

SHANTYTOWNS, SLUMS AND SUSTAINABLE CONSTRUCTION: LAW AND POLICY CONSIDERATIONS

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ABSTRACT

A majority of the world's population is housed poorly. That is, a majority of the world's population lives in informal or irregular settlements, in makeshift shacks and huts made from brick, and tin and cardboard, often in spaces off the formal service grid yet very much part of the urban fabric. Typically, these dwellings are built with no mind to building code requirements, must less with consideration of energy efficiency or sustainable construction. The reasons that the world's majority is reduced to living in such slums and shantytowns are complicated and vary from place to place. However, most slum and shantytown dwellers have been excluded socially, economically and/or spatially from the dominant legal and social order. This reality poses serious challenges to the goal of realizing energy efficient and sustainable construction on a wide scale.

This panel seeks to explore urban planning challenges to achieve that goal. To that end, the panel will explore various legal and policy steps that might be taken to effect socio-economic-spatial inclusion and thus promote more widespread sustainable and energy-efficient construction. First, construction inputs will be considered in the context of green building certification systems and the challenges of expanding those systems into low-cost, mass housing. Second, consideration will be given to practical measures that can be adopted to promote more energy-efficient construction and renovations in slums and shantytowns globally, both to improve quality of life and energy use in the short and longer term. Third and finally, the panel will review examples of urban planning reform legislation and regulation in different countries and offer suggestions for a more progressive, inclusive legal and regulatory urban planning agenda going forward.

Key words: slums, green construction, urban planning, sustainable

Introduction

A majority of the world's population is housed poorly, living in informal or irregular settlements in makeshift shacks and huts made from brick, tin and cardboard, often in spaces off the formal service grid yet very much part of the urban fabric. Typically, these dwellings are built with no mind to building code requirements, must less with consideration of energy efficiency or sustainable construction. The reasons that the world's majority is reduced to living in such slums and shantytowns are complicated and vary from place to place. However, in most instances, slum and shantytown dwellers have been excluded socially, economically and/or spatially from the dominant legal and social order [1]. This reality poses serious challenges for urban planners and other professionals seeking to realize energy efficient and sustainable construction on a wide scale. This paper will consider legal and policy responses that might be implemented to effect socio-economic-spatial inclusion and thus promote more widespread sustainable and energy-efficient construction.

Construction Inputs

According to the World Health Organization, there are 863 million slum dwellers [2]. Nearly a quarter of the world's urban population lives in 'slums' [3], a percentage that rises as high as 70% in some regions. These settlements often exist in locations that are on the fringes of social and economic centers or are vulnerable to natural disasters, and their residents suffer inadequate water supply, a lack of environmental sanitation and waste disposal services; overcrowded living conditions, poor quality housing; insecure tenure; and exposure to serious health risks.

“Green” building materials and systems might offer sustainable options to effect socio-economic-spatial inclusion of slum dwellers and to improve sustainable and energy-efficient construction for the urban poor. In order to effectively identify, measure, and certify a building’s “greenness,” a plethora of systems with a variety of forms have been devised, including the U.S. Green Building Council (USGBC)’s Leadership in Energy and Environmental Design (LEED) rating system. The LEED system provides a framework and metric to identify, measure, and certify green buildings by quantifying a building’s performance in various areas, including but not limited to site strategies, water and energy efficiency, atmosphere impacts, material and resource selection and processes, indoor air quality, and transportation considerations. Other prominent green building systems in use globally include the Green Building Initiative’s Green Globes program, originally from Canada, and the Building Research Establishment Environmental Assessment Method (BREEAM), in common use in Europe.

These green building systems began as private, voluntary initiatives, but their success inspired public leaders to incorporate green building mandates into building and other regulatory codes. While these systems are widely used, they also have been widely criticized for adding cost and complexity to projects, for stifling innovation, and for failure of focus; *i.e.*, focusing on design rather than performance. These problems are exacerbated in the regulatory arena and have been cited as reasons that green construction and renovation have not become as widespread in the context of affordable and “slum” housing. Further, in addition to the implementation of legally-mandatory green building codes, there are other legal structures that inhibit sustainable slum renovations and construction. For example, some cities require that downspouts be connected to the storm sewer systems, which deters downspout disconnection programs and prevents the use of captured water for green roofs and other gray water uses; street width and building setback requirements in some storm water regulations increase impervious surface cover [4].

However, these laws can be amended; the obstacles are not compulsory features of green building systems. Indeed, these systems appear to anticipate the expansion of green construction into this low income segment of the housing market. The LEED Rating System and other similar systems, for example, create a broad consensus that green development must address not only sustainable building materials and finishes, but also energy and water efficiency, indoor air quality, and urbanist best practices that encourage the location of developments in close proximity to jobs, transportation, and other community services, such as shopping and parks. These systemic factors address socio-economic-spatial inclusion of the poor as well as promote more widespread sustainable and energy-efficient construction.

In the U.S., approximately 30 percent of all units certified in the first three years of the USGBC’s LEED for Homes Rating System were affordable to families earning less than 60 percent of average median income (AMI) [5] and, internationally, a

number of innovative green housing approaches, technologies, and designs have been deployed in affordable and “slum” housing. In existing settlements, major and minor sustainable efforts are being undertaken; *i.e.*, install LED outdoor lighting, implement waste collection, install rainwater collection, increase access to transportation facilities, relocate housing from environmentally sensitive areas, increase natural ventilation to reduce energy use, and waterproof walls and ceilings.

Green construction techniques and designs also are being included in new housing developments for the urban poor. New projects have incorporated responsible practices such as siting developments on former “brownfield” sites or in locations where jobs and services are accessible by foot or public transit; using recycled and sustainable materials in the building process and reducing the volume of construction waste; and installing lighting, appliances, and HVAC units that improve water and energy efficiency. Green infrastructure is also being installed in shantytowns. The elements of green infrastructure include green roofs and facades; infiltration planters, gardens, and trees; rainwater harvesting/collection and storm water retention features; preserved open spaces and parks; vegetated corridors, medians, and swales; permeable paved areas; and xeriscaping [6].

The benefits of the “greening” of these settlements are countless. For example, community residents, creating transferable skills in a growing “green collar” job market, have implemented many of these green upgrades. Urban construction and infrastructure in urban informal settlements can reduce urban air pollution, improve urban water quality, protect sewer systems and public health, reduce energy and transportation costs for the urban poor, enhance urban aesthetics and safety, and improve urban food security.

There are numerous mechanisms to encourage the greening of this housing sector. Governmental units with permitting authority may offer a variety of incentives, including public awareness and promotional campaigns; awards and public recognition for green projects; expedited project review, permitting, or inspections; reduced or rebated permitting or utility fees; increased density ratios or more generous height restrictions or additional floor area ratios; and tax incentives or rebates or other financial incentives. Conversely, penalties might be assessed for poor-performing buildings as a way to finance green building projects [7].

Inclusionary zoning provisions also can promote greener housing for the urban poor, as can including green-building costs as eligible expenses in tax incremental financing guidelines.

While it may go some way toward the achieving the goal of realizing energy efficient and sustainable construction on a wide scale, green building alone, however, will not reverse the exclusion that slum and shantytown dwellers have suffered socially, economically and/or spatially from the dominant legal and social order [8],[9],[10]. Therefore, consideration need be given to practical legal and regulatory measures that can be adopted to promote more energy-efficient construction and renovations in slums and shantytowns globally, both to improve quality of life and also to promote more efficient energy use in the short and longer term. To this end, four action principles need be taken into account in designing a legal and regulatory response to promote wide-scale green building in slums and shantytowns globally. First, energy efficiency is a goal that can be achieved only by developing an integrated, multi-sector legal and policy response that focuses on the needs and abilities of all stakeholders, from utility companies and local political authorities, to private sector actors and local residents. Second, to have the maximum impact, any policy response must focus on the world's majority, who are poorly and often precariously housed. Third, established land-use planning principles and practices need be part of any response. This is because the parts are connected. As a result, efforts like titling schemes and tax incentives for green building will not generate the needed large-scale change on their own—they will be scattered and episodic in their results. Fourth, the successful integration of the previous three principles means that, given current wealth disparities that characterize most of the world, the guiding response must be based first on equity-on improving the quality of life of those with the poorest physical quality of life.

Therefore, to address concretely the concerns addressed in the above four principles, national governments (or the appropriate sub-national authority) need at a minimum do the following in drafting laws and regulations that address the global housing crisis: (1) acknowledge socio-spatial segregation (and its corrosive effects on the entire society) and having acknowledged this prioritize infrastructure reforms in neglected areas; (2) devise mechanisms that permit the top (*e.g.*, governing authorities) and the bottom (*e.g.*, residents in informal communities) to discuss/communicate priorities and the ordering of reforms; community choice is important here: socio-spatial segregation often means that authorities do not have a clear grasp of day-to-day needs and perceptions of residents of informal settlements ; (3) recognize that socio-spatial exclusion and the resulting lack of infrastructure in most informal communities often means that the least advantaged are forced to tap into energy grids that exist in the society if they are to benefit from infrastructure at; (4) admit that effects are not causes: that is, connecting the world's poorly housed majority to existing grids, including green grids, is not simply a matter of connecting the have not's and starting to charge them for services. Poor housing is highly correlated, for example, with poor employment options and opportunities; (5) identify and develop innovative financing mechanisms that, for instance, reassess the value-

added to real estate and property values by infrastructure improvements and use equitable redistribution principles to make new charged infrastructure services affordable over time; and (6) make connections to private actors who often have affordable, simpler solutions to more energy-efficient building and construction techniques than do some larger enterprises that do not work with poorer populations- the equity principle thus will extend not only to residents but also to competitive bidding.

Urban Planning Reform Legislation and Regulation

The above discussion raises the question, then, of whether it seems feasible to take the steps advocated above. That is, how realistic are the green efficiency principles advocated above, especially on the massive scale required given current rates of urbanization? The available evidence suggests the magnitude of the challenge ahead [11], [12], [13].

The growing rates of informal urban development in countries such as South Africa, India and Brazil, among many others, have clearly indicated the limits of the national government's housing policy to date – for all its impressive numbers. Unlike South Africa and India, urban development has long consolidated in Brazil, with 85% of people currently living in urban areas, but in all these countries this process has been visibly marked by intense sociospatial segregation, and over several decades an enormous segment of society – the vast majority, in many cities – has only had access to urban land and housing through a wide range of informal processes. However, there are several general, conceptual lessons, both positive and negative, that can be learnt from the Brazilian experience public authorities and community organizations elsewhere [14].

There is a growing understanding that there is a whole series of very significant social, environmental, political and legal negative consequences and impact resulting from informal urban land development. Moreover, recent studies have stressed the financial implications of informal development, both from the more immediate viewpoint of the affected residents – who have paid increasingly higher land, rental and/or services-related prices to live under very precarious and hazardous conditions – and from the overall perspective of the urban population as a whole. Put briefly, besides being socially unjust, cities largely produced through informal processes are essentially fragmented, irrational, inefficient, polluted and unsafe – thus being highly costly for all urban residents also in financial terms. The enormous financial costs of regularization programs can no longer be underestimated either. For all these reasons, from a broader, more articulated and long-term viewpoint, it is imperative to see informal development as a serious problem to be confronted by the government and by society - the fundamental question still to be properly answered being *how to do so*. Therefore it is crucial that policymakers fully understand the causes of the

phenomenon of informal development to successfully confront it, as the lack of such a clear understanding often leads to the formulation and implementation of public policies that end up reproducing, and even worsening, the phenomenon and its negative consequences. This also means that there is a great deal that governments, at all levels but especially at the local level, can do to confront the phenomenon of informal urban development aiming at least to minimize the serious problems resulting from it, as there are several factors at stake that have directly to do with the conditions of (local) urban land policy and spatial organization. Moreover, urban planners, managers, policy- and law-makers still need to fully understand that spatial/urban planning is not a mere technical exercise: by determining what can be done where, how, when and by whom, as well as by concentrating services and equipment in few part of the cities, the overall urban planning and management system is directly determining the conditions of the formation, and the main dynamics, of land and property prices – thus also determining who can live where, and how, in the city. Far from being hostages of urban developers and land and property markets, as they often feel, urban planners and managers instead have historically created and fomented highly exclusionary and increasingly speculative land and property markets. To a large extent, urban informality has been generated by the urban planning and management system itself [14].

In this context, it is fundamental to discuss, conceive and implement the bases of a broad and articulated urban land governance framework combining *preventive* and *regularization* policies and programmers so as to democratize the conditions of access to serviced land and housing in cities.

That is, regularization of informal settlements is important to all residents in the settlements and to the cities as a whole, given the abovementioned number of high socio-environmental, political, legal and financial costs resulting from the phenomenon of informal development. Also in this context, the question is *how to regularize*. Regularization policies must be articulated with preventive policies; if conceived in isolation, they may worsen existing problems, increase land prices and distort informal land markets even further, attract more people to the regularized areas, as well as promoting the gentrification of the areas (especially the more central ones) and thus provoke the growing pressure by land developers and promoters interested in capitalizing upon the public investments in the informal areas. When the so-called “eviction by the market” happens, the traditional communities do not remain on the land and ultimately the main beneficiaries of the public policies are not always the urban poor. For all these reasons, regularization policies cannot be the housing policy *par excellence* [14].

As well as articulating curative regularization policies with preventive ones, the challenge for policymakers is to promote, in an integrated manner, both the individual security of tenure of the residents – thus giving them full protection against forced eviction – and the sociospatial integration of the informal areas and their communities - so as to guarantee their permanence on the occupied land.

It is clear from the Latin American experience that the most consistent policies are those that involve popular participation in all the stages, from the design of the projects to the main technical and political decisions, including some form of participation of the residents in the financing of the regularization programs. However, given the high costs of the public intervention, the public authorities have to mobilize financial resources in several ways, including by recovering for the community the huge surplus value generated by state action and appropriated by few. Continuity is crucial as the complex regularization programs require time to provoke effects; equally crucial are institutional integration and clear leadership. It should also be stressed that, given the complexity of the matter, merely local policies are not sufficient, and articulated intergovernmental relations are fundamental.

In this connection, therefore, a comprehensive *land framework* is fundamental to democratize the conditions of access to serviced land and housing and thus provide full security of tenure to the urban poor. Such a broad territorial order articulating land, urban, housing, environmental and fiscal policies in light of inclusive socioeconomic and socio-environmental development proposals requires the full materialization of the long existing constitutional principle of the social function of private and public property, clearly determining rights and obligations of landowners, developers, and the public authorities. Preventive and remedial public policies need to be conceived to the break with the vicious circle that has historically produced and fomented urban informality. The discussion of rural - so-called "rurban" - policies is also of utmost importance to minimize the pressure of rural-urban migration. In other words, a revival of urban planning is fundamental in Latin American cities - albeit on completely different bases, that is, no longer a merely regulatory planning, but also directly inducing land market movements so as to promote socio-spatial inclusion.

At the same time, and in a combined manner, a new *governance framework* is also crucial. Local capacity building is of course fundamental, but it does not dispense with the need for better intergovernmental articulation and, in many cases, the creation of a proper metropolitan apparatus and/or the constitution of a regional scope for territorial planning and management. The involvement of private and community sectors in land and urban management is to be strongly encouraged provided that it takes place within a clearly defined legal framework with effective social control mechanisms. Ultimately, popular participation in decision- and law-making - in all shapes, at all stages - is the main condition for confronting the current crisis of political representation in the peri-urban zones. Last, but not least, the conditions of financing urban development need to be fully re-assessed, so that traditional taxation systems can be redefined and combined with other forms of surplus land value capture. All of the above steps can be taken to integrate most of the green and energy-efficient measures discussed in previous sections.

There are inevitable lessons, both positive and negative, to be learnt from such a dynamic sociopolitical process that has already led to significant legal reform and institutional change. The most important lesson is arguably the need for the full articulation of all intertwined public policies affecting the conditions of urban development with the main, central dimension, that of the land policy. Sectorial and/or specific laws and policies should not exist outside of a clearly defined *land governance framework*. While urban and rural land laws and policies need to be reconciled, all the other relevant public laws and policies should also be conceived in a direct dialogue with the land policy: urban planning (including rules on mobility and transportation, infrastructure provision, construction); housing (including the regularization of informal settlements); environmental preservation; fiscal (and budgetary) regulations; and laws supporting economic development policies. In particular, this articulated land governance framework should provide for an integrated treatment of the so-called four “R”s: land restitution, land registration, land regulation, and land regularization. All such aspects and dimensions have long been treated in separately, thus generating a confusing legal system in which parallel, if not conflicting, laws related to urban policy should be applied – and most end up being ignored.

It does not mean that one sole law should cover in any detail the myriad of aspects involved, but the national law is expected to propose a comprehensive conceptual framework – necessary rooted in the country’s constitution - in the light of which all other laws should interpreted and applied. It should also propose mechanisms for the integration of formal procedures – for example, between environmental assessment and other considerations – so that the licensing of activities can be done in a more rational, speedier, and less conflictive way. The national principles should then be adapted to regional and local realities by provincial and local laws, according to the distribution of politico-institutional powers in the given country.

Another fundamental dimension of a new legal framework is the need to properly integrate law and management, so that all the principles and rights recognized by the urban law are properly translated into supporting processes, mechanisms, instruments, and resources, thus making their implementation viable. The fact is that all over Latin America there are many interesting and apparently progressive urban and environmental laws, but there is often a fundamental problem with their lack of enforcement and as a result they have become mere declarations of nominal principles and rights. But, a “tool box” approach is not enough either: tools are tools, not intrinsically good or bad, and the legal framework has to create the conditions conducive to the formulation and implantation of a vision/project for city, which would determine how the new tools should be used.

The discussion on the redefined conditions of urban management have to consider the backdrop of a number of fundamental politico-institutional and politico-social aspects. In politico-institutional terms, the new legal framework should certainly encourage

the decentralization of the decision-making process, but within a dynamic and clearly defined intergovernmental articulation context. Special attention should be paid to the creation of the institutional bases of metropolitan administration, as often the "local" level is not the "municipal" level, but the metropolitan one – for example, insofar as matters of social housing, transportation, and sanitation are concerned [10].

Moreover, as adverted to earlier in this paper, a crucial dimension of this discussion that can no longer be neglected concerns who pays the bill, and how. The financing of urban development needs to be urgently discussed beyond the consideration of traditional tax revenues. Updated cadasters and efficient tax systems are not sufficient to guarantee the financial sustainability if urban management, and public administrations should adopt all sorts of mechanisms to allow for the capture of increasingly higher surplus values that have been generated by state action through public works and services, and also through land use and development regulations. Brazilian and especially Colombian cities have already generated an enormous amount of resources through such value capture mechanisms, for example, although in the case of several cities in Brazil the challenge of redistribution of the newly obtained resources remains [10].

Last, but not least, a redefined urban legal framework needs to establish the conditions for the regularization of consolidated informal settlements. From a broader perspective, informal development should not be tolerated given the high costs and burdens involved for all concerned, both the residents in the settlements and the whole urban population, with the prevention of the phenomenon through serviced plots and social housing policies being cheaper, easier, and faster than to regularize consolidated situations of informal settlements. However, stressing once again that the regularization of informal settlements should not be perceived as the housing policy *par excellence*, the existing consolidated situations need to be dealt with. The discussion on how to regularize them should combine upgrading, legalization and socioeconomic programs, always keeping in mind the need to respond at the scale and the need to guarantee presence of the state (even when it involves less in more areas if resources and capacity to act thus determine).

The more specific discussion on how to legalize the settlements should be informed by the principle that the legal obligation of recognizing and promoting social housing rights cannot be reduced to a discussion on property rights. While there is no need to privatize public land, there is a range of legal instruments to be considered, including collective rights. The objectives of security of tenure and sociospatial integration should be articulated so as to guarantee the permanence of the communities, keeping at bay the gentrification pressure and the ever-present possibility of eviction by the market. Also in this context, the financing of the regularization programs should be discussed especially to guarantee their financial sustainability, thus making it possible to replicate them at larger and more adequate scale [15]. The participation and involvement of all residents should be considered, as well as the redistribution of

resources generated elsewhere, especially those resulting from the capture of surplus values elsewhere in the city. In this, “green” and energy efficient initiatives can be placed very much front and center.

Land, money, and power: the planning game has never been tougher, and if it is true that more time is necessary to revert the accumulated legacy of many decades of sociospatial segregation in cities, ultimately only the vigorous renewal of the socio-political mobilization process – occupying and making the most of the legal and institutional spaces already opened by the new legal-urban order.

Conclusion

In short, the need for urban land reform is urgent. As the previous section indicated, this is true in many respects – politically, economically, and socially. The risk of not taking action to address the dismal conditions in which the world’s majority lives is to risk serious and prolonged urban unrest – in a majority urban planet. At the same time, the possible burden on energy supplies and environmental resources is considerable if these reforms are implemented using traditional responses, technologies and planning requirements. However, if the urgent reform moment is seized in a way that also incorporates green and energy efficient principles from the bottom up, a valuable opportunity will help improve the situation of the world’s urban majority and the land on which they live going forward.

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