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## Managing urban disasters

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## EDITORIAL

## MANAGING URBAN DISASTERS

## 1. HAZARDS SHOULD NOT MEAN DISASTER

Imagine, for a moment, human settlements that are organised to overcome and withstand earthquakes or hurricanes, infrastructures that reinforce themselves and seal cracks of their own accord, or buildings that elevate themselves during flooding. Imagine settlements that provide information systems that warn when a tsunami is approaching, or when houses are overburdened and may be liable to imminent collapse due to landslides, fire or other hazards. Such human settlements would secure the livelihood of all their inhabitants, empowering them to cope and deal with natural threats. As with a living organism, these settlements would adjust their social, political and economic systems in such a rapid way that they can account for damage, effect repairs, learn from experience, and retire - urbanely - once they can no longer fulfil their protective and defensible function.

Such ideas may be far fetched. However, this special issue on "Managing Urban Disasters" shows that the integration of an appropriate risk reduction strategy in the fields of housing and settlement planning is possible and is a first step to convert such a utopian situation into an effective and realistic vision. In fact, such integrated urban housing and planning can prevent and mitigate disasters or, at least, minimise its effects.

Nevertheless, "disaster risk reduction"<sup>1</sup> is still a relatively new area of knowledge. It is slowly developing and undergoing a multifaceted process of institutionalisation, especially within our professional disciplines. Those working in housing and settlement planning far too often think about risk reduction in a purely physical way, ensnaring themselves in physical/constructive (high-)tech discussions and discourses, that are seldom of relevance to the approximately one billion poor residing in precarious and dangerous living con-

ditions worldwide (UN-HABITAT:XXV). Such discussions tackle only a small part of the necessary and possible measures, and too often ignore the root causes of vulnerability.

## 2. COUNTERING DISASTERS: TARGETING VULNERABILITY

With the increasing occurrence of disasters worldwide and the growing human and economic losses due to the destruction of the built environment, the integration of an appropriate disaster risk reduction strategy in the fields of housing and settlement planning is urgently required and highly relevant. Some recent developments give reasons for optimism. In fact, the disaster discourse changed significantly over the last decade. Disasters, originally often seen and presented as an "act of God", are today increasingly discussed and analysed as a human-induced problem. When the flooding in Mumbai on July 26th this year cost almost 1,000 fatalities and losses of an estimated 2.6 billion US dollars, the International Herald Tribune stated:

*Many citizens, a week into the disaster, began to question how a downpour could cause such a calamity (...). The storm-drain system, much of it built a century ago, has been clogged with garbage. The shanties of the poor, as well as the trash of the rich, have blocked gutters and creeks. Mangrove swamps, which act as a nature's bathtub during the rainy season, have been built over. A river that once allowed storm water to be carried down to the Arabian Sea has been pitched by the construction of a road to connect a northern suburb to midtown Mumbai. (INTERNATIONAL HERALD TRIBUNE, 2005:2)*

However, while the discourses about disasters seem to have changed<sup>2</sup>, the practical reality and the response of officials and civic organisations too often remains the same: sporadic, passive

<sup>1</sup> Disaster risk reduction is "The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development." Information obtained under <http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm> (Terminology of ISDR regarding basic

terms of disaster risk reduction).

<sup>2</sup> Regardless of the described developments, religious and secular commentators alike have rushed to attach moral significance to the destruction of New Orleans after Hurricane Katrina on the 29th of August this year. See: "Don't call them 'acts of God'" under <http://www.latimes.com/news/opinion/commentary/>.

and reactive. A potential turning point was the occurrence of the Asian tsunami at the end of 2004.<sup>3</sup> More than 280,000 people were killed and around five million were displaced in 11 countries (see also Wisner & Walker, in this issue). Whilst the tsunami shocked the world and created an awareness of the tragic impacts natural disasters can cause, much needed changes in the management of disaster risk have not apparently occurred. This special issue - which is published exactly one year after the tsunami - is meant to be a reminder of this disastrous event, reminding and reinforcing the importance and the need to put all our efforts into helping to prevent such disasters in the future.

In the shadow of the Asian tsunami, the United Nations World Conference on Disaster Reduction (WCDR) took place in Kobe Hyogo, Japan (18.-22. January 2005) with more than 4,000 participants. The resulting and approved "Framework for Action" aims at reducing the human, socio-economic and environmental disaster losses considerably by the year 2015, and urges that the issue of disaster risk in urban planning is addressed by requesting governments to:

*Mainstream disaster risk considerations into planning procedures for major infrastructure projects, including the criteria for design, approval and implementation of such projects and considerations based on social, economic and environmental impact assessments. To develop, upgrade and encourage the use of guidelines and monitoring tools for the reduction of disaster risk in the context of land-use policy and planning. To encourage the revision of existing, or the development of new building codes, standards, rehabilitation and reconstruction practices at the national or local levels, (...) particularly in informal and marginal human settlements, (...). (Section 4, paragraph 19, iii)<sup>4</sup>*

During the WCDR, developments and changes in risk reduction were showcased. While discussions about risk reduction originated in the context of

post-disaster recovery, natural disasters are increasingly recognised as a threat to sustainable development and poverty alleviation. Thus, the issue of mainstreaming risk reduction in the field of development gained an increased importance.

A considerable incentive for rethinking risk reduction as an integral part of the development process also stems from the aim of achieving the Millennium Development Goals (MDGs) laid out in the Millennium Declaration in 2000.<sup>5</sup> The closest related to settlement planning is target 11 of the MDG number 7, also known as the "Cities Without Slums" target. It states: "By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers, while providing adequate alternatives to new slum formation".<sup>6</sup> Naturally, it will be impossible to achieve this goal without developing policies and practice to, firstly, confront the current high risk level of slum dwellers within upgrading programmes, and secondly, to include risk reduction as a priority issue within the creation or enabling of new low-income settlements. With housing and secure land ownership being key livelihood assets for the urban poor, the integration of risk reduction in housing and settlement planning aspects is crucial to eradicate extreme poverty and hunger. Therefore, it is important to emphasise that not only risk reduction programmes should prioritise housing and sustainable planning to preserve livelihoods, but also housing and urban planning programmes have to be carried out in a way that gives risk and poverty reduction priority.

### 3. THE DEFENSIBLE CITY: MORE THAN TECHNOLOGY

This special issue on "Managing Urban Disasters" is aimed at policy makers, academics, and practitioners of the various disciplines dealing with housing, design and development in the built environment. The act of planning settlements is, in itself, an act of risk reduction. In fact, historically one of the main functions of the city as a whole,

<sup>3</sup> A tragic event which - as we have now learned eight months later - can also happen in a developed country: "It is really the same thing we have seen during the tsunami 2004 in Indonesia as in New Orleans" (statement of Prof. Djillali Benouar, Algeria, RADIX network, 09.09.2005).

<sup>4</sup> The "Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters", gener-

ally referred to as "Framework for Action", is available online at <http://www.unisdr.org/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf>

<sup>5</sup> The United Nations Millennium Declaration is available online at <http://www.ohchr.org/english/law/millennium.htm>

<sup>6</sup> Extended definition based on GARAU et al (2005:3).

as well as housing as such, was to provide defence and protection for its inhabitants (WAMSLER, 2004:15). With more and more disasters occurring and with the emergence of new threats, the neglect of this relationship finds its expression in increased urban vulnerability. Hence, the focus of this issue lies in showing concrete projects, experiences and best practices from Africa, Asia and Latin America with new integrated approaches to risk reduction that link different stakeholders and levels, and do not focus only on technical, but also on social, economic and political aspects. The papers presented clearly demonstrate that the "utopia of defensible cities" will not materialise if faith is placed only in the physical/constructive aspects. The underlying factors which determine or relate to the vulnerability or resilience of cities in respect of natural disasters must be addressed and are, therefore, discussed in this special issue.

This compendium comprises outstanding contributions, original research and field reports, which are presented by a group of distinguished and experienced authors, who act as advocates for the different topics presented. Due to the pressing importance of the subject, more descriptive reports of the practical experiences of organisations dealing with risk reduction on the ground are included, along with conceptual contributions and those that combine theory with rich empirical data. The different approaches complement each other and demonstrate the complex and manifold connecting points between risk reduction, housing and settlement planning.

Every effort was made to provide a balanced selection of topics, hazards, and countries. Specific topics relate to appropriate housing design, construction materials and techniques, land use and urban development planning, policies, legislation, governance, as well as related advocacy campaigns, institutional strategies, methods and tools. The articles address different types of hazards in a variety of countries, such as, fire risk in South Africa, flooding in Mozambique, hurricanes in Central America and the Caribbean, earthquakes in Peru, India and Turkey, including the recent tsunami in the Asian region. Naturally, there are great contrasts amongst the countries analysed and the particular context-specific risks they face. Yet, the different experiences share a number of common barriers, limitations and recommendations.

► 6

### **During, after - and before**

In order to achieve the "utopia of defensible cities", risk reduction has to be applied during, after - and most notably before the occurrence of disasters. The structure of this special issue reflects these three points in time: The first paper by Davis & Izadkhah provides an overview exploring the concept of "resilience" in general and what this means in both, the post- and pre-disaster context. The authors define how resilience can be developed and maintained including the physical/technical, social and economic aspects. The following articles presented in the first part of this issue focus on the possibilities of reducing risks in the post-disaster context, presenting a range of recovery and/or reconstruction projects. The second part of the issue is dedicated to the pre-disaster or developmental context. The search for adequate papers in this specific context proved difficult as relatively little research has been carried out with such a specific focus. This is indicative of the primary problem identified - the lack of integration of risk reduction in housing and settlement planning development.

### **Recovery and reconstruction: a second disaster?**

The papers dedicated to the post-disaster context, provide evidence that reconstruction projects and programmes can prove to be almost as disastrous as the disasters as such. Experience shows that, in order to reduce risks in a more sustainable way, it is crucial to determine and work on the causes rather than the effects of disasters. Consequently, different aspects are discussed that must be taken into account, such as, access to technology and information, local capacities to recover and sustain livelihoods, decision-making structures, and the responsibilities of local governments, other governmental institutions and civil society organisations.

In describing case studies from Cuba and Honduras, the papers by Martirena & Olivera and Rhyner respectively draw attention to the importance of the production and use of ecomaterials as a catalyst for achieving integral risk reduction. In fact, creating or enhancing local and participative mechanisms to manage and produce ecomaterials may bring about delays in the delivery of the initial disaster relief in the affected areas. However, it can yield better results over the long

term, as the organisational structures and physical facilities created can evolve into permanent ones which then contribute to future disaster prevention. The significance of the decision-making structures for achieving sustainability of such risk reduction processes is emphasised by Martirena & Olivera. Rhyner further highlights the importance of local building advisory services to empower the urban poor by providing access to information. The following article by Ferradas presents general guidelines for improved reconstruction which is based on a systematisation of reconstruction projects implemented in Peru by the Intermediate Technology Development Group (ITDG) following earthquakes and internal war. The article by Saglamer et al focuses mainly on the analysis of socio-cultural aspects. A Turkish reconstruction project is presented, which had as its major objective, in addition to the provision of shelter, the re-establishment of those values that had been lost in respect of the traditional Turkish culture.

Wisner & Walker take up the Asian tsunami to examine troubling and fundamental issues regarding the potential of warning systems, as well as those of accountability, transparency, and the uneven manner in which the international community responds to crises. Furthermore, the root causes of vulnerabilities related to settlements and livelihoods are discussed. The last paper of the first part of this issue, dealing with the post-disaster context, is presented by Zlatanova et al and shows the importance of geographic-information systems (GIS) for risk reduction. Organisational, institutional and technological barriers are identified which explain why the use of GIS is still limited. Recommendations are made as to how these can be overcome.

### **Sustainable development through risk reduction**

Wamsler leads over to the second part of this issue, which is dedicated to the pre-disaster or developmental context. In describing a case study from El Salvador, the article shows how social housing organisations can include post-disaster experiences gained in risk reduction within their usual work. A conceptual model presents how the existing separation between risk reduction, urban planning and housing can be overcome and integration achieved. Linking short-term risk reduction activities, such as post-disaster responses, with

long-term efforts, such as development, is emphasised.

The subsequent papers look at different aspects of possibilities for risk reduction in the pre-disaster context. The article by Gavidia & Crivellari presents results of a study carried out in Central America, Cuba and the Dominican Republic regarding the role legislation plays in risk reduction. The study looks into the complementarities and gaps between regulations for disaster management and for municipal/urban management.

In cases where the legislative and institutional framework dealing with poor urban settlements at the central and/or municipal level is not yet operational, the problem for the urban poor living in risk areas is further aggravated. It is thus necessary to initiate a parallel and more pro-active approach addressing the slum issues at the local level and from the bottom-up. Gupta et al highlight the possibilities of the Community Action Planning approach for risk reduction, which has been refined over the last ten years. The presentation of a project carried out by SEEDS (Sustainable Environment and Ecological Development Society), an Indian non-governmental organisation, provides a valuable insight into the importance of achieving the desired mix of technical tools, community processes, governance, and the work through local level partnerships. Morrissey & Taylor equally emphasise the importance of local level work, and extend the discussion to the household level. They suggest an approach to risk reduction which considers both the broader development needs of the community and the intricacies of intra-settlement risk at the household level. In addition, their case study analysing fire risk in an informal settlement of Cape Town, South Africa, draws attention to the particularities of fire risk, where both the vulnerability and hazard elements of risk can be internally generated. The discussion regarding the importance of scale and level for risk reduction and analysis is carried further by Spaliviero, who presents an integrated and participative slum upgrading project for flood mitigation in Mozambique. The project is carried out by UN-HABITAT and is aimed at strengthening the relationships between the different organisational levels (i.e. between central government, local authorities and resident communities). Another

slum upgrading project is tackled in the subsequent paper by Gökmen et al which focuses on earthquake mitigation in Istanbul, Turkey.

The following papers by Pelling, and Benson & Twigg discuss the usefulness of existing tools for risk reduction. Pelling assesses the state of the art in urban vulnerability and risk assessment tools. Such tools are a precursor for the development of benchmarks with which policy progress for urban sustainability and risk reduction can be tracked. Benson & Twigg review existing standard tools, which are used by development organisations in designing and evaluating projects, in order to provide recommendations on how to integrate risk concerns into the application of these tools. This is necessary in order to convince development organisations, which mostly still remain reluctant to pursue risk reduction as a key objective, of the fact that risk reduction is a no regret instrument, i.e. a guaranteed win-win instrument that leads to favourable outcomes.

The four final contributions are informative and analytical reports on practical experiences, focus areas, and lessons learnt by specific organisations and networks. Kessler points out and illustrates important developments of the Asian Disaster Preparedness Centre (ADPC), which focuses its work on risk reduction. Ferrero & Gargantini, as well as Benouar et al, provide information about two valuable networks related to urban risk reduction, one for Latin America, and one for Africa. Finally, Hohmann & Schaefer present some project experiences of the German Agency for Technical Cooperation (GTZ) in El Salvador after the 2001 earthquakes.

#### 4. POTENTIALS AND LIMITATIONS

The papers contributing to this special issue present manifold and unique research, case studies, and experiences regarding the management of urban disaster risks. Whilst there is a lack of adequate platforms and tools for systematising such lessons to provide guidance for organisations to replicate them, their dissemination through channels, such as this issue of Open House International, is crucial for the promotion of risk reduction in housing and settlement planning. Managing urban disasters is a field of activity

where close cooperation and/or inter-action between academic research and practice can, and must, complement each other, in order to develop sustainable solutions for the urban poor. Further research and action is required, especially in the pre-disaster context.

Cities are living systems composed, not only of buildings and infrastructure, but also of "invisible" structures, such as institutions and regulations, and, most importantly, the inhabitants, who guide their functioning. As destruction caused by natural disasters has its most visible impact on the built environment, efforts to reduce the effects of natural hazards have often mistakenly focused on how to improve the resistance of building materials and constructions. The papers presented in this issue show that the "utopia of defensible cities" that can easily withstand and overcome disasters, can only become a reality if risk reduction encompasses elements of social, political and economic development which are sensitive to current livelihood strategies. Therefore, a more inter-sectoral and multi-disciplinary approach is needed, as well as a better exchange between the community of practitioners working on urban risk reduction and the housing and urban planning community.

If we wish to regain the historical function of human settlements and houses as the places where citizens can find safety and protection, not only risk reduction should prioritise housing and sustainable planning, but work on housing and urban planning also needs to prioritise risk and poverty reduction. As several papers presented in this issue demonstrate, housing and urban planning have the potential to act as an entry point or catalyst for the promotion of integral, participative, and locally-based risk reduction. This is a matter of survival for millions of urban poor. Is another tsunami needed to remind humanity of this critical issue?

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