

Urbanization and Disaster Risk

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More than half of the world's population and the majority of its capital assets are found in urban settlements. Maintaining these centres relies upon chains of consumption that pull in water, food and energy, and export waste. Urban influence is felt far beyond administrative boundaries through migration and the impact of urban demands on rural markets and livelihoods – opening opportunities but also challenging established cultures and values including those that shape people's relationships with nature and the environment. In consequence, there are few places and economic systems that are not touched by urbanisation, so that the world today can be thought of as a web of interactions drawing the rural and urban, small and large cities closer together.

In this short paper I build on Hogan and Marandola Jr.'s assessment of the ways in which population interacts with urban disaster risk through demographic trends and urban settlement hierarchies. First, a note on the relatively recent realisation that cities are at risk.

The urban transition from security to risk

In 1981, Amartya Sen described cities as places of refuge from famine where food stores, economic opportunity and political accountability provided a buffer from environmental change. Even today this is the dominant perception of cities reflected in a lack of research and funding for urban resilience (Vale and Campanella, 2005). Today though, cities are better described as hotspots of disaster risk. Risk comes from increasing poverty and inequality and failures in governance, high population density, crowded living conditions and the siting of residential areas close to hazardous industry or in places exposed to natural hazard (including the modification of environments which generates new hazard, e.g. through the loss of protective mangroves to urban development, or subsidence following ground water extraction). The dominant solutions – regularised urban planning and grand engineering projects – provide security for some but exclude many more. This need not be the case. Cities continue to be able to draw on the human, intellectual, financial and material resources that can bring security. But the priorities that shape urban decision-making and governance have not delivered equitable and sustainable risk reduction either as part of development or in response and reconstruction from disaster events.

The rapid population growth of cities has exacerbated this trend and increased the stakes (many more people now have their lives and livelihoods threatened), but population growth is not the principal underlying causal factor. Rather, the increasing pace of urbanisation has finally forced us to recognise that established practices and

dominant values for planning and development in cities have led to an accumulation of inequality, marginalisation and disaster risk over time.

Visions of risk

A lack of emphasis on the urban in development and disaster risk research and policy has led to inadequate and misleading data and analysis. In this section I highlight some of the principal lacunae in our knowledge that means there may be quite some difference between the way we imagine risk production and distribution in cities and lived reality.

It is quite likely that the high levels of disaster risk associated with urbanisation that international actors now perceive is an underestimate. There is no international database of disaster loss that disaggregates data by urban and rural location. Even the Hotspots project (World Bank, 2005) is limited to a variable resolution of between 11 and 21km² too low to isolate all but the largest agglomerations. A lack of global data reflects the absence of data collection at the national and municipal levels. We are left with data collection methodologies such as the Desinventar database or EM-DAT that rely on media reports and humanitarian agencies as a primary source (Pelling, 2007). The veracity of data is problematic for large disasters, for small and medium sized disasters there is often no data at all. This is a particular problem for gauging urban risk where anecdotal evidence suggests the majority of losses accrue from frequent but small scale events – localised flooding, landslides and fires in particular.

Not only is perceived risk an underestimate, but the factors leading to risk and resilience within urbanisation processes are misrepresented. This bias has arisen from two shortfalls in the academic and critical policy literatures. First, research has prioritised megacities. Little comprehensive work has been undertaken in cities of less than 5 million people. Megacities are important, containing around 14% of urban population, but 22% live in cities of between 1 and 5 million and 64% in settlements of less than 1 million (UNHABITAT, 2007). The result is an understanding of risk and resilience based the political, social, economic and environmental processes found in megacities, which is taken to be representative of all urban settlements. Second, and perhaps reflecting a desire to communicate with urban planning professionals, the majority of work on urban disaster risk is organised by an analysis of phenomena tied to particular places. We have a good understanding of how local social and economic factors shape disaster risk and resilience in a small number of places. We know much less about how urban systems respond to and shape disaster risk, and indeed the vulnerability of the systems themselves. There is a technical literature on critical infrastructure, particularly urban water, but this continues to remain outside the lens of most social science research. A political ecology of urban resource flow and how this may be re-shaped by demographic change and rapid population growth in the context of climate change is a priority. We also know relatively little of the ways in which urban centres connected in urban systems interact with each other. Contagion effects have been observed where disaster losses or demand for goods during reconstruction in one city impact on the economy of other places; damage to transport and communication infrastructure has also been seen to magnify loss through secondary impacts along chains of production or by interrupting market access. These indicative findings suggest the need for more comprehensive

analysis of the spread of costs and opportunities following disaster and through reconstruction. To this should be added the costs and opportunities of climate change adaptation and mitigation.

Finally, because global databases do not disaggregate by gender, age or social class we simply do not know conclusively how different population groups are affected by disaster. Individual studies suggest that women, migrants, the young and old are disproportionately impacted with the degree of additional loss varying by case. In the 1991 Bangladesh cyclone for those over 10 years of age mortality in women was over three times that in men (Bern, 1993). Individual studies also show how men and women face different challenges in finding security in the city. Women with young children are often turned away from rental accommodation or forced off squatted land if they do not have men to protect them. At the same time it is women who are the mainstay of local development and risk reduction initiatives making up the majority of community workers (Pelling, 2003). A comprehensive, gender sensitive analysis of processes shaping individual, household and community level risk and capacity to recover from urban disaster shocks, has long been championed by actors such as the Gender and Disaster Network (<http://www.gdnonline.org/>) and is overdue.

The dynamic nature of urbanisation under demographic variability and climate change means that we can no longer rely solely on past events and trends to prepare for the future. The need to plan for the unexpected and for sensitive early warning systems that can pick up emerging crises was well demonstrated in the European heatwave of 2003 where 35,000 to 50,000 mainly elderly urban residents lost their lives. This was unprecedented, but not unpredictable had lessons been learnt from earlier events in US cities. Reducing risk has required interdisciplinary work that brings together demography, epidemiology, climatology and social policy with pathways for risk being varied and shaped by individual health status and social context (McGregor et al 2007). More broadly, demographic change (including aging, but also the impacts of chronic disease and conflict on age/sex profiles and household forms), and urban and international migration are re-shaping the social and cultural fabric of cities worldwide. Individual studies suggest that remittances can be as important as formal insurance flows during reconstruction, and indeed act as an informal insurance mechanism. Less is known about the ways in which chronic disease or conflict affect urban demography and governance reshaping people's exposure and capacity to adapt to disaster risk.

Conclusion

This note has touched on some of the most important gaps in our understanding that has led policy makers to underestimate and misinterpret the nature of vulnerability, risk and resilience in urban systems and communities. The huge variety in the economic base, cultural norms and socio-political institutions of neighbourhoods and the ways in which this interacts with the natural environment within and outside of city boundaries has barely been scratched by research to date. There is a central role here for population studies and for demography, particularly when placed within an interdisciplinary mode of analysis and theoretical development.

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