Making Smart Cities Safe: Cities, Children and Risk

Photo: AIDMI.

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ABOUT THIS ISSUE

The Ministry of Urban Development (Government of India) has recently released a list of 98 cities under its flagship 'Smart Cities Mission'. The objective of the Smart Cities Mission is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, along with a clean and sustainable environment through the application of 'Smart' Solutions. As the plan to invigorate the future of India's urban ecosystem goes underway, important concerns about the safety of children in these 'smart cities' need to be addressed.

This issue of Southasiadisasters.net is titled 'Making Smart Cities Safe: Cities, Children and Risk'. According to various estimates, there are 158 million children in the country, about 26% i.e. 41 million live in urban areas and 8 million of them in slums. Hitherto, urban planning in India has not been very responsive to the safety and development needs of children. This issue of Southasiadisasters.net highlights the necessity to make such needs of children intrinsic to the design of these safe cities.

Topical and thought-provoking, this issue of Southasiadisasters.net offers good insights on why and how child-sensitive urban development strategies be included into the idea of a 'Smart City' to transform it into a place that offers safety and security to every child so that he/she may live up to their highest potential. ∎

– Kshitij Gupta, AIDMI

INTRODUCTION

Urban Resilience and Rights of Children

Space, risks and rights converge in a unique way to shape the lived experiences of children in Indian cities. This article takes an overview of risks and rights of children as they negotiate space in the changing urban scape of the country.

Urban Risk Scenario

- In 2014, we had encountered two big Urban Disasters
- On September 6, 2014 – Srinagar had been under a deluge (approximately 20+feet high in some locations) for nearly 10 days
- On 13th October, 2014 – Cyclone *Hud–Hud* devastated the coastal city of – Visakhapatnam.

Visible environmental phenomena

- **Heat waves:** The IPCC report has revealed that it is likely that the frequency and intensity of heat waves will increase.
  The recent Heat–wave in Telangana and Andhra Pradesh devastated lives in urban as well as rural locations. It has claimed over 2000.

- **Air–pollution:** In the WHO report, India fares so poorly that 15 Indian cities feature among the 30 most polluted in the world.

- **Cloud burst:** In August 2010, cloudbursts in Leh left over 250 people dead. In June 2013, a multi–day cloudburst in Uttarakhand caused devastating floods and landslides.

- **Cold waves:** Cold waves during winter have become quite frequent across the northern and eastern parts of India. Cities have a large number of homeless street children, which makes it absolutely necessary that special measures are taken to protect them during winter.

- The biting Delhi cold wave in 2014 claimed a lot of lives and children suffered the worst.

Urban Risk and Resilience
City and disaster risk reduction

- In India, 85% of the land is vulnerable to one or multiple hazards and most cities are located on such terrains (about

- 60 cities with a population exceeding half a million are located within earthquake zones III, IV and V.
- 53 Indian cities have a population of more than a million (2011 census) and 25 are in extremely susceptible coastal states.
- In a global list of cities facing the highest climate change risk in the coming decades, Indian metropolis Kolkata is ranked seventh, Mumbai eighth and Delhi twentieth.
- Children and women are 14 times more likely to die than men during a disaster (IUCN).
- More than 50% of those affected by natural disasters worldwide are children (SAVE 2008).
- Between 2000 and 2009, 8.45 million children under five years of age were affected by disasters in India, every year; of these, 1.25 million children were malnourished (UNICEF).

Yet children remain excluded in formulation of disaster risk management policies and practices.

Protecting children's rights

- **Under the UNCRC,** children have inalienable rights in all circumstances – including disasters, when they are at their most vulnerable – and the right to participate in decisions that ultimately affect them
- The lack of priority and importance is visible at the following two levels: **(a) policy–making and legislation and (b) disaster management operations.** It is important to identify key policies and plans, including important stakeholders at the city–level to integrate DRM issues of children in execution of these plans and policies.
- The private sector needs to be engaged more aggressively and responsibly.

- Participation of children in resilience building activities is critical.
- **A vulnerability-based approach to risk, resilience and adaptation, that is child-centred, needs to be adopted.**
- Poverty and risk exposure further compound the deprivation and destruction brought on by disasters. Any future investment must be made after considering this as the essential condition for ensuring the **safety and progress of our future leaders.**

Comprehensive school safety, early child care centers as well as 'safety of out-of-school children' are critical aspects of disaster management and hence, need to be prioritized. ∎

– Mihir R. Bhatt,
AIDMI
and
Ray Kanchrla,
Save the Children

URBAN SCORE CARD: A FRAMEWORK TO ASSESS RISKS TO CHILDREN IN URBAN LOCATIONS
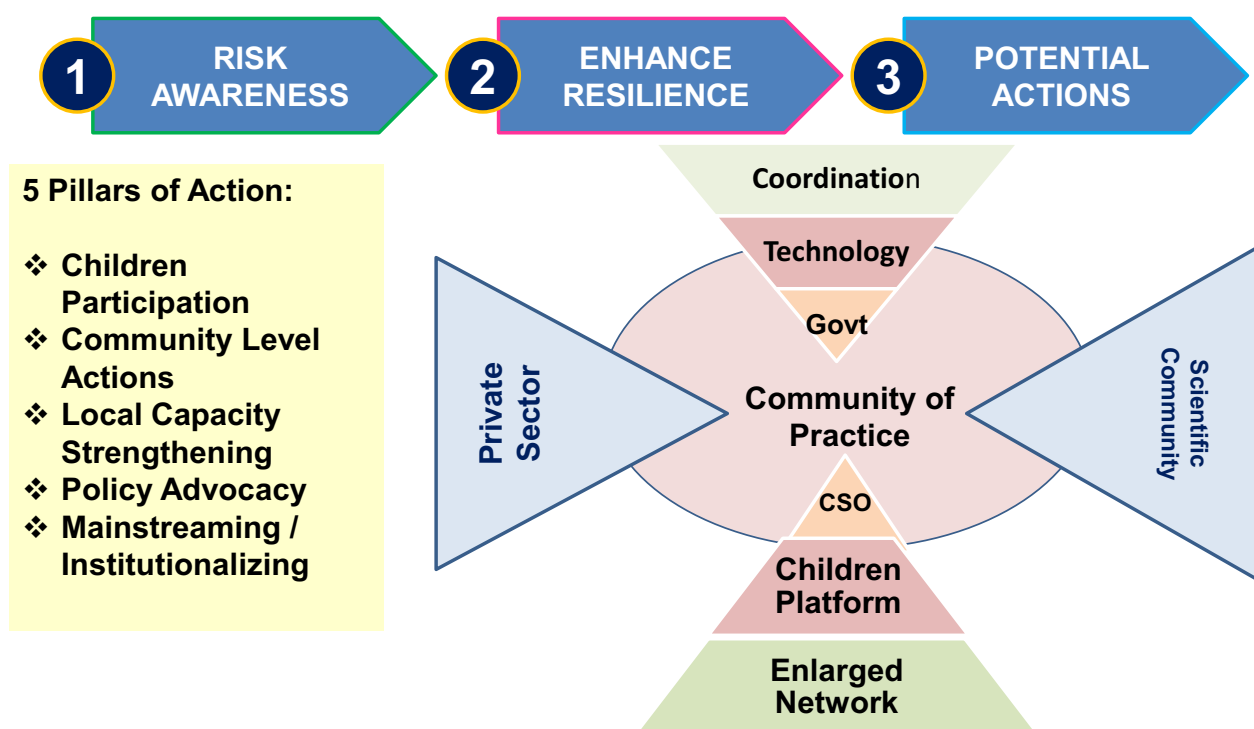
Smart Cities: A Different View

India is about to embark on what will be one of the boldest and largest urban initiatives in India's history–100 smart cities. The ideas that surround what constitutes a smart city are however, still developing, aspirational, and somewhat imitative. Far more efforts can go into tapping India's urban traditions and growth patterns and the roles they can play to shape and strengthen our vision of smart cities.

It is said that the 100 smart cities will transform over 100 million lives in less than 5 years. Will the new cities bring joy? So what are the joys that its citizens can look forward to? How do we understand the ways in which Indians experience and inhabit the city?

The impact of water, trees, birds, breezes and sunrises on human life cannot be underestimated. Who will have access to these environmental features, and are they even part of the smart urban landscape? Will children be able to grow up with the feel of the earth and soil between their toes, or will it just be brick and asphalt viewed from a car or metro window? Will the horizon line be visible to its citizens or will our citizens' eyes only see life at near and middle distance?

And what of urban structures? Look at what the new Mumbai airport does for its users—offering the joy of arrival, of exploring India visually, intimately, alternating between the fresh and the familiar. Instead of an airport embellished with static art, the Mumbai airport leads one on a joy-filled cultural journey right at one's destination. Surely, if an airport can do this, the 100 smart cities can too.

If this bold urban initiative of the government is to succeed, it will require the involvement of all strata of society. Such an initiative has the potential to herald an urban Spring in India, similar to the long cultural spring from 500 BCE to 500 CE when Indian economy prospered, and gave rise to the finest aspects of Buddhist, Hindu, and Jain advances in medicine, art, design, habitat, literature, astronomy, and more. Urban life has the potential to bring together the best in human effort.

As this massive urban investment takes shape, will it wipe out urban poverty? Will there be work for all, at the same time as the citizens' life and culture flower? Can Indian cities show a whole new way of urban living? Cities are land and buildings, but not only land and buildings. A whole new urbanism is waiting to be designed and recognized. For example, it is quite easily apparent that Indian cities live on the streets. The urban home rolls into the street and the street rolls into each urban home. This occurs not only in one way, and at one level, but in many ways, at many levels. Is this not smart?

The role of cities during civil conflicts in and around India cannot be ignored. Cities have shaped not only

> ### SMART CITIES ARE SAFE CITIES: FINANCIAL INCLUSION THROUGH DISASTER INSURANCE?
> *Read more:* http://www.elrha.org/hif-blog/smart-cities-are-safe-cities-financial-inclusion-through-disaster-insurance/

the duration and direction of civil conflicts the world over, but also the pace and profile--whether it is the role of Jaffna and Trincomalee in Sri Lanka, or Kabul and Herat in Afghanistan, or Srinagar and Guwahati in India. Armed conflict enters cities with relative ease, unless there are civic bodies that engage the citizenry at all levels. Peace-building with the police is just one of the many ways in which urban security studies can focus on citizen safety. "Smart cities must also be safe cities", said a mayor at the South Asia City Summit supported by the Climate and Development Knowledge Network (CDKN) held in Delhi, on May 22-23, 2015.

In India, we tend to equate minorities with votes and religion. Will this change in a smart city, so that its majority is made up of minorities of every size and shape in India? Will the smart city prey on neighboring rural areas, sucking natural resources, and enslaving the peasant populations? Or will the urban and rural divide be bridged in such a way that the rural and the urban coexist in dynamic equity and harmony? As we think on the issues of minority, ethnicity, inclusion, and self determination in the context of smart cities, we will open up our minds in ways that we never anticipated. We have an opportunity to transform the urban life of India forever. Charles Correa, one of India's great architects who recently left us, dedicated his life to building urban environments informed by the needs and traditions of India, and still kept an eye on the future. We remember him today as we think of redefining 100 Indian cities. ■

– Mihir R. Bhatt

Towards Smart and Resilient Cities in India

The Government of India is keen to promote 100 smart cities. Resilient city approach should be an integral part of India's Urban Strategy. "Resilient Cities in light of climate change should be able to develop plans for future development and growth bearing in mind the climate impacts that the urban systems are likely to face" (Prasad et. al. 2009). For future urban programs, assessment of vulnerability of urban systems is recommended.

There is no universally accepted definition of Smart City. As per Wikipedia, a smart city (also smarter city) uses digital technologies to enhance performance and wellbeing, to reduce costs and resource consumption, and to engage more effectively and actively with its citizens. India should focus on developing Smart Cities that are climate proof and resilient to withstand the shocks of extreme weather events. Smart city initiative should also include smart response to reduce vulnerability and damage during climate change induced disasters.

Our cities are under high risks from natural, man–made and climate change impacts. Several Indian cities have been impacted by floods, earthquake cloudburst and landslides. Our coastal cities are under risk due to extreme weather events being attributed to the climate change. Cold waves during the winter months are becoming frequent in some parts of India. Urban planning with environmental concerns could address many of these issues.

The Asian Cities Climate Change Resilient Network (ACCCRN) initiative strives for outcomes that are focused on building capacity of cities and building skill sets that are needed to cope with the challenge of climate change. In India under the ACCCRN program three cities Surat, Indore and Gorakhpur have been identified for the city–level vulnerability assessments.

The National Building Code has recently included an additional chapter on Approach to Sustainability. This provides a comprehensive set of requirements intended to reduce negative impact of buildings and infrastructure on natural environment. It would protect public health that does not necessarily increase construction costs. This is an important and welcome step.

The whole concept of a resilient city should help cities to reduce non-sustainable consumption. Indian cities are still being planned in the traditional style, where there is segregated land use not integrated with the transport system. It has to go back to mixed land use. Public transport system like metro, rapid transport, bus, etc. should be linked to land use planning. Moreover there should be higher floor space index and density. It is generally known as `transit-oriented compact city concept'.

There is a need to engage urban local bodies and external experts into producing knowledge about vulnerabilities and build local understanding and ownership of proposed actions for capacity building. The specific domains of requirement are Environmental Planning and Engineering. There is a need for creation of a municipal cadre in sync with these functional domains.

Specific actions by the Government may include: (a) Incorporating sustainable habitat standards in statutory plans like master plans and building bye-laws (b) Process of city vulnerability assessment, preparation of city resilient strategies and urban planning (c) Provide incentives to cities for taking up innovative waste recycling projects and waste to energy projects, (d) Supporting promotion of sustainable habitats for energy efficient construction, (f) Recycling of construction waste, (g) Use of renewable energy in residential and commercial sectors, and (h) City and state wide scaling up of successful experiments.

It is strongly recommended that India should mainstream Resilient City Approach into our urban planning and development process with focus on improving public health. This will require amending state town planning acts, municipal acts as well environmental laws. The new Chapter on Approach to Sustainability in our National Building Code is perhaps first step in this direction. ■

– Prof. Chetan Vaidya,
Director School of Planning and Architecture (SPA), New Delhi

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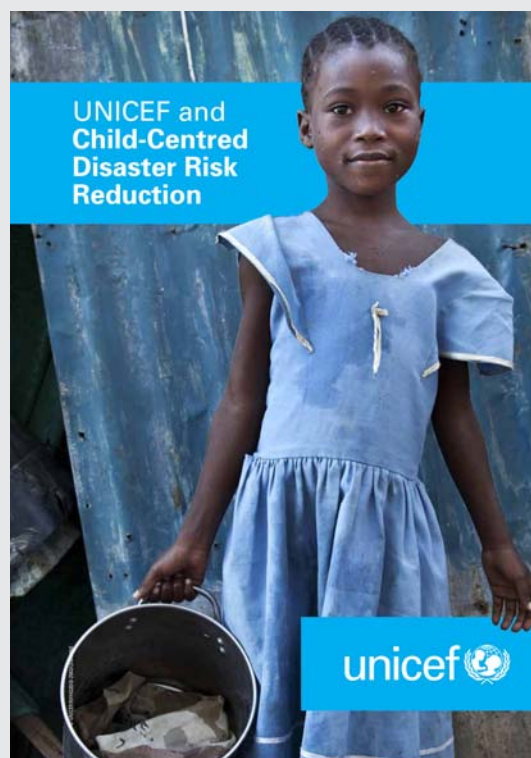
Urban Resilience and Rights of Children in Kolkata

Kolkata is the third most populated city in India and holds the second position in the global population density rank.[1] The high vulnerability to floods, earthquakes and cyclones of the city is enhanced by its overpopulation. With a high number of people living in squatter settlements, Kolkata's main challenge is to conciliate urban development with Disaster Risk Reduction and Climate Change Adaptation in order reduce the population's excessive exposure to disaster risks and climate extremes.

According to UNICEF, children represent 50% to 60% of people affected by disasters[2]. Therefore, this analytical report advocates for the rights of children who are living in poor conditions in Kolkata, as they are the most vulnerable to disasters and affected by climate change. It was observed that poor urban children in Kolkata are mostly affected by air pollution and water pollution in the long-term and by floods and cyclones in the short-term. Children's right to life is under threat, as their health is affected by the impacts of climate change. Furthermore, their rights to education, development, shelter and protection are often at risk in the aftermath of a disaster. In this situation, many poor children often drop out of school and are forced into child labour. In addition to this, they may also face the risks of trafficking, forced migration and child abuse.

Although West Bengal's government and the Kolkata Municipal Corporation are engaged in Disaster Risk Reduction and Climate Change Adaptation initiatives, there is still a

This publication explains the importance of disaster risk reduction (DRR) to the work of the United Nations Children's Fund (UNICEF), gives examples of DRR programmes implemented by UNICEF, and includes a map highlighting the widespread distribution of their work in DRR. The pamphlet includes sections addressing disasters and children's rights, UNICEF's DRR approach, and DRR and education.

Source: http://www.unicefinemergencies.com/downloads/eresource/docs/DRR/Child-centred%20DRR.pdf

lack of policy and practices aiming to reduce children's vulnerability. The main initiatives taken so far include the School Safety Plans under the UNDP Programme, the implementation of the Child Welfare Committee, and the publication of a State Plan of Action for Children (SPAC) for West Bengal in partnership with UNICEF. However, neither West Bengal's nor Kolkata's Disaster Management Plans include specific assessment of children's situation or provisions to enhance disaster preparedness level towards this vulnerable group.

Our main recommendations to be implemented in Kolkata include improvement in the drainage, sewage and garbage system, as well as long term measures to reduce air pollution. Furthermore, special provisions should be incorporated in both Kolkata's and West Bengal's Disaster Management Plan, with clear guidance and procedures in order to guarantee children's rights. Community involvement of vulnerable groups has already been proven to be highly effective and important to disaster mitigation. Thus, it is important to empower children as one of the main stakeholder in the pre disaster phase through activities such as risk assessment and building capacities and expertise. ■

– Anais Vibranovski, AIDMI

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1 ACCCRN / Integrated Research for Action and Development. Urban Climate Change Resilience- Policy Brief 2
2 UNICEF (2012) UNICEF and Child-Centred Disaster Risk Reduction

Development of Ahmedabad: What Worked?

With a smaller urban population proportionately than many other developing nations, India has historically been described as a 'reluctant urbaniser'. However, the share of urban Indians has increased recently, from 25% in 1990 to 32% by 2012, and the coming years will bring fast urbanisation to the 'nation of villages': India is predicted to have the largest growth in urban population on Earth by 2050.

Urban living provides huge opportunities for India but the new pressures placed upon services, infrastructure and land also bring risks, particularly to urban slum dwellers.

India has a legacy of ill–conceived urban policy which has led to chaotic development. Ahmedabad, while suffering from many challenges – not least communal tension has avoided many of these pitfalls and has experienced more sustainable development than other Indian cities.

A rich and proactive civil society has fostered political engagement and strengthened dialogue around municipal decision–making. In turn, the municipal government has had progressive slum–improvement policies that have recognised the needs of slum dwellers and acknowledged their rights, at least temporarily, to the land. The city has invested resources to improve slum dwellers' access to public utilities, improving environmental and health conditions.

The most notable of these initiatives was the Slum Networking Project (SNP), under which the slum settlements were given basic services such water supply, sanitation, storm

Children in Sarangpur Darwaja, Ahmedabad. Photo: Francisco Martins.

water drains, paved walkways and street lighting. It provided de facto tenure rights to residents through a non–eviction guarantee for 10 years, giving them the confidence to invest in housing. Between 1995 and 2009, 60 slums in Ahmedabad were upgraded under the SNP, benefiting 13,000 households.

NGOs played a key role in mobilising slum communities and facilitating dialogue between slum households and the government. Building on the SNP, the Slum Electrification Programme was introduced in 2001, followed by the 500–NOC scheme that provided slum households with water and drainage connections. These programmes overcame issues of land tenure by delinking the provision of services from tenure. Since 2001, 200,000 slum households have been provided with access to electricity, and 10,500 have secured access to water and sanitation.

Ahmedabad also boasts of a progressive approach to town planning. The municipal government has managed to get a grip on urban sprawl, largely by implementing Town Planning Schemes, whereby landowners contribute a portion of their land for public infrastructure and receive their plots with new access to public utilities.

The local authorities retain an equal portion of each landowner's plots for public utilities, open spaces, health and education centres and for sale to finance infrastructure – thereby extending basic services to newly incorporated areas on the city outskirts. Additionally, a small share is allocated to house economically weaker sections; between 2004 and 2009, alone over 11,000 houses for poor people were built. In this way urban expansion has been managed sustainably and with consideration of the needs of the poor.

The Gandhian tradition of resolving disputes through dialogue rather than conflict has formed the basis of negotiation between the city and its citizens. Women have assumed prominence with women–led organisations such as SEWA playing an active role in mediating the relationship between the municipal authorities and the urban poor.

However, the story of Ahmedabad has not been one simply of progression. While there have been gains, there have also been signs of a recent slowing or even reversal of progress for poorer households.

Nationally, urban issues have traditionally not been prioritised as highly as rural development. More recently, spending on urban areas has increased, particularly since the Jawaharlal Nehru National Urban Renewal Mission in 2005. However, the increasing use of top-down policies – even those intended to benefit poor families – has sometimes negatively affected poor people.

In Ahmedabad, while housing was constructed for over 30,000 families by 2013, families were often relocated to the periphery of the city, leading to higher transport costs and social dislocation. Dialogue between the city and its civil society has declined, becoming increasingly confrontational, and the easy availability of public funds has often diverted the focus away from collaborative programmes.

Across much of urban India, the concept of development has shifted from inclusive growth to the creation of 'global cities'. While cities are increasingly competing globally, in Ahmedabad and beyond, there have been a series of progressive policies that stand out that brought inclusive urbanisation into the policy agenda that should not be forgotten.■

– **Tanvi Bhatkal;** Research Officer; Growth, Poverty and Inequality; Overseas Development Institute (ODI); UK

RECOVERY LESSIONS FOR SMART CITIES

Livelihood Recovery in Nepal: Key Issues and Challenges

Nepal located on a highly active seismic zone, where the Indian and Eurasian plates converge, was hit by a 7.8 magnitude earthquake on April 25, and big aftershocks on April 26 and May 12. These quakes resulted in 8898 deaths, injuring over 22309 people and damaging 893786 houses leaving millions of people displaced, mostly from the 14 most affected districts including Kathmandu valley. This earthquake is the worst disaster to hit Nepal since the 1934 earthquake, which was followed by 366 aftershocks with local magnitude ≥ 4. Now, the disaster response as a whole has moved on to a second phase of providing temporary shelter that helps people survive the monsoon.

The earthquake's effect has many dimensions. This has changed the social dynamics as well as damaged the potential earning capacities of the residents of the earthquake–affected areas. The quake and series of aftershocks have devastated the communities mentally and physically. The destruction of their property also meant that they have lost their livelihoods. The farming conditions have deteriorated and there has been a huge loss of livestock. These conditions have long term effects; loss in food production would directly threaten food security thus directly threatening the income generation cycle.

All major sectors suffered huge economic losses. Post–Disaster Needs Assessment (PDNA) prepared by Government of Nepal reported agriculture sector which employed 76% of the labor force and contributes 34.1% of total GDP accrued estimated total loss around USD 283 million; several World Heritage sites within the Valley and trekking trails suffered damage. It is estimated that the total

value of disaster effects (damages and losses) caused by the earthquakes is equivalent of US$ 7.0 billion (NPC, 2015).

Key Issues

There is no one district that needs priority intervention, as severity is relatively uniform across the affected districts. In these circumstances, ensuring sustainable livelihoods should address two–issues: firstly to ensure minimum level of subsistence, and secondly to strengthen livelihood assets of the people so as to reduce their vulnerability from such natural disasters. On top of it, such program are to be gendered; ensuring that the role of women as livelihood providers is well appreciated as their male counterparts are generally absent seeking work outside the country. Thus, program for sustainable livelihood recovery needs to grasp emerging opportunities, engage local people and raw materials, be innovative, and take into account the local context. It requires appropriate policies and strategies that provide broad guidelines for the effective design and implementation of livelihood recovery efforts.

Mitigating, preparing for and building resilience against risks is a

Photo: Adam Ferguson.

long and complex process. Government of Nepal has prepared PDNA report and endorsed Post–earthquake Reconstruction Authority bill but the authority is still to be formed. The successfully conducted donor conference, in a spirit of solidarity and partnership to address Nepal's massive reconstruction challenges where donors pledged over 4.4 billion dollars to build resilient Nepal is but with a caveat.

Challenges

Preparing for the aftermath of an event can also limit the damage. Supporting efforts to rebuild, preparing for post–event challenges,

understanding the decision process and providing funding (either through the state or bank) are critical. At this juncture, multi stakeholder collaboration is required but made difficult by misaligned incentives and uncertainties as country is in the last stage of drafting people's constitution through constitutional assembly and absence of people representative in local government.

Environmental sustainability should be of primary concern in the livelihood recovery strategy. Land fissures and widespread landslides shows there is a significant danger of additional earthquake–triggered water induced disaster as the monsoon passes. Challenge lies on conducting detail study on risk and hazard assessment and mapping, its proper implementation; which will help to strengthen people resilience and reducing risk leading to recovery of livelihood and development of a resilient Nepal. ∎

– Bikram Manandhar,
Researcher

Reference:
National Planning Commission (NPC). (2015). Post Disaster Needs Assessment, Vol. A: Key Findings Nepal earthquake 2015. Kathmandu, Nepal: NPC, Government of Nepal.

Photo: AIDMI.

City, Child and Risk in India: A view

Life in the cities can be very tough for many, but specially for the most vulnerable. Constant migrations from the rural side to the urban areas are an increasing social phenomenon that seems to never revert. This of course brings many poor families to the cities with the hope to finds jobs and better opportunities, to first survive, then to improve their income, their living standards and, if possible, provide their children some education.

Urban growth in cities of India is alarming. According to sources "in 1951 the urban population in India was 62 million people, 17% of the total population. By 2011, the urban population was 377 million, or 31%. Experts suggest that by 2025, 42.5% of the population will be urban... The main problem is housing. Cities have very large slum populations. Mumbai has almost 50% of the population living in slums. Kolkata has 32% of the population living in slums."[1]

The rural dream for a better life most of the times turns to be a nightmare and almost an impossible to many itinerant families that leave their land to incorporate themselves into the life of the cities. The city swallows these families within an environment of hardship and insensitive feelings from the people walking or driving by, and many times a life of misery.

The question is: How can the society cope with this situation to reduce the risk for these vulnerable people, especially children? Allow me to suggest some ideas:

1. **Creating awareness in the rural areas.** Rural families need to be alerted on the value and benefits of a rudimentary life outside the cities. In the rural setting families have their land, they can cultivate their vegetables and crops and see the reward of their hard work. It is when they hear stories of the "lights" of the city that they are blinded and tempted to go to the cities after the "modern" dream. Rural families should be alerted on the physical, moral, health and social benefits of the rural life.

2. **Providing technical support to rural areas.** Poor agricultural methods, climate change and soil erosion are also factors that discourage families from continuing living in rural areas. Many families leave their piece of land because of the poor production they get, the huge investment they make, and the amount of work they have to put in order to get a good production to improve their income. (Not considering the capricious environment of the marketing process.) Technical support and modern specialized small size machinery should be made available and accessible to the farmers in order to encourage more production that will make their rural living worth. Urban knowledge has to get to the fields; technical support should be, if not the daily bread at least a permanent component present in the lives of farmers and small producers in order to improve production.

3. **Promoting opportunities to vulnerable children.** We should also advocate for the establishment of Government Child Protection Institutions that can synergize with the private and civil society, to see children on the streets, not as a burden, but as real human beings, fellow citizens, small brothers and sisters that deserve opportunities for education, not matter the reason why they have being caught up in social disadvantage.

To all this may seem like an impossible mission, but if we advocate and personally get involved to reduce risk and vulnerability of these families by enhancing them to a life of improvement, we certainly will be contributing to a better India remembering that the family is the space where a country becomes strong. ■

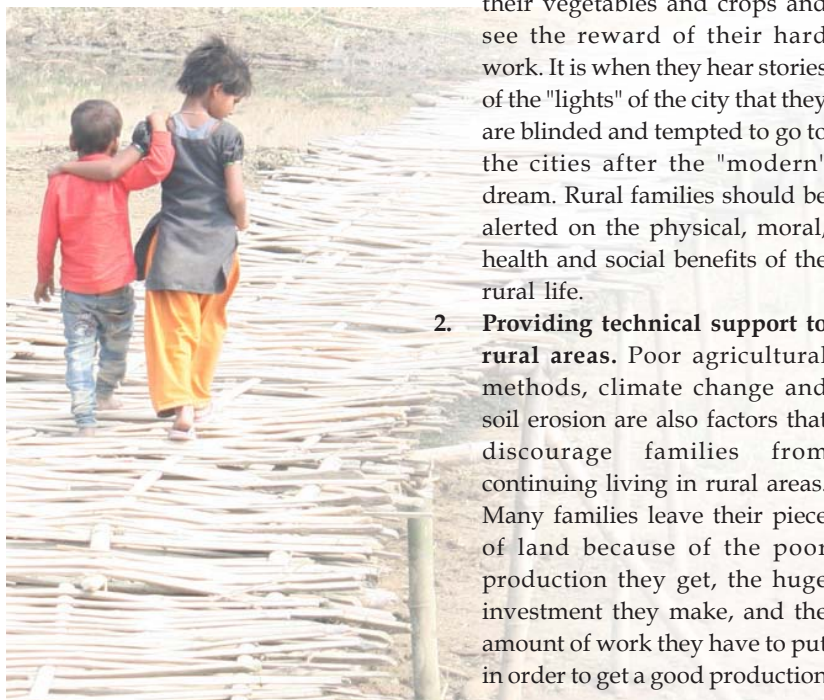**– Rafael Garciá Valderrábano,**
Country Director, ADRA India

Children passing through Poll bridge at Baneli Patti, Bihar.

Photo: AIDMI.

1 http://knowledge.allianz.com/ demography/migration/?454/ Indias-urban-migration-crisis

Smart Cities and Climate Change Challenges

Every year natural hazards cause significant loss of life and adversely impact development gains by destroying infrastructure, crops, and properties. Cities and urban areas represent dense and complex systems of interconnected services. Given the high density of people and their dependence on infrastructure, urban environments are risk–multiplying largely because they increase both exposure and the vulnerability of their populations as brought out by Mumbai Floods (July 2005), Srinagar Floods (September 2014) and *Hud Hud* cyclone affecting Visakhapatnam (October 2014).

Urbanization is a global phenomenon that is transforming human settlements. In India for the first time in 2011, the absolute increase in population is more in urban areas than that in rural areas. Level of urbanization in India increased from 27.81% in 2001 to 31.16% in 2011. There are 468 cities/towns as per 2011 census with population more than 1 Lakh in India. Rapid, pace of urbanization provides both opportunities and challenges. Proposed 100 smart cities and 500 AMRUT cities provides such an opportunity.

Though cities only occupy 2% of the world's land, they account for more than 50% of world population. About 75% of the global economic production takes place in urban areas. Cities are responsible for 60-80% energy use, and 75% green house emissions. The disproportionate economic activity concentrated in cities fuels a rise in urban populations and increased density, which in turn exert enormous pressures on land and services. New settlements come up in flood plains, coastal lowlands, along unstable slopes and in hazard-prone areas. As a result most of the cities are suffering from urban floods, urban heat island, poor air quality and public health and water stress. Urban seismic risk is also rapidly increasing with population growth and the unplanned urban development in to areas susceptible to earthquakes.

Climate Change in Urban Areas

Urban areas have been responsible for climate change by contributing 75% of Green House Gases and in turn are being adversely affected by climate change. Many cities are located on dangerous sites with regards to risks from storms, floods and heat waves. Climate change has added new dimension by increasing the level of risk and number of the people at risk. Global climate change has already had observable effects on the environment.

For cities, the most obvious increased risk from climate change comes in the form of increased number and intensity of extreme weather events such as floods, droughts, heat waves, intense rainfall and severe storms, the impact of which is going to be more severe in urban areas. In view of projected sea level change due to climate change, low lying areas of coastal cities will be the most affected. Most cities will experience more heat waves. Increased incidents of flooding with poor sanitation and drainage systems will put poor people residing in low lying areas at a greater risk from water borne diseases. Increase in the incidence of droughts in surrounding/ neighboring areas of cities will adversely affect the availability of water and farm produce.

Smart Cities

Smart Cities provide an opportunity to plan and implement measures for effective climate change action both in mitigation and adaptation. However, most of the debate and discussions related to smart cities so far have been around physical and IT infrastructure and finances. By not mainstreaming weather, environment and climate in the planning and governance of smart cities, we are making future cities vulnerable to risks associated with climate change. In fact sustainable development and disaster risk reduction should be central to the planning of smart cities with Early Warning System being an integral part of city governance. Smart cities should aim to become climate smart city by not contributing to green house gas emissions and temperature rise.

'Climate Smart' should become one of the criteria for the evaluation of smart cities and should be linked to financial support and penalties. Many cities in the world are moving in this direction by incorporating safe and green building designs, non polluting transport system, use of clean energy, efficient drainage, sewage and waste disposal system and effective disaster preparedness. It is right time for India to take note of impending dangers associated with climate change and mainstream climate resilience in the planning and governance of smart cities. ■

– Prof. Ajit Tyagi,
Air Vice Marshal (Retd) Former DG,
IMD, New Delhi.

The Gujarat School Safety Week 2015

School children sharing their knowledge of school safety. Vijrakhi Primary School, Jamnagar, Gujarat.

The School Safety Week was organized by the Gujarat State Disaster Management Authority (GSDMA) to educate, prepare and build the culture of risk reduction among the school children in Gujarat. Several activities were held from the 13th July to 17th of July, 2015, in 400 schools of Kutch, Jamnagar, and Devbhumi-Dwarka districts to increase preparedness and awareness towards risk mitigation in primary schools in the state. ■

– AIDMI Team