Towards AMCDRR 2018: Ulaanbaatar

2018 AMCDRR

2018 ASIAN MINISTERIAL CONFERENCE ON DISASTER RISK REDUCTION (AMCDRR)

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ABOUT THIS ISSUE

In recent decades, the Asia-Pacific region has witnessed a remarkable level of economic progress and is now home to some of the fastest growing economies in the world. However, this economic prosperity is often disrupted by repeated disasters. According to the UN Economic and Social Commission for Asia and the Pacific (ESCAP), the Asia-Pacific region remains the most disaster prone region of the world. As per the latest UN figures, between 1970-2016, disasters killed over 2 million people in this region while damaging assets to the tune of US$ 1.3 trillion. Acknowledging the enhanced vulnerability of the region, the leaders of various Asian nations congregate biennially to strengthen regional cooperation and accelerate the implementation of various risk reduction frameworks. This biennial event is called the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR).

This issue of *Southasiadisasters.net* is titled "Towards AMCDRR 2018: Resilience at Ulaanbaatar" and focuses on the upcoming AMCDRR 2018 to be held in Ulaanbaatar, Mongolia. This issue spells out the different items that should be on the risk reduction agenda of Asian countries vis-à-vis the implementation of the Sendai Framework and the Asia Regional Plan. Since the AMCDRR also serves as a platform for regional cooperation among different Asian nations and stakeholders to collaborate on long-term risk reduction solutions, its leaders should primarily focus on addressing the underlying causes of much of the region's vulnerability.

Risk reduction themes as diverse as climate-smart DRR, urban flood mitigation, air pollution, universal flood protection, etc. have been discussed in detail in this issue. Addressing these themes at AMCDRR 2018 can help in achieving long-term positive DRR outcomes in Asia. ∎ **– Kshitij Gupta**

Towards AMCDRR 2018: Ulaanbaatar

The 2018 edition of the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) to be held in Ulaanbaatar is poised to be a success, mainly because it builds on AMCDRR Delhi's success; draws from the past two year's concrete actions in and around Asian Regional Plan of UNISDR; and the seven thematic areas are effectively contextualised in Asian reality. The following aspects need to be underlined at AMCDRR 2018 to make it an even greater success?

One, Weather Ready to Climate Smart Asia.

Rapidly Asian governments are becoming weather-ready by improving individual national expertise and skills such as in Sri Lanka; institutional processes and structures as in Nepal; and bringing about enabling policies in creating, managing and using weather information such as in Cambodia. As a result, the communities and citizens in Asia are better aware of weather and related hazards, like floods, droughts, or cyclone. And this improvement will and must continue at an accelerated pace. One noteworthy example of such success is by Indian Metrological Department (IMD) and Climate, and Development Knowledge Network (CDKN) of UK with Natural Resource Defence Council (NRDC) of USA in turning heat wave information as an input to climate-smart decisions. Now the time has come to start thinking about making weather data used in making climate-smart decisions, decisions that help mitigate the impact of changing climate and help taking adaptation measures where they matter the most among the citizens.

Two, Reviving Rivers of Asia for Reducing Risk and Building Resilience.

Asia is a continent of rivers. Two of the greatest rivers of this world are in India and China and almost every country is linked to one or more river civilisation. These *"Lokmata"* or people's mothers, are on their way to difficult times by

Photo: AIDMI.

flowing down of too much water in within months as well as too less water retained for the rest of the year. Rivers retained water. Now rivers flush down water. As a result, cities and settlements get flooded and in many cases, some settlements face droughts. An increasing number of areas in Asia face floods in the monsoon and droughts in the summer.

The time has come to take Asia wide initiative to turn rivers into ecosystem–based risk reduction and resilience building instrument. New thinking and ideas are required on this. Many initiatives are needed. Asian Development Bank (ADB) has done initial work though Jamuna-Meghna River Erosion Mitigation Project[1] in Bangladesh in South Asia and through Greater Mekong Subregion Economic Cooperation Program[2] in the Mekong Delta in South East Asia. This experience is of high knowledge value to rest of Asia in implementing Asian Regional Plan for Disaster Risk Reduction in Asia for the coming decades.

Three: Better Flood Management in Asian Cities.

The cities of Asia have transformed into engines of economic growth. However, these cities are also exposed to the detrimental impacts of multiple natural hazards, most notably floods. Damage to these economic engines of Asia's economy are alarming. More and more cities face floods which adversely affects their economies. Ironically, many cities in Asia also face a severe water shortage that borders on a crisis. Cities are rushing towards "no-water days". This is a development paradox of Asia.

The national paradigm shift from relief centric approach to prevention and mitigation based holistic disaster management is now visible not only at national level in India, but also at subnational and local level. This shift has to be clearly reflected in cities that face floods. Aligning to National Disaster Management Plan 2016, states in India are devising Disaster Risk Reduction Roadmap focusing on monitoring and mitigation of floods.

Bihar was the first Indian state to do this followed by Andhra Pradesh. Rapid urbanisation, migration, illegal encroachment, lack of effective waste management systems are making low income communities more exposed and vulnerable to flash floods. Effective disaster management is crucial for urban planning and reducing risk for the urban poor in Asia.

Four, New Role of Asia Forestry.

Forestry in Asia has been both, a developmental agenda, as well as a climate change agenda. Forests are an indispensable asset to the local economy, society, and ecology. Forests offer income and assets to forest dwellers, many of whom, often, are tribal citizens. Indonesia has taken lead in REDD work with Dutch and FAO support[3]. Which is a source of information and analysis in making Asia's long coastline green and prosperous.

India's NDC assigns sectoral targets for efficient reduction in carbon emission. Low carbon economy is the goal. Ministry of Environment, Forest and Climate Change and GIZ India are jointly implementing an Indo–German Bilateral Cooperation Project of "Development and

Management of NAMAs (Nationally Appropriate Mitigation Action) in India[4]". Convergence at all levels and bottom-up approach are a must in NAMA, including in the forestry sector. NAMA should be based on country's developmental objectives where forestry must take a central place and be aligned with government policy of reducing emissions with more green cover. Forestry in Asia can be one of the most important ecosystem based risk reduction measure.

Five, Air Pollution Free Asia.

Though pollution is neither on disaster agenda nor on climate change agenda, it is forcing Asia to be on the agenda of both. Delhi in India is facing the seemingly unsurmountable challenge[5]. Ahmedabad in India has developed the first of its kind clean air plan with the support of Ahmedabad Municipal Corporation (AMC), Indian Institute of Public Health (IIPH) as well as with a wide range a CSOs[6]. In China, clean air in cities is becoming a reality.[7] Many top-down as well as city level measures are being taken.

Traditionally ignored the poor, marginalized, women, children and elderly pay most of the cost of air pollution. The ambient air quality or industrial emission standards are inadequate, fragmented and poorly enforced. SDGs provides windows of opportunities to curtail pollution. AMCDRR 2018 can initiate robust and long-term programmes to protect health and lives of people in Asia with clean air for all.

Six, Universal Flood Insurance in Asia.

Social realities are undergoing a dramatic change in Asia due to

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1 https://www.adb.org/documents/bangladesh-jamuna-meghna-river-erosion-mitigation-project
2 https://www.adb.org/publications/greater-mekong-subregion-economic-cooperation-program-overview
3 http://www.fao.org/redd/news/detail/en/c/1128542/
4 https://www.giz.de/en/worldwide/29663.html
5 https://www.vox.com/2018/5/8/17316978/india-pollution-levels-air-delhi
6 https://www.nrdc.org/sites/default/files/ahmedabad_air_plan_feb_2017_final_pdf.pdf
7 https://www.economist.com/the-economist-explains/2018/01/25/how-china-cut-its-air-pollution

changing gender roles. For instance, dwindling agricultural incomes have forced many rural menfolk to abandon agriculture and move to urban centres in pursuit of higher wages. This by default has increased the participation and decision making of women in crop production. Such changing social realities must be factored in planning and practice of DRR in Asia.

Floods pose a complex challenge in every location. Agriculture focused weather insurance schemes have emerged as a promising tool for financial loss. In India, for instance, the government is very active in promoting agricultural insurance under Pradhan Mantri Fasal Bima Yojana (PMFBY)[8]. Similar insurance

initiatives are taken in many Asian countries. What is most required is adopting an affirmative approach to reach the vulnerable and investing additional resources to reach out to women farmers affected by floods.

Seven, Building Knowledge from Reconstruction of Asia after Disasters. Asia has rebuilt itself several times after suffering the ravages of many disasters. The reconstruction work, especially which followed major disasters like the 2004 Indian Ocean Tsunami and the 2015 Nepal Earthquake are notable for remarkable diversity and scale. Newer dimensions of this reconstruction process such as owner driven housing and women's

leadership in livelihood recovery need to be explored.

These new dimensions are rooted in local knowledge systems that reflect local realities. Without local knowledge, localisation cannot be possible. Duryog Nivaran, a South Asia wide network of individuals and institutions has recently produced South Asia Disaster Report 2016 titled "Are We Building Back Better"[9] that is most recent example of knowledge building in Asia. Similarly, ICIMOD is building knowledge on the Himalayas[10] and CDKN has built knowledge in the Asia Pacific around disaster risk reduction[11] that is useful after and before a disaster.

The above areas need to be underlined to make Asian Ministerial Conference on Disaster Risk Reduction 2018 at Ulaanbaatar a greater success. ■ **– Mihir R. Bhatt**

8 http://pmfby.gov.in/
9 http://www.duryognivaran.org/images/Reports/sadr/SADR%202016_v6.pdf
10 http://lib.icimod.org/record/33856
11 https://cdkn.org/wp-content/uploads/2012/04/CDKN-Asia_FINAL.pdf.

CLIMATE SMART DRR

First Three Steps for India to be Weather Ready and Climate Smart: A View

It is a well–known fact that climate variability and weather extremes impact the safety and livelihoods of people. Hydro meteorological disasters constitute more than 80% of all natural disasters. During a disaster, the poor, elderly, women and children are the worst affected. Urbanization has added another dimension to this vulnerability. The spread of megacities means a greater concentration of people in urban centres exerting an enormous pressure on the distended urban resources. This indiscriminate urbanization has exposed greater number of people and assets to various climate and disaster risks.

In light of the enhancement of existing vulnerabilities and emergence of newer ones, all

institutional and operational mechanisms to manage the impacts of extreme events need to be weather-ready and climate smart. Aptly enough, the World Meteorological Organization (WMO) has selected 'Weather Ready, Climate Smart' as a theme for this year's WMO Day to generate awareness in society to be Weather Ready and become Climate Smart.

First Three Steps
An early warning system is a major element of Weather Ready initiatives. Early warning mechanisms involve real time monitoring of weather, timely dissemination of warnings and climate information to people likely to be affected by weather and climatic events and awareness

among people of actions to be taken. The first step in building resilience to extreme weather and climate events is the establishment of a robust network of observations. An extensive observation network - over land, air and sea as well as out of space - is imperative to provide the data to support forecasting and early warnings for extreme weather and climate events.

The second step comes much earlier than the realization of disasters. In order to be weather ready, early warning mechanisms should also consist of a list of those people or communities who are at-risk from a particular hazard as well as a list of people who may be of assistance in relief operations in the event of a disaster. Similarly, effective early

Seminar on Weather Ready, Climate Smart attended by Dr Rajeevan, Secretary, Ministry of Earth Sciences, Shri Kamal Kishore Member NDMA, Dr K.J. Ramesh Director General of Meteorology, Dr Akhilesh Gupta, Advisor DSR and Dr Ajit Tyagi President, Indian Meteorological Society.

warning should provide more understandable information to those that need to act on the warnings.

The third step to becoming weather ready is to ensure the participation of at-risk people and communities in the decision making process. Impact-based, multi-hazard early warning systems incorporate communities, political leadership, weather forecasters, disseminators of warnings, media, emergency response authorities, health facilities and recovery plans. By ensuring strong coordination among all relevant stakeholders, they are more effective and cost-efficient than stand-alone, single-hazard systems.

Climate–Smart

Developing climate services and increasing the number of professionals and students trained in meteorology and climatology is one step in creating *Climate–Smart* Societies. In developing and emerging countries, climate data are often of poor quality and do not meet the prerequisites for the provision of climate services for decision-makers.

Agriculture is one of the most climate-sensitive Areas. Droughts, slow onset climate events, have claimed millions of lives. Climate services and climate science form are important components of early warnings systems for famine. Agro climatologists provide outlooks to farmers on six to eight months ahead and with shorter lead times. This information is then used by farmers to decide what seeds to plant, when best to plant, whether irrigation will be required, when best to harvest and to make other important decisions.

Climate change and urbanization are leading to more water-stress and increasing the exposure of communities and assets to extreme hydrological events, such as floods and droughts. It is crucial to make early warning information and products available that can help minimize the loss of life and impact on economies. To do so, we need data on all water resources, in what quantity and quality, how variable they are, and how they will evolve in the foreseeable future.

Similarly, the incidence of malaria, dengue, asthma, heat stroke are related to rainfall, temperature, humidity and air quality. Advance information of these meteorological and environmental parameters is found to be of help in managing the incidence of these diseases.

Energy is another sector where climate information can play an important role in increasing efficiency and productivity by factoring weather based assessments of demand and supply. Climate information is essential for monitoring the success of efforts to reduce greenhouse gas emissions that contribute to climate change, as well as for promoting efforts to increase energy efficiency and to transition to a Carbon-Neutral Economy.

Weather Ready and Climate Smart initiative can thus help in Strengthening the Technical, Human and Institutional Capabilities for Sustainable Development, Disaster Risk Reduction and Climate Change Adaptation. ■ **– Prof. Ajit Tyagi,**
President, Indian Meteorological Society, New Delhi, India

The Second Avatãrana of Ganga: Air, Water and Block Chain

In Indian mythology, it is believed that Ganga had descended from the heavens (an act known as *avatarana*) to save humans from a major calamity at the time. Ganga's rejuvenation plan is a fortuitous second coming; we may well call this the second *avatarana* of Ganga.

In this second coming Ganga not only is burdened with cleaning the water but also the air. While this may seem to be an insurmountable challenge, there is a silver lining to this dark cloud as the source of both unclean water and unclean air is the same. In fact most of India's problems can be tied to a single thread- the decision making methods and processes in Indian institutions.

To proceed one must ask an ontological question, that is, what is 'decision making'?
As a reader you may be a little surprised at this question, you may well think that is it not the correct forum for it. You are right, but think again what are the two central aspects to the Ganga rejuvenation plan and what is the obstacle to them. Aviral Dhara (continuous flow) and Nirmal Dhara (unpolluted flow) are the central aspects of the Ganga rejuvenation plan; these aspects involve decision making involving multiple actors and disciplines and there is a complete lack of a decision making framework under the circumstances (involving multiple actors and disciplines). This is true for the air pollution problem as well, multiple states and multiple actors, a problem of 'coordinated' decision

making. We have added the word coordinated to specify the type of decision making with multiple institutions and actors. This is also in line with the ontological question we had asked earlier.

Therefore having set up a basis to discuss what is coordinated 'decision making' in multiple actors situations it is opportune to delve into it.

There are three types of Decision Making paradigms suitable to our discussions on multiple actors seeking to coordinate and they are:
1. **Precautionary Principle:** more a principle than a process; this is used specially in the realms of global governance. Climate Change is an issue where this is actively used. The principle is used to decide that only those economic activities be allowed which will not put the global ecological system into jeopardy otherwise humanity as we know may not exist in future.

Photo: AIDMI.

2. **Robust Decision Making:** These are decision making processes that cull out long term viable solutions from multiple angles involving multiple actors and disciplines. Decision making in National and sub-national governance issues will fall in this category. River basin and air quality management mostly will come here.
3. **Optimal Decision Making:** These processes are mostly at departmental or firm levels. The internal rate of return (IRR) are tools used here. Projects are evaluated using the processes and tools in this space.

What are the roles of these decision making processes in river basin or air quality management:
We have written that river basin/ air quality management is mostly about robust decision making, 'mostly' because it does involve the other two decision processes as well.
1. **Precautionary Principle** will forbid us from doing too many man-made interventions in the basin or to disrupt the flow completely as the ecological system may change which may lead to heavy harm for the community dependant on the river system. Using this principle banning diesel vehicles is a good outcome and diesel exhaust is a category one carcinogen.
2. **Robust decision making:** the most important decision-making aspect/process for river basin/air quality management. This is where options will be developed which are Pareto optimal. For instance making the river pollutant less will
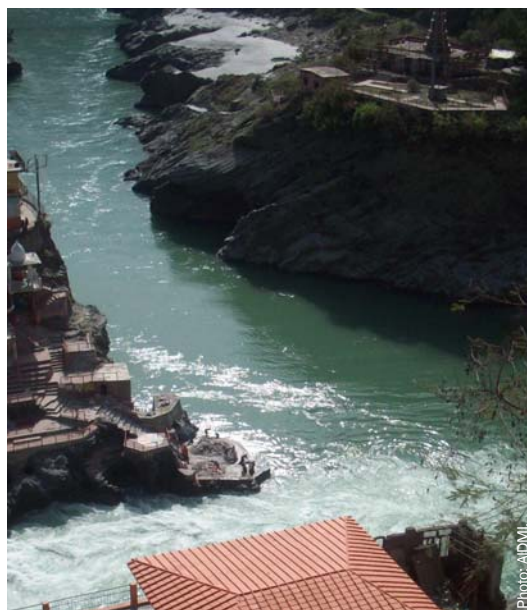
involve changes in the processes in industry, agriculture and even municipalities. Creating an option which cleans the river without much adversity to agriculture, industry and urban life is a challenge. It is surprising that there are several win-win situations when we create a framework for robust decision making. One such framework is 3i - 'Inform Inspire Implement'. 3i is explained below.

3. **Optimal decision** making will be used by firms and departments mostly in structuring PPPs, the modern hybrid PPPs used for sewage management is a result of innovation in this sphere.

3i. **'Inform Inspire Implement': a framework for coordinated decision making among multiple actors and/or institutions:** Decision making tools or processes in optimal decision making paradigms are well known. Most of them are tuned to the concept of time value of money and maximize returns on investments. In the paradigm of robust decision making, tools are not well known or even understood correctly. This is possibly the weakest link for river basin/air quality management in India as well. It is appropriate therefore to expand on this with an example of a tool/framework in robust decision making. The framework we are zeroing in on is - 3i or the 'Inform Inspire Implement' framework as we call it in Resilience Relations.

A river basin/air quality management institution or authority can use the 3i process to address a problem in three phases: (1) an information- gathering phase, (2) an inventory of solutions/options formation phase and (3) an implementation phase. In this way,

the authority can maintain up to date data on specific relevant risks, can work with the various people and can bring in international, national or local thought leaders to develop tailored and robust strategies for river basin management. Moreover, the authority can use 3i to build a team of people who can execute and monitor projects on the ground with the help of national and international expertise.

There are various sub processes and attributes in 3i, but there is one attribute worth highlighting here. In 3i, there is a separation between information gathering to implementation phase, with something we call the inspire stage. This is where decision making becomes truly inclusive and robust. In the inspire stage we are aware of the various information sets from various actors, and given that to every identified issue or problem the inspire phase culls out a set of solutions or plausible options. These options will be circulated around various relevant stakeholders, and only when there is a sizeable agreement or near consensus will a selected option be implemented. Finally, what 3i does is that it channels information flows between various actors efficiently, which paves way for effective decision making and implementation of solutions which are environmentally valid, financially feasible, culturally suitable and socially acceptable.

Now for some good news, 3i is being implemented for the last several years by the authors and a start-up called Resilience Relations using offline methods engulfed conceptually by a multi-stakeholder ontological approach using 3i and named as Resilience Centres. Each Resilience Centre takes ownership or jurisdiction (for the want of a better world) of a neighbourhood in an urban location to instil social and

ecological resilience to the neighbourhood community. Functional prototypes are available or being made available continuously even as this article is being written across Delhi NCR and few other cities.

To enhance the performance of the Resilience Centres – the entire 3i approach is available online via a mobile application called Seen Ab; whose working is based on User Experience and follows a iterated and multi-stakeholder design approach. Ultimately each Resilience Centre, and the online platform, Seen Ab is essentially a platform for robust decision making which calls for distributed and decentralized institutions. Networks using Block chain (which is a continuously growing list of records, called blocks, which are linked and secured using cryptography) also have a similar motivation. Resilience centres an d Seen Ab will be entertained with the block chain concept with a platform called "Ganesh". A white paper on "Ganesh" is now available.

In this article we have asked an ontological question and have only so slightly articulated a framework to asses a part of our own question. In the end, we would like to sum up by saying that while there is enough scientific knowledge, there is a need for knowledge in institutional processes including decision making processes. We would like to take this opportunity to advocate that all relevant personnel entrusted with decision making in the Ganga basin be appraised of the decision making paradigms and thereby policy makers and other crucial stake holders take robust decisions; and make the second *avatarana* of the Ganga timeless. ■

– **Dr. Seema Sharma,** Assistant Professor, University of Delhi *and*
Mr. Arnab Bose, O.P. Jindal Global University; both are members of Resilience Centre Global Network, NCR of Delhi, India

Researching Floods in Mumbai: A Journey

Travelling to India for a research stay has been substantial for the Bachelor thesis considering the subject being dealt with. Developing itself over two months, the research now aims to analyze the implementation of the Disaster Management Act and Policy in terms of mitigation, as well as implemented flood mitigation measures and focuses herby on Mumbai – a metropolitan city that continues to grow while its population remains vulnerable during intense rainfall events.

From the satellite perspective, it is challenging to analyze the dynamics of disaster management in India. Yet, through discussions with different stakeholders actively working in the field of disaster management such as governmental actors, NGOs, experts and scholars, my understanding of the subject has changed immensely.

The project Foundations of the *Europe-India Strategic Partnership* of the Institute of Political and Social Studies at the University of Wuerzburg (Germany) cooperating with the Jawaharlal Nehru University (New Delhi) under the DAAD funded *Indo-German Partnership* has made this self-organized research stay possible in the first place. Starting in mid-February 2018, multiple background interviews in New Delhi, Dehradun, Chandigarh, Ahmedabad and Mumbai were conducted with the approach of looking at the implementation of national disaster management plans regarding floods. Hereby, every discussion gave new insights in practices of disaster management as well as difficulties in implementing disaster management plans, and contributed to the further development of the research questions.

Overlooking the life-lines of Mumbai. Photo: Johanna Roll.

India is a multi–hazard prone country, in which eight percent of the area is susceptible to floods. The research is looking at those flood events, as they are likely to occur every year during the monsoon seasons. The annual risk of people living in the flood prone areas in India has been the initial motivation to look at governmental actions regarding mitigation measures. Population growth, rapid urbanization, illegal encroachments and the lack of an efficient waste management system further expose the vulnerable population in urban areas. Additionally, the national paradigm shift from a relief-centric approach to prevention–mitigation–based holistic disaster management, established by means of the Disaster Management Act 2005 and Policy 2009, gives rise to the question if policies and mitigation measures in accordance with the paradigm shift can be observed at the different levels of the multi-tiered disaster management system in India.

Following the background interviews and discussions during the research stay, the thesis provisionally will be guided by two main research questions: To what extent have the Disaster Management Act and National Policy been applied to the state of Maharashtra and the districts of Mumbai City and Suburbs in terms of mitigation? What flood mitigation strategies have been implemented in Mumbai following the 2005 deluge; to what extent and how effective are those?

Whilst analyzing the disaster governance in Mumbai and difficulties in implementing mitigation measures, the thesis will also address related issues of urban planning. It remains crucial for an efficient disaster governance in Mumbai to better coordinate the responsibilities of the different stakeholders especially the community and strengthen institutional linkages.

The research stay would not have been possible without the kind support of various experts, scholars, NGOs and governmental actors in Delhi, Ahmedabad and Mumbai. I wish to thank all the discussion partners, enriching this research with their first-hand experience and recommendations for literature and further contacts. Among those the All India Disaster Mitigation Institute (AIDMI), the Special Centre for Disaster Research at Jawaharlal Nehru University, Divya Sharma of Oxford Policy Management, Prof. Parthasarathy of IIT Bombay, and United Way Mumbai. ■

– **Johanna Roll,** Bachelors Student, University of Wuerzburg, Political and Social Studies and Geography, Germany

Development of India's First Forestry Nationally Appropriate Mitigation Action (NAMA) Concept and Lessons Learnt

The concept of Nationally Appropriate Mitigation Actions (NAMAs) emerged during the negotiations at the United Nations Framework Convention on Climate Change (UNFCCC) at COP 13 (2007) in Bali. It refers to any voluntary action that reduces emissions in developing countries and focusses on national appropriateness, thus providing agency to national governments to develop mitigation actions within the broad ambit of their development goals. NAMAs thereby, do not attempt to impose a one-size-fits-all solution, but take advantage of national-led initiatives tailored to each country's specific needs and capabilities. Ministry of Environment, Forest and Climate Change and GIZ-India is jointly implementing an Indo–German bilateral cooperation project 'Development and Management of NAMAs in India[1]' with a focus to develop bankable, MRV-able and financially feasible NAMAs in the sectors of Waste and Forestry.

India's Nationally Determined Contributions,[2] as a part of the Paris Agreement, assigns a sectoral target of creating 'an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 through additional forest and tree cover by 2030'. This indicates the key role that the forestry sector is expected to play in responding to climate change nationally. The NAMAs is one such measure which can help countries realise the vision enshrined in their NDCs[3]. A rigorous feasibility study was undertaken by GIZ India for the MoEFCC with the objective of exploring possibilities of developing NAMAs in the forestry sector in India by examining existing forest policies, programmes and projects in India that could be registered as domestic or supported NAMAs. Overall, the study followed a consultative approach for short listing the NAMA options, with an effort to include both top-down policy design considerations and bottom-up implementation considerations. In India, more than 200 million people are extracting fuelwood from forests annually (FSI 2011), making unsustainable fuelwood extraction a key driver of deforestation and forest degradation in the country. Taking cognizance of this, the focus of India's first NAMA in the forestry sector is on "Reducing Forest Degradation and Deforestation in Assam through Sustainable Fuelwood Management".

The decision was made whilst keeping in mind India's NDC commitment, which identifies "reduction in consumption of wood/biomass as fuel" as a means to achieve its forestry sector goal (MoEFCC, 2015). The state of Assam was chosen as the first state to develop and implement this NAMA based on a multi-criteria assessment comparing all Indian states and union territories on factors such as fuelwood dependent population, number of people extracting fuelwood from forests, forest cover, fuelwood supply-demand gap, and area under open forests. As per the Census 2011, 72% of Assam's households, i.e. nearly 4.6 million in number, are dependent on fuelwood for meeting their cooking energy

Communication campaign on clean cooking solutions in tea estates of Assam.

1 https://www.giz.de/en/worldwide/29663.html
2 http://www4.unfccc.int/ndcregistry/PublishedDocuments/India%20First/INDIA%20INDC%20TO%20UNFCCC.pdf
3 http://unfccc.int/files/focus/mitigation/application/pdf/nama_design_guidance_2016.pdf

requirements. This dependence leads to several negative impacts on human well-being and natural ecosystems in the state.

GIZ will be piloting the concept in two districts of Assam namely Nagaon and Sonitpur from 2018-2020 and reduce emissions from the resultant reduced deforestation, forest degradation and increased use of clean cooking technologies primarily in two consumer groups viz. Tea Estates and Forest Villages. Financing approaches will be identified and tailored communication tools to increase uptake of the clean cooking technologies will be developed. Convergence from various programmes like MGNREGA, Green India Mission, National Afforestation Programme, Pradhan Mantri Ujjawala Yojana, etc. will be leveraged.

The key lessons learnt in the process of NAMA development are as below:
1. NAMAs should be based on the country's developmental objectives or aligned to government policies.
2. NAMA should co-founded on sustainable development co-benefits.
3. Detailed analysis of the sector should be carried out to identify the most feasible option/'no-regrets' options.
4. Development of NAMAs should follow a consultative approach with diverse groups of stakeholders and have the necessary buy-in from the government at various levels.
5. Financial engineering/business models are key to attract investors, overcome financial barriers, leverage different kinds and forms of financing.
6. Well-developed MRV structures/concepts to attract international and private sector financing.

It can be comfortably concluded that NAMAs seeking international support needs to be transformational in nature and be founded on national development objectives with good MRV systems in place. ■

– **Ashish Chaturvedi,** Director, and **Kundan Burnwal,** Technical Advisor, GIZ India, New Delhi, India

URBAN RISK REDUCTION

Kill Pollution, Save Lives

A NEWLY published report by the Lancet Commission has identified pollution as the biggest environmental cause of disease and premature death in the world. The report claims that almost 22 percent of premature deaths in Pakistan are attributable to pollution-and this comes to about 300,000 deaths annually. This is more than the deaths caused by road accidents in the country, or three times the combined toll of tuberculosis, malaria and AIDS. These are stunning findings and have caused a global stir.

A 2014 World Bank study, in a similar vein, pointed out that more than 22,600 deaths per year are directly or indirectly attributable to ambient air pollution in Pakistan. "Outdoor air pollution alone causes more than 80,000 hospital admissions per year, nearly 8,000 cases of chronic bronchitis and almost five million cases of lower respiratory" problems among children under five.

The urban air pollution levels in Pakistan are amongst the world's highest, and intensely damaging for human health and quality of life. Pakistan is the most urbanised country in the South Asian region and the direct and indirect costs to our urban, peri-urban and rural standard of life are accelerating. This is degrading our environment, and eroding our economic growth rate. The pollution in low-middle-income countries like Pakistan is estimated to cost 2% of GDP and almost 7% of health spending.

The urban air pollution levels in Pakistan are amongst the world's highest.

To make things worse, most of this cost is borne by the poor. Marginalised groups, particularly women, children and the elderly, get disproportionately affected. Yet, the commission's economic analysis does not include the information about the cost of environmental damage caused by pollution, nor does it fully address the challenges and opportunities offered by climate change to address the root causes of pollution.

Despite adverse effects on human health, the pollution issue has traditionally been ignored by the policymaking community in Pakistan. National and provincial assemblies have not enacted any significant legislation to curtail pollution. The manifestos and platforms of political parties are silent about air pollution, industrial emissions, use of chemicals, or technology or fuel import standards. The ambient air quality or industrial emissions standards are inadequate,

fragmented and poorly enforced. The capacity of environment protection departments in the provinces has evaporated over the years despite the 18th Amendment that devolved greater environmental responsibilities to them. Their budgets are negligible and enforcement capacities questionable.

Pakistan has the highest greenhouse gas emissions intensity in South Asia-more than India. We emit more GHG emissions per unit of GDP than any other country in the South Asian region. This structural inefficiency adds to the cost of doing business as well as to the national health bill.

Worse, Pakistan's overall trends indicate a steady increase in emissions per unit of economic output over the past few decades. This is expected to further accelerate owing to rapid increase in population, the growing number of mega and intermediate cities, inadequate public transportation and the absence of mass transit systems, heavy reliance on fossil fuels and recent investments in coal-fired power plants. According to the Nationally Determined Contributions (NDCs) document that the federal government submitted to UNFCC Secretariat in 2015, the emissions are projected to more than double during the next decade. If the present trajectory of business as usual (BAU) continues, Pakistan, according to the NDC, will need $40 billion to offset these increases.

Add to this the institutional complexity and their standard practice of working in silos. The regulatory agencies and research groups that focus on agendas for environmental health and pollution control operate in two distinct domains. Key sources of pollution-health nexus-air,

water, soil, industry and chemicals-are regulated by different national and provincial agencies. This often results in competing policies, interests and fragmented understanding of the full scale of pollution and its share in the national burden of disease. The Lancet Commission report has provided a unique opportunity to our national, provincial and city governments to give deeper thought to how best to change this state of affairs.

Going forward, our commitment to Agenda 2030, also known as the Sustainable Development Goals (SDGs), provides a window of opportunity to curtail pollution over the next 15 years. Robust and long-term programmes to protect the health and lives of people through national pollution-control programmes are needed at the federal and provincial levels. The prime minister needs to set up an inter-ministerial commission to design and deliver Pakistan's

"Despite its far-reaching effects on health, the economy, and the environment, pollution has been neglected in the international assistance and the global health agendas."

A Commission by The Lancet

https://www.thelancet.com/commissions/pollution-and-health?dgcid=facebook_social_pollution-comm17&sf105303832=1&code=lancet-site

pollution management programme. A series of targeted, well-integrated interventions should reach out to millions of Pakistanis through pollution-monitoring networks in the provinces, a consolidated regulatory framework for pollution control and using command-and-control measures that include ambient air standards, emissions standards and technology standards. For this to happen, the government must:

a) link air quality to health indicators by focusing on reducing pollutants linked to higher morbidity and mortality, particularly fine particulate matter, sulphur dioxide and lead content that are several times higher than WHO air quality guidelines; and b) link with cleaner production by focusing in particular on such industries as cement, fertiliser, sugar, steel and power plants, and on brick kilns, plastic moulding, and other waste-burning industries.

Curtailing pollution is essential for meeting the following SDGs: SDG-1 (poverty alleviation), SDG-3 (improving health), SDG-6 (access to clean water and sanitation), SDG-10 (promoting social justice), SDG-11 (building sustainable cities and communities), SDG-13 (climate change) and SDG-14 and 15 (protecting land and water). Their successful implementation will help curtail pollution that disproportionately kills the poor and vulnerable. Pollution control can benefit greatly from efforts to decarbonise economic development and mainstream renewable energy to slow the pace of climate change in Pakistan. ■

– Ali Tauqeer Sheikh,
CEO, LEAD Pakistan,
Islamabad

Flood Insurance in the Climate Change Era:
Can Science and Technology help Women get a Better Deal?

As environmental and climate unpredictability intensifies across the planet, agriculture is facing new and complex challenges – but also potentially game-changing technological solutions. And alongside these sweeping changes, agriculture is adjusting to new social realities, particularly changes to the roles of women.

Women are playing increasingly active, decision-making roles in many aspects of crop production. More and more of this is reflected in a transition from farm labourer to farm manager, as men migrate to urban centres in search of paid employment. Yet despite these changing roles, women remain among the most vulnerable to climate shocks such as flood events.

Floods do not affect local people equally. Floods in Bangladesh lead to more casualties than floods in the US, for example. This is because vulnerability to climatic extremes is rooted in social factors as much as in biophysical risks. Even within the same community, marginalised groups and women are often more exposed and vulnerable to climate extremes. Marginalised groups are also often poor – poverty being only a proximate cause of vulnerability. Addressing vulnerability requires tackling its structural causes – the political economic structures and social and gender norms that systematically exclude some social groups from access to information, public services and infrastructure, and ultimately from decision-making arenas.

Agriculture focused weather insurance schemes have emerged as a promising tool to protect farmers Change, Agriculture and Food Security (CCAFS)[1], WLE and IWMI[2]

A woman in Bangladesh walks to the farm.

Photo: Neil Palmer / IWMI.

have been exploring how index-based flood insurance in particular could enhance climate resilience while addressing gender and social inequalities for rural farmers in India and Bangladesh.

The research team has been using remote sensing to improve the accuracy and efficiency of agriculture focused, index-based insurance schemes by estimating flooded areas and crop losses through digital mapping. Through their research, and a pilot scheme in India, the WLE and CCAFS team have prioritized the development of rapid, effective pay-out schemes for low-income, flood-prone communities. The aim is to improve both the access to insurance and to the benefits that women, as well as men, farmers receive from them. Overall, the goal, as detailed in this project video[3], is to work to ensure that farmers, whether women or men, have a more secure future through climate smart agriculture.

This approach speeds up the process of loss assessment and compensation payment. This helps the most vulnerable farmers - often women - move on more quickly from a destructive flood event and secure their livelihoods and food security.

Being able to focus on a specific, individual farm however may not be without its challenges. For example, critics of flood insurance approaches elsewhere say that taking an individualist, risk sensitive, market based approach where a person's payments are proportional to their level of risk could come at the expense of fairness and social justice. A more solidaristic, risk-insensitive approach in which people who are at less risk contribute to supporting those at higher risk may be preferable. So weather index-based flood insurance scheme initiatives may need to find a careful balance between offering accurate pay-outs and placing high premiums on 'high risk' areas.

Still more needs to be done if flood insurance schemes, including those that are index-based, are to make significant inroads into addressing

the needs of rural women and marginalised tenant farmers by enhancing their resilience to climate change.

So what more could be done by those involved in offering agriculture-focused insurance?
WLE, IWMI and CCAFS, as detailed in a recently published Technical Brief[4], have identified a number of recommendations that could help the most vulnerable benefit from these risk mitigation tools. It requires adopting an affirmative approach to reach the most vulnerable, and investing additional resources and efforts to make sure insurance schemes reach women and tenant farmers. It can include designing specific information dissemination tools such as short videos or radio programs, that are accessible to those with low levels of literacy. These need to provide them with adequate information on insurance options and on the pay-out conditions and process. It can also require specific capacity building activities for women and the most vulnerable to ensure they are able to make use of the information on insurance schemes.

Bihari women.

Photo: Andrew Reckers / IWMI.

A recent study[5] conducted in Bangladesh revealed that improving women's financial literacy would encourage them to invest in insurance. It indicates that women farmers currently lack trust in insurance institutions. Efforts to reach out to women, and to tenant farmers who do not own legal land titles, can be enhanced by relying on existing, inclusive, grassroots organisations and networks. For example, youth clubs, self–help groups or cooperatives could work as intermediary organisations between insurance companies and farmers.

So what's happening in Bihar, India, since the index based flood insurance pilot project began roll-out in 2015? Well, it's anticipated that the first pay-outs will be paid this month to farmers who have been impacted by a destructive flood.

And, following positive responses[6] to the pilot scheme from farmers and others involved, there are now plans to significantly expand the pilot in a second phase. In pursuit of that the team are now in discussions with the national government to bring the benefits of this new approach to many more farmers and link to India's Prime Minister Crop Insurance Scheme (PMFBY)[7]. Scaling up this initiative could increase the resilience of smallholders and contribute to the sustainability of agri-food systems in the future. ∎

– **Dr. Anand Bijeta,**
National Consultant, Index–based Flood Insurance (IBFI), New Delhi, India

Photo: Neil Palmer / IWMI.

A young man in Bangladesh has to find fodder for his cattle from a distant source. Because of the recent flood his home is underwater and he is risking his life to preserve his cattle. Shahriar Islam, AusAID.

1 https://ccafs.cgiar.org/
2 http://www.iwmi.cgiar.org/
3 https://www.youtube.com/watch?v=OcdEsbF3RFY
4 https://wle.cgiar.org/reducing-vulnerability-among-smallholder-farmers-through-index-based-flood-insurance-india-equity
5 https://www.sciencedirect.com/science/article/pii/S0959378016300310
6 http://news.trust.org/item/20171024125132-nj0jw/
7 http://agri-insurance.gov.in/

Disasters and Decision Making

Humanitarian decision making in Asia is fraught with big gaps that have great implications on how disaster risk reduction (DRR) shapes up in Asia through the next decade.

Drawing from the work done by the All India Disaster Mitigation Institute (AIDMI) in India and South Asia, the following list of actions is presented below that should be heeded by the people implementing the Asia Regional Plan:

1. **Use of Geospatial technology in Disaster Risk Reduction (DRR)**
   The national workshop on Early Warning Systems and Community Resilience on Floods with Focus on Regional Cooperation and Institutional Coordination at Jawharlal Nehru University (JNU) in Delhi in April 2018, indicated the urgent use of geospatial technology including use of South Asia satellite launched by India for resilience building activities in South Asia.

2. **Scoping of Blockchain**
   A Blockchain is a public, permanent, append only distributed ledger. In other words a Blockchain is a mathematical structure of storing data in a way that is nearly impossible to fake. Blackchain is a reality. The time has come to better understand what is Blockchain, what it means in humanitarian action, and why it matters to Asia more than Africa or Europe? The May 2018 discussion at IIT Mumbai on Climate Change, Uncertainty and Transformation organised by Institute of Development Studies (IDS), and IIT, Mumbai, suggested transformation as a way ahead. The transformative potential of blockchain for resilience building can be explored by the decision makers.

3. **Leveraging GMO for risk reduction in Asia**
   GMOs-genetically modified organisms- have been a source of controversies in Asia. However, what is not known is their impact on preparedness and recovery. The challenge is especially overwhelming as a new wave of gene-edited crops are by-passing the authorities and will soon be in stores in disaster hotspots. The meeting on State of Housing in the Emerging Urban India in Mumbai in March 2018 did not discuss GMO or disasters per se but did, indeed, indicate how settlements are changing and how rural (and urban) settlements will transform as agriculture changes due to corporationalisation, financial markets, and GMO technology. Asia has taken a lead with use of geospatial technology use in DRR with UNESCAP and Japan, China, India and Europe. But it has yet to move ahead into day-to-day and direction related decision making, it has yet to move into technological and entrepreneurial stimulation.

4. **Artificial Intelligence (AI)**
   Artificial Intelligence and Machine Learning have exploded onto many Asian markets to become the next big thing in the technology space. India, Japan and China are making a lot of progress in these areas. It is now time to explore the potential of AI for disaster related decision making. Evolution of new technologies in this direction can pave the way for achieving the outcomes of the Sendai Framework in Asia more effectively.

The above mentioned areas- geospatial technologies, black chain, GMO, and AI-cannot have same patterns of decision making: nor the same decision makers. Humanitarian action in Asia is perhaps too busy with immediate and operational decision making challenges and the time has come to look up and beyond to see what is coming and what humanitarian action must address now in Asia to avoid the uncertainties in future.

It is important to look at where Asia is placing the next step. It is also important to know where Asia is going. ■

— **AIDMI Team**

Photo: AIDMI.

Reconstruction as Transformation

Photo: AIDMI.

Change as a verb

Post-disaster reconstruction policies and programmes focus on change as an opportunity and a necessity. The experience of recent losses is expected to motivate households, communities, technical professionals and governments to devise and adopt better practices. Constructing a new is expected to be an opportunity to incorporate hazard resistant measures. Disasters are expected to generate political momentum for institutional change.

Many of us involved in disaster risk management see unprecedented opportunities to advocate for and to operationalise agendas of risk reduction. Advocacy tends to focus on change as a noun; a changed end state. Operationalisation describes change as a verb, requiring consideration of the actions and actors involved. Unfortunately, most of the policies, plans, advice and opinions informing reconstruction could best be described as advocacy rather than operationalisation or realisation. They are more concerned with change as a result rather than a process.

What should change or what could change?

Our discourse of reconstruction is dominated by language of what **should** happen, what **should** change. The discourse is aspirational, idealistic and perhaps not as useful as we think. The expectations that change is necessary are insufficiently informed by analysis of the assumptions made, the risks to overcome, the sequence of actions, how to prioritise, the capacities available or needed. With so little emphasis on the means of change, we tend to stay in the realm of the **'should'** rather than **'could'.** For many technical professionals the unequivocal domain of **'what should happen'** is more comfortable than the messy, compromised domain of operationalisation, of **'what could happen',** for example: 'how to build perfect new construction' is far more comfortable and reputational risk-averse than 'how to improve substandard existing buildings'.

After a major disaster there are demands that building codes should be reviewed and revised. How will a code review process that normally takes several years accelerate enough to provide decisions in time for reconstruction? Codes require technical and political consensus building processes. Engineering questions may be the most straightforward. Mechanisms to address issues such as diverging opinions, economics and affordability, the implications of late

decisions and crucially of ensuring compliance with codes, require as much attention.

Compliance with building codes is more likely in the reconstruction of infrastructure, education or health facilities where institutional funding is linked to regulatory systems, but in the majority of privately funded construction, and particularly housing, worldwide, regulatory leverage is often weak. People reconstructing houses must balance codes or prescribed standards with what is possible and what their households want. 'What is possible' in a post- disaster situation depends on the availability and affordability of materials and labour. 'What households want' depends on attitudes and values that inform housing aspirations, preferences and priorities.

Large scale housing reconstruction often involves changes in typologies, in materials, in finishes, in household services, etc. We tend to focus on reviewing construction standards, on hazard resistance criteria, but we look less at how housing may change or is already changing in response to what is possible and what people want.

What is changing and why?

It is not enough to prescribe what people should build. We need to understand what people are building, what choices they are making. We need to learn about decision–making in order to understand change. This perspective accepts that change has many drivers, underlying as well as crisis–specific, immediately apparent and emergent over the recovery period. If we aim to ensure people are supported to take informed action, whether through building codes or other measures, we should anticipate an iterative process that is continuously learning, responding to opportunities and challenges. While the majority of advocacy, policies and blogs on the changes that 'should happen', take place in the first months or year after a disaster, an iterative approach requires a very different commitment over much longer time, and does not require expert all-knowing answers from the outset but assumes a coproduction of diagnoses and answers by experts and affected populations together.

In housing reconstruction, we need to understand links between housing and livelihoods; we need to understand housing markets and societal values. Post-disaster housing reconstruction data tends to be mainly quantitative, numbers destroyed, numbers displaced, locations, values, costs. We need to invest more in qualitative data to better understand how reconstruction happens, not just to count, map or measure, but to understand.

Housing systems are made up of households. Housing is particularly amenable to research from household level, learning about the choices people make, if, how and why they adapt or change, their motivations and priorities, looking longitudinally at their reconstruction trajectories, watching change, accelerated change, change under stress, and learning from it. Qualitative research can be quick and agile, flexible and low–cost.

What we can learn is as essential for policy makers, for programming, and for supporting affected populations. Qualitative approaches help us to go beyond 'the what', to 'the why' of changes happening – to understand. ∎

– Maggie Stephenson,
Reconstruction Consultant, Ireland