

An Overview of Urban Risk of South Asia: Issues, Approaches and Thoughts

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Abstract

Urban risk is complex, and it is increasing, especially in the developing South Asian nations. Disaster risk issues in urban areas are linked to environmental and developmental needs of urban management. Experiences show that these urban management and environmental issues can be considered as critical entry points of urban risk reduction, especially for facilitating collective actions at community levels. It is easier to address a mega-city problem, when it is disintegrated into local levels. For successful urban risk reduction, it is required to break the disciplinary boundaries, go beyond the conventional ideas of risk reduction, and find innovative solutions through incorporation of local and regional levels.

Introduction: Urban Risk and Challenges

Urbanization is a complex dynamic process playing out over multiple scales of space and time. It is both a social phenomenon and physical transformation of landscapes that is now clearly at the forefront of defining current and future trends of development. This phenomenon is now being accelerated by the rapid globalization and expansion of local economies, especially in Asia. Thus, vulnerability caused due to urbanization is also increasing, which is reflected in different major disaster in recent times in urban areas. As engines of economic growth, cities offer opportunities for sustainability, but at the same time they also present many challenges, such as poverty, pollution and disease. Therefore, without focusing on the urban areas, it is difficult to reduce the impacts of poverty and disasters. Urbanization effects should be considered in relation to the insufficient adaptation of the infrastructure to the phenomenon of rapid economic activities.

Urban landscapes represent probably the most complex mosaic of land cover and multiple land uses of any landscape and as such provide important large-scale probing

experiments of the effects of global change on ecosystems (e.g. global warming and increased nitrogen deposition). Urbanization and urban landscapes have recently been identified by the Millennium Ecosystem Assessment as focus areas where significant knowledge gaps exist. Due to its high stakes in built environment, the urban areas are prone to both geological hazards like earthquake and landslides, as well as hydro-meteorological disasters like typhoons (cyclone) and flooding.

The world is steadily becoming more urban (Boulle et al. 1997), although urbanization rates vary across the world. The level of urbanization is far higher in countries like the USA and UK as compared to China, India or Vietnam, but the annual 'urbanization rate' is much slower. Many consider urbanization as an irreversible process and thus urban vulnerability becomes a reality (Quarantelli 2003). Virtually all of the world's future population growth is predicted to take place in cities and their urban landscapes—the UN estimates a global increase from the 2.9 billion urban residents from the 1990s to a staggering 5.0 billion by 2030. By 2030, 1 in 4 persons will live in a city of 500,000 people; and 1 in 10 persons will live in a city of 10 million population.

In the Asian context, the combinations of economic and environmental pressures increasingly keep forcing the rural poor to search for alternative living in nearby towns or cities. Supply of developed and safe land is always short of demand in urban areas and often the result is mushrooming of informal settlements, slums, and squatters through encroachment on public and private land. Cities' commercial, industrial and residential locations prove to be livelihood centres for the urban poor, who are left with no choice but to settle on dangerous locations subject to natural or man-made hazards. The pace of urbanization in the developing world is led by Asia. The high population density in Asian cities is creating additional vulnerability, as reflected in the informal settlements. In the Asian mega cities like Manila, Mumbai and Jakarta, almost 25 to 30% of the population lives in these informal settlements, and are exposed to different types of disasters like floods and typhoons. Population density, combined with recent effects of climate change is creating new risk in the urban areas of Asia. Urbanization is increasingly located in the developing countries: in the 1970s, 50% of urban residents lived in developing countries, which increased to 66% in the 1990s, and is projected to be 80% by 2020. A majority of Asia's urban growth will be in seven developing countries: Bangladesh, China, India, Indonesia, Pakistan, the Philippines and Vietnam.

Urban hazards vary considerably as compared to their rural counterparts. They are not only represented by one-off events like earthquakes or cyclones but also get exaggerated due to hindrances in accessing basic services or public health services. The pace of urbanization in the developing world is led by Asia.

In this context, this paper is not a highly scholarly publication with original data analysis. This paper also does not deal with the disaster statistics or history (events) in cities. Rather, it attempts to highlight some of the issues and challenges of urban risk, especially focusing on the South Asian region. The paper also suggests some non-conventional approaches to urban risk reduction, and tries to argue that urban risk reduction should be linked to larger land use and eco-system management.

Problem Setting: Focus on Resilience and Urban Future

The idea of 'resilience' suggests a proactive stance towards risk. The local effects of the global environmental change and economic, political and cultural globalization are adding greater uncertainty to development planning in general, and more specifically to the prediction and management of natural hazard and human vulnerability. In the 1970s, people were focusing on urbanization and in the 1980s on human development and sustainable development. From the 1990s onward, the focus has been changed to more sustainable cities as the concept of urbanization. Resilient cities have two specific implications. First, the concept of sustainable cities focuses on the balanced approach of urban ecosystem, where there should be an equilibrium of natural and built environment. The other aspects of resilience should be reflected in the dynamic changes of risk. While risk is changing over time, it is important that the resilience should also evolve over time to reduce the impacts of disasters.

An example of a threshold-breaching event, which threatened to disrupt the stability of an urban system, comes from Metro Manila. Here, a minor earthquake put one small section of the track of the city's 15-km light rail system out of alignment. This minor failure caused the system to be closed for a number of days and reduced its overall capacity for several months, putting more traffic on the road network. The other example is from the Loma Preta earthquake in the USA, where collapse of Oakland expressway and closure of the San Francisco Bay Bridge did not lead to disruption of the Bay area's transport system due to a high degree of redundancy in the metropolitan transport network. These examples highlight one way through which systems can be designed to have resiliency to unanticipated change such as natural disaster shocks. Similar examples are often observed in different parts of south Asian cities like Mumbai, Karachi and/or Dhaka.

Recent natural disasters (e.g. Hurricane Katrina, Indian Ocean Tsunami, Kashmir and Wenchuan Earthquakes) have highlighted the need for urban systems to cope with unexpected shocks. While there is an emerging research focus on sustainable cities (urban landscapes), there remains a poor scientific technical understanding of the

processes and factors that make some cities vulnerable to shocks and others resilient. This may be due in part to the fragmented nature of urban science and policy. It is required to develop the cities as complex adaptive social-ecological systems, developing ways of assessing urban vulnerability and identifying principles and opportunities for building resilience in urban systems. Building resilience is particularly important in areas such as coastlines, cities, agricultural land and industrial zones which are often the most impacted by humans. It is the same area that people value highly, both economically and aesthetically, and upon which society often depends.

While there has been a great deal of attention on the increase of mega-cities, a more important, but less discussed aspect of urbanization had been the phenomenal growth of smaller cities with population less than 0.5 million, especially in the South Asian region. The growth of medium-sized cities of population between 1 and 1.5 million, together with the associated growth of urban–rural linkages through flows of goods, services, people, capital, and information are observed in the developing and developed countries. Thus the global future population distribution is likely to be a continuum of urban space of varying densities linking mega-cities and rural populations with population distributed according to human activities, resource availability and cultural preferences.

South Asia: Major Urban Challenges

South Asia is experiencing a major demographic transition. During the last fifty years, India's total population more than doubled, while the urban population grew by more than five times. In 1996, the urban population in Bangladesh was 23 million. By 2020, it will increase to 58 million. The urban population in Nepal, during the same period, will grow from 2.6 million to 7.7 million, and in Sri Lanka it will double to more than 8 million.

South Asia's expanding urban areas face a complex set of challenges that must be overcome if they are to fulfill their potential as hubs for economic, social and political innovation and leadership. The challenges are particularly great because of the speed at which their populations are growing. The pressures caused by geometric population growth continue to create huge environmental, health and infrastructural problems. This can, in turn, lead to social unrest. Local governments are well positioned not only to best understand the problems of their municipalities but to take the steps needed to solve them.

Urban Growth and Poverty. Serious poverty has accompanied urbanization. It is as much a result of rural-to-urban migration as it is the inability of the formal economy's capacity to keep pace with the growing population of unskilled labour. In many Indian

states with large shares of urban population, for example, Maharashtra (38%), Gujarat (34%), and Tamil Nadu (34%), the share of urban population below the poverty line is greater than in rural areas. According to the World Bank, 50% of Indian urban dwellers live in slums and squatter settlements and these areas grow at twice the rate of urban areas. Nepal and Sri Lanka urban dwellers seem to be doing slightly better with 19% and 28% of their respective urban populations falling below the poverty line.

Poor entrepreneurs in the urban informal sector are extremely vulnerable to macroeconomic changes, more so than their rural counterparts as they tend to be almost completely dependent on the cash economy for production inputs. An increase in domestic prices for a poor entrepreneur with little or no savings can be devastating. It is possible that they may no longer be able to afford the inputs they need for production or to keep themselves healthy.

Water, Sanitation and Solid Waste Management. Only 50% of the urban population in Bangladesh has any access to safe water. Nepali urbanites do slightly better as 60% has access to clean water. Although the majority of urban residents in India and Sri Lanka have access to some water supply, it is not uncommon for piped water supply to be available sporadically. Further, access to potable water often means the existence of one or two standpipes in a slum area. The pipes must provide services to a thousand or more people and rarely run for more than a few hours a day. Moreover, the actual quality of the water changes considerably from season to season. Sewage service coverage is well below that for water supply. Less than half the urban population in India has access to adequate toilet facilities, and sewage treatment is virtually nonexistent, creating one of India's most serious environmental problems of surface and ground water contamination. The situation is virtually the same in Nepal, Bangladesh and Sri Lanka.

South Asian cities are drowning in their own waste. In New Delhi and Mumbai, more than 1.5 tonnes of garbage is left rotting on the streets or in improperly maintained pits every day. Dhaka is only able to collect about 50% of its waste each day. Further, since the city of Dhaka is growing so quickly, dumpsites must be located further from the Dhaka centre, making it more costly to haul the garbage out of the city. Kathmandu faces similar challenges. The piles of garbage that clog street drains in South Asian cities contribute to floods during the rainy season, which seriously jeopardize the health of nearby residents.

Urban Health. The health of the urban poor is often worse than that of their rural counterparts. Child mortality rates among populations in the lowest income quintiles, for example, are higher in urban areas than in rural areas. Children from poor families who live in urban areas are also more likely to be underweight and experience stunted

growth than their rural counterparts. Air pollution is another important health challenge of urban residents in South Asia. In Delhi, one out of ten school children has asthma. Premature deaths due to air pollution in Indian cities were estimated to have increased by 30% between 1992 and 1995. High levels of lead pollution in the air lead to stunted growth in children as well as hyperactivity and brain damage.

Disaster Perspective of Selected South Asian Cities

Urbanization in South Asia is variable, with many large cities and megacities, but also with substantial numbers of intermediate and small settlements. With the exception of Afghanistan, strong states with good administrative capacity have led disaster management. During recent years, civil society has gained its strength, and in India, in particular, partnership with the state has built resilience. Political tensions in the region and within countries constrain risk reduction capacity. South Asian cities, like other Asian or world cities in developing countries, are fought with several disaster and environment-related problems, like: growth and diversity of urban areas, environmental change and poverty, modification of hazard environment, impacts of climate change, vulnerability of urban slums, building control and land use planning issues, etc.

Mumbai, India

Mumbai Metropolitan Region of 18 million residents is the world's fifth most populous metropolitan region. Mumbai is India's entertainment and financial capital, yet also the city with the largest slums. It contributes 40% of the national income tax and 60% of customs duty. In purchasing power parity (PPP), Mumbai is estimated to have a US\$143 billion economy. Per capita income is US\$12,070, which is almost three times the national average. Traffic congestion, loss of wetlands, and flooding as well as the critical housing issues and slums are key challenges facing Mumbai. Some projections state that Mumbai could overtake Tokyo as the world's largest city by 2050. Mumbai sits on a seismically active zone owing to the presence of three fault lines in the vicinity. The area is classified as a Zone III region, which means an earthquake of up to magnitude 6.5 on the Richter-scale may be experienced. Mumbai lies over more than ten seismic fault lines. The coastal plain to the east of Mumbai is prone to earthquakes of even higher intensity, up to 7.5 on the Richter scale (Mumbai pages 1998). A recent global screening study by OECD (2007) to rank port cities with high exposure and vulnerability to climate extremes ranked Mumbai top (in terms of exposed population) among the studied 136 cities having more than a million population. Seasonal flooding during the monsoon became a regular feature in many areas of Mumbai. This disrupts many important civic services and infrastructure

in addition to paralyzing daily living of a significant population. The incessant and torrential rains in the afternoon of 26 July 2005, amounting to 94.4 cm during a span of only 14 hours not only caused a deluge in Mumbai, but was also a horrifying memory for its citizens. The Indian Institute of Tropical Meteorology noted that from the year 1876 onwards, incidences of rain in a single day are inconsistently increasing. Climate change experts expressed that such catastrophic flooding events will be more frequent and will also accompany killer winds and towering tides in future.

Urban risk in Mumbai encompasses complex dimensions. Widely acknowledged is the fact that urban hazards and vulnerabilities are greatly interconnected whereas there are many other factors, which contribute significantly as 'risk multipliers'. Urban hazards in Mumbai vary considerably compared to its counterparts (other mega cities) in developed countries. They are not only represented by one-off events like floods or cyclones but also get exaggerated due to environmental, social or political stresses or their combination. To understand Mumbai's vulnerabilities, it may be appropriate to deconstruct the underlying factors making Mumbai more critical than in any other built environment. Some of these factors are: population growth, population density, urban mal-planning, reclamation of low-lying areas, encroachment through informal settlements, poor civic services, poor civic sense, lack of community-based approaches, etc.

Among all these problems, there has been an innovative approach in community-based activities. The Advance Locality Management (ALM) is a unique example of community-government partnership existing in Mumbai since the year 1996. This movement was started by motivated citizens who were concerned with neighbourhood problems and resultantly growing localized risks. These citizens have encouraged and convinced a majority of the locality (neighborhood) to coordinate in improvement of quality of life in surroundings. The collective efforts initially grew fast in the areas facing high environmental degradation, including medium and low-income residential settlements. Being a volunteer initiative, people themselves contributed small amounts to upkeep the functioning of ALM. Looking at the greater advantages of this growing movement, MCGM's Solid Waste Management Department (SWM) came forward to partner this initiative. The 'Good urban governance campaign', started as a joint project between the Government of India and MCGM, in collaboration with United Nations Center for Human Settlements (UNCHS) further formalized and boosted this initiative. Finally, since 1998, ALM is a community-based approach for effective management of civic services at the grass roots level. Eventually, in many cases, NGOs/CBOs also joined in and thus, this became community-civic society-local government cooperation for better managing civic services at the local level.

A recent study by Surjan (2008) shows that the areas which had these ALM programmes, were effective in rapid response to the catastrophic flood of 2005. Through specific analysis of Mumbai and Puri, the study suggested that the key of urban disaster reduction in community practices in the neighborhood and community levels.

Dhaka, Bangladesh

Dhaka is one of the most populated mega cities in the world with a total population of over 12 million and an area of 276 sq km Dhaka City Corporation (DCC). The city is situated at the centre of the country and surrounded by a river system comprising Buriganga, Balu, Turag and Shitalakhya. The city has a long history from the pre-Mughal, Mughal to Bangladesh period. The growth of the city Dhaka basically started from the current extreme south and along Buriganga River and then it expanded earlier to the West (Hazaribagh) and the East (Gandaria) and later to the North (Mirpur). However, in last few decades the city has experienced huge population growth and rapid industrial, commercial, business, residential and infrastructure development, which have significantly expanded the physical feature of Dhaka all around. Still many of the development activities are taking place in an informal way within Dhaka City Corporation (DCC) area, the main part of the mega city.

A number of environmental issues have been discussed in several environment-related reports and documents. The major environmental issues of Dhaka include: air pollution, surface water contamination, groundwater declination, solid waste management, sewage management, noise hazards, land use violation, water logging, drainage congestion, transport congestion, slums and squatters, as mentioned earlier. These problems are aggravated through disaster-related problems related to flooding. The recurring floods disrupt and damage governmental, non-government and personal property, road-transport system, drainage system, water supply system and other utility services network in Dhaka city. It has been reported that at least 170 km² areas of the city is below 6 metres mean sea level. The city experienced heavy floods at least 9 times during 1954 to 2004 causing huge damage and disruption to human lives and livelihoods.

Experiences indicate that 100% of eastern Dhaka was submerged by the floods in 1998 and 2004 while western Dhaka was nearly 75% affected in the same years respectively. The Dhaka Integrated Flood Protection Project (DIFPP), was implemented by BWDB and funded by the Asian Development Bank (ADB) and GoB. Under this project, a flood protection embankment cum bypass road was constructed in the western part of Dhaka during 1992–1997. In fact, after the flood tragedy in 1988, the ADB has played an active role assisting the GoB to implement the Flood Action Plan (FAP) and

for the better management of existing flood control and drainage infrastructure. The ADB supported \$95.4 million to GoB for Flood Damage Rehabilitation Project. The government has also taken a decision to construct an eastern bypass, which may protect the city from being further affected by flood.

While the local communities have innovative approaches to cope with flooding, it is also required to establish proper institutional systems, and a legal support system for local and national governments. Another important stakeholder in Dhaka is its strength of civil society, which works hand-in-hand with the government sectors for service delivery.

Kathmandu, Nepal

Nepal's urban population is accounted to be around 15%, a tremendous increment in comparison to its urban population of 30% some 50 years ago. The rapid increase in urban population in the last 50 years has manifested in unplanned and haphazard urban growth. Urbanization shows the trend of shift in employment from the agricultural sector to non-agricultural sector; however, in Nepal, despite the increase in urban population, the economy is still dictated by the agricultural sector. Urbanization is creating and adding new risk to the existing risk of natural hazards like earthquake, landslide, flooding. Building a culture of safety is the key to building resilience of communities to disaster and involvement of the community in managing risk is instrumental in reducing the adverse impact of disasters. Public awareness in dealing with disasters and responding to emergency situations can save many lives.

The increase in urban population can be accounted for by three factors: "(i) Defining and redefining of urban areas by the government; (ii) Increase in the size of municipalities and merging of neighbouring Village Development Committees in the municipalities; and (iii) Migration of population in the search of jobs and opportunity". Therefore, the sudden increase in urban population in the year 1980-90 is because of the government's decision to raise the status of some rural (village) areas to urban (municipal) areas. The increment trend, therefore, does not directly depict the change in economic activity or development pattern. Furthermore, urban areas do not necessarily have urban facilities and infrastructures as villages were converted to urban areas only on the basis of their population rather than their qualification to meet urban standards. However, the rise in armed conflict in remote areas in the later part of 1990s has been one of the leading factors in increase in urban population. The influx has been more in Kathmandu valley than anywhere else.

As part of the Kathmandu Valley Earthquake Risk Management Project (KVERMP), The Kathmandu Valley Earthquake Management Action Plan, 1998 was prepared by the National Society for Earthquake Technology (NSET) Nepal and Geo-Hazards International, USA. Based upon the study, NSET formulated a strategy to be implemented in order to reduce the earthquake disaster risk in Kathmandu Valley. The strategies included: building support for the Plan and Earthquake Risk Management in general and supporting individual Initiatives and revising and keeping the Plan up to date. NSET has been actively involved in the School Earthquake Safety Programme (SESP), mason training, public awareness creating and training to engineers and architects. The NSET SESP programme has been tremendously successful because of the fact that the effect trickles down to the communities. Currently a regional course on Hospital Preparedness for Emergencies (HOPE) is being conducted in Bangladesh, India, Nepal and the Philippines with the assistance of US office of Foreign Disaster Assistance (OFDA). NSET has also been instrumental in carrying the message to the community at risk and many ward-level communities now actively carry out training and drill regularly.

The government of Nepal started preparing a seismic hazard map of Nepal and developed building code, which was implemented and made mandatory only in 2004. It is now mandatory that new structures in municipal areas are constructed with seismic guidelines and code provision with engineers' consent. The agenda of disaster risk management has become also a priority for the government. Realizing the challenge ahead and immediate action required, the government has laid emphasis on disaster management in Tenth National Plan (2002–2007). The main objective formulated in the Tenth National Plan is “to contribute substantially to make the public life secure by managing the natural and manmade disaster systematically and effectively and by making the development and construction related programs in the country sustainable, reliable, and highly gainful”.

Emerging Issues and Challenges

To understand the urban risk and its impacts on local environment, it may be appropriate to deconstruct the underlying factors making urban risk more critical than in any other built environment. These factors may be summarized as follows (Surjan and Shaw, in press):

Urban population. By 2050, the world population is expected to grow by 3 billion people. By 2030, 1 in 4 persons will live in a city of 500,000 people; and 1 in 10 persons will live in a city of 10 million population. Data shows that some 1.5 billion extra people will live in urban areas of various sizes during the period 1994 to 2025. Urban areas are

characterized by high density population, which results to higher exposures. A combination of a high vulnerability and exposure causes higher degree of urban risk.

Urban setting and urban planning. The tendency of cities to be located and expanded on river banks or coastal areas for economic reasons makes them more vulnerable to disasters. A number of densely populated areas in the world are in river deltas, coastal areas, seismically active zones, etc. In fact, population started growing in productive floodplains and coastal zones, fertile volcanic slopes, etc. as these offered the most lucrative place on the earth to settle in. The major cities in Asia are either located in the floodplain or in the coastal areas. A recent study shows that nations with the largest urban population in the Low Elevation Coastal Zone (LECZ) are China, India and Japan.

Urban structures. In most of the countries in Asia, the cities have poor infrastructures, with specific problems in water and electricity supply, sanitation and the drainage system. Moreover, the vital infrastructures in many Asian cities are of poor quality, which is evident in several recent disasters in the earthquake of 2005 in northern Pakistan, 2008 in the Wenchuan earthquake in China.

Compact urban forms. Even in large urban areas, population density varies and determines the severity concentration in specific pockets of the city. Moreover, day-time and night-time density varies significantly. In downtown or in commercial and office areas, day-time population concentration is very high on working days. In the case of Mumbai, although average city density is 27,000 people per sq km for the city, some areas have a density as astronomically high as 114,001 people per sq km.

Urban dependence on rural areas. Urbanization has its origin from the time industrialization gradually emerged in different parts of the world. The environmental impact of the city on its adjoining areas kept growing resulting in larger 'environmental footprint' than ever. The ecological footprint of Tokyo is five times of Japan's land area.

Urban primacy. Many cities including Asian megacities are increasingly becoming the concentration of a particular country's major functions including physical, economic, social, political and cultural assets, which are being exposed to different types of disaster risks. For example, a hazardous event in a mega city like Manila, which is the hub of political, administrative, and economic activities of the Philippines, may lead to complete disruption in the country as a whole. This makes Manila more as vulnerable compared to other cities. A major earthquake striking in a city like Tokyo could have a global impact, especially damaging the economy.

Urban informal settlements: The form and structure of informal settlements can vary from one urban context to another; however, they remain 'illegal constructions'. In the

urban megacities in Asia, like Manila, Mumbai and Jakarta, almost 25 to 30% of the population lives in these informal settlements, and is exposed to different types of disasters, like flood and typhoons.

Urban economic imbalances. As discussed earlier, the poor tend to live in an unsafe environment. They live in most vulnerable housing, in absence of or degraded environmental conditions and hazard-prone locations, with very poor personal assets to help themselves even in minor emergencies. The socio-economic opportunities provided by Asian cities enable people from a wide range of income brackets to interact and live, but also create vulnerabilities resulting from lack of access to urban goods and services.

Urban services. The bigger the city, the more complex is the infrastructure service systems it will have. In developed countries, urban services generally consist of a complicated network spread across the city and are dependent on high-energy inputs and require sophisticated technology to fix problems. Dependency on infrastructure in developed world is much higher as compared to developing nations. The intricate web of services makes it difficult and expensive to repair but needs attention during disasters. Provision of water supply, sanitation, become more crucial in disaster-struck regions.

Urban environment. Urbanization itself, in most cases, has proved detrimental to local and regional environment. Once ecologically fragile areas now have been swallowed by expanding cities resulting in loss of biodiversity, a disrupted balance of eco-systems and threat of extinction to many living organisms. In addition to this, ground subsidence, underground excavations, surface and groundwater contamination, water table reduction, are some of the counter-products of urbanization. In the city of Bangkok, the land subsidence is a crucial issue. In some places, the subsidence rate is almost 25 to 30 cm per year, which is caused due to over-exploitation of underground water. The urban eco-system is characterized by interplay of the built, natural and socio-economic environment, which separately and collectively generate much of the risk that cities face today.

Urban management. Urbanization as a result of the complex socio-economic process, poses a daunting task of managing cities. A heterogeneous societal structure, an opportunist political system, lack of administrative capacities, very poor resource-generation capabilities, archaic urban planning and development legislation, etc. contribute collectively in making the city more vulnerable to poor management and disaster risks. Appropriate governance and a decision-making system are the core of risk reduction in urban areas. Special focus should be given to vital infrastructures like schools, hospitals and key public buildings.

Non-conventional Approaches to Urban Risk Reduction

Srinivas et al. (in press) presented a non-conventional approach of urban risk reduction framework. It has a threefold objective: (a) to develop awareness and educate on issues related to urban risk reduction; (b) to assist in policy and programme development; and (c) to facilitate monitoring and evaluation. For effective development and implementation of the framework, a broad coalition of actors and stakeholders in the urban arena, including government agencies, planners and planning bodies, NGOs, donor agencies, community groups, academics, etc. need to come together. These can be highlighted as follows:

- Urban risk reduction poses a challenge for effective distribution and management of global resources.
- For effective urban risk reduction, there is a need to strike a balance between natural and built environments and between ecological and economic objectives.
- There is a need to develop a structure of goals/visions and a methodology to achieve urban risk reduction in order to identify the action that has to be taken.
- Steps need to be taken that are relevant in the short-term in order to gain wider acceptability, but keeping long-term goals in mind.
- Access, sharing and dissemination of information have to be a priority to achieve greater understanding of the issues involved.
- Collaborative efforts in 'knowledge transfer' at the community to community level and city to city level have to be encouraged, particularly between developed and developing cities.
- There is a need to understand and enact the concept of sustainable development and sustainable living, in all its varied definitions, to achieve urban risk reduction objectives.
- Development of new technologies that are clean, green, and practical has to be encouraged and exchanged between national and city/local governments to combat environmental problems.

While the contents of the framework provide a broad vision, its applicability lies in establishing policies, programmes and projects that operationalize the objectives in the long term, and set up mechanisms to monitor and evaluate at every stage.

Conclusion: The Way Ahead

In conclusion, there are innovative ways of addressing the urban risk issues, which go beyond the traditional and conventional ways of risk reduction. In the complex urban scenario, it is of utmost importance that new innovative ways are adopted to provide

implementable solutions to this ever-increasing issue. The following are some of the synoptic thoughts which can be starting points or entry points for providing solutions to the urban risk reduction.

Urban rural linkages. Two aspects on urban–rural linkages should be emphasized here. First, the population transition between urban and rural areas. Much of the urban population comes from the rural areas as migrants. Their roots are very much in the neighbouring rural areas. Thus, any urban risk reduction plan should look at this aspect both in terms of physical, social, economic vulnerability. The other aspect is the dependency of the urban system on its rural surroundings. The urban ecological footprint has a larger connotation of inter-linkages with the rural areas, in terms of food, water and energy. Thus, while doing resource planning for the urban risk reduction, this dependency issue should be highlighted, and can be a possible vehicle to redistribute urban risk in the larger areas, and take appropriate risk reduction measures.

The Neighbourhood-level approach. It is often argued that managing urban risk in megacities is a challenge. Indeed, the megacity problems have larger dimensions and need significant amount of resources. However, when these problems are disintegrated into smaller levels, like ward, community or neighbourhood, then specific grassroots levels solutions can be applicable and become feasible. Therefore, any megacity complex problem has its community dimension, when appropriate scale is determined to solve these problems.

Daily environmental problems as entry points. Daily issues (like waste, pollution, etc.) provide crucial entry points of community actions. Several cases have proved that community activities which are built on daily problems, are grown as collective actions, and ultimately linked to the community's social capital and resilience. This is very crucial to urban areas, where collective actions needs time, efforts and resources.

Turning problems into potential. There are several issues related to urban risk, which are seen as problems, but have the potential to turn into solutions. In several cities, waste management is considered a problem. However, as a shown in the Mumbai experience, waste management can be turned into an income-generation activities for the local communities, thereby enhancing collective action at community levels. Thus, innovative approaches can turn problems into potential, which is important for the urban areas with limited resources.

An effective risk communication framework. To enhance collective action, it is required to communicate risk appropriately to the communities and local residents. Neighbourhood watching (in terms of town watching) is found to be an effective educational tool for this purpose. Town watching has two specific aspects: (i) to look

at the risk of the neighbourhood, as well the potential of the community (to appreciate both good and bad parts), and (ii) to have a collective survey with different stakeholders (like students, parents, community leaders, NGOs, local governments, academic institutions).

Bringing academic expertise. There has been an increasing trend of action research, where the research outputs are applied in real-life problems, and the mutual learning cycle is enhanced. The key point here is the link between research and practice. The academic comfort zones of disciplines (like urban planning, disaster risk management, environmental management, etc.) should be broken in order to facilitate field-based multi-disciplinary action research.

Synergy of international and local knowledge. In the age of information sharing, it is of great value to establish the link of the local and regional and/or international knowledge. UNISDR (United Nations International Strategy for Disaster Reduction) has established an Asia Regional Task Force for Urban Risk Reduction to facilitate interactions among different stakeholders. The task force has undertaken mapping of good practices of urban risk reduction, and has initiated some training programmes for urban managers. The task force can play a crucial role in linking local and regional knowledge of urban risk reduction.

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