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Regulating informal settlement "from within": the case for plurality in applying building regulation to slum upgrading

Abstract

In-situ upgrading of informal settlements has emerged as a key planning policy to provide durable housing that respects human rights and is financially viable. Slum upgrading policies usually focus on tenure legalisation and infrastructure improvements. However, we argue that such interventions miss a significant aspect by which informal settlements can be prevented from developing slum conditions—the application of building regulation. In conventional upgrading approaches, the application of building regulation has been conceived as a singular approach, in which city-wide, state-initiated building codes are adapted to the settlement. We broaden the debate on regulating informal settlement, by incorporating regulation 'from within', which acknowledge that informal settlements are formed by socio-spatial logics which are amenable to regulation by the dwellers themselves. This viewpoint discusses why urban regulation is needed in informal settlement upgrading, presents two of the broad critiques on the application of planning regulation to informal settlement and suggests three approaches to regulating, namely 'lowering standards', 'relational rules', and 'neighbourly consent'.

Key words: slum upgrading, building regulation, urban informality, self-regulation, overregulation, deregulation

Introduction

UN-Habitat (2018) estimates that just over 1 billion people live in slums and informal settlement globally, amounting to 24% of the total urban population.. Without financial means to provide affordable housing through other ways, slum upgrading has emerged as a viable approach to address poverty in the Global South that respects the rights of the residents. While many governments have indeed shifted to various upgrading policies – neglect, removal, and demolition policies are still prevalent in many urban contexts. Such practices have been broadly condemned for their adverse impacts on the residents' livelihoods and their lack of vision towards a long-term affordable housing solution. The benefits of upgrading vis-à-vis demolition-reconstruction have been discussed at length elsewhere (Lizarralde, 2014; Wekesa et al., 2011), and this viewpoint deals with a rather different question, namely how can slum upgrading be strengthened by integrating building regulation? Do these regulations have to be state-initiated or can there be approaches that develop building regulations 'from within'?

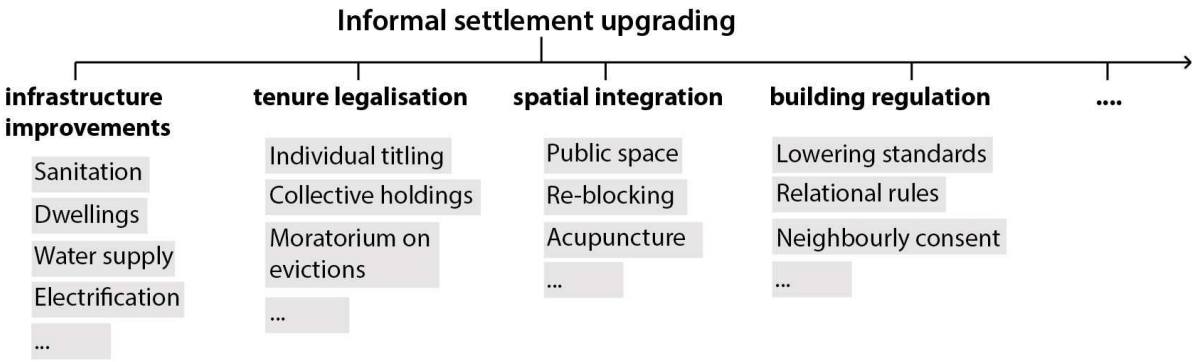

Figure 1: types of informal settlement upgrading interventions

To answer these questions, a range of spatial processes that commonly fall under the umbrella of 'slum upgrading' must be untangled. Specifically, we distinguish infrastructure improvements, tenure legalisation, spatial integration and building regulation. Infrastructure improvements concern the direct ameliorating of living conditions, including the provision of electricity, access to water and sewage system, and improving the structural integrity of the dwellings. Tenure legalisation or regularisation, is primarily concerned with ensuring de-jure tenure security, including agreements on property boundaries and granting of property titles. Spatial integration is concerned with integrating the settlement in the city, through re-design and selective relocation of the settlement. Finally, building regulation is concerned with encoding permitted land-uses and regulating density and urban form. Figure 1 is not exhaustive – different programs may be added under each,

extending the diagram vertically, and different types of interventions may be added horizontally, such as economic or cultural interventions.

What is at stake in this viewpoint is that the debate on slum upgrading have focussed mainly on infrastructure improvements, tenure legalisation, and spatial integration, while building regulation has been insufficiently explored and applied. Acknowledging the critiques on current building regulation regimes, we engage with the ways that regulation could actually be applied and benefit informal settlement. The key argument this paper presents is that regulation is not a single, but a plural approach. In the first section, we establish the theoretical space for building regulation. In the second section, we offer three possible ways local governments can approach building regulation in informal settlements, through empirical precedence from literature as well as our ongoing engagements with informal settlements. We conclude with some remarks on how the three approaches could intersect with different contextual factors.

The case for building regulation

Slum upgrading, informal settlement and building regulation are intertwined. In many Global South cities, slums continue to be defined based on their non-conformity to building and land-use regulations (Foster, 2009). However, if a slum is defined as a place with substandard living conditions (UN-Habitat, 2014), and not in terms of illegality, regulation is better understood as one of several intermediary mediums that negotiates whether or not an informal settlement transgresses into a slum (see Dovey et al. (2021) for a more nuanced discussion on criteria for defining slums). Such mediation can happen through the link between ill-conceived building regulation that lead to slum conditions (Huchzermeyer, 2011), through the compliance to urban regulations as a condition for slum upgrading eligibility (Sheikh & Banda, 2014), or through the way in which regulations can enable upgrading through incremental building extensions, which may subsequently threaten the quality of public realm and reinduce slum conditions (van Oostrum, 2020).

The need for regulation

The need for regulation is often assumed as a given. The New Urban Agenda, a broadly accepted United Nations document on sustainable urban development, emphatically promotes “the development of adequate and enforceable regulations in the housing sector, including, as applicable, resilient building codes, standards, development permits, land use by-laws and ordinances, and planning regulations” (p. 28). But regulation is not

an end in itself, nor is it self-evident – many settlements have existed throughout history without codified regulations, so why do cities need regulation?

At the heart of the answer lies the protection of the public domain. Any urban settlement relies on a careful balance between the distribution of shared resources, through its varied infrastructures, and production and consumption of those resources. If a city's public utilities are outstripped by private use, the settlement will cease to function well, but equally so if the city's users are unable to maintain their public utilities. Regulation is key in mediating this balance of the public domain.

This paper takes the position that most informal settlement has advantageous qualities that are worth maintaining, including environmental sustainability through local materials and climate-adaptive design, social welfare through embedded social capital and livelihoods, and walkability through compact urban form, mixed-use and prevalence of non-motorised modes of transport (UN-Habitat, 2014; Dovey et al., 2020). When local governments consider building regulation rather than demolition, they implicitly acknowledge the value of informal settlements – and the threats that may undermine their qualities. Regulation can protect residents, by setting standards that prevent unhealthy or hazardous situations, and insulate residents from risks that they may not be aware of or are unwilling to bear the costs of. The absence of regulation can make settlements vulnerable to natural disasters, subsequent evacuation, and undermine access for emergency services (Foster, 2009; UN-Habitat, 2014).

Furthermore, the close proximity of people in informal settlements inevitably leads to exchange of externalities. In an urban context, an externality is a cost or benefit that emanates from an activity, without it being the user's primary intent and for which often no explicit consent was sought. Traffic congestion is an externality, so is overshadowing by adjacent buildings, but so is liveliness on the street, or the conditions that make public transport viable. Due to a city's proximity of uses, it is impossible, and even undesirable to imagine a city without externalities.

These externalities can be regulated either directly, such as through limitations on noise, air and light pollution, or indirectly through regulating urban form or land-uses. The indirect control of externalities is regulation-through-proxy and may be needlessly restrictive. Informed by new ways of digitally modelling the urban environment, planning practices in Europe are increasingly emphasizing direct control of externalities, leaving more flexibility for innovative forms of urban development (Van der Heijden & De Jong, 2009).

However, such direct control may also draw inspiration from medieval Mediterranean cities where new buildings were traditionally assessed on their impact on lighting and privacy (Hakim, 2014).

Taking externalities serious reengages with the loaded concept of 'nuisance', which in contemporary research has been increasingly depicted as bourgeoise preoccupation to upend the urban poor who are framed as the source of nuisance to middle-class residents (Ghertner, 2012). Notwithstanding the use of nuisance as a political tool (Valverde, 2011), the adverse effects that informal settlement dwellers experience through noise, air, light and water pollution are very real, as is their vulnerability to disasters, and low levels of privacy (Siddiqui & Pandey, 2003; Corburn & Hildebrand, 2015).

Recognizing the need for urban regulation must also acknowledge their limits, particularly in the context of the Global South. Ostrom (1990) demonstrated that government regulation of common resources has serious drawbacks, and that communities could self-manage their resources if provided with the right tools. Local governments in the Global South often have relatively weak governance structures, with limited financial and human resources and may be restricted to regulate if their administrative boundaries exclude the urban poor living at the urban periphery (Devas, 2001). Research on regulatory control in the Global South has often emphasized the repressive nature of existing planning regimes, tracing their origin to European or colonial planning ideology (Watson, 2009). Two distinct critiques emanate from this work, namely that formal regulation is too strict: overregulation – and that formal regulation is too flexible: deregulation.

Over-regulation

The repressive effect of strict formal building codes on informal settlement and incremental upgrading is widely acknowledged (Arefi, 2018; Byahut et al., 2020; Payne, 2001; Laquian, 1983). By setting standards too high, the urban poor are unable to meet the legal requirements necessary for formal approval. Typical requirements, such as low building densities, low plot ratios and high parking requirements increase the cost per dwelling, which the urban poor cannot afford. By-laws that prevent the use of traditional building materials can further increase costs and deny residents application of the knowledge they may have in traditional construction techniques. Strict land-use zoning can prevent residents from running small-scale workshops they need to provide livelihood. Consequently, there have been broad calls for adjusting building codes to adapt to the economic, social and cultural context of the settlement that is being regulated. For example, UN-Habitat (2014, p. 69) has

stressed “the need to adjust planning regulations and urban design standards to allow for such things as narrower roads, smaller plots in land regularisation and higher Floor Area Ratios (FAR).”

Regulation can also be too strict in the procedural sense – the time and resources required to obtain building permission may be out of reach to the urban poor (Watson, 2009). De Soto (1990) famously documented the arduous application process to obtain legal title in Peru, while similar observations more recently have demonstrated that drawn-out and costly approval processes remain an issue in many countries (Njoh, 2017).

Deregulation

A second widely acknowledged critique of formal regulation takes the opposing position, namely that regulation that is entirely flexible and at the discretion of the local authority can be used to exploit the urban poor. Roy (2009, p. 80) has called this a “state of deregulation, one where the ownership, use, and purpose of land cannot be fixed and mapped according to any prescribed set of regulations or the law.” Procedurally, a deregulated planning system is opaque to its users – knowing which documents to submit where becomes exclusive knowledge that is exploited by brokers, who are financially out of reach to the urban poor. Arbitrary urban regulation can serve to extract expensive development fees from the urban poor. Deregulation has also been credited with accelerating market-driven urban growth, but such urban development is often of poorer quality and without adequate supply to the underprivileged (Ferm et al., 2021).

Formal development may be built illegally like informal settlement, yet in a deregulated planning system formal development can be condoned, while the informal gets scrutinized (Bhan, 2013). The flexibility that is purposely built into the legal framework can be usurped by the middle-class, who use the logic of nuisance to exclude the urban poor (Ghertner, 2012). Informal settlement remains subject to state authority which can “arbitrarily extend or suspend toleration of informality” (Varley, 2013). Paradoxically, such institutional flexibility can thus emerge through the application of purposefully strict rules. By curtailing what development is possible, any new development will be an exception to the framework, thereby requiring the government’s approval.

Self-regulation

It is possible to identify a third strand of research on building regulation, in which the focus is on informal settlements as active places of everyday urbanisation, that are incrementally building themselves using local

rules, tacit codes, and cultural norms to guide the growth of their settlement (Dovey et al., 2020; Gouverneur, 2014; Jones, 2019). Foster (2009) has articulated how informal settlements present a 'problem of the commons', in which informal codes have varying levels of effectiveness in maintaining the commons and preventing slum conditions from arising in the settlement. According to Ostrom (1990), a close-knit community can develop "norms of reciprocity" that manage common resources much better than government or market mechanisms. Yet, Ostrom also acknowledges the limits of self-regulation, including the timeframe needed to modify rules over time, the degree to which people envision themselves as permanent residents, and the limited number of appropriators for which self-regulation works most effectively. Research on the ways in which the limits of self-regulation apply to informal settlement remains a largely unexplored area of study.

Such forms of self-regulation have existed historically (Hakim, 2014; Davis, 2006) and could provide a basis for new forms of regulation. However, traditional forms of urban regulation often originated from specific social conditions and their adaptation would need to contend with three transformations in contemporary cities. First, construction techniques have advanced to enable taller buildings, built at a more rapid pace, which exerts greater pressure on the public realm than was common historically. Second, unlike the villages and urban neighbourhoods where residents often stayed for generations and were socially tightly interwoven, contemporary informal settlement can be more mixed, with higher rates of short-term stay and more rapidly changing social mixes. Third, traditional urban regulation was not always equitable to the urban poor, as most of the decision-making power lay with landowners. The links between historic forms of regulation and their contemporary application can be a rich source of inspiration, but their application must contend with their limitations.

Three approaches to building regulations

Building on these critiques, this section "strategically [employs] the state of exception" (Roy, 2005) as an epistemological lens to explore three possible approaches to the application of building regulations to informal settlement. While many local governments still condemn informal settlement and perceive demolition as a viable response, this paper is geared to those governments which have moved beyond short-term zero tolerance policies and are aiming to incorporate and ameliorate informal settlement into their planning frameworks. Yet, for most policymakers and planners, building regulation is often perceived as a *singular* planning alternative

(Arefi, 2018). Building on experience with, and examples from a diverse set of informal settlements, we distinguish three possible approaches, namely 'lowering standards', 'relational rules' and 'neighbourly consent'.

Lowering standards

The most broadly adopted approach to regulating informal settlement in contemporary practice is through mimicking the means employed in the formal city, namely through a system of physically demarcated land-uses and related building regulation that apply to different zones. Informality is accommodated by 'lowering' the standards vis-à-vis formal development. As the formal regulation is often geared towards suburban modes of urban development, 'lowering' standards allows for denser, more urban modes of development. 'Lowering' standards supports the critique that overregulation lowers affordability.

The application of this approach has been wide-reaching and goes back several decades (Laquian, 1983; Wakely & Riley, 2011). A recent example that illustrates this approach well is the regularization of Mukuru, Nairobi (Horn et al., 2020). Here, based on a morphological study of the settlement, the municipal standards on road widths were adjusted to be less car-oriented and lower the number of dwellings that had to be demolished. The standards to determine the size and catchment areas for schools and hospitals were also adjusted to account for the higher density and the limited availability of space in the settlement. In another example – the case of Epworth, Zimbabwe – the existing plot and road structure was regularised through community participation, while adhering to relaxed government standards (Chitekwe-Biti et al., 2012). Broadly speaking, site-and-service schemes, in which the urban poor self-built their houses within a formal framework, also fits within this approach. Laquian (1983) describes how in the Dandora site-and-services scheme, Kenya, the housing authority permitted the construction of temporary shelters to provide time for residents to complete their dwelling to an "acceptable standard".

This approach conceives formal and informal development as a continuum, with planning standards adjusted to the level of informality, based on the idea that informally built neighbourhoods will eventually 'catch up' with state-endorsed formal planning. Arefi (2018), drawing on Larson (2002), perceives the application of formal regulation as a process, in which buildings are incrementally improved "relative to the means available to the regulated" (Larson, 2002, p. 143). As Van Gelder (2010, p. 241) aptly remarked, approaches that are rooted in such a formal-informal continuum "employ a centralist or state legal perspective, taking official law as the point of departure". This approach can slip into deregulation, particularly when the state administers the map that encodes the regulation and retains the capacity to update the map or change the

byelaws within. However, if the community takes ownership of the regulation, and its enforcement, it can become a form of self-regulation.

Relational rules

A second approach to regulating informal settlement can be conceived as formalizing the informal rules that produced the settlement. Informal settlement is emergent, with public space and architecture co-evolving. The course and width of lanes, and the positioning and heights of buildings are not fixed, but interdependent. Unlike the prescriptive and absolute standards from the last approach, this approach relies on the principle of relationality: informal rules are proscriptive and relational and rely on the governing principle that no harm is done (Hakim, 2014). For example, a rule limiting new buildings to three floors higher than its neighbour, sets no absolute building height limit. Davis (2006) highlights that informal settlements have both uncodified social constraints and understandings, as well as common-law or other codes that are based on custom and adjudicated on a case-by-case basis. While the emergent urban design is well documented (Dovey et al, 2020; Jones, 2019), the social rule-making process is much less understood, and it is even rarer for such knowledge to make its way into policy.

Good examples of such a self-regulated approach can be found in many Indonesian Kampungs (Adianto et al., 2014; Jones, 2019). Local leaders and experienced builders within the community have a strong advisory role to such rulemaking. In one kampung, “the building codes are made and revised over the years by the prominent figures and members of community according to the everchanging community’s condition” (Adianto et al., 2014). This is thus an iterative process that relies on a degree of trial and error. An example of a relational rule from this kampung is that cantilevers above any laneway are allowed as long as a trader’s cart can pass through the street undisturbed. At ground level, interface creep of buildings is tolerated by residents as long as it does not critically compromise the functioning of the laneway (Jones, 2019). In Santos’s (1977) classic study of favelas in Rio de Janeiro, the internally developed system of building regulation of a favela is described, including formalized administration and prescribed mechanism of conflict resolution. He found that the residents, aside from using their own informal rules, inventively copied official law where possible and convenient.

Relational rules dismantle the notion of a static masterplan. Such an approach is self-regulated in the sense that the community becomes the driver of the rules within their settlement. Relational rule-making also reengages with externalities. Valverde (2011) notes that “nuisance governance is very firmly relational, indeed

fully intersubjective." An inherent risk in formalizing informal rules is that is the emergence of new rules, in response to new challenges, may be curtailed. Because the urban form in this approach is emergent, it is more difficult to anticipate any negative externalities.

Neighbourly consent

A final approach to regulating informal settlement is based on achieving local consent, without adherence to any extended set of rules. Such an approach is based on the idea that new development should be judged solely by the people who are directly impacted. Rather than achieving uniform agreement among the entire community to a particular set of rules, as in last approach, new development in this approach is self-regulated only among direct neighbours. What would be regulated and formalized through this approach, is the process, both in terms of application and conflict resolution, but not any set of building regulation. It also precludes the need to map the settlement and its plots and road boundaries.

While practices of neighbourly consent have played out informally in medieval Mediterranean cities for centuries (Hakim, 2014), one of the best contemporary examples can found in the urban villages of Guangzhou, China. Here, rather than enforcing an extended set of regulatory rules on informal development, neighbourly consent has been formalized into the district planning framework, so that any building application primarily requires signed consent from four adjacent neighbours (Van Oostrum, 2019). Recognizing that the district government is unable to inspect each informally constructed building within the urban villages, it relies on the neighbour's consent as the primary means of regulatory control, with only a formalized limit on building height and plot size in place. Neighbourly consent also plays out informally among neighbours, for example in the way how a cantilever's extend into a laneway is assessed – "people will [then] laugh at you" when cantilevering is beyond the informally accepted limit (Van Oostrum, 2019, p. 126). Similar processes of neighbourly consent have been documented across the border in Hanoi, Vietnam (Koh, 2004).

Without a set of rules to refer to, such a planning approach can be more sensitive to unequal power dynamics at the very local level, such as wealthy or powerful landowners who may seek to influence their neighbours, but more independent of unequal power dynamics at the city level. Yet, regulating informal settlement through such negotiation can also make use of and strengthen social bonds among neighbours. What enables this approach in Guangzhou, is the relatively equal position among villagers through the collective ownership of land that characterizes urban villages in China (Van Oostrum, 2019).

Concluding remarks

This *viewpoint* is a nascent effort in exploring how planners and local governments can "strategically use the state of exception" in practice to introduce building regulation in informal settlement. By doing so, we move from a general assertion to the 'right to the city' for informal settlement dwellers, to exploring the various ways in which those rights can be manifested. To reiterate, these approaches in this paper concern building regulation only, leaving legal tenure, infrastructure improvements and spatial integration outside the scope of this viewpoint. The approaches presented here are not exhaustive, nor are they mutually exclusive in the way two or more approaches could be combined innovatively.

Contextual factors:	*Approaches:*	Lowering standards	Relational rules	Neighbourly consent
Size of settlement	Smaller	-	+	o
	Bigger	+	-	o
Community	Transient	+	-	+
	Established	o	+	o
Location	Peripheral	o	+	+
	Central	-	o	+
Municipal governance	Strong	+	o	o
	Weak	-	+	+

Figure 2: relative potentiality of approaches in relation to contextual factors (+positive; - negative; o independent)

The application of effective building regulation requires a recognition of the diversity of possible approaches, and an assessment of the local context, to guide which approach is most likely to succeed. It is beyond of the scope of this paper to explore these contextual factors in detail, but a brief exploration of four factors is useful to explore the potentialities and limitations of the three approaches.

As Ostrom's (1990) work already outlined, the size of settlement is an important contextual factor when considering building regulation. Establishing relational rules among the community may be easier when the community is smaller and everyone in the settlement knows each other. Neighbourly consent as an approach is more independent of community size, as it works through direct interaction between neighbours. Whether a community is transient or long-established, will likewise affect a community's ability to establish relational rules. The approach to lower standards may be more effective in a highly transient community, as the rules would be independent of who lives in the settlement. A third significant contextual factor is the settlement's

location. Central locations tend to be denser and more functionally mixed, which means that simply lowering standards may allow the settlement to slip into slum conditions through overdevelopment and forms of air and noise pollution. In peripheral locations where the emergent urban design is still rapidly evolving, neighbourly consent may be a more appropriate approach until street-alignments have stabilised. A final contextual factor to consider is the strength of the municipal governance, including adequate human and financial resources. Implementing and enforcing lowered standards requires concerted effort and resources by municipalities, while relational rules rely entirely on the community and are thus feasible when the municipal governance structure is weak.

The contextual relations posed here are tentative and suggestive, and should be interpreted as a research agenda rather than a research outcome. The challenge for effective building regulation cannot be reduced to simply striking a balance between regulation that is too strict or too flexible. There are different approaches to their application, the applicability of which depends on contextual factors. This paper calls for a more nuanced debate on building regulation in informal settlement and to consider the application of regulation 'from within'.

Disclosure statement

The views expressed in this paper are those of the authors only and do not reflect those of the United Nations Human Settlements Programme.

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