



# Beyond AMCDRR Ulaanbaatar



Photo: AIDMI.

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*The views expressed in this publication are those of the author.*

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## ABOUT THIS ISSUE

The 2018 edition of the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) concluded in July 2018. This conference saw enthusiastic participation from not only Asian governments but also many civil society organisations active in the region. This conference took stock of the implementation process of the Sendai Framework outcomes in the region and finalised the Ulaanbaatar declaration.

This issue of *Southasiadisasters.net* is titled "Beyond AMCDRR Ulaanbaatar" and focuses on themes that now inform the disaster risk reduction agenda of the region post AMCDRR 2018. The region of Asia-Pacific is highly exposed to risk of many disasters. In 2017 alone, more than 6,500 people lost their lives in Asia following more than 200 disasters that affected 66.7 million people. Therefore, it is imperative to focus on all measures that can help in saving lives and assets from the wrath of disasters.

Key themes explored in this issue include climate change uncertainty; capacity building of individuals and institutions involved in implementation of Asia Regional Plan, Comprehensive School Safety and Security Programme in Asia; Early Warning Systems (EWS) for trans-boundary disasters; regional cooperation between Asian countries for achieving DRR outcomes; the role of local bodies like Panchayats in implementing Sendai Framework; and budget and personnel allocation to achieve gender inclusiveness in DRR activities. ■

- Kshitij Gupta

## INTRODUCTION

# Beyond AMCDRR Ulaanbaatar

As the 2018 edition of the *Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR)* concluded at Ulaanbaatar in July 2018, it is important to draw key lessons from this biennial event. This was the second AMCDRR after the declaration of the Sendai Framework in 2015. The conference reviewed the progress of the implementation process of the Sendai Framework to strength the coherence with the *2030 Agenda for Sustainable Development*. This conference also led to the 'Ulaanbaatar Declaration', a 2018-2020 Action Plan for the Asia region, and voluntary commitments from participating countries.

We need to leverage this opportunity to protect people and assets from the repeated onslaught of disasters in Asia. It is well known that the Asia-Pacific region is highly exposed to the risk of disasters and emergencies. In 2017 alone, more than 6,500 people lost their lives in Asia following more than 200 disasters that affected 66.7 million people. Over the last 50 years the region has suffered nearly \$1.3 trillion in economic losses to disasters. As the conference ends, it is important to think of ways of building resilience to disasters and emergencies in the Asia-Pacific region.

This issue of *Southasiadisasters.net* is titled 'Beyond AMCDRR Ulaanbaatar' and highlights important disaster risk reduction issues to be taken up after the historic Ulaanbaatar Declaration and the 2018-2020 Action Plan for Asia region.

One of the most important issues to be addressed for achieving

sustainable and lasting DRR outcomes is climate change related uncertainty. While there is broad scientific consensus on anthropogenic activity's causal relation with climate change, there is a degree of uncertainty on the precise impacts of this phenomenon on human societies and natural ecosystems. Greater uncertainty makes the prediction of extreme climate events like droughts, floods and extreme temperatures tougher which in turn causes problems for preparation against such contingencies.

The second agenda to be addressed is to chalk out a pathway for capacity building of those institutions and individuals dealing with the implementation of Action Plan 2018-2020 for Asia. Sanjay Bhatia, head of UNISDR discusses a strategic approach for such capacity development. This strategic approach identifies six steps and high-value 'anchors' that key decision makers and CD champions may pursue at the community, country, regional, and global levels.

Making schools safe across Asia is another important aspirational goal to be achieved by the implementation of the Sendai Framework in the region. Vandana Chauhan from the All India Disaster Mitigation Institute (AIDMI) argues for the implementation of Comprehensive School Safety Programme (CSSP) across the Asia-Pacific region. It is also important to allocate national and donor budgets for child centred disaster risk reduction and ensure that resilience building investments strengthen school safety and child protection along with gender

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equality and social inclusion through targeted provision of access to resources, information, positions, skills and social protection of the most vulnerable.

It is well-known that disasters don't adhere to national boundaries. Similarly, Early Warning Systems (EWSs) must also become tools for trans-boundary cooperation between neighboring countries to effectively manage trans-boundary disaster risk. The agenda beyond AMCDRR 2018 needs to actively promote and adopt this approach between neighboring countries in Asia. Ranit Chatterjee, Co-Founder RIKA India Pvt. Ltd., Delhi, India argues the same in this issue.

The idea of regional cooperation for DRR is not new in Asia. However, the extent of cooperation and collaboration needs to be scaled up in order to have a positive impact on DRR outcomes of the region. For

instance, Japan and India have multiple areas of similarity in policies and practices related to DRR. However, both the countries can still learn a lot from each other by increasing the level of cooperation and collaboration. For instance, Japan's work on mitigating disaster risk on its citizens by 'Building Back better' can be emulated by India for its own citizens.

Integration of climate change with DRR outcomes is also needed to be addressed. Climate change can worsen the intensity and frequency of many disasters, which is why finding coherence between climate outcomes and DRR imperatives is the right way forward. Dr. Kirit Shehlat, Executive Chairman, National Council for Climate Change, Sustainable Development and Public Leadership (NCCSD), Ahmedabad explores this theme in greater detail in this issue.

Aditi Sharan and Binoy Acharaya from Unnati highlight the role of panchayati raj institutions (PRIs) in early warning settings. They argue that Panchayats are the most trusted source of information in rural settings and people can easily adhere to the warnings issued by panchayats.

Similarly, themes like enhanced food security in the Himalayas for effective DRR in the hills; the need for rigorous monitoring and evaluation and accountability mechanisms to be in place with sufficient budget and personnel allocation to achieve gender inclusiveness in DRR activities; and capacity building for humanitarian action in urban settings for urban risk reduction have also been discussed in this issue. ■

– Mihir R. Bhatt

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#### CLIMATE UNCERTAINTY AND DRR

## Understanding “Uncertainty” At AMCDRR 2018: Local Perspectives for Local Implementation of the Sendai Framework

At the 2018 edition of the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) climate change related uncertainty was taken up as an important theme for achieving risk reduction outcomes. A special issue of *Southasiadisasters.net*, the All India Disaster Mitigation Institute's (AIDMI) monthly publication tackling the theme of climate related uncertainty was launched at this event by UN Women, UNFPA, JICA and Duryog Nivaran. This issue, titled "Understanding Uncertainty: Views from Kachchh, Mumbai, and Sundarbans" showcases how

uncertainty unfolds in many ways in the desert, delta and urban areas of Asia. This issue for the first time has offered ways of thinking about uncertainty in disaster risk reduction framework.

While there is overwhelming scientific evidence establishing a causal link between anthropogenic activity and climate change, there is a degree of uncertainty on the precise impacts of this phenomenon on the environment and human society. The uncertainty induced by climate change poses a threat to the ecology, human settlements,

biodiversity and economy. Greater uncertainty makes the prediction of extreme climate events like droughts, floods and extreme temperatures tougher which in turn causes problems for preparation against such contingencies. This is why climate change related uncertainty has become a great challenge to be addressed by planners, policy-makers and at-risk communities.

The Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) was established in 2005. It is a biennial conference jointly organised



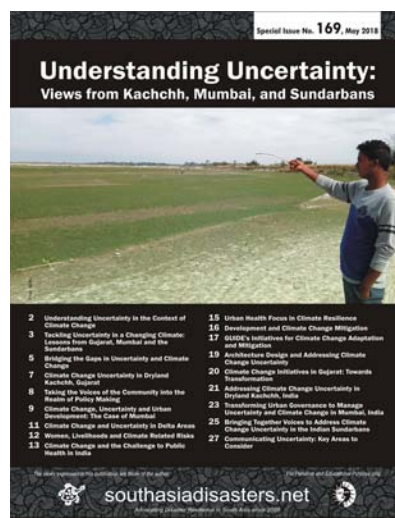
A special issue number 169 of *Southasiadisasters.net* is launched on July 5, 2018 at the AMCDRR 2018, Mongolia by representatives from UN Women, UNFPA, JICA and Duryog Nivaran. It is titled "Understanding Uncertainty: Views from Kachchh, Mumbai, and Sundarbans".

by different Asian countries (India, China, Thailand, Mongolia) and the United Nations Office for Disaster Risk Reduction (UNISDR). AMCDRR aims planning and strengthening implementation of Asian Regional Plan (ARP) for implementation of the Sendai Framework for Disaster Risk Reduction (SFDRR). The ARP focuses on how to reduce disaster risk at national and local levels. ARP has longer term road map of cooperation and collaboration, spanning the 15-year horizon of the SFDRR. Besides, ARP also has a two-year action plan to further DRR with specific and actionable activities. This year AMCDRR 2018 was organised at Ulaanbaatar, Mongolia. The result of AMCDRR 2018 called Ulaanbaatar Declaration argues for translating coherence of global frameworks into policy and practices to achieve resilience at national and local levels across all sectors of society. AMCDRR 2018 suggests achieving results by strengthening governance arrangements and by providing practical guidance to ensure effective and efficient management of disaster risk.

The latest issue of *Southasiadisasters.net* on 'Understanding Uncertainty' was drafted by researchers from the Institute of Development Studies (IDS), UK; Norwegian University of Life Sciences (NMBU); Future Health System (FHS); Indian Institute of Technology, Mumbai; Indian Institute of Health Management Research (IIHMR); Self Employed Women's Association (SEWA); Climate Change Department, Gujarat; Gujarat Institute of Desert Ecology (GUIDE); Centre for Environmental Planning and Technology (CEPT); Urban Health

and Climate Resilience Centre of Excellence (UHRCE); Assam State Disaster Management Authority (ASDMA); and All India Disaster Mitigation Institute (AIDMI).

The publication – *Southasiadisasters.net* – is perhaps the only ongoing initiative coordinating knowledge and capturing the policy and practice of DRR in South Asia and Asia Pacific by the practitioners, academicians, officials, policy makers, and governments, donors, and the United Nations system members since 2005. *Southasiadisasters.net* is unique because of the contribution of over 692 writers belonging to 582 organisations from India and 39 countries, covering 17 disasters, spanning over 39 themes and 15 important national and international policy discourses. Perhaps this is the longest and largest effort to capture disaster risk reduction in action in Asia. Through the publication of 169<sup>th</sup> issue of *Southasiadisasters.net* at AMCDRR 2018, AIDMI has successfully enhanced knowledge and innovation for effective integration of uncertainty and DRR in India and beyond. ■ - Vishal Pathak, AIDMI



# Training Needs for Asian Regional Plan: A Way Ahead

The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) recognises the State's primary role in facilitating the achievement of its disaster risk reduction (DRR) goal and priorities.

Governments and stakeholders have identified a need for implementation support and enhancement of the capacity of institutions and individuals dealing with DRR. Without adequate capacity and mechanisms for its implementation, it will be impossible to achieve the Sendai Framework targets. The pursuit of more collaborative and coordinated efforts to deal with

increasingly limited resources is required as global progress towards meeting DRR targets advances.

A strategic approach is required towards capacity development (CD). A draft is available at: <https://www.preventionweb.net/drr-framework/sendai-framework/capacitydevelopment>

The Strategic Approach identifies high-value 'anchors' that key decision makers and CD champions may pursue at the community, country, regional, and global levels. These include:

1. Development of national and local **capacity development**



Sanjaya Bhatia.

**plans** mentioning the key areas requiring capacity development support, who can support, and how it can be achieved.

2. Establishing Sendai Framework-relevant **evaluation indicators** that enable measurement of capacity development outputs, outcomes, and impacts - to monitor the implementation of the capacity development plan
3. Expanding South-South, Triangular, and other

**The strategic approach suggests the following steps for a capacity development plan and its implementation:**

Step 1 Stakeholder Engagement	Initiates the relationships and dialogue that inform and resource the project and forms the basis of partnerships; helps planners understand the actors and their influence.
Step 2 Capacity Needs Assessment	Considers a range of perspectives to ensure a tailored approach; articulates capacities, gaps, and entry points at each capacity level; identifies the cause and impact of gaps; sets the stage for intervention planning; provides initial monitoring indicators.
Step 3 Define the Intervention	Involves the design and development of required capacity development intervention plans, which address institutional arrangements, leadership, knowledge, and accountability.
Step 4 Partnership Building	Strengthening of CD implementation through the building of partnerships that lend credibility, access, human and financial resources, expertise, and more.
Step 5 Implementation	Implementation partners begin to address capacity gaps once the design of a flexible needs-based and demand driven intervention programme has been completed.
Step 6 Monitoring & Evaluation	Conducted to ensure implementation partners are progressing towards the intended goals, and to ensure those goals are resulting in the changes required to meet capacity needs.

partnership and cooperation opportunities through the creation of a national, and/or local, **capacity development market place** – an online platform where demand (those required capacity development support) and supply (those who can provide capacity development support) can meet and discuss terms and conditions for support

4. Development of Sendai Framework-Focused **Target Capacity Standards**
5. Leveraging on existing and/or establishing regional and **national capacity development institutes**.

#### **Anchoring Capacity development for DRR**

Recognising that a more complementary global approach to the development of DRR capacity requires appropriate coordination mechanisms that are acceptable to all partners, several options are provided. These include:

For UN agencies, possibilities include:

1. **UNDAF (and other UN strategic partnership frameworks):** The UN Development Assistance Framework (UNDAF) will by 2019 become the single most important mandatory United Nations tool for planning and accountability for results.<sup>1</sup> UNDAFs will need to be risk-informed, to ensure that any threats to the SDGs and vulnerable populations are well anticipated and mitigated, and where possible, prevented<sup>2</sup>. This positioning of the UNDAFs provides a unique opportunity for coherent and sustained CD.

At the time the UNCT develops the UNDAF (and other UN strategic

partnership frameworks for non-UNDAF countries), CD needs of the government must be determined through consultations and a detailed capacity needs assessment through CADRI or other available mechanisms (when possible). An approach towards CD for the needs identified can be developed as part of the UNDAF and through the Common Country Analysis, which informs the UNDAF. The process will help identify partners for implementation. UNDAF and CCA are implemented in 129 countries and approximately 20 per year. UNISDR will provide advisory services, as required.

The link with Common Country Assessments and UNDAF could be a model to reflect coherence across 2030 development agendas, which could be an inspiration of national and local policies. The national DRR plans and strategies should be linked with the UNDAF, ensuring the capacity development needs of both government, and the UNCT are reflected. This option moves Sendai from "disaster risk management sphere" to "development sphere".

For coordination with national governments, possibilities include:

1. **CD for DRR Platform (Marketplace):** An online platform developed to provide a marketplace where service providers can connect with governments requiring specific CD services – this will be an attempt to help demand meet supply. The demand side being the governments, and the supply side being the service providers. This could be modelled on **SS Mart for SDGs**<sup>3</sup>. The platform is envisaged to also include space for sharing of best practices,

lessons learned, mapping of partners (an on-going process), making it a "living" platform. The platform will be designed so it can link with networks of partners and tap into the networks to help disseminate "demands and requests" and link up with possible service providers through the networks of our partners.

2. **The Sendai Monitor:** The national Sendai focal points will be asked to report on the adherence of the strategic approach within the country. (Relevant custom nationally determined indicators). The Sendai Monitor tools (custom indicators portion) can help governments develop plans for DRR, detailing activities to be undertaken to achieve the resilience desired in the Sendai Framework. Projectisation of the activities defined under the DRR plan will help develop a finance mechanism for the plan. The custom indicators also ask for dedicated CD plans or policies.

The role of regional inter-governmental organisations can be important. Regional strategies can help develop and adopt custom indicators relevant to the region. The regional IGOs can ensure all their members report on the global targets and on the custom indicators. They can also play a role in linking the members to the marketplace. A similar role can be played by regional and national training institutes. It is suggested Asian institutes adopt and follow the strategic approach. ■

– **Sanjaya Bhatia**, Head, UNISDR  
Global Education and Training  
Institute, Korea

1 United Nations General Assembly, 2017b.

2 From: Repositioning the United Nations development system to deliver on the 2030 Agenda: our promise for dignity, prosperity and peace on a healthy planet, Report of the Secretary-General

3 <http://global-ssmart.org/en>

# Making Schools Safer in Asia, AMCDRR 2018, Mongolia Declaration

Urgent support is needed to facilitate the implementation of comprehensive school safety and child protection in a holistic manner across Asia Pacific. There are considerable gaps in awareness at all levels, know-how, and coordinated institutional mechanisms to translate intent into action at all levels (noting that current pathways are yet to lead towards the expected transformative change in the Sendai Framework/2030 Agenda for Sustainable Development). The following actions are needed for this to happen.

Enabling and updating of sex, age and disability disaggregated data (SADDD) followed by leadership of children and diversity analysis to better understand the diverse capacities, vulnerabilities, exposure to disaster risk, needs and priorities of children in diverse groups as a basis to inform DRM policies, plans, programmes and progress monitoring at local and national levels is urgently needed.

It is also important to secure the increased and meaningful representation, participation and leadership of children from all

minority, marginalised and diverse groups in every aspect of disaster risk reduction including decision-making and budget allocations. All such actions must lead to a transformative change in the safety of schools, protection of children, and actions of citizens and officials. Schools can be a starting point for this change.

A louder call to allocate national and donor budgets for child centred disaster risk reduction and ensure that resilience building investments strengthen school safety and child protection along with gender equality and social inclusion through targeted provision of access to resources, information, positions, skills and social protection of the most vulnerable.

It is also critical to include minimum requirements that address children's safety and protection in national and local legislation, policies, strategies, guidelines, budgets, plans and actions, including universal access to safe education, safe infrastructure and child protection services. Enhance role of local organisations

and authorities in this process of making schools safer and children champions of disaster risk reduction in Asia Pacific.

Disaster preparedness and response, recovery and reconstruction should be firmly embedded in build-back better principles, including addressing the root causes of vulnerability to ensure equitable economic, social, health and cultural resilience of all children in all their diversity.

Rapidly coordinate multi - level coordination and long-term partnerships are critical in order that actions are balanced to address all and varying aspects of inclusive resilience building towards green and clean economy and sustainable living.

Urgently ensure that rigorous monitoring, evaluation and accountability mechanisms are in place to assess implementation measures and impact, ensure targets and indicators for comprehensive school safety at national and local levels are developed and tracked. ■

- Vandana Chauhan, AIDMI



AIDMI's publication of Southasiadisasters.net on 'Towards AMCDRR 2018: Ulaanbaatar' released at AMCDRR 2018, session on Making Schools Safer in Asia, July 5, 2018, Ulaanbaatar, Mongolia.

# Trans-border Flood Early Warning on Early Warning System for Last Mile Connectivity to Enhance SFDRR Target-7

Early warning has been recognised as an effective approach for reducing disaster risk and the loss of life. At the institutional level, there has been a paradigm shift from single hazard to Multi-hazard early warning and from providing hazard information to providing risk and Impact information.

Acknowledging the importance of early warning in reducing disaster risk, the Sendai Framework's Target 7 also calls to substantially increase the availability of, and access to, Multi-hazard early warning systems and disaster risk information and assessments to the people.

A disaster adheres to no political boundary. Community to community trans-border early warning of flood between Nepal, India and Bangladesh will greatly benefit all these countries. Such community led trans-border partnerships should be equally supported across Asia and encouraged by each country as well

- Community to community communication is expensive.
- Government to Government formal communication is a big challenge.
- Country to country coordination is lacking.
- Trans-border coordinated risk assessment is lacking.
- Data accuracy vs. accuracy in observation. Accuracy of weather observatories.
- Changing rainfall patterns is a challenge to provide forecast based early warning.
- People to people networking is required for better communication and coordination.
- People centred EWS is still to be worked out.
- Better use of satellite data is required to bring accuracy in the warning.



AIDMI's publication of Southasiadisasters.net on 'Asian Early Warning Systems' Launched at AMCDRR 2018 Side Event on Trans-Border Flood Early Warning System for Last Mile Connectivity, July 4, 2018 at Ulaanbaatar, Mongolia.

as all of them collectively. And how can this reduce loss of life and livelihood in Asia?

Leveraging indigenous knowledge and modern technology is a must. Preparedness is a continuous process and bringing community at the centre can only help in building community resilience, especially in the remote areas. We need more pilots, up scaling of pilots and wide scaling of up scaled pilots in Asia.

And this will help protect investments in infrastructure and economy.

Great harmony has been seen among the trans-boundary communities. Such harmony should be utilised positively for building disaster resilience with active political support and facilitation. Saving lives is in everyone's interest. Inconvenient communication across borders-physical, political, scientific, digital and others for early warning purposes is an overwhelming liability, as the impact including loss and damage by disasters is shared by all.

Community based risk assessment at micro level reaching out to most vulnerable communities and individuals through better early warning system and last mile connectivity must now become a reality in Asia. ■

- Vandana Chauhan, AIDMI



# Asian Practitioner's Perspectives on DRR

**1. You are a key player who shaped Asian agenda for over two decades. What do you think is the main achievement of Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) 2018?**

I am glad that one focus of AMCDRR 2018, was a discussion and a commitment in the outcome declaration to work towards accelerating implementation of Target E of Sendai Framework for Disaster Risk Reduction (SFDRR) sought to be achieved by 2020. I strongly feel that we should be more specific and detailed in the aim to achieve the target, and see that by 2020, at least 80 percent of the countries worldwide, and a higher number of countries in the Asia Pacific region establish National Action Plans adopted and authorised by their national governments, and that at least 50 % are well funded by national budgets supplemented by international resources. So too at least 50 % of the sub-national authorities (states, provinces and districts) prepare plans at this level and begin their implementation. In

India, Bihar began this work in 2015 itself and adopted a plan in 2016 and now Andhra Pradesh is moving in the same direction. So too we should aim for at least 30 % of the cities in each Asian country to have city level plans established and 30 % implemented (30x30), especially since we began this effort in 2009 with the UNISDR and UN Habitat Making Cities Resilient campaign, and added as a priority under SFDRR. So let us act voluntarily but more ambitiously than the Ulaanbaatar target and help deliver on our promises made under SFDRR.

**2. You have been closely involved with Duryog Nivaran (DN) in 1995 and ADRRN and GNDR have been shaped with your contribution. What kind of a role can DN, Asian Disaster Reduction and Response Network (ADRRN) and Global Network of Civil Society Organisations for Disaster Reduction (GNDR) play in taking these achievements ahead?**

I am glad that DN and ADRRN are doing good work and each have carved their separate complementary spaces in shaping and implementing the global agenda in the region. DN has focused on women's issues and role, recovery and CSS, while ADRRN has focused on Community action, humanitarian standard setting, post disaster response and coordination among its members and specific thematic areas in disaster risk reduction (DRR). This is my reading of the situation knowing them both, but I believe there needs to be more active exchange of information and coordination, and some participation in each other's activities and planning to enhance

complementarities. Each can play an important role with more resources using the capacities and strengths of its members. GNDR must actively engage in dialogue with the leadership of these two institutions and only undertake complementary work identified in consultation with these two bodies.

Moving ahead these two Asian networks have a key role to play in the implementation of SFDRR and supporting its member institutions and their national networks in growing and contributing at the national and sub national level.

**3. Ever since you became a part of DN in 1995, you have been promoting community based disaster management courses across Asia. Why do you think that these ideas and insights matter now and will be important in future too?**

As mentioned leadership on women's issues and role, and promoting school safety in Asia are important areas where DN has and should continue to play its leadership role, working with national institutions and networks (which often include ADRRN and GNDR members). On recovery, both DN and ADRRN have played their roles on the ground and through analytical reviews of needs and gaps and should identify support that national networks and institutions (often their members) need and give it. We have seen this in both Philippines and Nepal, and earlier in Myanmar, where needs are far greater than available manpower and resources. Help in using past experience, needs analysis and programme development support is needed to national and sub national networks



Work at the sub national (province, district and below, and city) levels are crucial and needed, and DN can play this role in advocacy, and promoting action by its national networks and sub national members.

**4. And in all this what role AIDMI and SEEDS can play with volunteers to make a difference on the ground?**

AIDMI and SEEDS can play important roles at the sub national levels and for this greater dialogue is needed to identify complementarity. In addition, they can work to expand their influence by working with volunteers on the ground, and by shaping voluntary action by organisations who have adopted this as a key modality. Red R India, which partners with both, can help each identify areas where support is

needed. The VERVE Volunteer commitment made at SFDRR by MARS Practitioners Network is now getting new energy with leadership and support from Red R India and plans for piloting in at least two Indian states are being worked on, and resources for support to the volunteers are being mobilised. ■

**- Mihir R. Bhatt**

*(Questions From Mihir R. Bhatt and answers by Loy Rego, August 14, 2018)*

**INTERNATIONAL COOPERATION FOR RISK REDUCTION**

## **Disaster Risk Reduction in Japan and India: Some Policy and Cooperation Imperatives**



*The Prime Minister of Japan Mr. Shinzo Abe and the Prime Minister of India Mr. Narendra Modi signed a Memorandum of Cooperation on Disaster Risk Reduction on 14<sup>th</sup> September 2017 in Gujarat, India. (Source: Ministry of Foreign Affairs of Japan, 2017)<sup>1</sup>*

India and Japan are at different developmental progression pathways but they share a significant commonality in disaster risks. Both are among the most disaster-prone countries in the world. Yet, the approach they selected to disaster risk reduction (DRR) have significant differences.

The ability of the Japanese people to react and learn from disasters to "Build Back Better" is pronounced, and is arguably one reason for the country's developed economy despite its high risk to natural hazards. DRR in India has been improving yet slowly and there are ways in which both countries can cooperate in DRR. Realising the

potential for cooperation in the field of DRR, both countries signed a Memorandum of Cooperation (MOC) in the field of DRR during the India visit of the Japanese Prime Minister Mr. Shinzo Abe (please see the Photo). The MOC aimed at exchange of information, technologies, and policy advancements between both the

<sup>1</sup> Ministry of Foreign Affairs of Japan. 2017. Japan-India Summit Meeting. Available at [https://www.mofa.go.jp/s\\_sa/sw/in/page3e\\_000747.html](https://www.mofa.go.jp/s_sa/sw/in/page3e_000747.html) (Accessed 3 July 2018).

## Box 1. Main DRR Regulations, Policies and Plans in Japan and India

### Japan

- Disaster Countermeasures Basic Law
- Basic Disaster Management Plan
- Basic Plan for Earthquake Disaster Prevention
- Disaster Relief Act
- Earthquake Disaster Management Special Measures Law
- Act on Promotion of Tsunami Measures
- Landslide Prevention Act
- Erosion Control Act
- Soil Conservation and Flood Control Urgent Measures Act
- Activities Volcanoes Special Measures Law
- Act of Special Countermeasures for Heavy Snowfall Area
- Marine Pollution Prevention Act
- Special Measures of Nuclear Disaster Act
- Act Concerning Support for Reconstructing Livelihoods of Disaster Victims
- Act for Promotion of Earthquake Proof Retrofit of Buildings
- Act for Earthquake Insurance
- Act for Special Financial Assistance and Subsidies to Cope with the Great East Japan Earthquake.

### India

- The Disaster Management Act
- National Disaster Management Plan
- PM's 10-Point Agenda for Disaster Risk Reduction
- Pradhan Mantri Suraksha Bima Yojana.

countries. In specific, the MOC specifies exchange of expertise, policies, infrastructure and early warning systems for tsunami and earthquake risk reduction.

### Disaster Risk Reduction Policies and Regulations

Some of the main DRR policies in Japan and India are listed in Box 1. Japan has acts and plans for specific disaster events and to cater to specific stages of disaster management (e.g. for relief and reconstruction). These policies are continuously reviewed and revised to take into consideration the emerging needs and knowledge in addressing the issues. For example, the Disaster Countermeasures Basic Law was updated most recently in 2016 to enhance the role of local governments, and the National Disaster Management Basic Plan was updated in 2017 to reflect lessons learnt from the Kumamoto Earthquake and Typhoon Lionrock in 2016.

In the case of India, all the DRR provisions are laid out in the National Disaster Management Act and the operational details are laid out in the National Disaster Management Plan. Recently, the Prime Minister of India has laid out a 10-point agenda to promote DRR in India. The Pradhan Mantri Suraksha Bima Yojana would take the insurance to the poorest and most vulnerable in India. DRR in India, is both in terms of response and mitigation, is a state subject and hence it reflects in terms of limited number of laws and policies promulgated at the national level. This also created a microcosm of innovation by some states, such as Gujarat, in DRR. Similarly, many local level innovations exist in Japan as well to support the national policies and cater to the specific nature of local disaster risk profiles.

### Potential Areas of Cooperation

The policy development in Japan and India look significantly different

and there is ample scope for both countries to cooperate on DRR. Japan is the single largest donor for DRR globally, surpassing the World Bank. It has supported several projects across all stages of the disaster management cycle, and notably on prevention and mitigation in the Indian Ocean region. As recent examples, technical and financial contribution was provided for the Indian Ocean Tsunami Warning and Mitigation System, and JICA has also been implementing several projects contributing to DRR in India.

For India, Japan's experiences in designing and implementing policies and acts could provide a significant source to emulate and innovate from. Secondly, the technological advancements made in DRR in Japan could help India in bridging the gaps in disaster risk data and information. In specific, the advancements made in early warning systems, earthquake resistant infrastructure engineering and related technologies could provide useful experiences for India to look into. Promoting risk mapping prominently appeared in the Indian PM's 10-Point Agenda and Japan's use of high-resolution digital hazard and risk maps up to local level could be something that can be applied in priority areas in India. Coordinated international response is an area where both countries could cooperate and develop a model that could potentially help countries in Asia and beyond, a prominent proposal discussed during the MOC signed by both the countries. Japan-India cooperation on DRR could also be beneficial for the SAARC countries where India is playing an important role in strengthening DRR. ■

- **Tomoko Minowa, and Prabhakar,**  
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## Climate Change Leadership in India: Developing Climate Smart Farmers



In new millennium the world is facing the challenge of climate change with increasingly unpredictable weather events and an intense adverse impact on habitat. The cause of climate change is global warming - increased Green House Gases. Although global warming is an international phenomena - its adverse impacts are most acutely experienced at the local level. The severely affected are villages - the farm land and the farmers. The increased floods, cyclones, delayed rains, droughts, heavy rains, all emanating from un-seasonal and erratic weather-leads to crop-failures or low productivity. Even the livestock and fisheries also suffer from low productivity and mortality due to climate change. This also causes the added challenge of food security.

It was in this context that Dr. Kirit Shelat initiated a dialogue by organising an International Conference on "Global Warming, Agriculture, Sustainable

Development and Public Leadership" at Gujarat Vidhyapith - Ahmedabad in March 2010. The outcome of conference was twofold. The Adviser to Planning Commission of India Dr. Sadamatev set up of a special sub group in Planning Commission on "Enhancing preparedness For Climate Change" headed by Dr. Kirit Shelat and simultaneously Justice B.P. Singh, former Judge of Supreme Court of India - thought of setting up a special purpose - NGO with focus on Agriculture - "National Council Climate Change Sustainable Development and Public Leadership- NCCSD at Ahmedabad.

Dr. M.S. Swaminathan, the veteran agriculture scientist - the leader of Green Revolution, Shri Purushottam Rupala, Dr. Y.S. Rajan and Shri Kantisen Shroff gave their blessing and support. The organisation was rolled in September 2010 with Dr. Kirit Shelat as Executive Chairman and Justice B.P. Singh as its President.

NCCSD initiated its mission by organising think tank meets for policy formulation and capacity building training programme for farmers and youth. The focus was to prepare administration and farmers to meet challenges of Climate Change. This was followed by series of initiatives:

- NCCSD Participated in "Conference of Parties" - meets of countries organised by UNFCCC to meet the challenges of climate change. It was realised that 'Agriculture & Farmers' do not figure in COP discussions. The role of agriculture as nature's tool for mitigation - was not recognised - NCCSD participated and organised side events and exhibition and also met senior leaders of International organisation and explained how agriculture can mitigate the adverse impacts by the process of photosynthesis proven which absorb CO<sub>2</sub> from atmosphere.

Now by expansion of agriculture on wasteland, degraded lands can provide employment and additional food generation-while absorbing CO<sub>2</sub>.

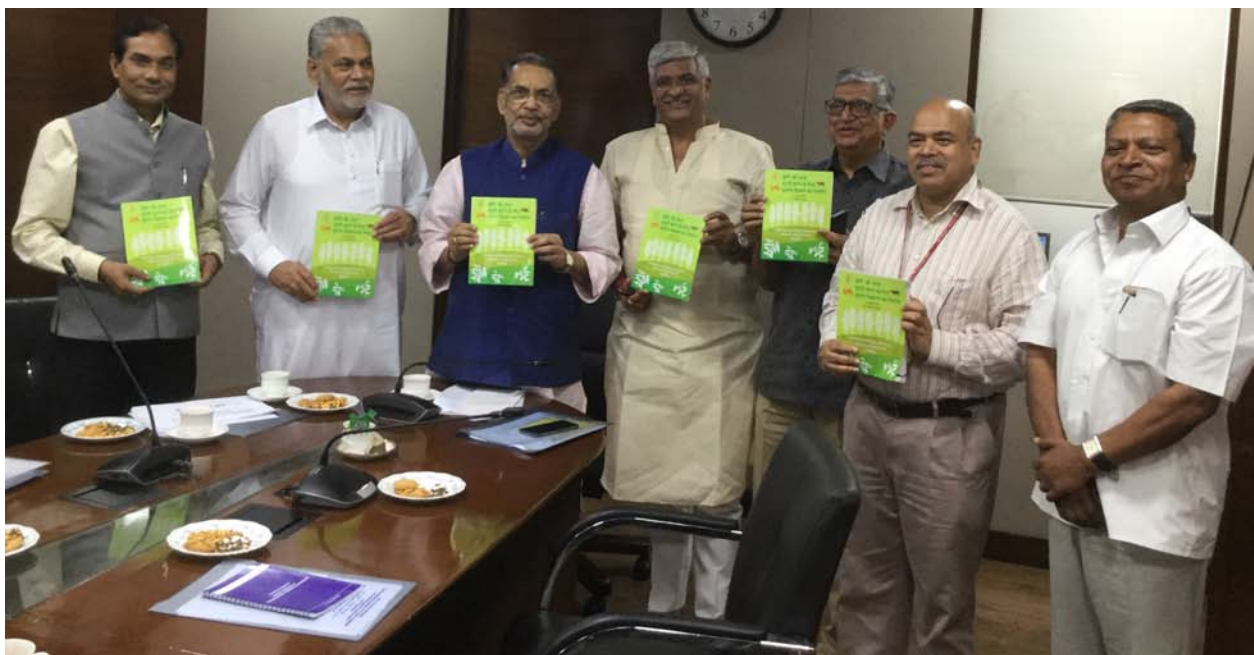
- NCCSD successfully prioritised agriculture at COP. The Paris Agreement accepted importance of food security, food productivity, technology transfer and capacity building.
- FAO also liked this idea and created a special purpose organisation called GACSA- "Global Alliance for Climate Smart Agriculture".
- At National level NICRA- National Institution for Climate Resilient Agriculture was initiated by ICAR. NCCSD took up 'Capacity Building' as part of it and developed Guide book for farmers for developing Climate Resilient Agriculture.
- NCCSD organised an International Conference on 'Climate Justice' in 2014. The Chief Justice of India inaugurated this. The issues related to farmers got focused and out-come was a liberal Crop Insurance Policy to cover even non - banker farmers.
- In 2014 NCCSD initiated for technology transfer with Florida A&M University (FAMU), USA for Building Climate Smart Farmers. USAID helped FAMU to send US-scientists to train our farmers. Vivekanand Research and Training Institute - VRTI - Mandvi-Kutch- setup A Farmers Education Centre. 26 Scientists from USA visited and trained farmers and trainers in this campus over a period of last two years. This is joint FAMU, NCCSD and VRTI project-with soil health lab, Weather forecasting Centre, demonstration farm and a farmer clinic.
- NCCSD has brought out a book for farmers on "Building Climate Smart Farmers - A Guide Book for Doubling Income of Farmers in Arena of Climate Change". This book is authored by Dr. Kirit N. Shelat and co-authored by Dr. Odemari Mbuiya from Florida Agriculture and Mechanical University - FAMU, USA. This

is an outcome of India - USA collaboration. This book is in response to call given by Hon'ble Prime Minister for doubling income of farmers.

- The Gujarat government made available this guidebook to all villages of State as a part of 'Krishi Mahotsav - 2018'. The Hindi and English version are made available at National level and to all States for use by their farmers.

The farmers are prepared to sustain their agriculture and increase their income despite the adverse impacts of climate change - through convergence of efforts of farmers themselves, scientists of state Agricultural Universities, Civil society members, Agricultural Department and its team of ATMA and International Co-operative effort with Florida Agricultural & Mechanical University - FAMU - USA. Most importantly, farmers have been motivated to act on their own. ■

- **Dr. Kirit Shelat**, Executive Chairman, National Council for Climate Change, Sustainable Development and Public Leadership (NCCSD), Ahmedabad, India



# Beyond Ulaanbaatar: Bettering Transboundary Early Warning System in South Asia

An effective and timely early warning has the potential to reduce the loss of life. Realising this, the Sendai Framework for Action on Disaster Risk Reduction (SFDRR) and more recently concluded Asian Ministerial conference (AMCDRR) in Ulaanbaatar has stressed on establishing multi-hazard, multi-sectoral Early Warning Systems (EWS). This article explores the current gaps in transboundary EWS and suggests a roadmap for future to improve the EWS in South Asia.

In Asia, the South Asia region is comparatively more exposed to disaster risk. The hydro-meteorological disasters (floods and cyclones) have a highest frequency and cause maximum devastation in this region. Interestingly, most of the floods and cyclones do not limit themselves to the national boundaries, highlighting a need for trans-boundary EWS. The Regional Integrated Multi-Hazard Early Warning System (RIMES), an intergovernmental body, registered under the United Nations while setting precedence has put the onus on the member countries to further align nationally-supported plans and locally led actions.

In South Asia, the management of water resources and related policy making is the prerogative of the national and subnational governments. As a result, trans-boundary data sharing is controlled and often influenced by the geopolitical relations among different countries. In addition, the access to such data sets is limited to a certain section of the society (scientist, technocrats etc.) and does not necessarily reach down to the community. This is a serious challenge in integrating community-based EWS, traditional knowledge and state of the art EWS. Furthermore, many non-state actors

and multilateral organisations are working in South Asia on transboundary EWS mostly at the local scale. These are currently standalone pilot initiatives with a potential to be integrated into the national and regional EWS with data standardisation and validation built into these initiatives.

Current EWS are linear technocentric, top-down, expert-driven systems with little interface with the end-users, as a result, the focus remains more on hazard and risk with little stress on the response capacities. Further, the EW systems lack a bottom-up feedback mechanism to understand the implementation shortcomings and actively engage the end-users. Developing a community feedback mechanism will bring on board traditional knowledge, skills and wisdom into the EWS.

Inadequate institutional capacities at the national and local level are serious impediments for establishing an effective decision-making system to support the EWS.

Training of local decision maker based on various types of warnings and local vulnerabilities should be prioritised. Such training should involve officials from across the borders to support future cooperation.

Last mile connectivity remains a task at the local level and is mostly taken up by the local authorities who have limited resources. Collaboration with private enterprises both for developing solutions as well as supporting such initiatives through Corporate Social Responsibility (CSR) is desired.

Risk perception and apt understanding the early warnings are important factors which influences response at the local level. Hence, along with establishing a robust Early Warning System, awareness generation at the community level has to be prioritised to influence the community's risk perception and prepare them to act base on early warnings. ■

- **Ranit Chatterjee**, Co-Founder  
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## Belt and Road Plans Safer from Disasters

From any way we look at Belt and Road Plans of China, known as Belt and Road Initiative (BRI): it is the infrastructure project of the century. The "road" is mostly sea route and the "belt" is on land. It connects China with Europe via Middle East and Africa. BRI will change the economy, politics, sociology, and environment of planet earth irrevocably. This is the biggest ever investment made in any global infrastructure project. The scale of BRI spread is historic. How to protect BRI from storms and floods and earthquakes? And tsunami and risk of sea level rise over the coming decades? Answers to these questions are not clear to many. What is needed is an ambitious plan to reduce disaster risks faced by BRI and build its resilience to such risks. Exploratory initial research by AIDMI suggests that BRI must have Disaster Risk Reduction (DRR) measures that are more flexible than ever before; uniform risk reduction measures that cover rich and poor countries at par; offer ongoing real time risk reduction assessment measures; and be open to continuous improvement in the performance of disaster risk reduction actions across BRI. By default a DRR plan for BRI will become the largest ever DRR plan ever made in this century. ■

(For more information contact Mehul Pandya at [bestteam@aidmi.org](mailto:bestteam@aidmi.org))

## Role of Panchayats in Early Warning: Anand District Planning Experience



*Community consultation in Anand for DDMP preparation.*

In the present day scenario, it is important to understand disasters in the context of global frameworks like the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-30, the 2030 Agenda of Sustainable Development Goals (SDGs) and the Paris Agreement (COP21) under the UN Framework Convention on Climate Change (UNFCCC). Unnati, a non-government organisation based in Ahmedabad, has been working on DRR policy framework at different levels, and was invited by the National Disaster Management Authority (NDMA) to prepare the National Disaster Management Plan (NDMP). Unnati facilitated the preparation and the plan document was released in 2016 by the Hon. Prime Minister of India. In 2017, consultations took place with the Ministries, State authorities and technical departments for the revision of the same, in which Unnati has been engaged. While this was in

process, it was suggested by the NDMA for Unnati to contribute to district level planning in context of the global frameworks and in line with the NDMP. Unnati facilitated the revision of the District Disaster Management Plan (DDMP) of Anand District in May, 2018. For building resilience of the communities against various risks, at the Panchayat level, Gram Panchayat Development Plan (GPDP) is critical development planning process that must include DRR concerns as well. Unnati is currently facilitating the preparation of GPDPs at some locations.

During the planning process in Anand, various consultations with officials at the district block and community level took place, and it the higher up officials, so that they can take appropriate and quick action for response. For this purpose, Panchayats have a responsibility to forward the situation at specific times to the Mamletdar/ TDO, for

them to coordinate their course of actions with the District office.

It is important that information reaches people; however, what is more important that it reaches them on time. Panchayats need to make sure that there is timely dissemination of warnings. It is proposed in the Anand DDMP that the Panchayats must hold a pre-monsoon meeting at the village level for making an action plan, in the similar way as it is done at the Talukla level for the contingency action planning. This would not only enable the Village Disaster Management Committee (VDMC) (which are often not functional), to get re-activated, but furthermore prepare the other functionaries (schools, anganwadis, Gram Rozgar Sevak, Mate - MGNREGA functionaries, etc.) for the floods. Also, a lot of people are often left out due to their socio-economic status and are the most vulnerable

because of their location as well. The Panchayat must make sure to reach out to these people, by using various communication methods like speakers, phones, or making other people who are part of the VDMC, local volunteers, and other local youth groups to help circulate the warnings. Apart from this, they must be proactive in coordinating with local CSOs and other agencies which may provide assistance in times of need, and activate other local capacities in the village. This may include checking the equipment in the safety kits, facilities in the safe

shelters (schools, community hall, etc.) and get other things that may be required, check with the PHC or sub-centre, gather all the local volunteers, etc. Panchayats must also take the responsibility to shut down any rumors that are often spread in such situations and on the other hand, authenticate the actual information they receive.

Early warnings are not limited to the pre-disaster phase only; many people are left out or unaware of the damage and loss assessment and compensation process. Panchayats

must also work in the post-disaster stage to let the people know information about things like when the damage assessment is going to take place; when the various types of compensations are to be distributed and where; what precautions are to be taken by the people for drinking water and the like. The Anand District planning experience specified the exact roles of Panchayats in early warning and in other processes of DRR as well. ■

- **Binoy Acharya, Aditi Sharan, and Kirit Parmar**, UNNATI - Organisation for Development Education, Ahmedabad, Gujarat, India

## BUILDING CAPACITY FOR URBAN RESILIENCE

# Capacity Building for Humanitarian Action: Focus on Cities

The world is witnessing an intense shift in human settlements today. Across the globe, half of humankind resides in cities.<sup>1</sup> It is estimated that by 2050, this number may rise to as high as 75%, with the developing world being responsible for most of it. As the majority of these migrations are unplanned and unsystematic, the influx of such large numbers into cities creates an immense strain on urban governance to provide basic security, employment and infrastructure services. A large number of people, thereby, end up living on the margins of the cities and towns in sub-standard conditions and unsafe environments which further accentuate their vulnerabilities to disasters.

This perilous confluence of rapid urbanisation and natural disasters has been on display many times over the past decade. Disastrous floods in Manila, Philippines were

exacerbated by the lack of trees and soil to absorb torrential rainfall.<sup>2</sup> More recently, the metro city of Mumbai, India faced a crisis situation during the floods of August 2017, which killed more than 30 people in spite of early warnings by the meteorology department.<sup>3</sup> On one hand, while climate change, environmental degradation and political insecurities are constantly creating more profound risks, on the other hand the coping capacities of cities and their population are diminishing due to disrupted kinship and social linkages and the rapidity of transition into urban settlements. The complexity of the situation is often compounded with once in a generation disaster events impacting urban centres with little to no governance outreach and services. Additionally, in many smaller urban settlements, small scale disasters and disruptions ensue almost every year and go unnoticed.

As Benjamin Franklin's old adage goes, "an ounce of prevention is worth a pound of cure"; capacity building for humanitarian action in urban settings becomes essential to ensure preparedness and reduce risks. However, these capacity building initiatives must have sustained relevance, effectiveness and replicability across the diverse and disperse social demography and governance structures of cities. Towards this, there are three factors that concerned agencies must take into consideration:

1. **The abstruse and complicated social construct of cities:** The urban world has a very intricate and layered social construct. Moreover, spaces for collective actions and collaborations are considerably limited in numbers and outreach. Vulnerabilities are different and at times hidden and unprecedented. Men, women, children, the elderly, persons with disabilities, minority groups, each have their own strengths, vulnerabilities and

1 United Nations Department of Economic and Social Affairs

2 <https://www.citylab.com> /Stewart M Patrick

3 "South Asia floods". International Federation of Red Cross and Red Crescent Societies. Retrieved 30 August 2017.



varying power dynamics within the urban society. Capacity building initiatives must allow for an in-depth analysis of these equations and use that as the frame for designing the programmes. The content of the programmes must speak of and to the vulnerabilities in order to appeal to the target audiences and be of use to them. The methodologies adapted must be thought inductive for the participants and compel them to objectively look at their environment and internalise an awareness towards disasters. In the fast pace of the urban world, it becomes difficult for city dwellers to give any actual prominence to disaster preparedness in their daily lives. The capacity building programmes must be able to ensure that this prominence is generated.

**2. Governance, institutions and range of stakeholders involved:**

Cities, generally have a well-defined bureaucratic structure in place. However, urban governance is a complex network with a myriad of

different departments and multilateral systems that must collaborate with external stakeholders like Civil Society Organisations, Law Enforcement, Corporate Houses and the Media on a regular basis. This interface though is often lacking in normal times and deeply compromised during crisis. Capacity building for humanitarian action cannot be successful if done sporadically, in silos. It has to be mainstreamed within these existing institutions, be informed of the range of stakeholders and their precise roles, and complement the governance system and be endorsed by it. Working with government systems and actors to integrate humanitarian action knowhow and capacities would to begin with require a coming together of the stakeholders and a shared understanding and language.

**3. Multifarious Hazards and Risks:**

In order for capacity building to be truly effective in cities, it needs to account for the complex context and wide range of

possible outcomes in the event of a disaster. Risk levels vary starkly across the demography of any given city and different hazards may mean different outcomes for different sets of populations. Furthermore, it is a constantly evolving scenario as urban centres exponentially expand, breaking into rural boundaries and thus giving rise to peri-urban areas on the fringes, which have a unique context with newer risks and vulnerabilities. People are forced to live in make-shift, sub-standard habitations and undertake informal, uncertain and hazardous occupations to make a living. Capacity building has to be properly targeted and customised to allow for deliberations on these concerns.

The challenges that surround capacity building for humanitarian action in cities are sizeable. The humanitarian sector's collective experience of urban capacity building is also relatively nascent. Nevertheless, possibilities of a coherent and effective approach are also plenty, if informed and targeted action is taken. Agencies must learn that minimum standards for an Urban Disaster Response are fairly different from that in a rural setting. Conventional response methods may not be effective in cities. Actors need to be oriented on these needs, standards, principles, accountability in addition to what is done or can be done for Urban Community Based Disaster Risk Reduction. A holistic approach that integrates emerging concerns like climate change and constant flow and movement of people with long-existing vulnerabilities like development deficits and awareness gaps would go a long way in creating the ground on enhanced capacities for humanitarian action in cities. ■

- **Dibyashree Datta, Sinu Chacko, and Tanaji Sen**, RedR India, Pune, Maharashtra, India



Picture Credit: RedR India.

Capacity Building on Public Health Promotion for Community First Responders.

# Key Messages for Gender Inclusive Disaster Risk Reduction

## The Progress Review Found that:

- There is wide acceptance of the importance of addressing gender equality and social inclusion in DRR for resilience building and increasing political will to implement, which is demonstrated in positive steps such as revision of national policies, establishment of data collection mechanisms and developing guidelines.
- However, the translation of the commitments into actions leading to expected results towards gender equality and social inclusion is constrained by several factors such as gaps in awareness and knowledge at the required levels, consistent availability of technical and financial capacities, supportive policies, effective and well-coordinated institutional mechanisms.
- Implementation of the commitments need to be supported and facilitated taking into consideration the targets of the Sendai Framework and the 2030 Agenda for Sustainable Development cannot be reached without achieving broad gender equality and women's empowerment outcomes.



to inform DRM policies, plans, programmes and progress monitoring at local and national levels.

## Accordingly, It is required to

- Enable systematic collection and updating of sex, age and disability disaggregated data (SADDD) followed by gender and social diversity analysis to fully understand the diverse capacities, vulnerabilities, exposure to disaster risk, needs and priorities of women and men in diverse groups as a basis
- Comprehensively address barriers to the increased meaningful representation, participation and leadership of women and persons from all minority, marginalised and diverse groups in every aspect and at all levels of disaster risk reduction. The review suggests that all such actions to secure the meaningful representation and leadership of women must lead to a transformative change from 'servicing the vulnerable groups' to empowering them with capacities and equitable access to all the available opportunities and resources for DRR.
- Allocate resources and ensure that resilience-building investments strengthen gender equality and social inclusion through targeted provision of access to resources, information, skills and social protection and security of the most vulnerable.
- Review and revise national and local disaster risk reduction

legislation, policies, strategies, guidelines, plans and actions to ensure inclusion of minimum requirements that address gender considerations.

- Base disaster preparedness and response, recovery and reconstruction on build-back better principles, including addressing the root causes of vulnerability to ensure equitable economic, social, health and cultural resilience of all women, girls, men and boys, and persons of diverse gender identities in all their attributes and diversity, including persons with disabilities.
  - Coordination and partnerships among all the stakeholders, including governments, private sector, academic and research organisations, civil society organisations and donors are critical at all levels in order that actions are balanced to address all and varying aspects of gender equality and socially inclusive resilience building.
  - There is a need for rigorous monitoring and evaluation and accountability mechanisms to be in place with sufficient budget and personnel allocation to assess implementation measures and impact, ensure targets and indicators for gender equality, social inclusion, resilience of the most vulnerable at national and local levels are developed and tracked. ■
- **From Gender Stakeholder Group**  
 (based on the progress review 2016-2018 on gender and social inclusion in implementing the Asia Regional Plan for DRR).

# Climate Services for Enhanced Food Security in the Hindu Kush Himalaya



Photo: Alex Treadway\_ICIMOD.

Food deprivation is more severe in the mountains than in the plains in many South Asian countries. Despite the region's wealth of natural resources, a significant percentage of the population in the Hindu Kush Himalaya (HKH) experience food insecurity and malnutrition—31% of the population is food insecure and 50% is facing malnutrition.

Such high vulnerability and food insecurity is linked to low productivity and subsistence economies. In the past few decades, climate change and rising incidences of related hazards, i.e. droughts and floods, have increased vulnerability to food insecurity. Prolonged dry spells and droughts, which have occurred more frequently in recent

decades than ever before, are steadily depleting the region's natural resource base. This has led to a significant decline in food



Photo: Nabin Baral\_ICIMOD.

production and degraded rangelands, particularly in western parts of the HKH region.

At the beginning of the present century, a drought that lasted four years—from 1998 to 2002—caused acute shortage of water for agriculture in Balochistan province of Pakistan. The drought affected nearly two million acres of arable land and 9.3 million livestock. From 2001 to 2013, devastating floods were observed in Uttarakhand state of India. Flood incidences are increasing in drier mountain areas such as Ladakh in India and Gilgit-Baltistan in Pakistan. Some downstream areas, including the Indian state of Bihar, have faced floods more severe than ever before in recent years. Additionally, some



Udayan Mishra, ICIMOD.

parts of the HKH region, particularly in Nepal and Pakistan, have become more vulnerable to glacial lake outburst floods (GLOFs).

Food insecurity originating from erratic weather patterns is a major concern. In recent years there has been a dramatic increase in the demand for timely and accurate information on indicators related to

climate and crop conditions in response to these growing challenges. A lot of climate information has been made available in the past decade but their use by decision makers at the local and management levels remains relatively low.

The gap between potential solutions and old-fashioned practices on the ground underlines the importance of establishing effective climate services based on new technologies. An effective mechanism for providing climate services to local people and policy makers may significantly reduce the rate at which climate change induced 'hazards' turn into 'disasters'. Losses in agriculture and threats to food security, livelihoods, and infrastructure, as well as the number of fatalities to disasters can be reduced by ensuring timely provision of climate services and their use in disaster preparedness and management.

A drought monitoring and early warning system, for instance, can support national-and local-level planning and agro-advisory services

to help local populations and governments prepare for drought and cope with its impacts on agriculture. Similarly, community based flood early warning systems (CBFEWS) can also provide effective early warning regarding debris floods and flash floods. These can alert vulnerable communities who can then relocate their moveable assets, food items, and livestock to safer places, reducing the risks of both transitory and chronic food insecurity.

Along with disaster preparedness measures, a range of climate-resilient adaptation practices-micro irrigation systems, water harvesting and storage practices, and soil nutrient management-can be customised to local situations. Such practices can play a vital role in improving food security in the HKH region. ■

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