



ECOSYSTEMS-BASED DISASTER RISK REDUCTION:

SCALING UP ECOSYSTEM BASED DISASTER RISK REDUCTION IN DEVELOPMENT PLANNING AND PRACTICE IN ASIA

Thematic Side Event (THEM 7)

7th Asian Ministerial Conference for Disaster Risk Reduction (AMCDRR)

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ECOSYSTEM-BASED DISASTER RISK REDUCTION:

Scaling up Ecosystem based Disaster risk reduction in Development Planning and Practice in Asia

Thematic Session conducted as part of the AMCDRR, 2016

Background
to the
Thematic
Session on
Ecosystem-
Based
Disaster Risk
Reduction,
conducted as
part of the
AMCDRR,
2016

Although there has been considerable progress in Disaster Preparedness and Resilience in the Asia and Pacific, the region remains vulnerable to concentrated disaster risk, and the economic losses in the region due to the effects of disasters, continue to rise. The adoption of the Sendai Framework, which focuses on the prevention of disasters and increasing disaster resilience, requires governments to affirm their participation and engagement, which occurs in the regional and sub-regional platforms for Disaster Risk Reduction (DRR). The regional platforms were first evolved during the Hyogo Framework for Action (HFA 2005 – 2015); in Asia, the platforms consist of the Asian Ministerial Conference for Disaster Risk Reduction (AMCDRR) and the ISDR Asia Partnership (IAP) Forum.

The AMCDRR is a biennale event conducted with the joint leadership of hosting governments in Asia, in partnership with the United Nations Office for Disaster Risk Reduction (UNISDR), who provide technical support. It is instrumental in increasing political commitment and strengthening disaster-risk reduction at all levels in Asia.

The AMCDRR 2016 was aimed to accelerate the regional implementation and monitoring of the Sendai framework in Asia, and bring out the following:

- a) political declaration from various national governments ('The Asian Regional Plan for Implementation of the Sendai Framework') to accelerate the implementing and monitoring of the Sendai framework in the region
- b) Statement of action from stakeholders towards 'shared responsibility' in implementing the Sendai Framework

The Thematic Session, '*Ecosystems based Disaster Risk Reduction (Eco-DRR): Scaling up Ecosystem based Disaster risk reduction in Development Planning and Practice in Asia*' was part of the 7th Asian Ministerial Conference for Disaster Risk Reduction (AMCDRR). The session was aimed at highlighting the role of healthy ecosystems in preventing disasters and buffering their impacts, and identifying the way ahead for integration of Eco-DRR approaches in policies and practice.

The concept of ecosystem-based adaptation has been around for a while and is reflected in several policy documents of nations; Ecosystem-based Disaster Risk Reduction (Eco-DRR), is also well-recognized in the Sendai Framework for Disaster Risk Reduction (2015-2030). However, it continues to be missed out in the suite of solutions employed by countries and communities for disaster risk reduction. In view of this, the Thematic Session aimed at serving as a platform to bring together decision-makers from the government and representatives from the scientific/academic community and grassroots community-based organizations, to deliberate on the implementation of Eco-DRR approaches to disaster risk reduction and advancement of the Sendai Framework Priorities for Action. The session sought to initiate a dialogue on the learnings from successful regional examples of the application of Eco-DRR, and advocacy for its large-scale adoption in policies and practice in Asia.

Objectives of the Thematic Session:

The objectives of the thematic session were:

- To identify key lessons and next steps for promoting large-scale implementation of Eco-DRR;
- To identify potential partnerships in Asia to strengthen research-policy-practice for scaling up Eco-DRR implementation, and establish an Action-oriented Agenda.

Organizers of the Thematic Session:

Lead Organisers:

United Nations Environment Program (UNEP): The United Nations Environment Programme (UNEP) is the leading agency that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment. UNEP along with its network partners has demonstrated several successful Eco-DRR initiatives and has been a prominent advocate for this approach.

Ecosystem Services for Poverty Alleviation (ESPA): ESPA is a global interdisciplinary research programme funded by the United Kingdom's Department for International Development (DFID), the Natural Environment Research Council (NERC) and the Economic and Social Research Council (ESRC), as part of the UK's living with Environmental Change partnership. ESPA has been striving to ensure that in developing countries, ecosystems are sustainably managed and thereby contribute to poverty alleviation, inclusive sustainable growth and reduced vulnerability to disasters.

Pragya: Pragya is a development organisation working for the appropriate development of vulnerable communities and sensitive ecosystems around the world. Pragya has over two decades of rich programming experience in remote, difficult areas that lie in the rain-shadow of research and development attention. It works with natural resource-dependent communities, some of them the most vulnerable to climate change and natural disasters, to build their capacity to manage their environment in a sustainable manner and adopt resource-efficient adaptation measures and conservation approaches. It strives to reduce vulnerability of these communities by integrating conservation and mitigation initiatives with disaster preparedness at the grassroots.

Collaborators:

- Whitley Fund for Nature
- IUCN India
- National Institute of Disaster management – India (NIDM)
- National Environmental Engineering Research Institute (NEERI)
- Partnership for Environment and DRR (PEDRR)
- International Water management Institute (IWMI)
- Asian Cities Climate Change Resilience Network (ACCCRN)

Pre-event Processes- Voices for Eco-DRR- pan-Asia:

Ahead of the AMCDRR, the Pragya team reached out to experts from multiple countries in Asia to identify best practices as well as challenges with respect to adoption of the ecosystem-based approaches across Asia. **Video Interviews of 20 experts from 17 Asian countries** elicited their views on Eco-DRR, including some of the concerns and challenges that they face with respect to the mainstreaming of Eco-DRR.

The experts, who included scientists and researchers, conservationists and DRR practitioners at the grassroots, and policy makers and shapers, shared the learnings from the application of Eco-DRR in their countries, describing successful applications and technologies used or innovations made, and identifying the key factors that contributed to their success. Some shared inspiring stories of inter-agency cooperation and trans-boundary collaboration for Eco-DRR. The video interviews with the experts were also supplemented with images, videos and other material sent by them on the case studies cited.

The pre-conference process drew participants from a wide range of institutions, including several reputed Asian universities and research networks - Universiti Brunei Darussalam (Brunei), Royal University of Phnom Penh (Cambodia), University of Chittagong (Bangladesh), LAS Climate Risk Nexus Initiative (The League of Arab Nations), Asian Disaster Preparedness Centre (Thailand), American University of Beirut (Lebanon), BRAC University (Bangladesh), and University of Sri Jayewardenepura (Sri Lanka). Experts from non-profit foundations and international networks in Asia also participated in this process: Foundation for the Preservation of Wildlife and Cultural Assets (Armenia), Bhutan Trust Fund for Environmental Conservation (Bhutan), MS Swaminathan Research Foundation (India), Hustai National Park Trust (Mongolia), IUCN Liaison Office (Japan), Red Crescent Society of Turkmenistan (Turkmenistan), Aaruthal (Sri Lanka), CAMP Alatau (Kyrgyzstan), IUCN Regional Office for West Asia (ROWA) (Jordan), IUCN Nepal and TABEÁ- Nature World Heritage Programme for Arab States (Bahrain). [Details in **Annexure 1: List of Participants**].

The messages of the experts from Central Asia, West Asia, South Asia, South East Asia and East Asia, interacted with through the pre-conference processes, were included in firming up the conclusions from the event and some of these perspectives were also showcased during the Thematic Session in the form of narrowcast of the video-interviews.

Thematic Session at AMCDRR- Panel Discussion on “Scaling up Eco-DRR in Development Planning and Practice in Asia”:

The Thematic Session was hosted on the first day of the 3-day long AMCDRR event, and comprised a **Panel Discussion on “Scaling up Eco-DRR in Development Planning and Practice in Asia”**. The session was chaired by **Ms. Gargi Banerji**, Founder, Pragya. It commenced with opening remarks from **Mr. Jyotiraj Patra**, South Asian Regional Evidence Advisor for Ecosystem Services for Poverty Alleviation (ESPA), which was followed by a detailed deliberation on the theme by the speakers on the panel: **Dr. Anil Gupta**, Head of Division of Policy Planning, National Institute of Disaster Management (NIDM, India), **Dr. Deepa Gavali**, Acting Director, Gujarat Ecology Society (GES, India), **Dr. Priyanie Amerasinghe**, Head, Hyderabad Office, International Water Management Institute (IWMI),

India), and **Mr. Ritesh Kumar**, Conservation Program Manager, Wetlands International (WI, India).

The Panel Discussion was divided into **three segments** involving extensive discussions on the associated questions:

- a) **State of Play:** What is the state of play with respect to Eco-DRR? What is the extent of its adoption in planning and development and its integration in policy in Asian countries, and what are the gaps and challenges.
- b) **Evidences:** What is the available evidence of the impacts and benefits of the Eco-DRR approach? What are the learnings from cases across Asia?
- c) **Strategy for Mainstreaming:** What should be the pathways to scaling and mainstreaming the Eco-DRR approach? What are the strategies by which the full benefits of Eco-DRR may accrue? How may these be applied at various scales- by communities, for landscapes and in the form of cross-border collaboration?

The discussion enabled an exchange of ideas and information with each panelist sharing his/her experience on the subject and the session chair summed up the key points at the end of the discussion.

The Thematic Session drew participation from individuals and institutions involved in disaster management, conservation, water management, community mobilization, research and policy advocacy, such as - Center for Environment and Development (Kerala, India), Tata Institute of Social Sciences, Asian Disaster Preparedness Centre (ADPC, Thailand), Society for Professional Action in Development (SPADE, West Bengal, India), Gorakhpur Environmental Action Group (GEAG, Uttar Pradesh, India), European Civil Protection and Humanitarian Aid Operations (ECHO).



The Panel Discussion was followed by a **rapid Q&A** with the participants during which the Speakers on the panel answered questions raised by various participants. The Thematic Session ended with **Closing Messages from all speakers** including the Opening Speaker, four Panelists and the Chair for the Session, and a Vote of Thanks. Ms. Banerji expressed her sincere gratitude to each of the panelists and participants for their effort in contributing to the vibrant discussion and to the organizing team for their effort in making the event a success.



Key concerns/challenges identified:

• ***Increasing degradation of ecosystems and inappropriate development are enhancing risk levels in Asia.*** The increasing degradation of ecosystems and trends of inappropriate development are enhancing risk levels in Asia. “Asian countries are today in a rush to build their economies and their infrastructure, but much of their economic assets are vulnerable and exposed, and there are millions of poor who are wholly dependent on natural resources. Development is however rarely disaster neutral, and for the Asian countries, much of the development has come at the cost of the health of the ecosystem.” Reckless infrastructure building and industrial growth alongside over-dependence and over-extraction of natural resources is damaging the environment. Consequently, disasters and their enormous human and economic cost are shaking us at our foundations. Asia displays a disproportionate share of the world’s disasters and their impacts. It has 30% of the global landmass and 55% of its population, but experiences 40% of the disasters, and suffers 80% of the fatalities. “The history of humanity is really an interaction of two systems, human society, and nature and the balance between the two is tipping. The ecological capital that human society is based on, is in a state of decline today, and the increasing shockwaves of disasters are adding several dimensions of uncertainty and insecurity for human society. With a predominantly human-centric approach however, we continue to put human society and infrastructure at the heart of disaster management, without due regard for the protection of this ecological capital.” [Ms. Gargi Banerji, Pragya- Chair]

• ***There is a continuing schism between DRR and ecosystem based approaches, and lack of a bridging language contributes to it.*** Disaster management continues to suffer a schism between traditional DRR with its shorter-term orientation and focus on preparedness and response aimed at protection of economic assets, and Ecosystem Based Approaches with their longer term horizon and focus on conservation of ecosystems. “Ecosystem based approaches towards disaster risk reduction are being incorporated in much of our policies and legislations, but at the ground level, programs addressing disasters are primarily focused on preparedness and on relief, in other words, on protecting economic assets and human life. Ecosystem needs are largely ignored. For far too long, disasters have been portrayed as isolated and dissociated “events” - separate, dissociated, and isolated - and the intrinsic interaction between ecosystem health and hazards is neglected. This could potentially lead to 150 million environmental refugees by the middle of this century, as predicted by the UN, and much larger scale of death and damage, due to the compounding effects of climate change and disasters.” [Gargi Banerji, Pragya- Chair]. The lack of a bridging language between the 2 interlinked domains adds to the issue: people working on ecosystems have a structural conservation approach, while those in the DRR domain lack understanding of the functional role of ecosystems and associated services and benefits. Incorporation of this functional approach is at a nascent stage, especially in Asia. [Ritesh Kumar, Wetlands International, India- Panelist].

• ***Integration of ecosystem-based approaches in DRR suffers due to inadequate policy focus, lack of requisite capacity and a fragmented approach.*** DM legislations and policies have evolved in many countries to integrate the Eco-DRR approach, often through UN or other donor-supported programs. In smaller countries that can see the impacts of disasters up close, integration has been higher, but the capacities are lacking. In countries with higher capacity however, recognition of the importance of EcoDRR is often lower and related interventions are not integrated in policies in a significant way. Implementation of ecosystem approaches in DRR suffers several challenges. Although different programs and

plans are in preparation at national and provincial levels for related aspects such as climate adaptation and DRR (e.g. SAPCCs in India), ecosystem considerations and DRR are dealt with separately. [Anil Gupta, NIDM, India- Panelist]. The governance deficit and fragmented approach contributes to lack of cooperation between various ministries/departments and coordinated effort for Eco-DRR; departments often have limited financial resources or have territorial restrictions, which also affects effective collaboration for EcoDRR. [Ritesh Kumar, Wetlands International, India- Panelist; Naoya Furuta, IUCN, Japan- Online Interview]. Financing is not always a great challenge, but ensuring that efforts are not limited to DM agencies, rather every government department has CCA and DRR integrated in their plans and they utilise budget available under various programmes is a challenge. [Anil Gupta, NIDM, India- Panelist].

• **Information on successful Eco-DRR initiatives and tools for better EBA are not available to practitioners and decision-makers, which hinders its uptake and integration in policy.**

Although there are excellent examples of implementation of ecosystem-based approaches and related techniques (e.g. initiatives in Sunderbans, Bangladesh, road to Resilience in Bihar, India), these have not been come into the domain of DRR and the DRR benefits were not identified. The relationship between these approaches and economic resilience and infrastructural sustainability has not been drawn out. "Sendai Framework puts the understanding of disasters as one priority because we have not been able to, fully understand the causes of risks and our vulnerability. We cannot do much about hazards but we can help reduce our vulnerability." [Anil Gupta, NIDM, India- Panelist]. Besides, the information available is predominantly supply-driven and fails to address the evidence-needs of decision-makers in the DM domain. "Ecosystem-based approaches still continue to remain in the periphery". [Jyotiraj Patra, ESPA, India; Opening Speaker]. At the same time, tools which can improve assessment of vulnerability and forecasting of hazards, as well as technologies for EBA are not adequately available for adoption and replication. [Anil Gupta, NIDM, India- Panelist; Deepa Gavali, GES, India- Panelist].

• **EBA are not considered in development planning which leads to elevated levels of vulnerability and increased expenditure on development and protection of human habitations.**

Urbanisation is impacting peri-urban areas and their ecosystems and their services- for example, in Nepal, the peri-urban areas are bearing the costs of development in the forms of landslides. Adoption of policies is very sectoral and hindered by boundaries, and lack of conversation between urban and peri-urban areas have negative impacts. "If you are, developing a master plan for a city you need to consider how are the ecosystem-based services being degraded and which are the areas that might be getting affected by the disasters. Currently, the master planners do not even look at these concepts in detail." [Priyane Amerasinghe, IWMI, India- Panelist]. Regional planning and urban development currently do not regard the intrinsic functions and the biophysical and geomorphological characteristics of the particular landscape (eg., floodplains, marshes) and associated ecosystem services as well as hazard risks. For instance, floods are a natural process for floodplains, with their obvious uses; however, as people begin using flood prone basins as habitation, the natural cycle is perceived as a hazard, "the enemy". We must begin to understand what hazards really are. [Ritesh Kumar, Wetlands International, India- Panelist]. Often the natural landscape is destroyed, and subsequently new waterbodies/open spaces are developed at much higher expenditure. "We spend money to level the land and then we prepare a new budget proposal to create the so-called better landscapes. In the name of development and then environmental beautification and safeguard, we destroy much of the ecosystems and natural resources." [Anil Gupta, NIDM,

India- Panelist]. Degradation of natural ecosystems is one of the drivers of disaster risks. Disasters can result from unplanned development and landuse changes (e.g. change of wetlands to shrimp farms, construction on marshes), which lead to its ecosystem services being subdued or hindered [*Gianluca Polgar, Universiti Brunei, Brunei- Online Interview*].

Eco-DRR Best practices and recommendations for scaling up:

Key recommendations that emerged from the panel discussion include:

- **Adoption of ecological infrastructure:** Use of nature as infrastructure needs to evolve. To begin with, a hybrid approach combining structural and ecological measures, grey and green engineering, may be adopted for DRR (eg., replacing sea walls with mangroves). Medium term investments in DRR should look at properties of landscapes (e.g. marshlands that absorb excess water during floods) and integrate ecosystem based development planning. Reduced dependence on artificial infrastructure and developing/restoring ecological infrastructure can help reduce socio-economic disparities and livelihoods uncertainties of local communities and thereby reduce focus on short-term gains and improve resilience. [*Ritesh Kumar, Wetlands International, India- Panelist*]. Coastal buffer zone establishment, mimicking the local species and the natural progression of vegetation can protect the communities effectively, as has been demonstrated by successful Eco-DRR measures adopted post Tsunami in Sri Lanka. Buffer zones should be developed in hazard-prone locations comprising Bio-shields (with species that protect from natural disasters) and Bio-villages (practising green farming, green industries for sustainable livelihoods). [*Hemanthi Ranasinghe, University of Jayeverdenepura, Sri Lanka- Online Interview*]. Coastal casuarina belt restoration in Sri Lanka had saved several lives during the Tsunami by acting as a natural barriers and the coastal vegetation belt also serves as a carbon sink. [*Sundaram Divakala, Aaruthal, Sri Lanka; Online Interview*]. Landslide stabilisation measures such as eco-safe floors and other low cost bio-engineering techniques have been proven as effective eco-DRR measures in Nepal. These also contribute multiple other benefits towards sustainable livelihood opportunities and improved resilience. [*Anu Adhikari, IUCN Nepal; Online Interview*].

- **Creation of evidence base on impacts and benefits of EBA:** We need to showcase the best practices in Eco-DRR and promote solutions that have proven to be efficient in the field, along with documenting clearly the relationships between ecosystem based approaches and economic resilience as well as infrastructural sustainability. Bringing together communities and government agencies for information sharing and field level demonstration, to facilitate technology extension and discussion of issues can help convince local and national governments regarding the impact on the ground and help in scaling up, as revealed by a successful Eco-DRR initiative for ensuring food security in Sri Lanka. [*Rishiraj Dutta, ADPC, Thailand- Online Interview*]. Examples of Eco-DRR from various locations highlight the need to document and promote them for creating conviction in and demand for such measures: community efforts and innovations in Koshi Basin across Nepal and India have considerably improved their resilience [*Anil Gupta, NIDM, India- Panelist*]; mangrove afforestation/restoration in 16,000 hectares across the eastern coastal belt of India have resulted in villages located behind the mangroves being better protected during the 1999 super-cyclone and 2004 Tsunami [*V Selvam, MSSRF, India; Online Interview*]; re-establishment of traditional embankments to address flooding and salinization related hazards (Tidal River Belt project) and plantations along the coastline (Green Belt project) in Bangladesh helped improve their resilience to hydro-

meteorological disasters [S M Gubair Bin Arafat, BRAC University, Bangladesh; *Online Interview*]; maintenance of an appropriate number of livestock by communities, in keeping with the carrying capacity of the pastures in Mongolia has helped to build resilience to winter drought [Dashpurev Tserendeleg, Hustai National Park Trust, Mongolia; *Online Interview*]. Such evidences need to be documented and promoted. A benchmarking approach would be useful and help to integrate learnings from various domains (e.g. organic agriculture, permaculture, etc). [Marie-Christine Monnier, ECHO, India- Audience].

- **Integration of local communities and ensuring livelihoods benefits:** Involving local communities as part of Biodiversity Management Committees (or similar governance structures) that undertake Eco-DRR programs has demonstrated success and can be replicated. Integrating immediate benefits for the communities, such as towards livelihoods, in the Eco-DRR program also helps to ensure its uptake. These have helped engage communities in management of catchments in India, Nepal and Sri Lanka. [Deepa Gavali; Gujarat Ecological Society, India- Panelist; Priyanie Amerasinghe, IWMI, India- Panelist]. Implementation of an Eco-DRR programme along the Gulf of Khambat in the western Indian coastal belt yielded multiple benefits such as stabilisation of sand dunes, facilitation of shrimp culture for sustainable livelihoods, food security through edible mangrove seeds. [Deepa Gavali; Gujarat Ecological Society, India- Panelist]. Participative research should be a key step while framing strategies for development, and would help recognise the unique vulnerabilities and challenges of various age and gender groups and marginalised social groups. Integration of scientific data and traditional knowledge of communities in designing EcoDRR solutions is also important. [Deepa Gavali; Gujarat Ecological Society, India- Panelist; Aida Gareeva Nurovna, CAMP ALatoo, Kyrgyzstan- Online Interview; Rishabh Maheshwari, TISS, India- Audience; Fidaa Haddad, IUCN Regional Office in West Asia, Jordan- Online Interview].

- **Develop widespread awareness and leverage media:** Creating large-scale awareness on Eco-DRR is essential for mainstreaming the approach. Alongside showcasing the evidence base on EcoDRR, we need to make effective use of the media to communicate the benefits



of Eco-DRR to various constituencies, including policymakers and communities, and build conviction in their effectiveness for DRR. [Anil Gupta, NIDM, India- Panelist]. Innovative use of media/communication modes are required to create awareness in communities living in remote risk-prone zones and lacking access to mainstream media. [Deepa Gavali; Gujarat Ecological Society, India- Panelist; Serdar Parahadov; Red Crescent Society of Turkmenistan- Online Interview]. Sharing the good Eco-DRR examples widely can help encourage local people to replicate them. [Naoya Furuta, IUCN Japan- Online Interview]. Understanding the evidence needs of policymakers and practitioners, we need to design evidence communication as per the demand rather than the current supply-driven mode. [Jyotiraj Patra, ESPA- Opening Speaker].

• **Use of tools to measure, convince, communicate:** Use of tools and indices can also help communicate to decision-makers and communities. For example, the Standard Precipitation Evapotranspiration Index and Vegetation Health Index (VHI) can explain long term drought cycles, as evident from experiences of practitioners in Syria and the League of Arab Nations; due to the effectiveness of such forecasts in the past, governments are now increasingly taking note of such information. [Wadid Erian, LAS Climate Risk Nexus Initiative, The League of Arab States- Online Interview]. Specific Ecological Indices for ecosystems, similar to economic indices for nations and provinces, could measure and communicate impacts of eco-DRR, and demonstrate improvements in ecosystem services and reduction in risk. Existing tools in the domain (e.g. HRVA, PDNA – Post-Disaster Needs Assessment) may be adapted to document underlying causes of risks, and disaster impacts on natural ecosystems (e.g. loss of vegetation, water bodies etc). [Anil Gupta, NIDM, India-Panelist; Gargi Banerji, Pragma- Chair].

• **Develop new understanding and simplified tools for EBA:** There is a critical need to improve understanding of ecosystems and landscapes and their functions and natural characteristics (eg., instead of perceiving floods as hazards, understanding the natural function of floodplains) towards changing perceptions and propelling the design of suitable landuse. [Ritesh Kumar, Wetlands International, India- Panelist]. Innovations in EBA should be supported, both for newer methods and technologies, as well as newer tools. Collaboration is advisable during the research phase for such technologies/tools, and demonstration of results is important. [Areg Karpetyan, Foundation for the Preservation of Wildlife and Cultural Assets, Armenia- Online Interview]. There should be a focus on simple tools for implementation and a simplified, but systematic approach, instead of highly technical tools as there is an enormous challenge regarding capacity to implement. [Marie-Christine Monnier, ECHO, India- Audience].

• **Collaborative action across sectors, departments and nations:** Good governance in ecosystem management needs to be promoted, and existing issues of lack of cooperation among governmental departments need to be addressed urgently. [Ritesh Kumar, Wetlands International, India- Panelist; S M Gubair Bin Arafat, BRAC University, Bangladesh- Online Interview; M.M. Abdullah Al Mamun, University of Chittagong, Bangladesh- Online Interview]. The stakeholders and institutional settings vary by the countries and have different level of effectiveness and capacity. Actor analysis matrix needs to precede programming, and should determine financing and implementation related roles of different stakeholders, and also engage the designated authorities/focal points for various international frameworks (Paris Climate Agreement, SDGs, UNFCCC, GCF etc) to work together. [Tarek Sadek, UN Economic and Social Commission for Western Asia, Lebanon- Online Interview]. Evidence from Kabukri-numa wetland in northern Japan indicate how stakeholder dialogues can help overcome conflict of interest regarding conservation and livelihoods priorities. [Naoya Furuta, IUCN Japan; Online Interview]. Transboundary collaboration can help in understanding ecosystem changes and taking timely, effective and joint action. Models such as Arab Geographical Information Room (AGIR) adopted by the League of Arab states, help inform decision makers about disaster hotspots and vulnerable communities. [Wadid Erian, LAS Climate Risk Nexus Initiative, The League of Arab States- Online Interview]. Such trans-boundary cooperation can be started with the sharing of knowledge and tools, success stories, as well as research at initial stages; cross-border data-sharing still faces several challenges. [Anil Gupta, NIDM, India-Panelist].

• **Stakeholder dialogues, visualization and capacity building:** Conflicts of interest among stakeholders that prevent collaborative action should also be addressed via interactions and dialogues. Establishing local committees with link to national committees helps build local self-reliance and in turn also provides decision makers with required information. [Naoya Furuta, IUCN Japan- Online Interview]. Visualization exercises help communities in understanding catchments and in recognizing their interdependence as well as dependence on ecosystems. Regional and urban planning exercises need to incorporate ecosystem-provisioning services for cities, and ensure understanding of the consequences of rapidly altering peri-urban landscapes and the associated hazards. Management of habitats and ecosystems and the adoption of suitable Eco-DRR techniques that do not constrain the stakeholders' needs, will also require building capacity at all levels, from the local community to the decision-makers. Ensuring accountability and incentivisation, along with effective regulations and monitoring can help in scaling up. [Priyanie Amerasinghe, IWMI, India- Panelist].

• **EBA at landscape scale and transboundary initiatives:** EBA for DRR are particularly effective at landscape scale. Hazard, vulnerability and capacity assessment (HVCA) should integrate observation of biophysical and geomorphological characteristics of landscapes to devise DRR plans. There are successful ecoDRR case studies that follow a cluster approach (e.g. Mahanadi river basin and delta management, India) and demonstrate that initiatives undertaken at landscape scale, can amplify ecosystem services. Collaborative planning across shared coastal zone or river basins ensure sustainable management of the landscape. [Ritesh Kumar, Wetlands International, India- Panelist]. Sustainable management of eco-tones (ecological transition zones) by connecting them through Ecotonal Networks at watershed level across mosaics of urban or non-urban systems can increase the resilience of the ecosystems they connect. [Gianluca Polgar; Universiti Brunei Darussalam- Online Interview]. Ecosystems, vulnerabilities, disasters, degradation – do not follow political boundaries. Countries need to work together for all communities to adapt, to survive. Regional political instability also contributes to eco-degradation and thereby disaster risk. [Fidaa Haddad, IUCN Regional Office in West Asia, Jordan- Online Interview; S M Gubair Bin Arafat, BRAC University, Bangladesh- Online Interview]. Governments need to work together and reduce procedural hurdles for trans-boundary co-operations (effective collaboration exists between Russian and Mongolian govt on trans-boundary wild fire management). [Dashpurev Tserendeleg, Hustai National Park Trust, Mongolia- Online Interview]. Trans-border initiatives are particularly important to reduce risk from floods, tsunami and other disasters. Sharing of good examples, traditional knowledge, community innovations, case studies should be initiated as entry-level strategy, which are easier to achieve compared to sharing of raw data which faces significant restrictions. [Anil Gupta, NIDM, India- Panelist].

Closing remarks and call for action:

At the end of the session, Ms. Gargi Banerji thanked the panelists and the audience and all experts who had shared their views through online interviews for a fruitful deliberation, and requested all speakers for their concluding remarks and call for action.

The key messages from the speakers are as follows:

“One of the key areas would be to try to understand the evidence needs of the policy makers and practitioners working on the field. We need to pause and think as to what is

that they need in terms of getting the understanding of Eco-DRR into policy and planning. And, as a group of practitioners and researchers are we able to meet that need? If not then let us try to understand and find out ways in which we can understand their needs first, so that what we are proposing can get mainstreamed.” – Mr. Jyotiraj Patra, Opening Speaker.

“We must not see conservation as something for different species. It is for DRR as well, because they share the same agenda and it is time to link them up fairly closely.” – Mr. Ritesh Kumar, Panelist.



“We need to bridge the gap between the policy makers and the community so that the community benefits from the interventions and the risk reduction occurs as well.” – Dr. Deepa Gavali, Panelist.

“We have a good traditional and indigenous knowledge base. Traditional - the knowledge that we have inherited, and indigenous - new technologies and innovations that we have. It is time to incorporate the traditional and indigenous knowledge into practice.” – Dr. Anil Gupta, Panelist.

“We need some sort of accountability as well. How do we bring in the accountability aspect? Should there be some sort of an ‘incentivisation’ for Eco-DRR? This is something that we need to reflect on in order to adopt and implement the future Eco-DRR processes.” – Dr. Priyanie Amerasinghe, Panelist.

“At the top of the pile is the need to strongly establish the role of the Nature in sustainable development of human society, and to recognize the fact that if we destroy nature, we get destroyed in the process. Human race has reached the acme of the hierarchy of creatures on earth, because of its ability to visualize the future and shape it (for example, the steam engine, and internet). We need to use that ability today to perceive the shape of things to come with current trends of inappropriate development and disregard of ecosystems, and ensure the survival of both humans and nature.” – Ms. Gargi Banerji, Chair and Moderator.

Conclusions of the Thematic Session:

Ms. Gargi Banerji crystallized the key conclusions from the Thematic Session as follows:

- i. Although the principles for Eco-DRR have been around for quite some time, their adoption has been small and scattered, and the integration of this approach in DRR policy continues to be weak and fragmented. As Asian countries attempt to deal with the increasing shockwaves of disasters and reduce their human and economic losses, it is imperative that they include ecosystem-based approaches in their disaster management policies. Mainstreaming Eco-DRR and rapidly scaling up its application within the next 20 years would yield substantial reduction of vulnerability to ecological disasters, and also provide other socio-economic benefits.
- ii. The dichotomy between hazard and vulnerability needs to be recognized, along with the fact that vulnerability rather than hazards needs to be addressed, particularly since several ecological hazards are natural processes for particular ecosystems. Decision-makers and practitioners in the regional/urban planning and DM domains must acknowledge the functions and specific characteristics of ecosystems, as well as the drivers of risks and ecosystem services, and factor these into development plans and ecosystem-based interventions towards DRR.
- iii. There is an urgent need to recognize the convergence between climate change, ecosystem services and conservation, and DRR, and to move beyond the schisms and boundaries that characterise the domain today. Cross-sectoral programmes that blend livelihoods and natural resource management, integrative approaches that bridge urban-peri-urban divides, are recommended.
- iv. Collaborations are essential and Eco-DRR programmes and policies need to be targeted at landscape, basin, and watershed level, and involve multiple departments and districts/provinces that cater to specific ecosystems. Trans-boundary initiatives need to be fostered as well.
- v. There is a large body of evidence available on the application of Eco-DRR, but much of it is not available to decision-makers and practitioners, while their presentation lacks for clear linkages between the interventions and their impacts and benefits with respect to risk reduction. It is critical to build up a strong evidence base for Eco-DRR, showcasing effective interventions and meeting the needs of practitioners as well as decision-makers. Best practices and success factors must be drawn out, as must data on metrics for risk reduction. Conviction in the approach and its up scaling via integration in policy and uptake in practice would follow.
- vi. To facilitate the uptake of ecosystem-based approaches, it is necessary to create routes to operationalise it. This would include: a functional language that also ensures a bridge between the DRR and conservation domains; techniques for ecosystem based approaches and the specific parameters for their adoption; tools and indices to assess ecosystems and vulnerability, as well as to measure results and impacts of Eco-DRR work. The latter should be used to communicate the impacts and benefits of Eco-DRR as well and thus create a supporter base.

- vii. Blending of technologies, structural measures with ecosystem based approaches, is the way forward. This would help us address the short-term criticalities of protecting human settlements and infrastructure, alongside medium and long-term needs of protecting ecosystems.
- viii. There is need to prioritise ecosystem services and disadvantaged communities in Eco-DRR programmes and policies. People, who have to contend with socio-economic or other disadvantages, are disproportionately affected by disasters and overwhelmingly lack resilience.
- ix. Eco-DRR has to have the involvement of various stakeholders, and civil society has a strong role to play in this process. It has to begin with a thorough understanding of stakeholders using particular spaces and ecosystem services, their diverse needs and agendas, the conflicts between them and with the health of ecosystems. Communities need to be made aware, ensuring outreach to the most remote communities, and their participation generated, and stakeholder uses need to be mediated, with facilitation and support by governments.

Outcome of the event:

The Asian Ministerial Conference for Disaster Risk Reduction came out with the **New Delhi Declaration** and the **Asian Regional Plan for Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030**. The plan took note of recommendations from all deliberations at the main event and thematic side-events.

Mainstreaming Ecosystem-Based Approaches to Disaster Risk Reduction was adopted under the priority IV of the Asian Regional Plan devoted to “enhancing disaster preparedness for effective response and to ‘Build Back Better’ in recovery, rehabilitation and reconstruction”. **The Asian Regional Plan cited “mainstream ecosystem-based approaches through trans-boundary cooperation to build resilience” as a key priority.**

Annexure A – List of Participants

Speakers:

1. Opening Remarks: Mr. Jyotiraj Patra; Ecosystem Services for Poverty Alleviation (ESPA)
2. Chair and Moderator: Ms. Gargi Banerji; Pragya
3. Panelist: Dr. Deepa Gavali; Gujarat Ecological Society (GES)
4. Panelist: Mr. Ritesh Kumar; Wetlands International
5. Panelist: Dr. Anil Gupta; National Institute of Disaster Management (NIDM), India
6. Panelist: Dr. Priyane Amerasinghe; International Water Management Management Institute (IWMI)

Online/Skype Interviews:

1. Dr. Gianluca Polgar; Universiti Brunei Darussalam, Brunei
2. Dr. Pema Choephyel; Bhutan Trust Fund for Environmental Conservation, Bhutan
3. Dr. Seak Sophat; Royal University of Phnom Penh, Cambodia
4. Dr. V. Selvam; MS Swaminathan Research Foundation, India
5. Dr. Wadid Erian; LAS Climate Risk Nexus Initiative, The League of Arab States
6. Mr. Areg Karapetyan; Foundation for the Preservation of Wildlife and Cultural Assets (FPWC), Armenia
7. Mr. Dashpurev Tserendeleg; Hustai National Park Trust, Mongolia
8. Mr. M.M. Abdullah Al Mamun; University of Chittagong, Bangladesh
9. Mr. Nadim Farajalla; American University of Beirut, Lebanon
10. Mr. Naoya Furuta; IUCN Liaison Office, Japan
11. Mr. Rishiraj Dutta; Asian Disaster Preparedness Centre, Thailand
12. Mr. S M Gubair Bin Arafat; BRAC University, Bangladesh
13. Mr. Serdar Parahadov; Red Crescent Society of Turkmenistan; Turkmenistan
14. Mr. Sundaram Divakala; Aaruthal, Sri Lanka
15. Mr. Tarek Sadek; UN Economic and Social Commission for Western Asia (ESCWA); Lebanon
16. Ms. Aida Gareeva Nurovna; CAMP Alatoo; Kyrgyzstan
17. Ms. Anu Adhikari; IUCN Nepal; Nepal
18. Ms. Fidaa Haddad; IUCN Regional Office for West Asia (ROWA), Jordan
19. Ms. Haifaa Abdulhalim; TABEL- Nature World Heritage Programme for Arab States, Bahrain
20. Prof. Hemanthi Ranasinghe; University of Sri Jayewardenepura, Sri Lanka

Audience: [Total 37]

1. Dr. A. Sankarankutty Nair; Centre for Environment and Development – Kerala
 2. Dr. N M Ishwar, IUCN India
 3. Mr. Archit Bose, Pragya
 4. Mr. Rishabh Maheshwari; Tata Institute of Social Sciences
 5. Mr. Rishiraj Dutta; Asian Disaster Preparedness Centre, Thailand
 6. Mr. Rohit Bahl, Pragya
 7. Mr. Subhasish Debnath; SPADE West Bengal
 8. Mr. Sunil Pillai; Pragya
 9. Ms. Marie Christine Monnier, Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO)
 10. Ms. Nivedita Mani; Gorakhpur Environmental Action Group (GEAG)
 11. Ms. Sejuti Basu, Pragya
- and 26 others



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