IMPROVING BUILDING CODE IMPLEMENTATION AND COMPLIANCE FOR MORE RESILIENT BUILDINGS IN DEVELOPING COUNTRIES:

CONSIDERATIONS FOR POLICY MAKERS

Concept Note

October 2014
Project brief description and objectives

The project’s overall objective is to carry out a study of potential approaches to improve the efficiency and effectiveness of building code regulatory systems for disaster risk reduction. The study will gather international experience in building code regulatory and implementation frameworks.

The short term objectives of the report will be to provide a catalytic knowledge tool to increase international awareness on the role of functioning building code implementation practices within larger disaster risk prevention and mitigation strategies. The report will primarily focus on practices relevant to developing countries.

The medium term objectives will be to:

(a) Accelerate a deeper adoption of code implementation good practice into broader disaster risk prevention efforts and spur a sustainable public-private dialogue on the topic of building code implementation;

(b) Establish the knowledge base to design, in 2015, a new World Bank/Global Facility for Disaster Risk Reduction (GFDRR)-led program with the goal of promoting good-practice construction standards within effective DRR strategies.

Time allowing, a preliminary report for discussion will be presented at the Sendai Conference scheduled in March 2015. It will serve as one of the key support knowledge tools for a proposed session addressing the role of building code compliance in Disaster Risk Management (DRM) strategies. After the conference, the preliminary report and its follow-on comments will be finalized and published. It will provide the basis for further development of this topic as a client offering to help governments apply good-practice construction standards in policymaking and building code implementation in disaster-prone situations.

Rationale for intervention

Seismic events and weather-related disasters affect developed and developing countries, with higher disaster impacts in rapidly growing middle-income countries due to the equally rapid growth of population and asset values.

Low-income and lower middle-income countries have the least capacity to cope and, in general, suffer the highest human toll, accounting for 85 percent of all disaster fatalities.¹

Disaster risk reduction and climate change adaptation are significantly related to the introduction of sustainable building practices and avoidance of hazardous locations. Consideration of sustainable building and land-use practices for disaster-prone developing countries has, to date, failed to address issues of building and land-use regulatory policy and practice in low- and lower-income countries. Rapid urbanization without effective regulation has dramatically increased urban disaster risk throughout the developing world.

¹ Munich Re 2010
The stark contrast between the losses linked to earthquakes in Haiti (January 2010) and Chile (February 2010) is directly related to the quality of construction and the strength of each country’s regulatory system.

The past half century of rapid, unregulated urbanization in the developing world has created a very large backlog of unsafe urban development and exposed populations. The number of poor exposed to natural disasters will reach 325 million by 2030.2

Successful mechanisms of risk reduction and hazard adaptation in the developed world have relied in large part on effective and efficient regulations. In fact, regulations have been essential in elevating health, safety, and welfare in the cities of the developed world. It is now necessary that this collective experience be better adapted to local conditions and embedded into renovated legal and regulatory implementation systems.

The added cost of resilient construction is estimated to be about 5 to 10 percent of construction. The need for rezoning and amending official master plans will also add management costs; however, these increased construction costs can be easily justified as risk mitigation against the loss of life and property incurred in future disasters.

In the majority of developing countries, building codes have been consistently neglected in urban resilience and disaster risk-mitigation strategies. The history shows that the importance of building codes has been overlooked and Western codes inadequately transposed into developing countries. Building codes and land regulations have been a missing link in the Hyogo Framework for Action (HFA) and investment programs in DRR.

Although some bottom-up alternatives to codes have emerged, they have not always offered scalable and compelling models that can save lives in large and fast-growing cities.

**Regulatory failures**

Building standards in developing countries are often dysfunctional and poorly implemented. The process of setting and adopting building standards has often been a top-down directive with insufficient consultations of the private sector, private building professionals, and local communities.

For example, in the case of Kenya, the main building code system, that continued the application of top-down colonial standards, paid too little attention to the affordability of the regulatory provisions, until its revision in the mid-1990s. Prior to the enactment of “Code 95,” the cost of conventional building materials was beyond the reach of low-income and vulnerable groups, many of whom did not have access to housing finance and credit. Inadequate settlement planning and management policies associated with the limited use of appropriate materials and technologies resulted in a marked deterioration of the urban environment.3

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2 Building Resilience, World Bank Group, 2013
3 Double Standards, Single Purpose, ITDG, 2001
Building codes often set the bar at unrealistically high technical levels. At times, they increased the dependency of developing countries on imported manufactured building materials and stifled local innovation. In the Caribbean, cost estimates for housing developed in accordance with existing regulations showed that only the wealthiest 15 percent of the population can afford to build legally⁴.

As far as building code implementation mechanisms are concerned, verifications and compliance check’s mechanisms are not always in place despite the fact that in OECD countries, the added cost of a functioning permitting and inspection system usually adds only 1 percent to construction costs⁵.

Permitting and inspections services in developing economies are often characterized by a number of governance and system failures such as ineffective command and control, insufficient qualifications of local building code officials, local designers and contractors, a limited focus on risk management, opaque bureaucratic procedures, and corruption.

Corruption in building code enforcement can be associated with some of the worst possible disasters. Before the 1999 earthquake in Turkey that killed 17,000 people, 65 percent of apartment blocks in Istanbul and other cities had been built in violation of local housing codes by contractors who skipped soil tests, built extra floors, and ignored specific seismic requirements. Turkey had a building code with sophisticated earthquake-resistant provisions prior to the earthquake. This failure was first and foremost a collapse of the code implementation system. It was partly enabled by widespread petty corruption that incentivized building inspectors to look the other way and let poor building practices develop on the ground.

Growth in informal settlements

Despite some efforts carried out by prominent international organizations, building standards and the way building standards are implemented on the ground continue to occupy a relatively modest role in larger disaster risk-mitigation strategies. In turn, this oversight widens the gap between “formal” buildings (that meet acceptable standards of safety and are used by the elite) and “informal” buildings. The latter expands even more rapidly and proportionally to a growing and vulnerable population migrating into large urban centers.

An in-depth and compelling knowledge management effort was carried out on the topic of post-disaster reconstruction strategies (for example, “Safer Homes, Stronger Communities” handbook, published by GFDRR in 2010). Building on this important work, there is a need to strengthen our international body of knowledge and experience with regard to the effectiveness of building code implementation policies within larger risk prevention or mitigation strategies. The report will urge the international community to address this missing link.

⁴ Saad Yahya, Theo Schilderman, 2001
⁵ Krimgold, 2014
Proposed approach

The report

The purpose of the report is to disseminate relevant best-practice experience and provide a catalyst for action in this area. The report will argue that building codes need to be fully rehabilitated together with more robust implementation strategies that can build on a wide range of relevant international experience. It will take the view that internationally recognized model standards should be adapted to the specific building cultures and fit within a locally accepted judgment of acceptable risk.

The primary target audience will be government decision-makers in developing countries, to include policy-makers, construction regulators, and local government and urban planning institutions involved in climate resilience and adaptation strategies. The report may also be of interest to the private sector, developers, investors, building professionals and NGOs with a stake in sustainable urban development, poverty reduction, and disaster risk management.

The report will offer a logical complement to the existing World Bank “Safer Homes, Stronger Communities” handbook that provides post-disaster and reconstruction policy guidance by building on this existing body of knowledge. It will focus on the particular context and challenges of developing economies and ex-ante policy and regulatory mitigation measures.

The report will include:

- References to global experience in building and land-use regulation with examples of good practice as related to local contexts. They will cover experience of participatory regulation that has efficiently included the private sector and the public.

- A description of the governance and enforcement mechanisms that can support improved compliance of new construction with building codes. It will promote the role of effective regulatory enforcement mechanisms into more effective DRR strategies.

- Considerations about the potential benefits of leveraging private sector into more robust and affordable verification mechanisms. Examples of modern compliance tools will be provided. Non exhaustive, those will include improved information systems on risks, building practitioners’ qualification, private third party checks, the use of insurance mechanisms and a focus on risk management approaches applied to building controls.

- Examples and practical experience demonstrating that compliance and efficiency in planning and building regulations can be achieved through greater transparency. In turn, transparency can provide a robust foundation for many other potential reforms impacting the quality of buildings.
• A discussion on the need to promote compliance rather than enforcement and police actions with a particular focus on reviewing available instruments and experience for incremental changes in the informal sector.

• Considerations on the need to develop affordable and sustainable building standards. It will consider issues around the resilience of vernacular architecture and the opportunity for a greater recognition of incremental housing into sustainable DRR strategies, using relevant experience on the ground.

Action agenda

This effort will start by setting up a high-caliber international advisory group composed of about 10 to 15 voluntary regional individual experts and sector specialists with hands-on development experience. This group will include expertise from GFDRR donor countries, regulators, private sector specialists, and partners from collaborating institutions (for example, UNESCO, UN-Habitat, UNOPS, RICS).

Construction regulation experience will be a key criterion to engage selectively with international and regional partners. Country case studies will be identified and selected at the outset. The list of country case studies that will inform the report will be extensive and include experience in MENA, LAC, EAP, and transitional economies as well as several OECD countries. They will build on World Bank Group’s practical engagements on the ground in disaster risk management, urban planning, and specific building-code implementation experience.

The team will set up a seamless collaboration with the Trade & Competitiveness Global Practice of the World Bank Group with the view of making the best possible use of its valuable 10-year project experience in improving the governance of building authorities, simplifying administrative procedures, reducing transaction costs, and increasing the efficiency of building reviews and inspections.

The core project team will rely on one full-time senior Task Leader, and two international consultants with a mix of policy, regulatory and DRM background. The team will be supported by a disaster risk reduction think tank for additional hands-on research, fact-finding, and support in the peer review process.

Time allowing, a short preliminary report for discussion will be released before the Sendai Conference, in March 2015. The Sendai conference will adopt the post-2015 global framework for disaster risk reduction. The final report will be published in June 2015.

Potential partners

GFDRR donor countries represent a unique set of global experience and resources. They have well developed capacity, resources, and experience in building and land-use regulation. The team will seek to leverage expertise among them by proposing the set-up of an informal advisory group.
The proposed report would be consistent with the current effort of UNESCO in developing a baseline study of basic building standards in disaster-prone countries that could be presented at the Sendai Conference in March 2015 in a proposed dedicated session on building standards and implementation frameworks. The team had preliminary contacts with the UNESCO-led effort with the view of exploring synergies between the two initiatives.

An informal working group has been established with UN agencies and the World Bank to discuss the details of a possible session in Sendai dedicated to building awareness on the issues of standards and the role of code implementation into more robust DRM approaches.

UN-Habitat has also been involved in inventory and reappraisal of regulatory policy and practice for buildings and land use. It has already suggested to the World Bank Group team a number of possible synergies with its ongoing City Resilience Profiling Program (CRPP)\(^6\) initiative, which provides baselines for the development of resilience standards that can be applicable to any large urban area.

The project team will seek to forge a global alliance with other UN agencies with a stake in infrastructure and disaster risks. It will seek to involve specialized disaster risk departments of universities managing practical projects on the ground. It will reach out to private sector and international think tanks in the area of good practice regulations.

Organizations such as the U.K.-based Royal Institute of Chartered Surveyors and the International Code Council\(^7\) have expressed a renewed interest in the development of regulatory capacity in both middle-income and low-income countries. Other international groupings of building regulators such as Consortium of European Building Controls (CEBC) will be approached for research, contributions, or for quality control purposes.

This effort will be closely coordinated with the “Business Climate” group of the World Bank’s Trade and Competitiveness Global Practice. This department has a 10-year, substantive development experience advising governments across all six regions on the simplification of building permits and inspections procedures. It has supported efficiency improvements in building-control procedures. It has typically carried out process mapping and re-engineering of administrative procedures with the goal of improving transparency, reducing excessive discretion from planning and building control authorities, reducing transaction costs, and improving compliance to local standards. For example, between 2008 and 2010, a two-year technical assistance intervention in the city of Alexandria, Egypt eliminated over 20 procedures. The opportunity cost of going through building permit procedures was reduced by 30 percent. This technical assistance has often been initiated by the Doing Business report published by the World Bank. \textit{Doing Business} is a robust international benchmark which measures the ease of dealing with construction permits\(^8\) among other “ease of doing business” indicators. These benchmarks as well

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\(^7\) ICC Global Forum held in Fort Lauderdale, September 2014

\(^8\) This specific indicator in the report records the procedures, the time, and cost required for a small to medium-size business to obtain all necessary approvals to build a simple commercial warehouse and connect it to water and sewerage.
as other major other World Bank indexes (such as the World Bank Enterprise Survey) will be used in the report for analytical purposes.

The team will also seek to engage with the insurance sector with the view of exploring the potential to promote efficient, fair, and transparent liability systems with reasonably priced insurance mechanisms.

Preliminary consultations will be organized with the drafting team of the “Safer Homes” handbook to seek advice and strategic support.

**Strategic relevance**

The proposed report aims squarely at promoting risk reduction, a goal consistent with Pillar 2 under GFDRR’s Strategy 2013–2015. It will achieve this by promoting the mainstreaming of building-code implementation best practices into DRM strategies.

Urbanization has been one of the most significant engines of growth to extract millions of people out of poverty (access to jobs, higher education, and technology). However, this growth is correlated with a significant increase of urban risks that can impact the built environment and human lives. In turn, these risks can seriously undermine the path out of poverty for millions of people; 55 million new slum dwellers have been added to the global population since 2000, and a majority of them are settled in disaster-prone areas.

“Building informality” or “illegal buildings” are on the rise in South Asia, LAC and in Africa. Illegal buildings are often sub-standard. They contribute to creating poverty traps and to increasing vulnerability to natural disasters, in particular to earthquakes and hurricanes.

Sound building code implementation practices would typically aim at increasing compliance with basic structural and fire-safety standards by reducing the cost of compliance, by improving the economics of regulations for all buildings, and by containing the growth of informality. Sound building regulations improve the quality of housing and other building applications and their resilience to natural disasters and hazards associated with climate change.

Offering government better awareness and cutting-edge practical experience on policy and regulatory tools that can effectively respond to these challenges is a goal consistent with GFDRR’s mandate to support governments in better managing disaster risks.

**Core project’s team**

The core team will include:

(a) **Thomas Moullier** (Project Lead) is a policy and regulatory reform specialist at the World Bank. He has advised governments and private sector organizations across the world for the past 20 years. He developed and published the World Bank Group’s first publications on best practice construction

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9 UN-Habitat
policy\textsuperscript{10} and regulation reforms. He is also a regular contributor to the \textit{Doing Business} report, the World Bank's most circulated global publication. Since 2012, he has been in charge of the regulatory and building code component of “EDGE,” the World Bank Group’s new green building initiative. The objective of the program is to decrease GHG emissions from buildings in key emerging markets such as India, China, and Brazil.

\textit{(b) Dr. Frederick Krimgold} is the Director of the Disaster Risk Reduction Department of Virginia Tech. He is a member of the Earthquake Engineering Research Institute, the American Society of Civil Engineers and the National Institute of Building Sciences Consultative Council. He currently serves as Co-Director of the World Institute for Disaster Risk Management. He has also worked on the evaluation of earthquake hazards in existing buildings including the development of integrated, incremental strategies for earthquake hazard reduction in existing facilities. Dr. Krimgold has served as a member of the Building Research Board of the National Research Council and as a member of the Federal Emergency Management Agency Advisory Board.

\textit{(c) Michael de Lint} has advised the World Bank Group in building code implementation issues for the past eight years mainly in MENA, South Asia, the Caribbean, and ECA. He contributed to the World Bank’s first publication on best practice construction policy and regulation reforms. As a civil servant in Canada, he was extensively involved in policy development and stakeholder consultations related to a major government initiative to improve the building regulatory regime. He is a member of the Canadian Standards Association Committee and a member of the Ontario Association of Land Economists.

\textbf{Quality assurance mechanism}

At the beginning of the project, the team will identify a panel of international peer reviewers primarily operating in the regulatory field as well as in the private sector. The team will ensure that the comments of advisors can be shared at different stages of the report’s development.

A tentative long list of more than 30 international specialists in various related fields has been drafted. A further selection will aim to choose 15 advisors at the outset of the project. All advisors will provide comments to a preliminary discussion report the team will aim to present in Sendai, in March 2015.

The final report will be subject to a formal World Bank Group peer-review process.

\textbf{Exit strategy and follow-up actions}

The final report will support the design by GFDRR of a specific World Bank Group programmatic approach that could be mainstreamed into the delivery activities of the Urban Global Practice of the World Bank Group. Supporting a new programmatic approach in the area of best practice building code implementation will be a concrete way of strengthening the sustainability of the lessons learned emerging from the new report.

\textsuperscript{10} https://www.wbginvestmentclimate.org/publications/loader.cfm?csModule=security/getfile&pageid=33965
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