

# Ecosystem Based Disaster Management Planning

- 2 Ecosystem Based Flood Relief to Recovery in Uttarakhand
- 3 A View from Delhi: Emerging Challenges of Disaster Risk Reduction for Asian Development Bank
- 4 Ecosystem Based Disaster Risk Reduction
- 5 Climate Risk and District Disaster Management Plan: Puri District, Odisha
- 6 Climate-Smart Revolution
- 7 Addressing Natural Hazards in Planning
- 8 Long-Term Recovery Issues in Disaster Management Planning: Emerging Global Trends
- 9 Yogyakarta Declaration on Disaster Risk Reduction
- 11 Disaster Risk Reduction in Post Disaster Shelter Reconstruction: Case Study in the Indian Sunderbans Delta
- 13 Gender, Risk, and Community Mobilization in Uganda
- 14 What does the IPCC SREX Report Mean for India?
- 15 Protecting Communities from Climate Change
- 16 IUCN in Asia: A Note for Exploration



## Editorial Advisors:

**Anshuman Saikia**  
Regional Programme Support Coordinator  
ARO, IUCN (International Union for Conservation of Nature), Thailand

**Dr. Ian Davis**  
Senior Professor in Disaster Risk Management for Sustainable Development, Lund University Sweden and Visiting Professor in Cranfield, Oxford Brookes and Kyoto Universities

**Madhavi Malalgoda Ariyabandu**  
International Strategy for Risk Reduction (ISDR) – South Asia, Sri Lanka

**Mihir R. Bhatt**  
All India Disaster Mitigation Institute, India

**Dr. Satchit Balsari, MD, MPH**  
The University Hospital of Columbia and Cornell,  
New York, USA

**Dr. T. Nanda Kumar**  
Member, National Disaster Management Authority  
(NDMA), India

**Zenaida Delica Willison**  
Advisor, Disaster Risk Reduction, Asia and Pacific Regional  
Centre, Thailand

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

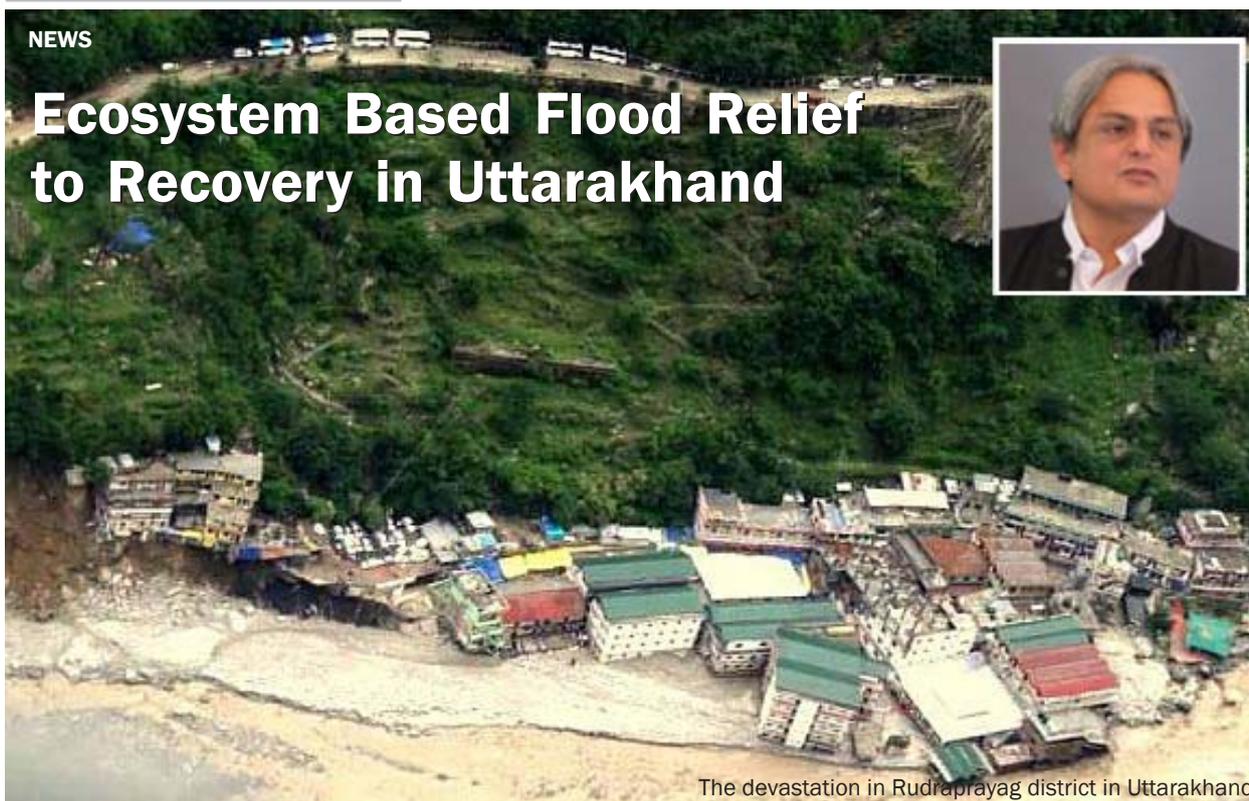
*For Personal and Educational Purpose only*



[southasiadisasters.net](http://southasiadisasters.net)



## Ecosystem Based Flood Relief to Recovery in Uttarakhand



The devastation in Rudrapur district in Uttarakhand.

rediff.com

As authorities undertake relief work in the flood-affected areas in Uttarakhand. Where more than 100 people have lost their lives and thousands have been affected, experts analysing the situation say that flood management initiatives also point to the gap of not having faster, better and more effective ways of making damage and loss assessments after floods.

Mihir Bhatt (MB), the founder of the All India Disaster Mitigation Institute, a community-based, action research and advocacy organisation that aims to bridge the gap between policy, practice and research in disaster risk management, tells rediff.com's Vicky Nanjappa (VN) that the cost of not learning from our past experiences and not using our youthful national energies for innovating is plainly visible in the ongoing flood responses.

**VN: Are the floods in Uttarakhand a turning point in our history of disaster management?**

**MB:** We hope that with this flood, we in India seriously and systematically

start learning from our experiences as well as start innovating for future responses. The cost of not learning from our past experiences and not using our youthful national energies for innovating is plainly visible in the ongoing flood responses.

The National Disaster Management Authority has made serious efforts to capture our national flood experience over the past decade or so in the form of preparing flood and urban flood guidelines.

Similarly, Bihar is in the process of developing a flood recovery model in the form of Koshi flood recovery project with the World Bank's support. This model may be of great use to all flood-prone states in India.

Even districts such as Champaran and Madhubani in Bihar are unfolding participatory processes to involve flood victims in hazard mapping. Assam has initiated a review of its disaster management plans across all districts and four cities that face floods year after year.

These multi-level initiatives tell us that a lot is being done to respond to floods and reduce the risk in a better manner – yet, it is not enough. A lot more needs to be done in terms of our flood response to protect the economic growth and spread the fruits of social protection in various states of India.

Better and more flood sensitive village planning; construction of flood-proof shelters for all income groups; and flood protected investments in infrastructure are overdue. The said initiatives also point to the gap of countrywide insurance protection for flood victims and damaged private property and public assets across the major flood basins in India. Repeated cost of flood relief may soon be too costly for India to afford.

Large-scale ecosystem restoration across river basins, including plantation of diversity of vegetation, is also pointed out as a gap. The said flood management initiatives also point to the gap of not having faster, better and more effective ways of

making damage and loss assessments after floods.

Losses suffered by the communities that migrate out due to floods are often unaccounted for. So are losses to women workers, tribal citizens and minority groups. Loss of wages as well as assets suffered by the informal sector workers in cities and forests are hardly calculated for flood response. As a result, women and children suffer the most after the floods.

Most importantly, the flood response must be climate-smart. That is, the

response must invest in the local capacity to adapt to build resilience to floods. State climate adaptation plans and disaster management plans cannot remain disconnected.

**VN: Why are the above gaps not filled?**

**MB:** First, there is need for a committed leadership within the government and in civil society that is addressing the need for better and faster flood response. Second, system-wise and sustained investments in flood risk reduction by the private sector are yet to come. Public investments are scattered and slow.

Indians are taking a range of actions in innovative ways to live with floods. Such innovations by officials and activists must be recognised and spread to the next district or the next state.

Where are such opportunities to benefit from the creativity of our own citizens? India must find a new generation of flood response to the floods in Uttarakhand. What is at stake is not only the recovery but the reputation of India's decade of flood preparedness. ■

- Mihir R. Bhatt

*Interview published on Rediff.com, June 20, 2013*

## INFORMATION SHARING

# A View from Delhi: Emerging Challenges of Disaster Risk Reduction for Asian Development Bank

What are the emerging disaster risk reduction related challenges that are being faced by the members of Asian Development Bank (ADB)? All India Disaster Mitigation Institute (AIDMI) participated in several sessions of the opening of 46th Annual meeting of ADB in Delhi on May 2, 2013 and came up with the following list of seven challenges.

- Asia's global and regional trade is expanding. The volume and value of global trade from India, China, Indonesia, and Japan is shaping new global economic realities. So is the trade between these four countries. Contribution of Bangladesh, Myanmar, Lao, or Fiji are becoming significant as well. Trade and risk in Asia is an area overlooked by researchers so far. With the spread of trade, risk hotspots are emerging on trade routes across sea, land and air as well as on cyber space. The challenge is to map these hotspots.
- Financial inclusion is spreading across Asia, through private and public banks as well as civil society supported self help groups. Information and telecommunication technology offers new possibilities of rapid spread and connectivity for transferring cash to a large number of individuals

spread over a wide area. The high cost web of public subsidies to the poor is being questioned. In this light India's ambitious cash transfer programme offers a new direction across Asia. Use of Cash Transfer in relief to recovery phases after a disaster is an idea ripe for piloting in countries such as Bangladesh, Indonesia, Nepal, Sri Lanka, and India. Pilots must be designed and made ready before disasters strike.

- Sustaining high economic growth is not possible without protecting the growth drivers from disaster risks. But how to protect these growth drivers? What measures work? These important questions need to be answered for sustaining this high economic growth.
- Asian cities are not only expanding in size but also in numbers. Such a growth in such a short period is unprecedented. Does urbanisation reduce risk faced by poor? Or does it make it more acute? It is impossible to answer these questions. Without any systematic study of the impact of urbanization on risks faced by the poor in Asia.
- Asia's capacity to invest in Asia's growth is rapidly increasing. Not only are funds available, but mechanisms and opportunities are

emerging as well. Linking disaster risk reduction with investment behavior and financing conditions among the small and medium businesses operating in the hotspots of Asia is a challenge.

- A scoping study of public and private bond markets for risk financing is overdue in Asia. How can risk be measured? How can losses be monetized in financial terms. And what Bonds will work better in Asian economies? Should the Asian risks fit into global bond market or the bonds must be tailored to Asian risk context? And who will do so? Finding answer to these important questions is extremely important.
- Rural realities are changing in Asia. Agriculture is new matched with non-farm economic activities. Access to credit by rural nonfarm microenterprise in Asia is a possible way to reduce risk at a large scale in mid-income countries. The challenge is in finding suitable and sustainable market institutions that can facilitate this access to credit.

AIDMI is inviting agencies and authorities to join in thinking of ways meet challenges upfront. ■

- Mihir R. Bhatt

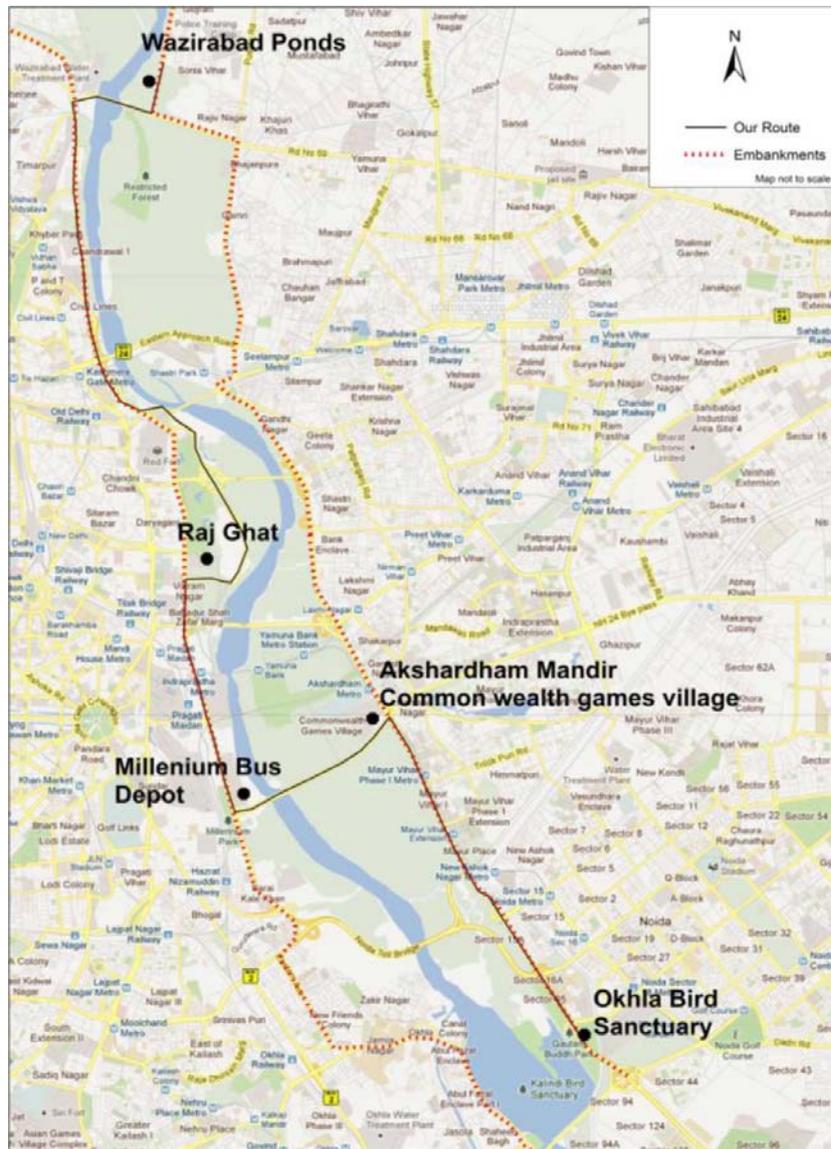
# Ecosystem Based Disaster Risk Reduction

*A Case from River Yamuna Floodplains in Delhi*

River Yamuna is one of the key natural infrastructure of the City of Delhi which is routinely exposed to the risk of flooding. The total length of river in Delhi is 50 kilometer between its entry at Palla and exit at Jaitpur. Its floodplains extend to an area of 94.84 km<sup>2</sup> broadly comprising forests, agriculture, settlements and lakes/ponds. The maximum width of active floodplain is observed near Okhla where a large quantum of water is brought through Hindon cut. Despite high urban stress, the floral diversity of the floodplains include 74 species of macrophytes and 90 species of phytoplankton, whereas the faunal diversity constitutes 62 species of zooplankton, 55 species of benthos, 36 fish species and 131 bird species.

The floodplain system provides several ecosystem services, key being regulation of hydrological regimes, groundwater recharge, water quality improvement and support to biodiversity habitat. The availability of water at Okhla throughout the year helps to maintain minimum water level required for functioning of floodplains. The surplus water during monsoon percolates down and helps to control floods and maintain moisture regimes during lean period. The water quality is modified by absorption and reabsorption of pollutants by the vegetation and underlying sediments respectively. Bio accumulation of key nutrients in floodplain area helps to reduce pollution stress thereby leading to development of rich benthic fauna, fisheries and biodiversity habitat. The Population in and around the floodplain area is benefitted by agriculture and fisheries.

Rapidly increasing urbanization with limited integration of values and



functions of floodplains in developmental planning has led to their fragmentation. Flows in the river are drastically reduced due to upstream abstractions for irrigation and domestic water supply. Within the city, much of the inflow is through the 22 major drains which turn the river into a drainage cesspool. Water from Hindon Cut received upstream of Okhla Barrage helps revive the floodplains and play a critical role in

ensuring biodiversity habitat. The entire floodplain through its course is Delhi is jacketed in embankments which constrain its lateral spread. Introduction of terrestrial vegetation in floodplains has also led to adverse changes in habitat conditions. Conversion of floodplain areas for developmental activities such as construction of NOIDA toll bridge, Akshardham Temple, Metcalf House, New Delhi Secretariat, construction

of Commonwealth Games Infrastructure etc. has resulted in filling up of floodplains. From a risk perspective, degradation of floodplains is concomitant with increasing vulnerability to flooding risks, including other stresses related to food and water security. Interestingly, if there are floods in Delhi, these flood planes especially Okhla bird sanctuary will play the role of absorber and channelized excess flood waters.

A key management intervention is implementation of the Yamuna Action Plan. Funded by the Ministry of Environment and Forests, the plan addressed the issues of pollution control and integrated development of river system. The main components of the plan include interception, diversion and treatment

of sewage, low cost sanitation, river front development, construction of electric crematoria, afforestation along the riverbanks and community participation.

#### **Group Work**

The group would be taken along a tour of Yamuna floodplains along the route earmarked in Map, wherein the participants will get to view the entire stretch of the floodplains along with various developmental interventions.

Participants will work in two groups on the following questions:

- a) What role can ecosystem services of River Yamuna floodplains play in disaster risk reduction?
  - i. Establish the risk context
  - ii. Relate wetland ecosystem services to hazards, vulnerability and capacity

- b) What factors limit the effective use of wetland ecosystem services in disaster risk reduction planning and implementation?

The groups should take field notes during the field visit and develop a presentation. Participants will be provided a digital map of the area, and are encouraged to use Google Earth. Additionally, photographs and field interviews can be conducted to supplement ideas.

Participants are expected to make plenary presentations followed by group discussions in the morning session of December 14, 2011. ■

– **Munish Kaushik**  
Cordaid Advisor  
and

**Ritesh Kumar**  
Wetlands International - South Asia

## **CLIMATE CHANGE AND DDMP**

# **'Climate Risk and District Disaster Management Plan' – Puri District, Odisha**

**P**uri district is one of the most important coastal districts of Odisha in India due to Lord Jagannath temple, Sun temple, Chilika lake and a large Golden sea beach at the Bay of Bengal. The district has 11 blocks and 4 Urban authorities. The population is 15, 19,200 person (census-2001) spread in 1740 villages belong to 230 *grampanchayat* and 4 urban areas. The length of the sea-coast of the district of Puri is nearly 150 km from Astaranga block in north to Krushnaprasad block and Chilika lake in south.

There are 4 rivers named Devi, Kushabhadra, Bhargavi and Daya passing through the district and all are distributaries of the Mahanadi River. But another small rivers named Prachi, Kauga, Dhanua, Ratnachira, Luna, Makara, Rajua flows in monsoon.

In the context of disasters, the district has been facing floods and cyclones from time to time which cause a lot of devastation. The socio-economic condition of the people is disturbed. The Govt. has spent a lot to improve the situation every year.

Climate change is a high risk to the district as it is situated a coast. Beach erosion is a critical climate change impact in the district. Monsoon comes after low pressure on sea, rain is untimely which affects agriculture. Even during harvesting time heavy rains come and washes the crop. Every year river embankment are raised by putting mud, but high flood breaks the dams. Vegetable cultivation is an important activity in the district, it affected by insecticides, diseases and no more yielding. Coconut is severely affected. The fisher men also faced scarcity of particular variety of fish

in the sea. Changed climate has a bad effect to the farmer, fishermen, business man, agriculture labor and marginalized families.

In summer there are more 'Anshughat' cases in Puri district. The people face heavy cold in winter, heavy untimely rain in monsoon which affect their livelihood, health and economy.

Suggestions:

1. Massive traditional variety tree plantation.
2. Creation and management of rain water harvesting structure i.e. check dam, pond etc.
3. Wetland management,
4. Alternative farming
5. Awareness and training to the social change agent. ■

– **Prabakar Nanda**, General Secretary,  
Rural Welfare Institute, Nimapara,  
Puri, Odisha

# Climate-Smart Revolution

Countries need a 'Climate-Smart' revolution. Major changes are needed in the different sectors around the world if future generations are to survive and grow. The adverse effect of climate change is increasing the severity and frequency of the disasters. It has severely affected agrarian communities living in coastal, tropical and sub-tropical regions; who are now dealing with extreme weather conditions: the dry lands are further drying up while the flood prone areas are over-flooded; leading to undeniable impact on agriculture, making it an unviable livelihood option.

To date, the climate change and disaster management communities have operated largely in isolation from each other. This situation must change as a matter of urgency. Both climate change adaptation and disaster risk reduction share an objective of development and effective planning for the management of uncertainties and poverty alleviation which will help in rural development and capacity

building. Therefore, mainstreaming adaptation to climate change and disaster risk reduction within development at community level is essential. This can be done using the Climate Smart Disaster Risk Management (CSDRM) approach.

CSDRM approach guides those working in climate change adaptation, development, and disaster risk reduction to integrate and holistically address these issues into their projects and activities. It systematically guides the stakeholders not only at policy level, but also at the implementation level. It is designed for those who are responsible for managing disaster risks at national, state and local and organisational level; they can identify one or many entry points and eventually find a way to integrate their focus area and climate resilience. The guide draws out different routes to achieve the three central pillars of tackling disaster risks and uncertainties, enhancing adaptive capacity, and addressing poverty, vulnerability and their

structural causes. It can also be used to evaluate the effectiveness of existing initiatives as a part of monitoring and evaluation process.

Conceptually the approach is easy to digest, but challenging at implementation level. The unique three pillar approach provides CSOs with means to identify the processes that are needed to build disaster resilient and climate smart communities. The approach helps to evaluate the existing tools and frameworks from disaster risk management, climate change adaptation and development that are right for particular programmes or projects. Moreover, it helps to build partnerships and evaluate progress through concrete indicators that can help implementation of policies that are disaster resilient. Political and public awareness always help in the post disaster relief and response.

At local level, the system should be strengthened as they help to integrate climate information and advice on the adaptive measures into local contexts. This can be fostered by development of skills and capacity at local level, including training of trainers to interpret risk information; and by sharing new techniques such as disaster resistant crop varieties, climate forecast and early warning systems which can improve adaptation to climate change and thus make them less vulnerable. In addition, continuous knowledge sharing with the community members helps them to know how is the changing climate going to have an impact on disasters and how can they reduce the impacts of these changes in their lives. ■

- Khyati Halani



Photo: AIDMI.

Intercooperation Social Development India (ICSD), Delhi; Institute of Development Studies (IDS), UK and All India Disaster Mitigation Institute (AIDMI) organized the training workshop on FORIN and M & E for CSDRM. The two-day workshop was organized on May 8-9, 2013 at Bhubaneswar, Odisha.

# Addressing Natural Hazards in Planning



Photo: AIDMI.

Hazard mapping team in Bihar, June 2013.

Addressing hazards and vulnerability in local disaster management planning is not a new area. What is new is the rapidly changing socio-economic context in which hazard and vulnerability assessment takes place and the process of disaster management planning. The ongoing review of key 22 District Disaster Management Plans (DDMP) across India shows the following concerns:

1. How to define and estimate economic prospects of recovering victims?
2. How much of humanitarian funding goes into nutrition?
3. What is the nature and extent of HIV epidemic among humanitarian crisis victims?
4. What is climate resilient and low carbon recovery from natural disaster crisis?
5. How can hospital reforms in rural areas include disaster safety audit?
6. What is the local evidence of violence against women in humanitarian crisis?

7. How to reduce risks faced by rural and indigenous producers?
8. Do enterprise survey and business environment assessment of humanitarian victims help plan better economic recovery?

The review is being done with the help of the framework developed by

National Disaster Management Authority (NDMA) of Government of India. The findings will feed in the ongoing DDMP process in Odisha, Assam, Bihar and Ladakh at local level and into the NDMA's Core Group Policy formulation for Community Based Disaster Risk Management at national level. ■

- Kshitij Gupta

## Ecosystem Based Disaster Risk Reduction in Global Economic Prospects

May be there is an ecosystem based risk reduction opportunity for India a global economic prospects became less volatile. There is no doubt that global economy is transitioning into smoother and less volatile phase ahead. Financial conditions in advanced economic have improved but growth is very slow. While financial condition in developing world is solid. India needs supplier side structure policy reference it is argued, to grow faster.

Role of Japan, commodity prices worldwide, inflationary process, and weaker growth rates are risks India will face. Therefore, domestic solution hold key to India's economic growth. What we do at have makes us grow in India and protect us from global changes. And in this home designed solutions the India has an opportunity to design economic measures that include ecosystem based measures for protecting economy from disaster risk. ■

- Mihir R. Bhatt

# Long-Term Recovery Issues in Disaster Management Planning: Emerging Global Trends

It is evident that resilient recovery demands not only that decades' of development be compressed into a few years but also that future risk, including from climate change, is reduced. Recovery does offer an opportunity to reduce risk, by addressing underlying risk factors. Conditions that determine if recovery reduces risk are in a large part dependent on pre-existing capacities, progress against the Hyogo Framework for Action as



Photo: AIDMI.

well as leadership and vision both before and after the disaster. A major disaster brings with it political support and a will for change. During recovery, the opportunity for progress is in a large part driven by changes in attitude towards reducing disaster risk of people and institutions. For resilient recovery it is important to invest in key risk reduction measures and institutions, including:

**1. Recovery and development frameworks** must be flexible and long term. Short-term projects will lead to short-term gains. Recovery is not only 20 years of development accelerated to but a few but also needs to incorporate existing risk from all hazards, present and future. Despite the stresses of a post-disaster situation, one should step back and plan a resilient recovery based on local capacity and the needs of the affected population. To avoid the stresses of a post-disaster situation, one should invest in ex-ante assessment and recovery frameworks.

**2. Invest in progress against the Hyogo Framework for Action** for mainstreaming risk reduction into development and for a faster and more resilient recovery. The HFA provides the framework to reduce the risk from multiple hazards. The instruments associated with the HFA link a multi-hazard recovery framework with governance and the development structures. The existence of these capacities, in government, professional organisations, private sector and civil society, provides the linkage between recovery and development.

**3. Invest in planning** based on assessments, monitoring, evaluation and learning mechanisms. Ideally, these investments should be ex-ante, to solidify partnership and strategies and reduce the stresses involved in the post-disaster situation. Both pre-disaster recovery planning and post disaster needs assessments and monitoring systems need to clearly address underlying risk factors. The plans should

understand and use existing governance capacity and support structures, linking risk reduction and development.

**4. Invest in understanding and building on the inherent resilience of communities.** Tools exist to provide communities with a mechanism to voice their opinions, be involved in decision-making and understand their capacities and vulnerabilities. These tools, and participation in decision making by communities including the most vulnerable and marginalised are critical in ensuring resilient development and reducing risk during recovery.

**5. Invest in ex-ante measures for resource allocation** to address existing and future risk from multiple hazards. Mechanisms and tools include insurance-based tools, including weather index based insurance for agriculture. Emerging tools include twinning or ex-ante agreements on human and knowledge resource sharing (mutual support) between countries, cities and provinces.

Disaster risk reduction is an investment, not a cost. Recovery offers the opportunity to invest in addressing the underlying risk factors on an accelerated basis for resilient development with an emphasis on "build back better." ■

– Sanjaya Bhatia

Knowledge Management Officer  
International Recovery Platform (UNISDR)

For further information:  
info@recoveryplatform.org

# Yogyakarta Declaration on Disaster Risk Reduction

*The 5th Asian Ministerial Conference on Disaster Risk Reduction: Mainstreaming Actions Against Local Vulnerability through Global Partnership*



Courtesy of the Gol (Ministry of Interior) - www.depdagri.go.id

## Introduction

The 2012 Asia-Pacific Disaster Report stated that economic development in the region has come to be increasingly obstructed by extreme disasters. The average number of people exposed to floods has risen to 63.8 million while the cyclone-prone population increases to 120.7 million. In 2011 alone, the North East Japan Earthquake and the Southeast Asian floods contributed to USD 294 billion of global losses due to disasters (UNISDR 2012).

Yet, we are only three years from the expiration of MDGs. While several targets are achievable, but extreme hazards have endangered the overall attainment of MDGs. Such anxiety, put forwarded in the 2012 UN MDGs Report was confirmed by the Southern Philippines Bopha typhoon that killed over 1000 people while displacing

more than 1.2 million people (CNN, 17 December 2012). The fact that the worse hit areas are resource rich entwined with poverty inferred that disaster preparedness has not been well adopted by vulnerable communities.

Thus, global partnership in disaster management could not be more relevant. It was against those backgrounds that leaders, ministers and high level delegations from 72 Asian countries met at the 5th Asian Ministerial Conference on Disaster Risk Reduction in Yogyakarta last October. This paper is intended to share 5th AMC on DRR contributions to the improvement of global disaster management while placing special attention to local resilience as the key to a meaningful DRR. In doing so, the paper focuses on Indonesia's experience and its relevance to the international community.

## Disaster Management in Indonesia

In the 2011 UNISDR global assessment on the progress of countries in disaster management, Indonesia scores 2.8, slightly below world average of 3 (UNISDR 2011). The country thus has made some achievements but they are relatively small, and while improvements are planned, their capacity are limited.

Nevertheless, progress has been made. The President's direct involvement serves as the main engine of change. Since the 2004 Indian Ocean Tsunami, the government has taken seriously the issue of disasters. The effort was capitalized in 2007 through the enactment of the disaster management bill, followed by the incorporation of disaster management in the National Development Plan 2010-2014.

At the implementation level, the government developed the Indonesia Tsunami Early Warning System (ITEWS) which is managed by the Bureau of Meteorology (BMKG) and has been proven to be effective in monitoring Tsunami and issues warning to coastal communities. In building such technology, Indonesia owes part of its success to international actors such as the Germany and Japan. At the grassroot level, disaster awareness building programs are carried out in disaster affected areas such as Yogyakarta and Aceh. In these areas, the participation of various stakeholders in DRR activities is higher than other areas (Djalante et al, 2012).

However, Indonesia is still focusing much of its attention to the creation of enabling policy environment. The development of early warning system and disaster preparedness are differed across local regions and are more advance in areas already experiencing extreme natural disasters (Djalante et al 2012). Even so, the case of Indonesia shows that global partnership serve as an important modality in ensuring that policies are translated into real action.

#### **Yogyakarta Declaration on DRR**

In the Asia-Pacific disaster report, most of Asia-Pacific developing countries including Indonesia, with the exception of China, India, Sri Lanka and Vietnam, stand at the average world score of 3 or below. Countries like Timor Leste, Nepal, Maldives and Myanmar have even limited capacities to deal with natural disasters. The chart does not even include current data from ASEAN key countries such as Thailand and the Philippines. This shows that disaster management is not yet the norm among countries, and much effort are needed push disaster management as national priorities.

Nevertheless, the 5th AMC on DRR was focused on capitalizing Asia's

contribution to global decision making on the issue of disaster through the adoption of the Yogyakarta Declaration on DRR. The declaration was constructed on the assumption that the HFA, despite its timely existence still has limitations in engaging the local communities.

Recognizing the weakness of HFA, delegates have agreed to support the integration of local level disaster risk reduction into national development planning. The declaration also highlights financial limitations and the need for better public-private partnership and micro-insurance in building local resilience. Furthermore, risk governance should be built through improved participation of the poor and the disabled.

The declaration also pinpoints the need of global partnership in scaling up disaster management through the replication of successful community-based DRR initiatives. Another important message from the declaration was the need of reducing the underlying risk factors through legal mandates for local governments and private sector to integrate DRR in land use planning and infrastructure development. Finally, the declaration highlights an inclusive multi-hazard approach that considers socio-economic vulnerability, gender, disability, age and cultural diversity in the planning, assessments and reduction measures.

The declaration thus suggests a change in the paradigm of development vis-à-vis natural disaster. It suggests the transfer of capacities of disaster management to the local level, reversing the flow of policy making from top-down to bottom-up. The declaration will also be brought to the next Global Platform on DRR meeting on May 2013, which searches for a new platform that will replace the HFA.

#### **The Way Forward**

Learning from Indonesia's experience, global platform for DRR is effective as long as it provides real socio-cultural changes. Building local resilience is the only real option the international community has, to secure global growth.

The knowledge pooled from international projects in Indonesia and elsewhere has the potential to scale up disaster management practice at the global fora as we prepare to enter the post-MDGs world. From Indonesia's experiences, international involvement has contributed to the improvement of local community's resilience. The Yogyakarta Declaration will serve as Asia-Pacific countries contribution to the ongoing international debate for the creation of new global platform for DRR. The way forward lies in a more active contribution of Asian countries in the transfer of its knowledge through a Global partnership. ■

**- Puji Basuki - Uki**

Head of Section for South-South Cooperation  
Directorate of Socio-Cultural Affairs  
and International Organization of  
Developing Countries  
Directorate General of Multilateral Affairs  
Ministry of Foreign Affairs  
Republic of Indonesia

#### **References**

1. Djalante R, Thomalla F, Sinapoy Muhammad S, Carnegie M (2012) Building resilience to natural hazards in Indonesia: progress and challenges in implementing the Hyogo Framework for Action. *Nat Hazards* 62:779-803. DOI 10.1007/s11069-012-0106-8
2. UNISDR (2011) Global assessment report on disaster risk reduction: revealing risk. Redefining Development, Geneva
3. UNISDR (2012) Reducing vulnerability and exposure to disasters: Asia-Pacific disaster report 2012, Geneva
4. BNPB (2012) Yogyakarta Declaration. Retrieved from <http://5thamcdrr-indonesia.net/yogyakarta-declaration-2012/> on 14 December 2012
5. CNN Website (2012). Death toll from Typhoon Bopha tops 1,000 in the Philippines. 17 December 2012.

# Disaster Risk Reduction in Post Disaster Shelter Reconstruction: Case Study in the Indian Sundarbans Delta

## Introduction

India has a coastline of 7,516 km which is one of the main reasons for India's growth, but is also prone to several disasters. The loss incurred by communities and bio-diversity are increasing and the survivors constantly strive to recover. The Sundarbans are impenetrable mangrove forests that stretch across West Bengal, India and Bangladesh. They are made of 102 low lying island at Bay of Bengal forming the largest delta in the world. However, it is increasingly losing its land resources due to climate change that has increased salinity; higher tidal surges and; permanent submergence of land mass.

This article discusses a case study on Disaster Risk Reduction (DRR) in the Indian Sundarbans Delta (ISD), a region populated with some of the poorest people on the planet yet subjected to the harshest impacts of climate events.

## Case Study

The case study discusses a shelter reconstruction project undertaken by a Non-Governmental Organisation Sabuj Sangha ([www.sabujsangha.org](http://www.sabujsangha.org)) in Mathurapura II and Patharpratima community development blocks in (S) 24 Parganas district, West Bengal. The project was initiated in 2007 to help the survivors of the pre-monsoon tidal surges and high intensity winds that destroyed several mud and thatch houses of the poorest people.

## Traditional Construction Practices and Typology of Failure

A typical house constructed in the area consists of load bearing sun dried mud walls that are 30-40 inches thick at base; and tapers to 24-18 inches at roof level. Roofs are either made of burnt clay tiles or thatch timber and bamboo frames. The doors and windows are small and supported by timber scantlings as lintels. Most houses are constructed

with earthen moulds to support plinth. Construction materials are expensive as they are brought from the mainland by boats followed by hand drawn vans and head loads. Houses have a central core and spaces around it are used for storage, cooking and keeping livestock.

The main problem with the traditional houses is saturation of mud, which eventually results in a collapse. Tidal surges deposit huge amount of saline water that remains standing still for days due to flat topography and absence of drainage system.

## Reconstruction Logic and Design

The reconstruction design not only has to cater for the structure safety against future disasters but consider the spatial needs of dwellers, the multiplicity of the space used and thermal comfort. Moreover, the project costs for each house must be equal to the grant (INR. 25,000) provided by the Government of India under 'Indira Awas Yojna (IAY). IAY recommends a reinforced concrete roofed brick houses of 250 sqft at a cost of INR. 25,000.

The project fulfilled the structural safety, needs of the dwellers and IAY by improving the traditional building techniques. The following are the proposed parameters:

- Use of vernacular architecture, low carbon materials, local materials and labours and raised plinth (earth mound raised above the HFL)
- Use of a standalone reinforced core around which dwelling is developed



Photo: Sabuj Sangha.

A finished house belonging to a widow.



A finished house belonging to a family.

- Core protected up to sill level with brick masonry in cement mortar
- Roofing at both central and around the core :Roof under structure anchored to core but roofing material light and not tied down
- Earth flooring and all rendering in mud plaster
- Family involvement in construction supervision and completion of outer perimeter wall.

**Performance**

Through this project, 250 families received new homes each built within 40 days. The project was completed in 2007.

Category I cyclone *Aila* (2009) hit West Bengal and Bangladesh that damaged the embankment network leading to excessive sea-water flooding. The project area was badly affected leaving several homeless. Immediately after the cyclone, an

assessment team comprising team members of Sabuj Sangha and partners visited the project site to review damages. All the houses constructed were intact apart from the minor roof damages and standing water had no impact due to raised plinth. Families expressed their gratitude to Sabuj Sangha for saving them from destitution and informed that the old structured houses of neighbors were completely destroyed.

**Conclusion**

The project demonstrated that traditional construction techniques and materials can be adapted to mitigate disasters risks. The structures built were cheap, vernacular and were accepted amongst the locals. These factors when combined with disaster resilience make them ideal for replication in several other places. A low energy construction is perhaps the best adaptation strategy to reduce the effects of climate change. ■

- **Ansuman Das**, Director, Sabuj Sangha, Kolkata

**PUBLICATION**

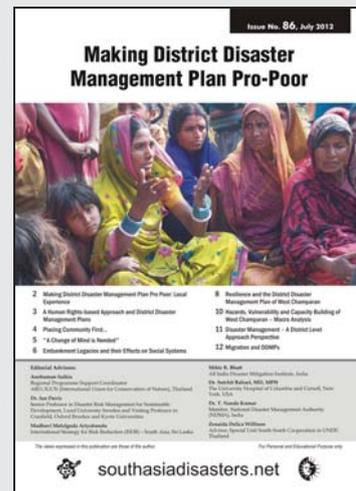
**All Risks are Local: Making District Disaster Management Plan in India**

In the end all risks are reduced locally. It is the local action that counts. Other actions at best add value in reducing risk. This is the main point of this issue. This issue presents articles covering different aspects of making district disaster management plan in Bihar, India.

The content includes: (i) Making District Disaster Management Plan Pro Poor: Local Experience; (ii) A Human Rights-based Approach and District Disaster Management Plans; (iii) Placing Community First...; (iv) A Change of Mind is Needed; (v) Embankment Legacies and their Effects on Social Systems; (vi) Resilience and the District Disaster Management Plan of West Champaran; (vii) Hazards, Vulnerability and Capacity Building of West Champaran -Macro Analysis; (viii) Disaster Management - A District Level Approach Perspective and (ix) Migration and DDMPs.

The contributors include - **Margarita Tileva** of United Nations Children's Fund (UNICEF); **Elizabeth Ferris** of Brookings-LSE Project on Internal Displacement; **Girish Peter** of Caritas India, Bihar; **Hans-Herrmann Dube** of GIZ International Services, New Delhi; and **Mihir R. Bhatt** of AIDMI. Young scholars of Kings College, UK, have made refreshing contributions. The next step is to start thinking about district level risk index maps using multi-temporal satellite and community data in India. ■

*For more information contact: bestteam@aidmi.org*



# Gender, Risk, and Community Mobilization in Uganda

## *A New Ray of Hope through Social Enterprise Development*

Risk and dangers are a daily part in the lives of women living in abject poverty in the urban slums and market areas in and around Kampala. The challenges they face range from death and disease, violence and injury as a result of economic and social gender inequities, together with norms and expectations about how women and men should behave within and outside intimate relationships; rape and unwanted pregnancies, HIV and AIDS and the responsibility of having to care for their children as single mothers with little or no economic means compound their tragic lives. The lucky few have some form of support from charities and philanthropic organizations that work in their vicinity. However their plight has only marginally improved as dependency inhibits development or mobilization of domestic resources; but because it undercuts the ability of the poor to make their own decisions and implement their own development priorities. Their choices are not made by themselves but dictated by donors or funders. This predicament becomes even more compounded when the global economic crisis brings about severe budget restrictions, donor fatigue sets in and some donors fail to meet their pledges and funding commitments.

Today in Uganda, philanthropy and charitable giving has taken a new turn in some quarters. It has fundamentally changed from generating headlines about generous donations by a donor to an explicit focus on results. Many donors today ask not "How much money was given?" but "What did the money accomplish when specifically addressing the needs of people at the base of the pyramid. Traditional charity often meets the immediate needs of the poor but frequently fails

to enable them to solve their own problems, bring an end to their poverty and ensure that they are accountable to those investing in their development as well as to members of their own community. Donors and philanthropists continue to support charities of course, but they have also discovered that for-profit organizations can help them achieve their philanthropic goals. Almost half the population of Uganda is under 15 years of age and according to UNICEF (2009), 184 in every 1000 children in Uganda, die under the age of 5. To a 'young' country that is rebuilding its foundation, the need for healthy and thriving children is absolutely critical to its future

A small charity in Uganda, Ka Tutandike Uganda, has been making significant headway by empowering very poor market women in slum areas of Kampala. Although previously dependent on piecemeal donor aid, these women have benefited by training on income generating activities. With guidance from the Charity, members of the market women's group have begun to create new and fashionable jewelry designs using paper and as well as traditional Nubian crafts which have significantly boosted their sales. As a

result of the increased earnings the women have bought a paper cutting machine, and are now earning a minimum daily income of approximately UGX 100,000 just from jewelry sales. Due to this significant boost of their levels of income within just six months, more women have been able to pay school fees and enroll their children in day care centres and school, and provide new clothing and buy more nutritious foods. Their levels of confidence and self esteem have increased considerably and the women are most eager to develop themselves further, learn more new skills in order to be self-reliant.

Discussions are currently underway to establish a social enterprise aligned to Ka Tutandike which would enable the female vendors to gain new skills training in other forms of income generation possibilities. Such a partnership would pave the way for greater economic empowerment and sustainability for the women whilst providing a return on investment for Ka Tutandike to sustain its valuable projects and programmes and benefit more vulnerable women and children. ■

- **Anisha Rajapakse**, Trustee,  
Ka Tutandike Trust UK



Courtesy: Anisha Rajapakse

# What does the IPCC SREX Report Mean for India?

The value of any report, once it is published, is its use: who uses it, how, where, and why. The huge Intergovernmental Panel on Climate Change (IPCC) Special Report on "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)" is no exception. I spoke with government authorities, the UN, international and domestic non-governmental organisations, media and researchers about the implications of SREX at the well-attended South Asia Regional Outreach Event for the SREX Report in Delhi. This note outlines three major themes from these discussions, on how SREX messages could influence policy and practice in India.

First, the findings and messages of the SREX report must filter down to state level in India: many of the report's messages are clear on actions that can be taken now.. It is the states who manage disaster risks as well as make adaptation plans in India. The All India Disaster Mitigation Institute's (AIDMI) ongoing disaster risk reduction work in 10 states of India indicates that the state authorities and NGOs are closer to risk and risk reduction measures than national government. The states set objectives and mobilise teams. Therefore, without raising awareness of SREX findings and recommendations at state level, direct concrete actions on the ground may be lacking.

For example, Concern Worldwide and Sabuj Sangh's work to build the resilience of communities living in the Sunderbans delta can draw on SREX findings, to help determine the location of harbours, inform construction of embankments, and to



Photo: AIDMI.

foster sustainable forestry. To give another example, the SREX findings can inform the plans of ECHO and its partners Plan and Save the Children in Odisha. Here, organisations are delivering cash transfers to flood-affected communities; after the 2011 floods, this programme has a new focus on agricultural development for small farmers and protection of coastal ecosystems. The SREX findings cannot be ignored in the hill area development plan of Ladakh,

Mihir Bhatt was a coordinating lead author of Chapter 9 of Intergovernmental Panel on Climate Change (IPCC) Special Report on "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) and leads the All India Disaster Mitigation Institute that has worked in 37 cities and 45 districts in India since 1995.

being developed by Ladakh Hill Areas Autonomous Council and a multitude of similar plans, projects and programmes. The Government of India must find ways, then, to disseminate the SREX report's important messages to inform the states, and to encourage them to turn the recommendations into context-specific actions.

Second, the messages of the SREX report apply differently to different sectors of India's growing economy. Key sectors should be identified – perhaps infrastructure, finance, urban development, and agriculture – and the recommendations should be contextualised for these sectors as soon as possible. For example, significant resources will be spent on roads and railways infrastructure in India in the coming decades, but how these can be designed so that they are protected from disaster risk and changes in climate? Some concern applies to urban sanitation across India. In terms of urban development, AIDMI's work in 37 cities across India

over the past ten years has raised questions about how small and large growing cities in India can have City Disaster Management Plans that are also climate smart. Similarly, AIDMI's work with India's National Disaster Management Authority, Sphere India and Cordaid has highlighted the challenges of including climate change adaptation measures in overdue District Disaster Management Plans in 'disaster hotspot' districts. The challenge is huge.

Third, more work should be done now to find ways to incorporate SREX recommendations in disaster response, reconstruction, and recovery plans. This work could be done by a range of organisations, from National Disaster Management Authorities, international non governmental organisations such as IUCN or Save the Children, UN institutions such as UNICEF or UNEP, to local community based organisations. Such as Kalvi Kendra in Tamil Nadu coastal areas or Nari

Gunjan in Bihar. For example, the ongoing recovery in the Sunderbans from cyclone *Aila* and in Ladakh from cloudburst should be informed by SREX findings as local communities continue their development.

The above three streams of activities will lead towards better and faster use of SREX messages in India. ■

- Mihir R. Bhatt

The article is available on <http://cdkn.org/2012/07/what-does-the-ipcc-srex-report-mean-for-india/>

#### KNOWLEDGE SHARING

## Protecting Communities from Climate Change

*Smart Hospitals: an initiative to ensure health facilities remain functioning after disaster and is eco-friendly*

Healthcare facilities, like the communities they serve, are suffering from but also contribute to climate change. How can we ensure that communities continue to be attended by their health facilities after disaster and at the same time that the construction, maintenance and replacement of those facilities are not making the situation worse.

The damage limits the capacity to provide health emergency care to victims and ongoing healthcare to the communities hit by the disaster, precisely when they are most needed. More than 67% of hospitals in Latin America and the Caribbean are located in areas of high risks of disasters. At the same time, health care facilities, particularly big hospitals have a large environmental footprint due to their high consume of energy.

With the Smart Hospitals Initiative, the Area on Emergency



Photo: AIDMI.

Preparedness and Disaster Relief from PAHO/WHO is working towards achieving health care facilities that are both safer from disasters and eco-friendly. This initiative, supported by the United Kingdom's Department for International Development (DFID), aims to bridge the gap between health facilities disaster resilience and climate proofing. The project is spearheaded by a team of Caribbean experts and will be piloted at the George town Hospital in St. Vincent and the Grenadines and Pogson Medical Centre in St. Kitts and Nevis. It is designed to establish an integrated approach to develop a set

of standards and guidelines for building and retrofitting health care facilities to ensure that they are environmentally friendly and disaster resilient.

The Smart Hospitals Initiative follows and enhances the existing Safe Hospitals project, which advocates for hospitals to be built to ensure continued operation during disasters and that existing hospitals progressively improve their safety levels in this regard. Through this project, PAHO/WHO supports the countries in the Americas to ensure that new hospitals are built with high levels of protection, assess the safety of existing facilities to disaster and to develop national policies on safe hospitals.

PAHO/WHO has also been an active participant on the elaboration of "Protecting Health from Climate Change", a guide to help to assess the vulnerability and adaptation. ■

- Dr. Jean Luc Poncelet, Area Manager, Emergency Preparedness and Disaster Relief, Pan American Health Organization (PAHO), USA

For more information on this and other related topic consult PAHO's Knowledge Center on Public Health and Disasters (<http://www.saludydesastres.info/index.php?lang=en>).

## IUCN in Asia: A Note for Exploration

This article explores the areas for action for the International Union for Conservation of Nature (IUCN).

The first area of action is building coastal resilience with a special focus on mangroves and livelihoods. Greater direct focus on island communities, coastal agriculture and marine conservation is emerging as a major area from the work done in the delta of Mahanadi in Odisha in India and also Mekong delta in the South East Asia.

The second area of action is climate change adaptation. Since the area of climate change adaption ranks high on IUCN's agenda, it is promoting ecosystem based approaches into climate change adaptation, disaster risk reduction, food security, and livelihoods as important areas. The need to further develop these concepts through pilots in urban areas is corroborated by the experience of working in the flood prone parts of Assam.

The third area of action is the water programme where IUCN's focus is on management and equitable allocation of water resources for ecosystems and people. Addressing inequality in management and allocation of water resources is very relevant to the work on disasters. New initiatives with IRC of the Netherlands and Government of India suggest greater focus on drinking water within water management. IUCN has done good work on water conservation in Asia, but can do more on protection of water sources from disaster impact and offer a case for more direct work on drinking water sources.

It seems that IUCN can do more in arid and semi-arid regions. More work on droughts and desertification is overdue.

IUCN work can have more evidence of mainstreaming ecosystem-based approaches in DRR systems, case for environment-accountable and sensitive aid. This is an advocacy issue for IUCN with donors. IUCN work can be better used to influence donor thinking with reports and scoping studies based on IUCN work on the ground in Asia.

IUCN can do more in sensitizing and involving children in its work.

A case for regional and campaign in each country on "Children for Conservation" is overdue. Centre for Environment Education (CEE) of India has done excellent work on this which can be scaled up as well as spread out in Asia.

It is proposed to set up a small group to discuss and develop these ideas in Asia. ■

**- Kshitij Gupta,**

All India Disaster Mitigation Institute



Submerged mangrove: mangroves act as natural carbon sinks. (IUCN Photo Library © Andre Seale)

Do you wish to receive this publication regularly? Write to AIDMI ([bestteam@aidmi.org](mailto:bestteam@aidmi.org)). The publication will be sent by E-mail. Your comments help [southasiadisasters.net](http://southasiadisasters.net) remain an effective and informative resource for regional issues of disaster risk management. Please contribute comments, features, reports, discussion points, and essays about your work. Today!

PRINTED MATTER  
Book-Post

Ms./Mr. \_\_\_\_\_



**ALL INDIA DISASTER MITIGATION INSTITUTE**

411 Sakar Five, Near Natraj Cinema, Ashram Road, Ahmedabad-380 009 India

Tele/Fax: +91-79-2658 2962

E-mail: [bestteam@aidmi.org](mailto:bestteam@aidmi.org), Website: <http://www.aidmi.org>, [www.southasiadisasters.net](http://www.southasiadisasters.net)