resources, especially commodities, undue significance as stand-alone indicators of well-being. In this sense, choice and ability temper the weight of resources in the spatial outcome.

Choice is conceptualised as in Frediani and Boano’s (2012) capability space of participatory design, encompassing both product freedom and process freedom. Choice includes what to build and what materials to use, in addition to when to build, who participates in building and how, what roles they take and who makes key decisions. Choice can be seen as various levels of agency (see Figure 3.2). This diagram’s emphasis is on the choices groups make collectively, acknowledging the conflicts this can generate as individuals within groups struggle to achieve valued functionings on a personal level. Within the community, some individuals are able to exercise stronger agency than others, resulting in outcomes that can be inequitable for some members (Cleaver, 2007). However, in this analysis, group capabilities are more than the sum of individual capabilities (Stewart, 2006) and the overall effect of exercising agency in numbers is viewed as a capability-enhancing condition, especially since this paper is primarily concerned with low-income people who, on an individual level, have traditionally exercised relatively little agency in shaping urban environments.

**Figure 4.1.** The Capability Locus Framework for Socio-spatial Change. Source: author



Ability refers to the capacity to use the available resources in a way that achieves the desired outcome. This refers equally to appropriating the design process and the material and intangible resources that the community possess that will affect their design. Ability most closely reflects the internal and external conversion factors that determine resources becoming capabilities. Robeyns (2005) identifies personal, social, and environmental factors that determine the conversion of a resource into a functioning, acknowledging the structural influences on ability. Frediani and Boano (2012, p.213) note that “ability relates not only to individual characteristics, but also collective capacities, such as the ability to generate collective action initiatives ... as well as collectively appropriating, changing, maintaining, or improving the existing built environment.” As with choice, the collective focus is a crucial point in this diagram.

Resources, ability, and choice are supported and influenced by values. Choice very clearly relies on notions of what is good, fair, important, and productive in order to deliberate between options. Resources are also influenced by values – health, for example, can be influenced by moral or religious norms of what is appropriate to eat, how much, and when, while family- or community-centred values may enhance social and cultural resources in different ways (White, 2010). Other values may restrict resources. Individual values may clash with collectively-held values, although this tension is not fully developed in this diagram. Rapoport's (2005) parallel notion of cultural, group, and personal filters which define one's interpretation of the built environment is relevant in this discussion; while filters are not the same as values, the multiple scales of perception point to the complexity of overlapping interpretations of the good life.

Resources, abilities, and choices, based on the values of the people involved, together produce a spatial outcome. This could be a house, a plaza, a neighbourhood re-blocking plan, or a sewage system. The spatial outcome is a configuration of the resources that people have to dedicate to their built environment (Dovey and King, 2011). It is also the reflection of the choices they have made to allocate their resources, and the embodiment of their ability to attain the choices they made. This concept is supported by Rapoport's (2005) evolutionary view of built space, its overall form being the accumulation of choices made by humans. This perspective is also helpful in conceptualising the capabilities of groups to achieve spatial outcomes, instead of focusing solely on individual capabilities. The continuous arrow represents the capability to design (Nichols and Dong, 2012) becoming a functioning, and then reality.

The spatial outcome in turn is a vehicle to achieve a changed social outcome. In this diagram, the social outcome is called structural change, referring to change in the 'rules' of society on multiple scales. Structure is both formal and informal and includes the management of spaces, institutions, power relations between people and groups, and norms and perceptions that govern behaviour (Mitlin, 2008; Rios, 2008). The impact from the spatial outcome affects structural change through meanings and opportunity. This diagram does not intend to deny that non-spatial efforts also produce structural change, but it is primarily concerned with the relationship between space and structure and therefore does not specifically address processes that do not have a spatial component.

New or altered meanings emanate from spatial form and structural change about the built environment and the capabilities behind it. Meaning is the most "latent aspect" of activities people carry out in space (Rapoport, 2005), profoundly imbedded in the things people choose to do. Landman (2010) defines meaning of space as the inter-

pretation and experience of space, and, along with form and function, meaning makes up the components of 'place.' The meaning of space is associated with reading of space, use of space, behaviour in space, control of space, access to space, and symbolism. Landman positions meaning as the culmination of the needs, ideas, order, and forms generated around changing space, itself generating a response to the spatial outcome (see Figure 2.1). In this diagram, the response is filtered by the values and the elements in the capability locus. Structural change produces new meaning through new realisations and altered interactions between people and groups. Recognition for the work done, a feeling of solidarity from enhanced community understanding or integration, or a sense of increased citizenship derived from more acknowledgment from authorities or better visibility are ways that a changed sense of being is effected by change in the societal structure (Mitlin, 2008; Boonyabanha and Mitlin, 2012). New meanings from spatial change directly influence change in structure through the processes of shaping space and by enabling different behaviours via spatial form. The experience of producing space in a certain way (based on factors in the capability locus) often influences social relations with long-lasting effects on inter-group dynamics (Rios, 2008). Additionally, new spatial configurations can enable new behaviours when space is perceived differently, potentially affecting norms of behaviour and inter-group relations (Madanipour, 2010). Changed meaning in spatial form and in structures hence impact values, as people's notions of the possibilities in space change and existing social structures are taken less for granted.

Increased or diminished opportunities arise from both Structural Changes and Spatial Outcomes. Changes in social structure have repercussions on the resources available to people and their ability to mobilise those resources toward valued functionings. In co-production, for example, changed social structures afford new opportunities for active communities to become involved in the decision-making process, often leading to a variety of increased resources (Mitlin, 2008). Modified spaces also generate new opportunities. Spatial features can enhance or inhibit the way resources are converted into functionings. For example, the ability of an elderly person to convert the resources of an urban park into functionings for well-being may be increased if the park includes frequent benches and handrails (Lewis, 2012). These changes affect the choices that are made in subsequent shaping of the built environment. This diagram splits up the Choice-Ability-Opportunity triad presented in the capability space for participatory design framework (Frediani and Boano, 2012) not because it disagrees with the premise that they are all essential for process and product freedoms – in fact, the way these components are presented in increasing scale of factors that determine freedoms in each is conceptually very helpful. Since opportunities are determined by "outside forces" (spatial

environment and social structure), this diagram, working from the point of view of informal communities, places opportunities as a power that affects the resources that are immediately available and the ability to turn intentions into outcomes.

The Capability locus framework for socio-spatial change explores how low-income communities produce space in their local environments. It is directed to informal settlements that often lack regulation by outside (government) forces and, because of their scarce resources, are at an even greater obligation to make meaningful spaces that accomplish what they were made for. Theoretically, the diagram unearths a new perspective on the relationship between spatial and social processes and products using a capability approach lens. Visually, the diagram stresses the cyclical and integrated nature of the production of space. By placing values at the centre, the diagram emphasises the core tenet of the capability approach that achieving capabilities (in this case, the capability to shape the built environment) is first and foremost based on individual and group understanding of the good life. With the capability locus, spatial outcome, and structural change composing the three angles of a triangle, the diagram indicates that these components are of equal value in the equation of explaining the social and physical relationship in the

process of shaping the built environment. With arrows for meaning operating on an interior level and opportunity on the outside of the triangle, the diagram also attempts to visually represent the nature of relationship between the capabilities, spatial outcome, and structural change. The thick, continuous arrow connecting the capability locus and spatial outcome represents capabilities taking on physical form.

Like the 'capability space for participatory design' (Frediani and Boano, 2012), this framework puts values at the centre of unpacking the links between spatial products and the processes that led to them. Inspired by Klein's Choice Diagram (2010; 2011) and Landman's (2010) framework for urban space, it identifies meaning and opportunity as two ways that spatial outcomes and social structure mutually affect each other. With values at the centre, the diagram can easily be used for explaining other groups' processes of shaping space.

The following chapter will apply this diagram to a case study Thailand. Experiences from the case study will illustrate how the components in this diagram relate to each other, on the whole forming a more complete picture of how informal communities produce space based on their values, capabilities, and understanding of social forces.

## 5. Applying the framework to Baan Mankong

The following case study is based on fieldwork undertaken by students in MSc Building & Urban Design in Development and MSc Urban Development Planning courses at the Development Planning Unit. It draws on the experiences of three communities in the city of Nakhon Sawan, Thailand, that are participating in the Baan Mankong (Secure Housing) programme, a process in which communities lead neighbourhood upgrading. These conclusions drawn from their experience are supported by studies on other communities in the programme and literature about Baan Mankong in general. First, an overview of how the programme works is presented, followed by a description of the communities and, finally, an analysis of how they go about shaping their environments in the framework of the diagram.

The Baan Mankong (BMK) programme began in 2000 when the government of Thailand embarked on an initiative to address the twin most pressing housing needs of the urban poor, secure tenure and decent housing. Operated by Community Organisations Development Institute (CODI), the programme provides loans to community groups to finance collective land purchases and house and neighbourhood upgrading.

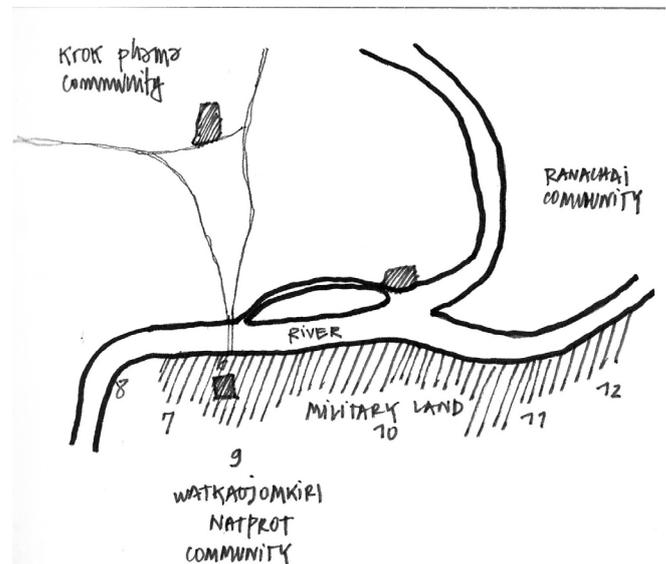
Communities that are eligible to participate must have a certain amount of collective savings (about 10% of the project cost) and must show that they are organised as a group, as loans can be made exclusively to community groups, not individuals. Paid back over a period of 15 years, loans allow the communities to collectively purchase or rent land, rebuild or repair houses, or re-block neighbourhoods and install neighbourhood infrastructure. Typically, communities are squatting on private or government-held land and must negotiate with landowners to purchase or rent the land in the long term. An architect normally works with the communities to design the houses and neighbourhood plan, and community builders ensure the smooth-running of the building process and advise on materials and building techniques. Once the loan is made, community members themselves carry out the building.

Nakhon Sawan is an important city in central Thailand that experiences yearly flooding due to its position at the confluence of three major rivers. Masters students spent four days with three Baan Mankong communities which are at different stages of the programme and in different locations in the city, and hence, with different

experiences with the building process. Wat Kao Pom Kiri community have completed housing upgrading with BMK and are currently building a flood-barrier wall to minimise flooding in the future, since they are located across the river from the central district, on a flood plain (see Figure 5.1). Ranachai community are in the initial stages of implementing the programme; they have secured land from the Treasury department, decided on the models of house to be built, and designed the layout plan of the neighbourhood. Kroak Phama, built on a mountainside overlooking the city, have upgraded some of the houses with BMK loans and want to widen the streets to allow vehicular access and install water and sewage infrastructure, as the whole neighbourhood currently relies on water deliveries.

The BMK programme has been celebrated as the key to many opportunities for those living in informal settlements with low income and no land titles in Thailand. Indeed, some see in it the potential to change the way development works, moving towards decentralised empowerment for the urban poor (Boonyabantha and Mitlin, 2012). Communities going through the BMK process are shaping their neighbourhoods after their hearts' desires and negotiating existing powers, resources, and

**Figure 5.1.** Three BMK communities in Nakhon Sawan, Source: Olmos, 2013.



opportunities in order to achieve the environments that permit them to live valued lives. They are changing the physical environment and changing themselves, and, potentially, the way things get done in Thailand. This makes it a useful case study to explain and explore the Capability locus framework.

**Values:** Communities in BMK value cooperation highly since their survival in the city is often dependent on family members and neighbours helping each other (Boonyabancha, Carcellar Kerr, 2012). Additionally, Thai culture particularly values compromise and negotiation over confrontation, in part because of a Buddhist worldview. Cooperation and non-confrontation are a resource in the communities' joint endeavours and in their relations with outside groups. For example, negotiations between communities and landowners for land-sharing agreements or cheaper selling prices are surprisingly fruitful thanks to these widely-held values. Secure land rights can also be seen as a value, as land ownership is almost ubiquitous in the countryside, yet often unattainable for low-income urban groups. Securing land tenure is a major draw to participate in the BMK programme.

**Resources:** Family and neighbourly help is an important form of social capital. Households in BMK communities can also count on the financial resources from the loan to undertake greater upgrading initiatives than they could otherwise. With CODI's increasingly renowned international profile, communities sometimes can gain access to extra resources: the Wat Kao Pom Kiri community expected a small grant from the World Bank for a pump for the flood barrier wall (see Figure 5.2). Communities often reuse materials from their previous dwellings in their new houses (Archer, 2012), contributing physical resources that are deployed during rebuilding. Geographical resources such as

location are also important; the Ranachai community secured land from the Treasury department near their previous settlement and close to the market where many community members earn their living. This offers better odds for repaying their portions of the community loan, thereby generating more financial security for the whole community and making the decision to pursue BMK more palatable. In the hills, Kroak Phama are safe from floods, although they face the additional risk of land slides; their built forms reflect this distinct condition. Additionally, their resource from higher ground also becomes a resource for lower lying communities who are welcomed onto the mountainside during floods, reflecting the communities' values.

**Choice:** The BMK programme encourages communities to design their own houses and neighbourhood re-blocking plans. Nevertheless, the real choice for the spatial outcome is restricted in several ways. With architects normally creating the drawings, though with input from community members, sometimes households' desires are lost in the architect's interpretation of their needs (Chutapruttikorn, 2009b). CODI provides a handbook with over 100 house designs that communities can choose from, increasing the alternatives communities may consider and perhaps also unintentionally restricting the variability of the spatial outcome. It is cheaper for the community to all choose the same few models of house as this requires less time with the paid architect. Small land parcels that must accommodate many families also represent a scarce resource spread thin, restricting choices for the size and shape of homes and community facilities such as open space and roads. In Ranachai, some community members were concerned that the plans didn't allow enough space on the streets for vehicles (such as fire trucks), enough open public space for community activities, and houses that were

**Figure 5.2.** Flood barrier wall in progress near Wat Kao Pom Kiri. Source: Olmos, 2013.



**Figure 5.3.** Example of model house in CODI handbook Source: Olmos, 2013.



big enough to meet household needs and that had a ground level (see Figure 5.4). Thus, there is a mismatch between the choice that the community supposedly has in shaping their space within the constraints of BMK, and the real alternatives that can be chosen among. Additionally, group choice sometimes confronts individual choice. For example, the ability of some residents to realise their choices for their homes and environment can be compromised by group pressure to standardize the houses for financial or aesthetic reasons (Chutapruttikorn, 2009b). This fulfils the desires and needs of some people, but prevents others from achieving the homes and neighbourhoods they perceive would help them achieve desired functionings. On the other hand, all households have the choice to participate or not in the programme, although if they do choose to take part they must agree to follow the BMK procedures.

**Ability:** Restrictions on the agency of communities from external and internal forces can hamper the realisation of choices and resources into the spatial outcome. In Ranachai space was very limited to begin with, and recently the municipality declared a two-meter easement along the front of their property, further restricting the space in which to build. Wat Kao Pom Kiri's aim is to severely stem the flooding around where they live, but it is not clear that a flood-barrier wall will accomplish this given their location on a flood plain and increasingly severe weather patterns in the region.

**Spatial Outcome:** The choices communities make, based on their resources, and influenced by their abilities to realise their choices, determine the spatial outcome of the upgraded houses and neighbourhoods. The resources, choices, and abilities of each community are visible in the spatial form. The cramped layout in Ranachai's upgrading plans indicate that physical space is scarce (Figure 5.4), but that the community members

prefer that each house be accessible from the ground level than to build higher buildings that would leave more space for streets and open area. One reason for this is that many households rely upon home-run businesses out of their front rooms, which would be difficult or impossible if the front rooms had no street access. The community members have chosen almost identical house models, which vary only slightly depending on the size of the family, because of cost restraints and preference for a conforming aesthetic. Houses belonging to households from an extended family are grouped together, a physical manifestation of the smaller groups within the whole community (Boonyabancha, 2009).

**Structural Change:** As brand new or upgraded neighbourhoods become part of the urban fabric, the city acknowledges them and adapts to their presence. Often the new visibility literally puts communities on the map and induces local politicians and authorities to pay more attention to them, for example through courting them before elections or making contributions to community funds. The huge achievement by the BMK communities often proves to local authorities that they are credible development partners, making them more likely to engage communities in future city planning projects (Boonyabancha and Mitlin, 2012).

Structural change also occurs as the communities begin to see themselves differently, having succeeded in providing for themselves what the government couldn't provide for them, and believing in the strength of their collective action. Communities that have upgraded their neighbourhood often take on other projects subsequently, such as community welfare or education funds. They also help other communities set up savings groups and become involved in the programme, strengthening the BMK network across the city and the country. The network has become a powerful political tool based on solidarity, able to mobilise vast crowds to support or decry policies that affect the urban poor.

**Opportunity:** The spatial outcomes emerging from the BMK programme offer several tangible opportunities that can be turned into resources. The house itself presents the opportunity for greater financial manoeuvring by individual households, using the house value as collateral, although there are restrictions given the collective land ownership agreement. Partial physical upgrading often paves the way for communities to access local services and for municipalities to make other improvements, such as connection to municipal water and electric services. For Kroak Phama, for example, a community priority is to widen the streets so that fire trucks can access houses higher up on the mountain-side. On the other hand, previous construction in Kroak Phama did not account for vehicle access; this spatial outcome now restricts the opportunity for re-blocking. Opportunities arising from structural change span a

Figure 5.4. Tight space in Ranachai. Source: Olmos, 2013.

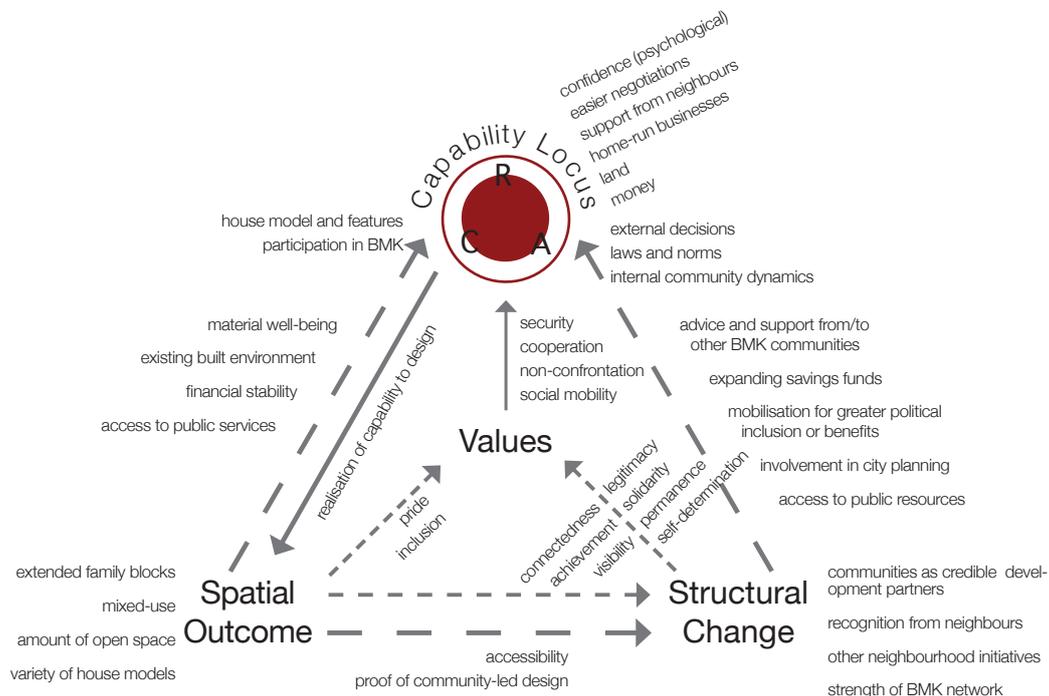


wide range of social and political circumstances. Some of the most visible from BMK are the acceptance and recognition of BMK communities by local and national authorities and other groups of city dwellers. In Kroak Phama this has led to better-off neighbours in the area also contributing to the community savings group in order to support plans to bring running water into homes and to widen the streets. On an larger scale, success in small community-led loans and upgrading has led to pooling community funds into City Development Funds to finance city-wide upgrading led by communities (UN-HABITAT, 2005). Local governments have also been known to solicit BMK communities to advise on changing planning regulations, based on what has been proven to work through BMK upgrading, to enable more pro-poor building in the future (Boonyabancha and Mitlin, 2012). On a more individual level, the practice of achieving spatial change exercises leadership and community organising skills, which are transferrable to other projects and form an important part of social and psychological resources that communities have at their disposal. These examples show how small-scale neighbourhood upgrading can push wider city-shaping processes in a direction that is more enabling for the urban poor, increasing the overall opportunities for them to shape the city after their idea of the good life.

**Meaning:** Spatial outcomes are highly meaningful in BMK communities. The finished houses and neighbourhood infrastructure represent social inclusion in the Thai middle class, visibility to neighbours and politicians, and a deep sense of pride and achievement for indi-

vidual families and BMK communities. A new house or pathway in itself communicates the family or the community's status and financial security (Chutapruttkorn, 2009a), but more specific features of a house go even farther in transmitting this message. For example, many BMK neighbourhoods display bright blue roofs because blue paint is more expensive and expresses the owner's financial security to all who see it. Likewise, many communities choose a standardised house model for the entire community because the conforming aesthetic is an allusion to upper middle class gated communities (Archer, 2012; Chutapruttkorn, 2009a). Upgraded houses and infrastructure have more potent political significance as well. A concrete walkway or bridge represents connectedness to the formal city in a way that a bamboo pathway does not (Boonyabancha, Carcellar and Kerr, 2012). Likewise, a solid house speaks of permanence and firmness; in a context where slums are constantly under threat of eviction, this shows that the owner has no intention of being thrown out and will stay his or her ground. Structural change also produces meanings that, interpreted by values, affect the resources, choices, and abilities communities have at their disposal. For example, when communities see themselves as more enabled and legitimate members of society, this constitutes a psychological resource. Communities may consider a wider range of choices for future activities because they feel that their actions can lead to positive change. This has prompted all three communities in Nakhon Sawan to develop other initiatives to improve their well-being, such as welfare funds and flood-barrier walls.

Figure 5.5. Capability locus framework applied to three BMK communities. Source: author



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## 6. Conclusion

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The Capability locus framework for socio-spatial change offers a community-based perspective to the forces that determine what the built environment looks like and how it affects the people and events that happen in it. The goal of this framework was to unpack the dynamic relationships between socio-spatial products and processes. While the diagram doesn't refer specifically to products or processes, it finds more precise expression in the terms spatial outcome and structural change, which can be seen as spatial and social products, respectively. The diagram itself shows a process that derives its dynamism from people pursuing valued lives through shaping their environments. However, it does not provide the space to analyse the shaping process itself; rather, it reveals a process that, over time, links the shaping of space to communities' internal criteria and forces external to them.

By applying the framework to the communities in Nakhon Sawan, it is easier to assess how well the diagram accomplishes the main purpose of diagrams, which is to help in understanding complex systems and framing problems differently in order to come to new conclusions. This diagram exposes the question, do the specific characteristics of the spatial outcome directly affect structural change, and is the process of building and the meanings and opportunities from how it is built what really matter? By visually juxtaposing spatial outcome and structural change in the diagram it may lead to discovering something new about the cause-and-effect relationships between the characteristics of the two. Does building houses in groups of extended family affect how the community may subsequently undertake a welfare fund? Does recognition from neighbours have more to do with symbols of financial stability (such as blue roofs) or with the tangible benefits they experience as a result (such as public infrastructure)? These questions and others may be better explored when positioned in this framework.

As this framework is based in the grassroots point of view, it would tell a very different story if taken from the perspective of a developer, development practitioner, government institution, or policy-maker. For a broader perspective, socio-spatial processes and products

should be represented by intersecting diagrams for multiple groups. It is possible to accommodate other groups' perspectives using this diagram by inserting their values and circumstances into the framework. In this sense, this paper contributes to the discussion by offering a model for understanding socio-spatial relations that is based on one group but applicable to others.

In relating notions from the capability approach to urban design ideas that tackle the process-product question, the framework opens the door wider for capability-led studies of the built environment. Furthermore, this paper uses the capability approach in a collective context, looking at group values, decisions, and capabilities, which are also concerns in the area of urban design that is interested in power and participation. While this is not the first work to address the individualism critique of the capability approach, it joins others in providing convincing evidence that the capability approach can be usefully employed to discuss group well-being and agency in the process of urbanisation. With a focus on collective agency, the framework treats spatial outcomes and structural change as enablers or impediments to communities' capacity to shape their environment. This could be considered an example of how diagrams can help "construct new narratives that offer an enticing glimpse of a transformed city" (Schwarz and Lewis, 2012, p.1), in this case, through bridging social development theory and urban design theory.

This paper, like many others that involve development researchers explaining something on behalf of the people experiencing it, is guilty of the Foucauldian critique of reproducing dominance through using dominant discourse (Rose, 2001). The terms used in this paper may not be exactly the ones that the Nakhon Sawan communities would use to describe their endeavours, and certainly the diagram, produced half-way around the globe from Thailand, also reflects the author's way of seeing things. Nevertheless, this diagram is both a mirror and instrument of thought (Lueder, 2012) and outside perspectives can sometimes shed new light on local issues. By offering a tool for reflection and strategy, this work aims to contribute to the efforts of communities shaping their local environments in pursuit of the good life.

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