

The role of institutional logics during participation in urban processes and projects: Insights from a comparative analysis of upgrading fifteen informal settlements in Kenya

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ABSTRACT

The academic literature largely acknowledges participation as a key condition for the successful upgrading of informal settlements. However, how individual participative actions of different actor groups and reactions of dwellers combine to influence project outcomes of upgrading processes has not been studied. This article posits that different combinations of presence or absence of collaborative interactions between dwellers and other actors will decisively predict the success and failure of projects. Specifically, we argue that interactions between different groups of implementers and dwellers are conditioned by distinctive value systems—institutional logics—, which provide specific challenges to establishing collaborative interactions with dwellers as the actors conduct their roles. We identify sufficient combinations of participative actions that may lead to successful upgrading using qualitative comparative analysis (QCA) on 15 informal settlements in Kenya's secondary towns that were recently upgraded. Our findings indicate that participation has to consider a multiplicity of actors, who are guided by different logics; it has to span over the whole implementation cycle. It also has to deal reflexively with the issue of representation of the community. This extends the understanding of participation to a perspective that emphasizes the capabilities of implementers to enact collaborative relationships by bridging between their own and the community's institutional logic.

1. Introduction

More than half of the global population live in urban settings and about a billion of these in informal settlements characterized by limited basic services, insecure tenure, and poor housing (UN-Habitat, 2015, 2016). Currently, an influx of about 70 million residents per year is expected in urban centers in developing countries where already, more than half live in informal settlements (Baker, 2008). These settlements exist globally with a range of names such as slums, favelas, squatters, and shacks among others. Ignorance or eviction as a strategy to get rid of these settlements by authorities has been consistently criticized. Consequently, authorities have adopted upgrading strategies such as in situ upgrading or relocation of communities to green fields, to counter this challenge.

Informal settlement upgrading processes are complex due to

underlying sociocultural and socioeconomic factors that include heterogeneous ethnicities, religion, high population densities, insecure tenure; low incomes, and inadequate capability of key implementing actors to engage the dwellers (Das, 2015; Koster & Nuijten, 2012; Massey, 2013; Morrison, 2017; Nunbogu et al., 2018). They typically target formalizing land tenure, investing in infrastructure, and setting up basic services and can be either single sector (targeting one service and its related infrastructure such as sanitation) or multisector and often occur per-project basis over a defined period (Núñez Collado & Wang, 2020).

Over time, community participation has been cited as a key factor to achieve better upgrading outcomes (Botes & Van Rensburg, 2000; Cherunya et al., 2020; Lucci et al., 2015; Nop & Thornton, 2020; Patel, 2013). It represents the involvement of stakeholders that are affected by or are interested in a proposed intervention by implementers (Enserink

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et al., 2007). At its interface in upgrading processes, participation comprises the implementers and dwellers who ultimately appropriate the upgrading outcomes. From the dwellers' end, it calls for them to take up more of the activities previously appropriated by outsiders during projects (Chambers, 1994). Often, outside actors ignore the creative and analytical capabilities of residents and perceive participation as a toolkit rather than a process of trust and relationship development during day-to-day interactions among actors (Chambers, 1994; Reed, 2008). To understand disconnects and tensions in participation, we propose to differentiate different actors responsible for upgrading – whom we call providers. More specifically, we aim at specifying whether and how upgrading success depends on the nature of interactions that different providers entertain with the informal settlement dwellers during the upgrading process.

We maintain that despite the large acceptance of the call for participation in development projects, its contribution to upgrading success has been hampered by a simplistic understanding of how and where interactions between dwellers and providers have to be coordinated. We propose to extend this understanding in three important respects: i) participation has to be differentiated according to provider groups in line with the rationalities that they adhere to, the kind of potential conflicts and disconnects that are likely to emerge, and appropriate forms by which needs of dwellers and specific actor groups can be accommodated. ii) We maintain that participation has to be organized across the whole upgrading process and should not be limited to the planning stage, because many needs and opportunities will only emerge during implementation. And iii), we call for a more differentiated view on how the community of dwellers participates and how representation by selected community members is organized.

Different actors share different rationalities and world views while providing key roles during upgrading processes (MacPherson, 2013; Wandersman, 2009). To assess how they engage dwellers while fulfilling these roles, we aggregate them according to different “institutional logics.” Institutional logics represent ways of decision making, goal orientation, and types of exchange relations among actors. They give identity and meaning to the actors (Currie & Guah, 2007; Greenwood et al., 2010; Skelcher & Smith, 2015). Established “ideal type” logics include: the market, the state, the hierarchy, the profession, the community, and the family (Thornton & Ocasio, 2008). Therefore, different actors are aggregated based on the logics that guides the role that they provide during the upgrading process. The resulting aggregation is as follows; a) market providers: contractors, utilities. b) Professional providers: planners, engineers. c) Hierarchical providers: regional and state officials. d) State providers: politicians; and e) Community: dwellers. This aggregation of actors follows stages and heuristics of the configurational theorizing process outlined by Furnari et al. (2020).

Participation manifests differently for each provider and dwellers and will require different capabilities and forms of engagement to accommodate for the different interests and resources of all the actors involved. This is useful as it opens up opportunities for the aggregation of many actors into coherent groups based on the logics that guides the roles they play in upgrading and other kinds of projects.

Success was defined as improvements in infrastructures and services, the capacity to maintain them, and the absence of involuntary displacement of the original residents. It was quantified from an assessment of whether combinations of infrastructures introduced during the upgrading process were delivered in functioning condition as reported by the dwellers and observed by the first author and whether the dwellers effectively used or misused the components in the course of their daily practices knowingly or unknowingly. This quantification is detailed in the *Method* section.

This research contributes to gaps in the literature in two ways. First, it addresses why some actors find it difficult to engage citizens in urban contexts (Nunbogu et al., 2018) and provides a methodology for assessing participation dynamics and their causal relation to project outcomes. This link has been frequently recorded in anecdotal evidence,

which has stressed the need for further complementary studies (Brownill & Parker, 2010; Conrad et al., 2011; Lüthi, 2012). Secondly, it opens a pathway for comparative analysis of activities in informal settlements with particular attention to secondary towns where they are rapidly increasing and very few studies have been conducted (Gulyani et al., 2014; Saharan et al., 2019). A need for comparative approaches and studies in urban studies has been stressed by Ruhlandt et al. (2020).

By demonstrating frictions and discontent among actors emanate from mismatches in institutional logics, this study extends the literature of participation from the formulaic notion of consultation to further ends of actor-rationalities and their capabilities to engage with the community and vice versa. Beyond considering individual interactions, we aim to identify, which combinations of interactions are crucial to explaining success or failure. These insights are in particular relevant to planners as they are often responsible to anticipate and accommodate conflicts among actors and coordinate interactions.

This study qualitatively compares fifteen informal settlements that were upgraded as part of the Kenya informal settlement improvement project (KISIP). Kenya, with 56 % of its population living in informal settlements, was selected as it represents many Global South countries which are establishing strategies to improve the living conditions of informal settlement dwellers (World-Bank, 2014). KISIP program facilitated a rare and valuable naturally-set experiment from which comparable and generalizable insights could be derived. This was a nationwide program conceptualized between 2009 and 2010 and implemented up to 2019 (WorldBank, 2011). This study targeted projects that concentrated on the infrastructural component and service delivery specifically in secondary towns. Participation by settlement dwellers was required by the program during the upgrading process. As a prerequisite for consideration for upgrading, dwellers from each settlement had to mobilize and form committees, so-called settlement executive committees (SEC) who were democratically elected.

Findings indicate that different combinations of collaborating actors can result in successful outcomes in upgrading. Some actors can also overcompensate for conflicts caused by others during implementation leading to either failure or success. The study offers a comparative methodology useful for analyzing different urban processes that require participation globally.

This paper is organized as follows; Section 2 presents a theoretical discussion linking participation to institutional logics. This is followed by an explanation of the study approach and description of data sources and afterward a presentation of results from fuzzy-set QCA. How combinations of interactions lead to success and failure in settlement upgrading is then discussed. In the concluding section, we elaborate on the broader lessons derived from our approach for upgrading in particular, and for other development projects.

2. Linking institutional logics and participation to informal settlement upgrading

In the global south, informal settlements are key areas that urban planners and policy practitioners prioritize. Most cities cannot sustain themselves without them (Dovey & King, 2011). Upgrading them has however been barred by challenges ranging from policies, finances, implementation models, differences in perspectives of actors towards informal settlements as well as poor understanding of informal settlement context (Boonyabanha, 2009; McGranahan, 2015; Morrison, 2017; Sibyan, 2020). Over the last decades, plans and policies have moved away from the eviction of slums towards in situ or place-based upgrading including different financing models. This has been advocated for in a bid to maintain long-term improvements with minimal livelihood disruptions (Henson et al., 2020). Collaborative planning that invokes the necessity to include all stakeholders—participation—in decision making (Gunton & Day, 2003) has proved instrumental in in situ upgrading. It is useful in understanding conflicting values during processes that result in different outcomes (Bjørngen et al., 2021; Innes &

Booher, 2015). Most upgrading projects globally, for instance, the Baan Mankong program in Thailand, Primed in Colombia, and reblocking in South Africa, insist on participation as being a key determinant for success (Betancur, 2007; Lucci et al., 2015; Patel, 2013). However, participation is often restricted to lead actors eliciting community needs at the beginning of the projects only and has missed actors' dynamics that happen during implementation that is often not planned for and which influence project outcomes.

This paper argues that while participation is essential at the initial project stages, it is not sufficient since a lot of dynamics change during the implementation and post-implementation phases of projects, and dweller needs and priorities consequently change (Innes & Booher, 2015). This in turn influences project outcomes. Therefore, participation needs to be planned for and conducted throughout the project as implicitly observed in the Baan Mankong program, and associated roles of each actor need to be outlined (De Geest & De Nys-Ketels, 2019; Lucci et al., 2015). It also has to consider further involvement of different actors, while fulfilling their different roles, with dwellers at different times. Most of the literature on upgrading rarely details how participation manifests for the different actors. For instance, Sibyan (2020) only highlights that conflicts in informal settlement related projects reflect the difference in perspectives between actors including government, private sector, and residents. However, the author does not elaborate how the severity or intensity of each of these perspectives could configure, or which of these are sufficient or necessary for successful upgrading. We draw on recent insights from organizational studies to shed light on where these perspectives come from and how they can be bridged (Thornton & Ocasio, 2008).

Participation is typically organized by delegating the exchange of information to a group of elected community members, who then have to mediate between the community at large and the different provider groups. Depending on the modes of operation of these representatives, communication can be more or less effective. A critical view on issues and representation in participation's information exchange processes is thus essential as outlined by Rigon (2014) to avoid elite capture common in upgrading projects.

Based on the background literature discussed, this section introduces the core concept for this paper based on in-depth literature from participation and institutional logics. The institutional logics perspective is useful to the paper and the larger urban literature as it provides a framework to structure actors into coherent groups following similar rules, norms and rationales. From this perspective, we will furthermore derive a typology of kinds of frictions, mismatches, and challenges that shape interactions between these provider groups and dwellers. The key terms in our explanatory model will then be operationalized.

2.1. Participation

Definitions of participation underscore the existence of interactions between two or more actors or actor groups, as they conduct their roles, in a given context of a project or policy (Jiménez et al., 2019; Narayan-Parker, 1995; Patel, 2013; Stoker, 1997). It intends to get communities to contribute to decision-making and activities that relate to and own projects that affect them. Previous research on upgrading globally has concentrated on the role of participation as either a means to achieve services or an end goal for authorities (Ehebrecht, 2015; Lucci et al., 2015; Lüthi, 2012; Patel, 2013), or the nature of participation in upgrading (Das & Takahashi, 2009). Scholars have also warned of its limitations such as its failure to sufficiently address issues of power and control of information and other resources which are fundamental determinants of social change (Cleaver, 1999) as well as its methodological and technocratic limitations (Mansuri & Rao, 2004).

Despite all the stated studies, there is a dearth of quantitative studies causally linking participation to project outcomes. Only two quantitative studies have elaborated causal links between participation and project outcomes (Narayan-Parker, 1995; Prokopy, 2005), and both are

in rural settings. Most studies offer qualitative evidence of causality. Patel (2013) for instance indicates that community participation was essential for the upgrade of Zwelisha informal settlement in South Africa. Koster and Nuijten (2012) and Walubwa (2010) also offer similar insights in Brazil and Kenya respectively. This is mostly due to the limited opportunities for comparability of informal settlements, the upgrading processes as well as limited methodologies due to few similar projects. QCA methodology as described in this study solves the latter problem by providing a case study and causal analysis methodology for situations where only a small number of cases that are comparable (Rihoux & Ragin, 2009).

In its conceptual form, participation has been widely discussed commencing with Arnstein's (1969) seminal work. Building on Arnstein's typology, Choguill (1996) later modified it to fit in contexts of less developed countries by basing it on the degree of external involvement by planners or the state in terms of facilitating or carrying out community mutual-help projects. Choguill's levels of involvement include the following rungs: Support, manipulation, rejection i.e. conspiracy and self-management. He concludes that outcomes of developmental initiatives may lead to different results, depending on the attitudes of authorities (providers) towards the community. He further perceives the role of participation as a means to influence decision-making. More recent insights show that self-management is characterized by alternative participation through sociopolitical networks or a complete lack of participation (Swapan, 2016). Choguill's work has been adopted in interrogating the role of participation in informal settlement studies such as Davidson et al. (2007), Lizarralde and Massyn (2008), and Patel (2013). Questions about the extent, when, and how participation should be conducted to improve project performance still require further research especially at the interface between different providers and the dwellers.

While conducting their roles, different types of providers exhibit different interests, rationalities, and capabilities, and have to interact with dwellers during upgrading (Botes & Van Rensburg, 2000; Choguill, 1996; García-López, 2019). Participation challenge will therefore look different for each provider and this influences their ability to engage dwellers based on Choguill's rungs. To identify and group different providers with similar orientations, we draw on recent insights from institutional sociology and group them according to generic institutional logics to identify specific challenges that have to be accommodated for by the different actor groups.

2.2. Institutional logics

There is need to understand the rationalities and world views of different actors that perform roles in urban processes. Often they are many thus increasing complexities in analyzing how they relate with end users during processes. Sociology literature has identified a limited number of such rationalities—institutional logics—which are useful in aggregating actors that follow similar rationalities thus unbundling the complexity. Thornton et al. (2012, pp. 2) define institutional logics as 'frames of reference (or value systems) that condition actors' choices for sense-making, the vocabulary they use to motivate action, and their sense of self and identity.' There are limited ideal type logics, which include market logic, state logic, professional logic, hierarchal/corporation logic, religion logic, community logic, or family logic (Thornton & Ocasio, 2008). These logics influence material outcomes. Institutional logics literature could benefit planners due to its deep understanding of the origins of conflicts or disconnects between different actor groups based on their rationalities. Rationalities are deeply embedded in institutional logics (see Quattrone (2015) for a detailed discussion on this).

This field of literature has extensively explained how specific actors draw from institutional logics to legitimize their action, influence outcomes, and how the logics influence actors' actions. As an example for the former, McPherson and Sauder (2013) explain how different drug-

court actors draw from available institutional logics to influence court outcomes. The literature for the latter points out that, motives that actors express, are representations of their institutional logics (Meyer et al., 2014). Currie and Guah's (2007) findings, for instance, indicate that in a healthcare system implementation, the system's success majorly depended not only on the other actors' logics but also on the patients' viewpoint.

Scholars have also explained the dynamics and expectations of coexisting logics. They have shown so far that logics coexist while at the same time exposing points of tension. For example, in individual instances, market logics often conflict (Casciari, 2009) or coexist (Venkataraman et al., 2016) with community logics, professional and hierarchal logics may conflict with community logics (Currie & Guah, 2007; Watson, 2003). In addition politicians (state logic) also influence upgrading processes (Hilgers, 2020; Muchadenyika & Waiswa, 2018).

Drawing from these insights, we front two arguments. First, multiple actors can be aggregated into provider groups based on the similarities in their institutional logics of which it would be expected that they confront similar challenges when interacting with dwellers and their representatives. In the context of settlement upgrading at a project level, we identify the following actors that adhere to different institutional logics during their interactions: i) planners and engineers who mostly follow a professional logic (professional providers). They have a high orientation on technical expertise and quantitative terms of reference. ii) Utilities and contractors who mostly follow a market logic (market providers). They emphasize profits and largely anonymous interactions between suppliers and customers. iii) Politicians who follow a state logic, which focuses on legally backed power and prospects of reelection; and iv) local government officials who are oriented at a hierarchical logic (hierarchical providers) who guarantee that actors are following official regulations. These different institutional logics interact with v) settlement dwellers, who can be subsumed of largely following a community logic (community), where solidarity and mutual help are key for generating livelihoods and dealing with quickly shifting conditions of precarity in their livelihoods.

Secondly, the ability of providers to engage the dwellers (do participation) as they achieve their roles can be derived from the analysis of mismatches between their respective logics. To exemplify these mismatches, the emphasis of market logic resides in documented transaction costs and profit orientation with individual exchange which contradicts community logics where members provide services and resources with the expectation that they will be reciprocated at a future date (Bogaert, 2018; Casciari, 2009). Similarly, perceptions and actions of actors adhering to the professional logic may misalign with community logics. For example, professionals restrict the exchange of data among themselves because they can trust the proper handling and

interpretation of this information (Currie & Guah, 2007). This may however raise trust issues among the community who typically expect transparent disclosure of all the facts or protest when they sense their inputs are not considered (Currie & Guah, 2007; De Geest & De Nys-Ketels, 2019). Hierarchical providers such as regional government officials follow chains of command that often take longer to deliver results contrary to community logic's expectations of instant responses (Burra, 2005). In a similar vein, state providers such as politicians often piggyback on projects as a means and prospect for reelection with the expectation that dwellers adhering to community logic will be passive in projects (Muchadenyika & Waiswa, 2018).

Identifying these points of mismatch is important because it implies that providers will have to tackle different kinds of problems depending on different aspects of an upgrading project and that a blanket approach to participation is likely to miss out on decisive mismatches leading to conflicts and consequent to project failure. Based on this characterization of different interfaces between provider logics and community logics, we may set out for an explanatory model to assess the relevant importance of positive interactions between different providers and the dwellers as illustrated in Fig. 1. Tentative mismatches as discussed in this section are outlined in Table 1.

3. Method

To operationalize the concept developed, a comparative research design was used and a configurational comparative methodology was adopted. A medium-N comparative case study was chosen to analyze the role of providers' interactions with the dwellers in influencing upgrading outcomes (Rihoux & Ragin, 2009; Yin, 2014). QCA can differentiate different combinations of causal conditions that result in similar outcomes (Rihoux, 2006; Schneider & Wagemann, 2012). We applied qualitative comparative analysis (QCA) to fifteen informal settlement upgrading cases in the context of the Kenya informal settlement upgrading project (KISIP) to gather insights on how provider-dweller interactions combine to influence upgrading outcomes.

The cases included were comparable since their upgrading process context was coherently governed by structures informed by the KISIP Program, which included community representatives, were located in secondary towns in Kenya, were upgraded with relatively similar basic infrastructure and processes but had different outcomes. The cases were also implemented at similar timelines with the consideration of dwellers and in different settlements between 2010 and 2019. The process strived to follow best practices from local and international experiences. All the settlements fitted in UN-Habitat's (2016) definition of slums. Similar upgrading processes and informal settlements such as the ones highlighted in this paper are common globally and include upgrading of

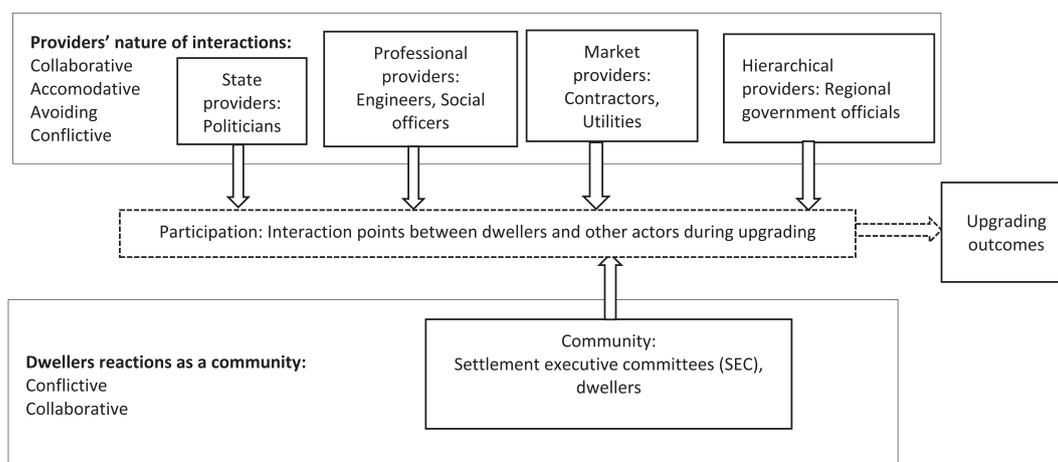


Fig. 1. Conceptualization of interactions of actors during informal settlement upgrading processes based on their institutional logics.

Table 1
Potential points of conflict between institutional logics of providers and communities.

	Provider groups based on logic			
	Market providers	Hierarchical providers	State providers	Professional providers
Potential reasons for mismatch with extant community logic (community)	Emphasis on reducing transaction costs, recouping investments, or maximizing profits	Rigidity due to path-dependent procedures and inflexible standards	Driven by personal interest and reelection prospects	Alienation by diction and hoarding of technical information
Typical mismatches with community logics	Unaffordable prices for goods and services Unmanageable payment modalities Poor wages for residents	Slow and inefficient decision-making processes for urgent needs contrary to community expectations	Actions that appease a few to save face but do not transfer overall benefits to the whole community	Mistrust due to limited access to information by the community Poor engagement strategies
Typical actors under this actor group	Contractors, utilities	State officials, regional government officials	Local and regional politicians	Engineers, planners, social workers

Recife's Prometrópole settlement in Brazil (Koster & Nuijten, 2012), reblocking in informal settlements in South Africa (Basson, 2019) among others. This comparative approach is in line with urban comparative studies, which allow comparison of different urban contexts with similar interventions and strategies to a common challenge (McFarlane & Robinson, 2012; Saharan et al., 2019).

Data sources for this study included sixty key informant interviews (see Appendix 7), observations from field visits to each settlement, at least two project reports for each case, and grey literature specific for each case. The first author conducted fieldwork between October 2019 to January 2020 and sought consent from all interviewees as well as research permits from local authorities in Kenya. Questions for the interviews sought to reconstruct the upgrading process as well as understand the outcomes from the perspective of the SECs (Settlement Executive Committee members) who were also dwellers, and selected government officials that were involved throughout the upgrading. We interviewed SECS, county coordinators, national office officials, World Bank officials, and village elders.

The interviews and field notes from observations were transcribed and analyzed in two phases. The first phase involved the use of Nvivo (2012) to deductively code themes that aligned with potential provider-dweller interactions for each actor and the upgrading outcomes for each case. This was guided by the conceptualization described in Section 2. The coding structure for each settlement is presented in Appendix 6. The coding results were then developed into a framework matrix and summaries for interactions and outcomes were developed. The second phase used fuzzy-set Qualitative comparative analysis software (FSQCA) (Ragin et al., 2006) and followed the procedure recommended by Rihoux and Ragin (2009) and Legewie (2013).

FSQCA was selected due to its focus on cases and their contexts and is useful for causal analysis (Schneider & Wagemann, 2012). It contrasts statistical methods such as regression analysis since it does not assume symmetry in causality (Goertz & Mahoney, 2012) and operationalizes qualitative set relations rather than correlations (Schneider & Wagemann, 2012). It also accommodates for analysis of studies with relatively few cases and can inform different causal paths to a result, usually referred to as *outcome*, since causal factors, usually called *conditions*, act in combinations. A phenomenon referred to as multiple conjunctural causations (Schneider & Wagemann, 2012). This method has recently gained traction and recommendation in urban studies due to the advantages highlighted (Ruhlandt, 2018; Ruhlandt et al., 2020). QCA informs both necessary and sufficient conditions for a given outcome. Necessary conditions are those conditions that must be present for an outcome to be achieved but their presence does not necessarily guarantee the outcome while sufficient conditions constitute subsets of the outcome and their presence always produces the outcome (Rihoux & Ragin, 2009). Models of both necessary and sufficient conditions are assessed using consistency and coverage scores. Consistency scores express the degree to which a given condition is a subset or superset of the outcome while the coverage score provides a numeric expression for the

empirical importance of a given condition (or a combination thereof) for producing an outcome (i.e. how much of the outcome is explained by the conditions in question (Schneider & Wagemann, 2012).

The FSQCA procedure proceeded along the following steps. The framework matrix from the first phase of analysis was calibrated and a set membership table was developed and is presented in Appendix 1. The calibration procedure is a key process for QCA. Therefore, a detailed procedure for the calibration and a sample case are provided in the section that follows. The set inclusion table was imported to FSQCA and two truth tables for successful and unsuccessful upgrading outcomes were generated. Truth tables facilitate investigation of relations between sets of cases that share a combination of conditions on the one hand and the set of cases with the outcome on the other (Schneider & Wagemann, 2012). Consistency cut-off points of 0.8 were used and a logical minimization process was conducted to generate results for the analysis. During the logical minimization process of the truth tables for both success and failure solutions, prime implicants¹ that contained the market condition were selected. Prime implicants are the most reduced forms of combinations of conditions that when present lead to an outcome. The market condition was chosen based on substantive knowledge in the cases and theory that market logic has a significant influence on upgrading processes since dwellers have low incomes. Other choices of prime implicants resulted in similar solutions. We present the full list of prime implicants in Appendix 4 and complex and parsimonious solutions for the explanatory models in Appendix 3. The robustness of the models was assessed by adjusting the cut-off frequencies for the success model to 0.7 and 0.9.

3.1. Calibration of conditions and outcome

Provider-dweller interactions were the primary conditions that were examined, understood as representations of participative actions by different provider groups and the dwellers. They are represented by salient interactions of provider groups (market, hierarchal, state, and professional) with the dwellers (Community) during the upgrading process. We noted but ignored providers whose nature of interactions with dwellers were constant — for example the overall coordinating team and the social workers were always collaborative — since they would not affect the model. The providers considered in the analysis were politicians, engineers, county officials, dwellers, and market providers (i.e., contractors and water utilities aggregated). Where more than one actor adhered to the same logic, the nature of their actions was

¹ Prime implicants refer to the resultant products of logical minimization process of the truth table through pairwise comparison of *sufficient term* or *path* which combines several conditions by a *logical AND* (Schneider & Wagemann, 2012).

aggregated with a *Logical OR* function² as was the case for the market logic providers. This implied that we took a lenient approach to assess collaboration with market actors. The aggregation was only done if any of the providers exhibited varying interactions case-wise.

The nature of interactions was coded as either conflictive, avoiding, accommodative, or collaborative for provider groups, while the reaction of the dwellers was coded as either conflictive or collaborative. We employed a fuzzy scale with values between 0 and 1 to indicate sets of fully conflictive and fully collaborative interactions respectively. Additional cutoff points of 0.33 and 0.66 were used to qualitatively denote actions that were avoidant thus tending towards conflictive, and accommodative which tended towards collaborative respectively. A cross-over point of 0.5 was used implying that at this point, a case was as much conflictive as it was collaborative (Cooper & Glaesser, 2016). None of the cases in our study had this characteristic Conflictive (0) and avoiding (0.33) actions misalign with the community's expectations whereas accommodative (0.66) and collaborative (1) actions align. The community condition was coded as either conflictive (0) or collaborative (1). We present the set membership table in Appendix 1 and summarize the operationalization and calibration of conditions in Table 2.

Three to seven different project components of the outcome -i.e. water, sewer, roads, streetlights, ablution blocks, drainage, and foot-paths- were implemented in each given settlement. Each component was assessed depending on whether it was delivered to the community in a working or accessible status or not, and whether it was being used by the community for the intended purpose that it was built for or not. The assessment was conducted through in situ observations by the first author in all the settlements combined with interviews with community representatives. If it was doing both, it was assigned a score of 1, and if it did not fulfill either it was assigned a score of 0. If it was delivered in working status but not used for the intended purpose or not used at all, it was assigned a score of 0.33 since it was considered not to serve the immediate need of the community and thus found alternative use or misuse. Furthermore, if the infrastructure was delivered in a poor working status but serving the intended purpose, it was assigned a score of 0.66. A higher score in the latter implies that disruption in changing the community's obdurate practices is not necessary. This resulted in individual scores for each component in the settlement.

The mean of the components scores per settlement was calculated to give an aggregated figure, which ranged from 0 to 1. Qualitatively, the outcome of upgrading was better as the score tended towards 1. This resulted in fifteen outcome scores for the fifteen settlements which ranged between 0.17 and 0.76 as presented in Appendix 1. The 75th, 50th, and 25th percentiles of these outcome scores were selected as cut-off points for QCA calibration for fully in, crossover, and fully out respectively for use as inputs in the QCA models. The values were 0.64, 0.52 and 0.47 respectively.³ This also aligned with the authors' assessment of the cases qualitatively. A partially similar procedure was used by Chappin et al. (2015).

Using the case of Kihoto settlement to demonstrate the calibration process; the market provider's interactions were assigned 1. Despite the contractors 0 calibration due to conflictive interactions for example, failing to employ locally, delayed payments after they were forced to employ, and ignoring SEC. The utility delivered water to newly connected households at affordable prices thus a score of 1. The overall aggregation using the *Logical or* function thus was 1. Hierarchical

provider's interactions were assigned 0.33 because they largely avoided the upgrading process due to lack of incentive. Residents had even opted to develop ways of collecting their waste as well as unclog drains by themselves since county officials were not reliable. Professional provider's interactions were assigned 0.33. Their availability was very limited when the SEC direly needed them to resolve challenges. Despite their more accommodative infrastructure designs on one end and laxity in supervision which was conflictive in itself, we assigned them this value since their avoidance resulted in protests and undermining of SECs by dwellers. State provider's interactions were assigned 0 as most of their actions were conflictive. For instance, each new politician after elections had interests in replacing SEC with people that helped them in campaigns leading to consistent power struggles. The community reactions to the upgrading were assigned 0 because, in several instances, they protested the upgrading process overriding set communication channels via the SEC.

To calibrate the outcome, five components were implemented in Kihoto. Drainage was assigned 0 because it was not functioning after completion and dwellers were dumping waste into it, floodlights, foot-paths, and roads were assigned 1 because they were delivered in a functioning state and were being used appropriately by the dwellers. Water supply was assigned 0.66 because the few dwellers already connected, received water at sufficient quantity and time. The overall score for the outcome for Kihoto was 0.73.

4. Results

4.1. Necessary and sufficient interactions (conditions) for successful upgrading outcomes

The consistency and coverage scores for the five conditions (Providers interactions and community) reveal that none of the provider groups' salient interactions can be considered a necessary condition for successful upgrading (see Appendix 8). All the consistency scores of the conditions are below 0.9 (Legewie, 2013) implying that none of them is necessary for successful upgrading.

Analysis of sufficiency resulted in three pathways of provider-dweller interactions that result in success and two that do not result in success for the upgrading process. These results were based on truth tables that detailed 32 possible configurations (of provider-dweller interactions) that result in either a successful and unsuccessful upgrading for each solution. A logical minimization process resulted in an intermediate solution presented in Tables 3 and 4. The intermediate solution, which we discuss, takes into account logical remainders in line with theoretical expectations during minimization. In both instances, our theoretical expectations were that successful outcomes were associated with the collaborative market and collaborative community causal conditions and set the rest of the conditions to contribute to success whether interactions were collaborative or not.

Generally acceptable consistency cut-offs of 0.8 for the successful and unsuccessful models were used. 12 out of the 32 configurations were matched with the empirical evidence while the rest were logical remainders for both models. The truth table with the 12 configurations is presented in Appendix 2. Tables 3 and 4 illustrate the intermediate solutions for successful and unsuccessful upgrading outcomes respectively.

The consistency of the successful solution was 0.97 implying that the solution was 97 % consistent with empirical evidence and coverage of 0.81 implying that the solution covers 81 % of the empirically observed variation. In this solution, three causal combinations are observed. First, collaborative markets and collaborative professional providers in the context of a collaborative community are sufficient for a successful upgrading. Secondly, collaborative professional providers in a collaborative community during upgrading overcompensate for conflictive hierarchical and conflictive state providers as depicted by the second pathway. Lastly, collaborative market providers overcompensate for conflictive provider groups i.e. hierarchical, professional, and state and

² 'Creates the union between two or more sets. Membership of cases in the union is determined by their maximum value across these sets.' (Schneider & Wagemann, 2012).

³ Fully in implies that all cases that scored a value equal or greater than 0.64 were successful, those that scored 0.52 but less than 0.64 were relatively less successful. In contrast, those that scored less than 0.52 but equal or greater than 0.47 were much less successful but performed better than those that scored below 0.47 which were least successful.

Table 2
 Descriptions and calibration of conditions, that were used to develop set inclusion tables for use in Fuzzy-set QCA.

Conditions References	Set definition Expectation	Actors based on logic	Calibration for fully out (0.00)	Calibration for more out than in (0.33)	Calibration for more in than out (0.66)	Calibration for fully in (1.00)
Market interactions (Venkataraman et al., 2016), (Watson, 2009), (Currie & Guah, 2007)	Interactions that follow a market logic (market providers), which emphasizes profits and largely anonymous interactions between suppliers and customers High collaboration is sufficient for upgrading success	Utilities, contractors	Salient instances where providers were not collaborative at all and forced their way on the dweller most of the time and in a conflictive manner during the upgrading process.	Salient instances where providers just avoided dweller concerns, interactions, and confrontations and proceeded with their work during the upgrading process	Salient instances where providers accommodated the dwellers' views during the upgrading process	Salient instances where providers fully engaged and collaborated with the dwellers and altered the project based on dwellers' needs while maintaining cordial relations
Hierarchical interactions (Currie & Guah, 2007), (Watson, 2003)	Interactions that follow a hierarchical logic, under which they have to guarantee that actors are following official regulations.	County government officials				
Professional providers (Currie & Guah, 2007)	Interactions that follow a professional logic, with a high orientation on technical expertise and quantitative terms of reference	Engineers, social officers, planners				
State interactions (Muchadenyika & Waiswa, 2018), (Hilgers, 2020)	Interactions that follow a state logic, which focuses on legally backed power and prospects of reelection and leadership appointments	Politicians				
Community interactions (Currie & Guah, 2007), (Venkataraman et al., 2016; Watson, 2003), (Casciarri, 2009), (De Geest & De Nys-Ketels, 2019)	Interactions that largely follow a community logic (community), where solidarity and mutual help are key for generating livelihoods and dealing with quickly shifting conditions of precarity. Collaborative communities are sufficient for successful upgrading	Dwellers	Instances where dwellers react aggressively and bypass laid down channels if they feel that the SEC i) does not represent their interests, ii) does not effectively function anymore or iii) if SEC is rendered powerless due to providers' actions that severely threaten dweller livelihoods or disrupt their communities.	Not applicable	Not applicable	Instances dwellers to remain collaborative about upgrading projects and follow the laid down communication channels of reporting challenges associated with the project through community representatives (Settlement executive committees - SEC).
Outcome	Set definition	Typical projects implemented as a package	Calibration for fully out (less than 0.47)	Calibration for more out than in (greater than 0.47 but less than 0.52)	Calibration for more in than out (greater than 0.52 but less than 0.64)	Calibration for fully in (scores greater than 0.64)
Successful upgrading	Infrastructure delivered to the community in working status and being used by the community for the intended purpose that it was built for.	Ablution blocks, sewer rehabilitation, roads, footpaths, security lights, drainage	Mostly used for the wrong purpose and not delivered in acceptable working status	Mostly delivered in working status but not used for the intended purpose or not used at all	Mostly delivered in a poor working status but serving the intended purpose	Mostly used for the intended purpose and delivered in acceptable working status

Table 3
Combinations of conditions that result to successful upgrading outcomes.

Causal combinations of conditions	Cases: informal settlements	Raw coverage	Unique coverage	Consistency
1. Market*Community*Professionals	Mkomani, Jomvu Kuu, Kariobangi, Kamere	0.51	0.42	0.95
2. ~Hierarchical*Community*~State*Professional	Karagita, Kamere	0.18	0.09	1
3. ~Hierarchical*Market*~State*~Professional	Rhoda, Kihoto	0.22	0.22	0.99
Solution coverage		0.81		
Solution consistency		0.97		
consistency cutoff		0.80		

Note: The symbols * and ~ represent an AND combination, and absence of that condition respectively. The numbers represents proportions of a whole.

Table 4
Combinations of conditions that lead to unsuccessful upgrading outcomes.

Causal combinations of conditions	Cases: informal settlements	Raw coverage	Unique coverage	Consistency
1. ~Hierarchical*~Market*~Professional	Kamukunji, Gilani, Ziwa la Ng'ombe, Munyaka,	0.52	0.34	0.97
2. State*~Professional*~Market	Kaptembwa, Jomvu Mikanjuni, Gilani	0.45	0.27	0.92
Solution coverage		0.79		
Solution consistency		0.93		
consistency cutoff		0.80		

Note: The symbols * and ~ represent an AND combination, and absence of that condition respectively. The numbers represents proportions of a whole.

are sufficient for successful upgrading.

The unsuccessful solution had a consistency of 0.93 and coverage of 0.79. The first pathway of the failure solution reveals that combinations of conflictive market, conflictive professional, and conflictive hierarchical providers are sufficient for unsuccessful upgrading outcomes. The second pathway presents a combination of conflictive professional, conflictive markets overcompensate for collaborative state providers and are sufficient for unsuccessful upgrading outcomes. The results of the robustness assessment for the analysis did not deviate from the models reported and corresponded with the first success path and are presented in Appendix 5.

Three main aspects summarize the different causal combinations sufficient for successful or unsuccessful upgrading outcomes observed. i) Collaborative participation pathways that explore sufficient conditions for success as a result of a combination of collaborative providers i.e. professional, community, and market, ii) Complex participation pathways that unbundle complexities of provider-dweller interactions by showing the ability of some interactions to overcompensate others consequently being sufficient for outcomes and lastly, iii) Conflictive participation pathways that are sufficient for failure. We briefly illustrate these pathways in this section quoting expressions from interviews. For ease of understanding, we refer to the providers directly in our explication.

4.1.1. Collaborative participation pathway

A combination of collaborative market providers, professional providers, and community during upgrading is sufficient for successful outcomes. Using Kariobangi settlement case, the water utility lowered their tariff at the immediate post-implementation phase facilitating affordable access to water at a shorter distance. Contractors on the other hand employed local labor throughout the project and were willing to collaborate with the SEC from the onset and throughout the upgrading process. Dwellers interviewed reported how smoothly issues were resolved during the implementation phase.

We discussed with the contractors about employment and they agreed to employ locally especially for jobs that were not very technical ... The contractors responded positively about that and the residents were employed and we sorted that issue.⁴

Most issues were handled. They never went unresolved since the upgrading was ongoing. Grievances were resolved there and then once you complain early enough.⁵

The scenario was similar in the Jomvu Kuu settlement where the water utility allowed for flexible payments of connection fees when the residents requested it. This motivated more residents to install household connections.

We were told it would cost KSh 10,000, to be connected ... if you do not have the amount you pay in installments. You do not pay it all, just a bit, you are connected and then you will finish the balance later.⁶

Additionally, the engineers supervising the construction works as well as the contractor enjoyed cordial relationships with the residents. The engineers further allowed for flexible road designs and implementation works ran smoothly as one resident reported,

There was none [challenge], only these roads, they wanted to make bigger ones but we complained [because of space] ... We agreed with the contractor as per our desire...there was no time we stopped the construction work, because of conflict with the contractor everything went well. He was not rude, he understood.⁷

The SEC relayed all dweller issues as expected and the providers were collaborative throughout the process. This configuration presented a recipe for successful outcomes with projects such as Kariobangi scoring the highest (0.76 out of a possible 1). The collaborative actions by the contractors and the engineers had been outlined in the project preparation reports and reported after relocation action plans which detailed the expected conduct of these actors during the upgrading period (MLHUD, 2014a,c).

4.1.2. Complex participation pathways

Using the second causal combination as an example. Collaborative engineers overcompensate for conflictive county officials and are sufficient for success in collaborative communities. Similar to the collaborative participation pathway, in Karagita and Kamere settlements, the

⁵ Interview, Second Kariobangi settlement dweller, October 2019–January 2020.

⁶ Interview, First Jomvu Kuu Settlement dweller, October 2019–January 2020.

⁷ Interview, Second Jomvu Kuu Settlement dweller, October 2019–January 2020.

⁴ Interview, First Kariobangi Settlement dweller, October 2019–January 2020.

SECs were able to counter conflictive political actions. The community had also established ways of filling gaps as a result of county officials suboptimally performing their duties. The residents interviewed did not report any conflicts during their interactions between the engineers and the residents in the two settlements.

In Karagita for example, one resident narrated how they stood their ground despite political interests and influences by local politicians,

For example, from the time we were elected [by the community] 8 years ago, the member of the county assembly who was there is not the one present now. The one who was there at the time the project was initiated knew the rules but the present one did not. When he was elected, he aggressively pushed to replace the committee [SEC] with people of his choice. We knew it was impossible because the project was not politically related. We had issues before he agreed to work with this committee and it took time but he eventually had to work with us. The challenge was that some people who earlier campaigned for him wanted our positions ... He had to work with us because he realized that he had no powers over the committee members.⁸

The failure of county officials to collect garbage prompted the community to organize themselves and develop a per plot garbage collection system. One resident narrated how this system works countering the nonexistent government garbage collection in Karagita in turn reducing solid waste that may otherwise end up deposited on infrastructure. There is also some early evidence of this practice when the upgrading commenced in 2013 with about 17 % of the residents reporting having a garbage collection system (MLHUD, 2014b).

... we have private projects that charge for and collect the garbage on Wednesday... and on Friday ... You pay Ksh1000, per residential plot, and they collect for four days per month ... so it depends if there are other caretakers... but those who carry the garbage do not charge per tenant, they charge per residential plot.⁹

SECs played a major role in ensuring that they relayed dweller issues promptly and stood their ground in instances where their authority was questioned. This combined with engineers who designed in consideration to existing spaces overcompensated for any other noncollaborative providers. The result of this path was relatively successful upgrading outcomes, 58 % and 73 % in Karagita and Kamere respectively. The third success causal combination and the second unsuccessful causal combination also display similar overcompensation characteristics by some interactions to either lead to success or failure.

4.1.3. Conflictive participation pathways

The first unsuccessful causal combination reinforces the hypothesis that missing collaborative interactions result in unsuccessful outcomes. In the case of Munyaka settlements, dweller priorities were completely overlooked. For example, engineers designed for ablution blocks while residents had prioritized a sewer line, refused to offer platforms where SECs could ask questions, and cut off SECs as soon as they gained entry into the settlement. Similarly, contractors failed to employ locally, closed out SECs from technical meetings, and constructed where it was convenient for them as opposed to where dwellers wanted. Most SEC members withdrew during the implementation phase as they claimed that they “were used as rubberstamps” just for providers to find a way into the settlement. The community just ignored the providers as they went on with their work as it did not significantly disrupt their livelihoods. This resulted in projects that performed dismally, based on our assessment, with scores as low as 0.17 out of a possible 1.

⁸ Interview, First Karagita Settlement dweller-SEC, October 2019–January 2020.

⁹ Interview, Second Karagita settlement dweller-Elder, October 2019–January 2020.

5. Discussion

Our starting hypothesis was that collaborative interactions between providers and dwellers are decisive for successful upgrading outcomes. However, from practice, consistently collaborative interactions for all providers are seldom present, very few upgrading projects have been fully successful and fewer have scaled beyond pilots. Our results affirm that it is not only the presence of collaboration in provider-dweller interactions that is sufficient for successful upgrading outcomes, other combinations of provider-dweller interactions can also overcompensate for each other and result in success. This aligns with Kiefer and Ranganathan's (2018) upgrading study in Cape Town whose findings demonstrate that some upgrading projects succeed due to productive tension among actors and Sibyan's (2020) upgrading cases in Turkey and Indonesia which attribute failure to conflicting perspectives of actors. In this section, we extend their findings by demonstrating how the actor interactions combine in our analysis.

Conjointly interpreting the first success causal combination and the first unsuccessful causal combination, collaboration with dwellers is important for providers to lead to successful upgrading outcomes. Failure to collaborate results in unsuccessful outcomes. This strongly resonates with the urge for transparent and meaningful participation of the settlement community, which has been emphasized in much of the literature on participation (Patel, 2013). However, we extend this insight in two important respects: first, we demonstrate that participation means different things to different actors. Each provider group needs a specific approach to align with the needs and preferences of the local community. Second, participation should not be limited to a one-shot intervention but needs to be enacted over the full cycle of upgrading projects by all actors. This insight speaks in particular against a dominant technocratic approach to upgrading primarily following a professional logic of engineers and planners highlighted in other places such as Morocco (Bogaert, 2018). Similar findings are recorded in Thailand's Baan Mankong program, where community representatives are also part of the program's implementing agency's board. Similarly in Mumbai's community toilets, where designs took into account the specific needs of women and children and the payment systems and ensured that all could afford thus complementing their livelihood contexts (Lucci et al., 2015). Other studies such as Patel (2013) also implicitly posit this.

The two configurations i.e. first and second success causal combinations suggest that collaborative professionals, represented by engineers, play a key role in ensuring successful outcomes during upgrading; their actions may overcompensate for conflictive politicians in contexts of collaborative communities. Lack of success on the other hand is almost an immediate consequence of conflictive interactions with market actors and engineers as observed in the unsuccessful paths. Sibyan (2020) reports a similar finding but their study does not analyze how these actors' perspectives configure to result in different outcomes. A major reason for engineers' poor interactions with communities lies in the presumption that settlement dwellers do not understand key technical information nor provide meaningful technical recommendations during the upgrading process. This resonates with Chambers (1994) views on how professionals lack capabilities to enable local people to express, share and extend their knowledge. This view is essentially congruent with the “exchange of knowledge” rationale that we associated with the conventional view on participation in the introductory section. As we can illustrate with our analysis, this view is too narrow, as it is the dwellers that negotiate the settlements daily.

Failure to realign designs and service offerings to the needs of settlement dwellers was often explained by engineers to the SEC simply as the “logical thing to do” technologically or resource-wise. This was very difficult for the SEC to relay to the rest of the community since most of the SECs never got access to bills of quantities. Neither were they included in technical meetings where changes in projects' scopes were initiated. This attitude often resulted in conflictive interactions with the consequence that dwellers started to not accept or even started to

vandalize the offerings and infrastructures. In turn, these actions led to even more strained relationships since communities often interpret them negatively, bordering on corruption allegations. For instance, they did not understand why they could not access information for a project being implemented in their settlement for their benefit. Other times, the new infrastructures and service offerings misalign with their livelihood strategies. Different professional disciplines are gradually noticing this challenge and are recommending a better understanding of informal settlements (Dovey, 2013). One SEC lamented on reasons concerning this;

...they [providers] never involved anybody in their technical meetings, at one point we had to stop the project for a while... when we asked to see those BQ's [Bill of quantities] they were very angry, they were even closing doors when in those meetings, it brought a lot of conflicts that even caused, demonstrations by the community ... the road was ours, what's the problem showing us these details even if we don't have the knowhow?¹⁰

This committee was just to blind the people, I was there I saw it. People who came from Nairobi [KISIP] had very good intentions but people who were left behind (other providers) are the ones to blame.¹¹

Collaborative market providers' interactions with the dwellers also feature prominently in two out of the three success pathways and in the failure model. This suggests that configurations that involve collaborative market actors play a key role in enabling the success of upgrading processes. This is especially due to their capacity to overcompensate for non-collaborative engineers, county officials, and politicians' interactions during upgrading even in conflictive communities as demonstrated in the third success path.

Market actors are largely guided by profits, reducing transaction costs, and the ability of consumers to pay for services offered. However, in uncertain socioeconomic conditions such as informal settlements, innovative ways of providing offerings are essential to cater to the poor who cannot afford the services often because of high initial charges or rigid payment modes. Often water utilities approach informal settlements residents with similar tariffs to those of other residents who are better off. Consequently, these results in unserved residents who either do not connect to the pipe networks installed or are later disconnected since they are unable to pay bills, as is the case of settlements such as Swahili. An additional reason observed is a lack of incentive to connect in Gilani settlement since there was an already existing sewer. Failure due to non-collaborative market logics have also been observed elsewhere in the literature (McGranahan, 2015; Sibyan, 2020). Other market actions that distorted relationships between market actors and dwellers included contractors who failed to pay workers or pay them below expected wages, employing from outside the settlement to avoid retraining, using substandard materials, or generally avoiding inquiries from the residents. All these actions in one way or another reduce direct or overhead project implementation costs. This favors contractors at the expense of the dwellers.

The SECs played a pivotal role in coordinating activities initiated by the different actor groups. This is visible from the presence of collaborative communities in two out of the three success paths. They were however constrained by lack of or poor facilitation, declined community trust, lack of capacity in conflict resolution, being directly sidelined by some providers, having to deal with unfulfilled promises and tokenistic tendencies by different provider groups. While they could manage to handle some challenges and relay them through set communication channels, they often withdrew back to the community creating voids in the communication channels when the pressure became too much.

Consequently, these voids escalated to protests by the dwellers in some settlements. Such instances have been observed in other upgrading projects especially in India and elsewhere (De Geest & De Nys-Ketels, 2019; Nuijten et al., 2012).

Theoretically, collaborative market logic appeared to overcompensate (at least under certain conditions) for non-collaborative hierarchical logic, state logic, and professional logic to lead to success in the third success pathway. This is a contribution to theory as it suggests that success can be achieved when different provider groups' logics align with community logics. Therefore, providers must develop capabilities that improve their ability to bridge to the community logic where they anticipate implementing projects. This echoes and extends recent and similar evidence of the capability of bridging logics by different actors to achieve different outcomes (Dovey, 2013; Venkataraman et al., 2016). It extends this by demonstrating how these capabilities are different for an environment with more than two logics at play and how the inability to acquire them influences material outcomes.

6. Conclusion

The objective of this paper was to establish how constellations of participation, perceived as the totality of interactions between different providers and dwellers, combine and impact the outcomes of informal settlement upgrading processes. Our sample enables us to draw implications both at the practical level for informal settlements, conceptual and methodological levels for urban studies, and other disciplines.

Based on the findings of this study, we outline four key policy recommendations. First, participation as often described in practice, as planners consulting or informing the community, and as the involvement of communities in prioritization of solutions only at the initial stages does not always guarantee successful project outcomes. Rather, in practice, participation requires to be extended further to both implementation and post-implementation stages and should be perceived in terms of interactions by multiple actors guided by distinct norms, values and codes of operation and not just limited to planners to guarantee positive outcomes. Secondly, a combination of collaborative interactions by market and professional providers, and collaborative communities is important and sufficient to lead to successful upgrading outcomes. This is a strong lesson against technocratic project implementation. Third, successful upgrading outcomes may be achieved by different provider-dweller configurations. Lastly, while settlement representatives play a key role in upgrading, it is key to understand their associated challenges and capabilities as well as the backing they maintain from the dwellers throughout the process. These are key traits that planners in charge of selecting some of the providers should look out for.

Conceptually, we link participation to institutional logics, which systematically enables aggregating different actor types based on specifying optimal ways for participation as they conduct their roles. We demonstrate that a differentiated view on how to combine provider logics with community logics influences material outcomes of upgrading projects. This is useful in stakeholder analysis exercises that are essential in urban projects and beyond. We suggest further research on how different actor groups could build capabilities to bridge their rationalities and expectations with those of settlement dwellers. However, our approach is limited in terms of temporal sequences of events, and therefore process tracing studies could provide additional insight into success conditions specific to upgrading projects.

Finally, we offer methodological insights informed by the use of QCA and the structuration of actors for upgrading and other programs. This is useful in larger urban initiatives that comprise many actors as demonstrated by (Kotus, 2013) and is not limited to the global south. This approach has the potential to transform how monitoring and evaluation for participatory processes are conducted by systemizing it in upgrading and developmental projects.

¹⁰ Interview, Gilani Settlement dweller-SEC, October 2019–January 2020.

¹¹ Interview, Munyaka Settlement dweller-SEC, October 2019–January 2020.

CRedit authorship contribution statement

George Kiambuthi Wainaina: Conceptualization, Methodology, Software, Writing – original draft. **Bernhard Truffer:** Supervision, Conceptualization, Methodology, Validation, Writing – review & editing. **Christoph Lüthi:** Supervision, Conceptualization, Writing – review & editing.

Declaration of competing interest

None.

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Appendix A. Supplementary data

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References

- Arnstein, S. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216–224.
- Baker, J. L. (2008). *Urban poverty: A global view*. The World Bank. <http://documents.worldbank.org/curated/en/954511468315832363/Urban-poverty-a-global-view>.
- Basson, A. (2019). *Analysing the application of “reblocking” of informal settlements in the city of Ekurhuleni*.
- Betancur, J. J. (2007). Approaches to the regularization of informal settlements: The case of primed in Medellín, Colombia. *Global Urban Development*, 3(1), 1–15.
- Björge, A., Fosheim, K., & Macharis, C. (2021). How to build stakeholder participation in collaborative urban freight planning. *Cities*, 112, Article 103149.
- Bogaert, K. (2018). *Globalized authoritarianism: Megaprojects, slums, and class relations in Urban Morocco*. U of Minnesota Press.
- Boonyabanha, S. (2009). Land for housing the Poor—by the poor: Experiences from the Baan Mankong Nationwide slum upgrading programme in Thailand. *Environment Urbanization*, 21(2), 309–329.
- Botes, L., & Van Rensburg, D. (2000). Community participation in development: Nine plagues and twelve commandments. *Community Development Journal*, 35(1), 41–58.
- Brownill, S., & Parker, G. (2010). Why bother with good works? The relevance of public participation (S) in planning in a post-collaborative era. *Planning Practice & Research*, 25(3), 275–282.
- Burra, S. (2005). Towards a pro-poor framework for slum upgrading in Mumbai, India. *Environment and Urbanization*, 17(1), 67–88.
- Casciarri, B. (2009). Between market logic and communal practices: Pastoral nomad groups and globalization in contemporary Sudan (case studies from central and Western Sudan). *Nomadic Peoples*, 13(1), 69–91.
- Chambers, R. (1994). The origins and practice of participatory rural appraisal. *World Development*, 22(7), 953–969.
- Chappin, M. M., Cambre, B., Vermeulen, P. A., & Lozano, R. (2015). Internalizing sustainable practices: A configurational approach on sustainable Forest Management of the Dutch Wood Trade and Timber Industry. *Journal of Cleaner Production*, 107, 760–774.
- Cherunya, P. C., Ahlborg, H., & Truffer, B. (2020). Anchoring innovations in oscillating domestic spaces: Why sanitation service offerings fail in informal settlements. *Research Policy*, 49(1), Article 103841.
- Choguill, M. B. G. (1996). A ladder of community participation for underdeveloped countries. *Habitat International*, 20(3), 431–444.
- Cleaver, F. (1999). Paradoxes of participation: Questioning participatory approaches to development. *Journal of International Development: The Journal of the Development Studies Association*, 11(4), 597–612.
- Conrad, E., Cassar, L. F., Christie, M., & Fazey, I. (2011). Hearing but not listening? A participatory assessment of public participation in planning. *Environment Planning C: Government and Policy*, 29(5), 761–782.
- Cooper, B., & Glaesser, J. (2016). Exploring the robustness of set theoretic findings from a large N fsqca: An illustration from the sociology of education. *International Journal of Social Research Methodology*, 19(4), 445–459.
- Currie, W. L., & Guah, M. W. (2007). Conflicting institutional logics: A National Programme for it in the organisational field of healthcare. *Journal of Information Technology*, 22(3), 235–247.
- Das, A. K., & Takahashi, L. (2009). Evolving institutional arrangements, scaling up, and sustainability: Emerging issues in participatory slum upgrading in Ahmedabad, India. *Journal of Planning Education Research*, 29(2), 213–232.
- Das, P. (2015). The urban sanitation conundrum: What can community-managed programmes in India Unravel? *Environment and Urbanization*, 27(2), 505–524.
- Davidson, C. H., Johnson, C., Lizarralde, G., Dikmen, N., & Sliwinski, A. (2007). Truths and myths about community participation in post-disaster housing projects. *Habitat International*, 31(1), 100–115.
- De Geest, F., & De Nys-Ketels, S. (2019). Everyday resistance: Exposing the complexities of participatory slum-upgrading projects in Nagpur. *Housing Studies*, 34(10), 1673–1689.
- Dovey, K. (2013). Informalising architecture: The challenge of informal settlements. *Architectural Design*, 83(6), 82–89.
- Dovey, K., & King, R. (2011). Forms of informality: Morphology and visibility of informal settlements. *Built Environment*, 37(1), 11–29.
- Ehebrecht, D. (2015). *The challenge of informal settlement upgrading: Breaking new ground in Hangberg*. Cape Town?: Universitätsverlag Potsdam.
- Eenserink, B., Patel, M., Kranz, N., & Maestu, J. (2007). Cultural factors as co-determinants of participation in River Basin management. *Ecology Society for the Study of Midwestern Literature Newsletter*, 12(2).
- Furnari, S., Crilly, D., Misangyi, V. F., Greckhamer, T., Fiss, P. C., & Aguilera, R. (2020). Capturing causal complexity: Heuristics for configurational theorizing. *Academy of Management Review*, 46(4), 778–799.
- García-López, G. A. (2019). Rethinking elite persistence in neoliberalism: Foresters and techno-bureaucratic logics in Mexico’s community forestry. *World Development*, 120, 169–181.
- Goertz, G., & Mahoney, J. (2012). *A tale of two cultures: Qualitative and quantitative research in the social sciences*. Princeton University Press.
- Greenwood, R., Díaz, A. M., Li, S. X., & Lorente, J. C. (2010). The multiplicity of institutional logics and the heterogeneity of organizational responses. 21(2), 521–539.
- Gulyani, S., Bassett, E. M., & Talukdar, D. (2014). A tale of two cities: A multi-dimensional portrait of poverty and living conditions in the slums of Dakar and Nairobi. *Habitat International*, 43, 98–107.
- Gunton, T. I., & Day, J. C. (2003). The theory and practice of collaborative planning in resource and environmental management. *Environments*, 31(2), 5–20.
- Henson, R. M., Ortigoza, A., Martínez, K., Baeza, F., Caiaffa, W., Vergara, A. V., Roux, A. V. D., & Lovasi, G. (2020). Evaluating the health effects of place-based slum upgrading physical environment interventions: A systematic review (2012–2018). *Social Science & Medicine*, 113102.
- Hilgers, T. (2020). Security, resilience and participatory urban upgrading in Latin America and the Caribbean. *Development and Change*, 51(5), 1246–1270.
- Innes, J. E., & Booher, D. E. (2015). A turning point for planning theory? Overcoming dividing discourses. *Planning Theory*, 14(2), 195–213.
- Jiménez, A., LeDeunff, H., Giné, R., Sjödin, J., Cronk, R., Murad, S., Takane, M., & Bartram, J. (2019). The enabling environment for participation in water and sanitation: A conceptual framework. *Water*, 11(2), 308.
- Kiefer, K., & Ranganathan, M. (2018). The politics of participation in Cape Town’s slum upgrading: The role of productive tension. *Journal of Planning Education and Research*, 40(3), 263–277.
- Koster, M., & Nuijten, M. (2012). From preamble to post-project frustrations: The shaping of a slum upgrading project in Recife, Brazil. *Antipode*, 44(1), 175–196.
- Kotus, J. (2013). Position of the Polish city on the ladder of public participation: Are we going the right way? The case of Poznań. *Cities*, 35, 226–236.
- Legewie, N. (2013). An introduction to applied data analysis with qualitative comparative analysis. In *Forum qualitative Sozialforschung/forum: Qualitative social research*.
- Lizarralde, G., & Massyn, M. (2008). Unexpected negative outcomes of community participation in low-cost housing projects in South Africa. *Habitat International*, 32(1), 1–14.
- Lucci, P., Bhatkal, T., Khan, A., & Berliner, T. (2015). *What works in improving the living conditions of slum dwellers*. 4.
- Lüthi, C. (2012). *Community-based environmental sanitation planning approaches for the south: The household-centred approach*. Berlin: Technischen Universität.
- MacPherson, L. (2013). *Participatory approaches to slum upgrading and poverty reduction in African cities*.
- Mansuri, G., & Rao, V. (2004). Community-based and-driven development: A critical review. *The World Bank Research Observer*, 19(1), 1–39.
- Massey, R. T. (2013). Competing rationalities and informal settlement upgrading in Cape Town, South Africa: A recipe for failure. *Journal of Housing and the Built Environment*, 28(4), 605–613.
- McFarlane, C., & Robinson, J. (2012). Introduction—Experiments in comparative urbanism. *Urban Geography*, 33(6), 765–773.
- McGranahan, G. (2015). Realizing the right to sanitation in deprived urban communities: Meeting the challenges of collective action, coproduction, affordability, and housing tenure. *World Development*, 68, 242–253.
- McPherson, C. M., & Sauder, M. (2013). Logics in action: Managing institutional complexity in a drug court. *Administrative Science Quarterly*, 58(2), 165–196.
- Meyer, R. E., Egger-Peitler, I., Höllerer, M. A., & Hammerschmid, G. (2014). Of bureaucrats and passionate public managers: Institutional logics, executive identities, and public service motivation. *Public Administration*, 92(4), 861–885.
- MLHUD. (2014a). *Esia report for the proposed infrastructure upgrading project in Swahili and Kariobangi informal settlements in Machakos County*. World Bank. <http://documents.worldbank.org/curated/en/581931468254952719/pdf/E26540V120AFR000Box385406B00PUBLIC0.pdf> <http://documents.worldbank.org>.
- MLHUD. (2014b). *Esia: The proposed infrastructure upgrading project in Kihoto, Karagita, Kamere and Kasarani informal settlements*. <http://documents.worldbank.org/curated/en/996471468043160569/pdf/RP10590V60REVI00Box385406B00PUBLIC0.pdf>.

- MLHUD. (2014c). *Resettlement Action Plan Report for Kariobangi Informal Settlement in Machakos County*. World Bank. <http://documents.worldbank.org/curated/en/776941468048280011/pdf/RP10590V50AFR00Box385324B00PUBLIC0.pdf> <http://documents.worldbank.org>.
- Morrison, N. (2017). Playing by the rules? New institutionalism, path dependency and informal settlements in sub-Saharan Africa. *Environment Planning A: Economy and Space*, 49(11), 2558–2577.
- Muchadenyika, D., & Waiswa, J. (2018). Policy, politics and leadership in slum upgrading: A comparative analysis of Harare and Kampala. *Cities*, 82, 58–67.
- Narayan-Parker, D. (1995). *The contribution of people's participation: Evidence from 121 rural water supply projects*. World Bank.
- Nop, S., & Thornton, A. (2020). Community participation in contemporary urban planning in Cambodia: The examples of Khmuonh and Kouk Roka neighbourhoods in Phnom Penh. *Cities*, 103, Article 102770.
- Nuijten, M., Koster, M., & de Vries, P. (2012). Regimes of spatial ordering in Brazil: Neoliberalism, leftist populism and modernist aesthetics in slum upgrading in Recife. *Singapore Journal of Tropical Geography*, 33(2), 157–170.
- Nunbogu, A. M., Korah, P. I., Cobbinah, P. B., & Poku-Boansi, M. (2018). Doing it 'ourselves': Civic initiative and self-governance in spatial planning. *Cities*, 74, 32–41.
- Núñez Collado, J. R., & Wang, H.-H. (2020). Slum upgrading and climate change adaptation and mitigation: Lessons from Latin America. *Cities*, 104, Article 102791.
- Nvivo, Q. S. R. (2012). *Nvivo qualitative data analysis software*.
- Patel, K. (2013). A successful slum upgrade in Durban: A case of formal change and informal continuity. *Habitat International*, 40, 211–217.
- Prokopy, L. S. (2005). The relationship between participation and project outcomes: Evidence from rural water supply projects in India. *World Development*, 33(11), 1801–1819.
- Quattrone, P. (2015). Governing social orders, unfolding rationality, and Jesuit accounting practices: A procedural approach to institutional logics. *Administrative Science Quarterly*, 60(3), 411–445.
- Ragin, C. C., Drass, K. A., & Davey, S. (2006). *Fuzzy-set/qualitative comparative analysis 2.0*. Tucson, Arizona: Department of Sociology, University of Arizona.
- Reed, M. S. (2008). Stakeholder participation for environmental management: A literature review. *Biological Conservation*, 141(10), 2417–2431.
- Rigon, A. (2014). Building local governance: Participation and elite capture in slum-upgrading in Kenya. *Development and Change*, 45(2), 257–283.
- Rihoux, B. (2006). *Qualitative comparative analysis (Qca) and related systematic comparative methods*.
- Rihoux, B., & Ragin, C. C. (2009). *Configurational comparative methods: Qualitative comparative analysis (Qca) and related techniques*. Sage Publications.
- Ruhlandt, R. W. S. (2018). The governance of smart cities: A systematic literature review. *Cities*, 81, 1–23.
- Ruhlandt, R. W. S., Levitt, R., Jain, R., & Hall, D. (2020). One approach does not fit all (smart) cities: Causal recipes for cities' use of "data and analytics". *Cities*, 104, Article 102800.
- Saharan, T., Pfeffer, K., Baud, I., & Scott, D. (2019). Comparing governance and bargaining of livelihoods in informal settlements in Chennai and ethekwin. *Cities*. <https://doi.org/10.1016/j.cities.2019.02.017>: 102287
- Schneider, C. Q., & Wagemann, C. (2012). *Set-theoretic methods for the social sciences: A guide to qualitative comparative analysis*. Cambridge University Press.
- Sibyan, I. A. (2020). Rethinking slum planning: A comparative study of slum upgrading projects. *Journal of Regional and City Planning*, 31(1), 1–11.
- Skelcher, C., & Smith, S. R. (2015). Theorizing hybridity: Institutional logics, complex organizations, and actor identities: The case of nonprofits. *Public Administration*, 93(2), 433–448.
- Stoker, G. (1997). *Local political participation*.
- Swapan, M. S. H. (2016). Who participates and who doesn't? Adapting community participation model for developing countries. *Cities*, 53, 70–77.
- Thornton, P. H., & Ocasio, W. (2008). Institutional logics. In *The Sage handbook of organizational institutionalism* (pp. 99–128). Sage.
- Thornton, P. H., Ocasio, W., & Lounsbury, M. (2012). *The institutional logics perspective: A new approach to culture, structure, and process*. Oxford University Press.
- UN-Habitat. (2015). *Habitat iii issue paper 22—Informal settlements*. New York.
- UN-Habitat. (2016). *World cities report 2016*. Nairobi: United Nations Human Settlements Programme.
- Venkataraman, H., Vermeulen, P., Raaijmakers, A., & Mair, J. (2016). Market meets community: Institutional logics as strategic resources for development work. *Organization Studies*, 37(5), 709–733.
- Walubwa, J. (2010). *Kenya slum upgrading programme/an analysis of Kibera intergraded water, sanitation and waste management project*. Kenya: University of Nairobi.
- Wandersman, A. (2009). Four keys to success (theory, implementation, evaluation, and resource/system support): High hopes and challenges in participation. *American Journal of Community Psychology*, 43(1), 3–21.
- Watson, V. (2003). Conflicting rationalities: Implications for planning theory and ethics. *Planning Theory and Practice*, 4(4), 395–407.
- Watson, V. (2009). Seeing from the south: Refocusing urban planning on the Globe's central urban issues. *Urban Studies*, 46(11), 2259–2275.
- WorldBank. (2011). *Project appraisal document on a proposed credit in the amount of Sdr 65.0 million (US \$ 100 million equivalent) to the Republic of Kenya for the informal settlement improvement project*. https://reliefweb.int/sites/reliefweb.int/files/resources/6FFE8E537D69A1B88525784C005C6A29-Full_Report.pdf.
- World-Bank. (2014). *World development indicators*.
- Yin, R. K. (2014). *Case study research: Design and methods (Applied social research Methods)*. CA: Sage publications Thousand Oaks.