

# Towards Climate Compatible Development in India



Photo: AIDMI.

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

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## ABOUT THIS ISSUE

Disasters in India can be easily identified with extreme weather events like cyclones, heatwaves, cloudbursts and flash floods. There is an increasing body of data that points to the incontrovertible link between such disasters and climate change. This link has led a lot of practitioners in the field of humanitarian action to stress the importance of pursuing climate compatible development in India. A climate compatible agenda tries to integrate the exigencies of climate change adaptation and those of disaster risk reduction into overall development planning.

This issue of *Southasiadisasters.net* focuses on the important theme of Climate Compatible Development in India. As an emerging humanitarian ideal, climate compatible development can be described as the interface between development, disaster risk reduction and climate change adaptation. It strives to initiate short and long term adaptation measures that can lead to a resilient future and help in the achievement of nationally and internationally agreed development goals. This issue of *Southasiadisasters.net* contains articles that provide some of the experiences and expertise of the individuals and organizations that have strived towards this ideal in India. The scope of this issue ranges from Odisha's efforts to move in the direction of climate smart disaster risk management to the protection of India as a regional energy node from the onslaught of disasters.

Consisting of the best practices from the leading agencies and government departments to further the cause of climate compatible development in India, this issue of *Southasiadisasters.net* is a must read for all who are interested in this important theme. ■

- Kshitij Gupta, AIDMI

## CLIMATE COMPATIBLE PREPAREDNESS

# Odisha Moving Towards Climate Smart Disaster Risk Management

## *Training Needs Assessment: Linking Disaster Risk Reduction and Climate Change Adaptation*

The Odisha State Disaster Management Authority (OSDMA) has shown successful efforts in its response to 2013 cyclone Phailin and 2014 cyclone *Hudhud*.

Result of long-term efforts at different levels by OSDMA and concerned agencies are now becoming visible.

The capacity building efforts by the government and humanitarian agencies are becoming visible at the community level.

The OSDMA is moving several steps ahead from reducing death toll to reducing loss and damage in any possible emergency in Odisha.

The capacity building of different stakeholders is the key for achieving the above mentioned results.

The OSDMA under GoI-UNDP project on 'Enhancing Institutional and Community Resilience to Disaster and Climate Change' conducted a Training Needs Assessment (TNA) on Disaster Risk Reduction and Climate Change Adaptation.

This is the first ever training need assessment in Odisha leading to climate smart disaster risk reduction said Shri Ambika Prasad, UNDP. Only one other state in India has completed such assessment.

The state wide exercise was facilitated by All India Disaster Mitigation Institute (AIDMI). AIDMI is author of Intergovernmental Panel on Climate Change (IPCC) global report on extreme climate events.

All the stakeholders came together on December 19, 2014 to contribute to TNA. It was attended by key departments' heads, district administrations, NGOs and INGOs.

The TNA has focused on closer integration between risk reduction and adaptation to climate change. The collaboration between DRR community and climate change community will be further strengthened based on the TNA exercise, said Shri (Dr.) Taradatt, MD, OSDMA.

The efforts should now be more focused towards reducing loss and damage in vulnerable urban locations of Odisha, said Shri Brinda D., Additional Commissioner, Bhubanashwar Municipal Corporation.

Odisha should emphasize knowledge management and sharing at regional level with focus on coastal areas of Bay of Bengal said Shri Mihir Bhatt, AIDMI head. He added Odisha has so much to offer from its experience. ■

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- The OSDMA has successfully responded to Cyclone *Phailin* and Cyclone *Hudhud*.
- The focus now is on Climate Compatible Development.
- The OSDMA authorized a TNA to facilitate greater integration between Climate Change Adaptation and Disaster Risk Reduction.
- This TNA helped in identifying key areas where integration is possible and desirable.



# Ahmedabad at Forefront of Climate Change Adaptation: Frances Beinecke

*Global leader on climate change & env protection was commenting on city's Heat Action Plan*

In a recent conversation with Ahmedabad-based All India Disaster Mitigation Institute's (AIDMI) Mihir R Bhatt, Frances Beinecke, a global expert on climate change shed light on the importance of Ahmedabad's Heat Action Plan.

Beinecke is the former president of Natural Resources Defense Council group (NRDC), which had a key role in development of the plan, made in collaboration with Ahmedabad Municipal Corporation (AMC).

"Ahmedabad is at the forefront of climate change adaptation to heatwave in the world", said Beinecke.

She observed, "Ahmedabad's Heat Action Plan describes both immediate and longer-term actions to increase preparedness, information-sharing, and response coordination to reduce the health effects of heat on vulnerable populations especially the poor and women who work outdoors in summer season".

"City-to-city links are most important as cities learn faster and better from other cities", she pointed

- The National Resources Defence Council (NRDC) of USA has helped the Ahmedabad Municipal Corporation (AMC) in preparing a Heat Action Plan.
- Frances Beinecke, a former president of the NRDC was in Ahmedabad to deliberate upon replicating the Ahmedabad Heat Action Plan for other cities in India too.
- Collaborations like this are a key to increasing consensus between India and USA on vital policies and practices related to Climate Change.

out. NRDC aims to take Ahmedabad experience to cities such as Surat and Rajkot in Gujarat over the coming months.

NRDC plans to take the Ahmedabad experience to key cities like Bhubaneswar and Guwahati. There is potential for regional spread of Ahmedabad's experience in South Asia, said Beinecke.

## Ahmedabad's Heat Action Plan

NRDC helped to develop the Heat Action Plan for Ahmedabad with support from Climate Development Knowledge Network (CDKN) after the heat wave of 2010. CDKN helped in tracking the impact of heatwave on citizens and created the action plan with AMC. The city-based Indian Institute of Public Health (IIPH) also played a vital role in

developing the action plan. The Heat Action Plan is a part of Ahmedabad's major efforts to prepare better for future extreme heat events after suffering the deadly heat wave in May 2010. Temperatures at the time spiked to 46.8°C (more than 116°F), and hundreds of people died.

## US-India Relationships Over Climate Change

NRDC is working with key policy makers in India and the USA to substantially increase bilateral cooperation on climate change and adaptation. "Our work in Ahmedabad is one of the foundation stones of this effort" said Beinecke.

In the United States, NRDC is providing information and analysis to government officials, media, and the public about the efforts India is making to address climate change. "The positive efforts of citizens of Ahmedabad are making their way in the USA" she added.

"Our efforts are increasing awareness and understanding in both nations about the other's climate change actions," she said. ■

*Published in DNA  
Ahmedabad,  
January 12, 2015*

## FRANCES BEINECKE

Beinecke is the former president of Natural Resources Defense Council group, an international NGO fighting for environment protection and against adverse climate change. She currently serves on the boards of the World Resources Institute, the Energy Future Coalition, the Nicholas Institute for Environmental Policy Solutions, and Conservation International's Center for Environmental Leadership in Business.



*Frances Beinecke with Mihir R Bhatt.*

# HFA2 Implementation Challenges and Opportunities: A Nepalese Perspective

Nepal is an agrarian mountainous country situated on the southern slopes of the central Himalaya. According to Maplecroft 2010, Nepal is the fourth most vulnerable country in the world to climate change. It is estimated that more than 1.9 million people are highly vulnerable and another 10 million are exposed to increase risks (MoEnv, 2010). The analysis of temperature trends of 56 stations for the period of 1975-2006 showed the continuous warming at the rate of 0.027 per year (Sharma K, 2009) and also reveals the variation in temperature trend due to variation in altitude. The average annual rainfall is 1800 mm with marked spatial and temporal variations (NCVST, 2009, MoEnv, 2010).

At the World Conference on Disaster Reduction (WCDR) in January 2005, 168 countries adopted the Hyogo Framework for Action (HFA) as a guiding framework on DRR (2005-2015) which aims to build resilience of nations and communities to disasters. For this purpose, strategic goals, outcomes and 5 priority areas along with indicators have been

identified. In this context, in December 2012 the UN General Assembly Resolution (Resolution 67/209) decided to convene the 3<sup>rd</sup> World Conference on DRR in Japan in early 2015 to review the implementation of HFA and develop a post-2015 framework for DRR referred to as HFA2.

## National Challenges for Nepal

The national level challenges highlight the following sectors:

- Mass poverty and Inequality
- Economic dependency
- Low level of investment
- Widespread unemployment
- Implementation of Policy, plan and programs and its constraints
- Preparedness to disaster
- Inadequate administrative setup
- Gap in information sharing and capacity enhancement
- Duplications of DRR work
- Lack of integrated implementation
- Lack of scientific data of climate and disasters

Some of the factors contribute in the HFA 2 implementation which can

affect the above mentioned challenges are listed below:

**Land Use and Fragile Ecosystem:** Unstable slope, fragile geology of young mountains with heavy monsoon rainfall leads to a wide range of geological and hydro meteorological disasters across the country.

**Demographic Changes and Absentee population:** According to the National population census 2011, the annual population growth rate is 1.35% and showed the demographic change within the three ecological belts. The census reveals that the population living in the Terai has increased by 2% leading to 50% of country's population whereas settlement in hill and mountain regions decreased by 1%. Out Migration and Absentee population which reflects aging society, sex ratio which is continuously decreasing from 99.8 to 94.41. These demographic patterns should be considered while assessing vulnerability and designing disaster risk reduction programs (CBS, 2011).

**Agriculture Practice:** Agriculture sector contributes nearly 35% of the Nepal's GDP and supports the livelihood of more than 74% of Nepal's Population (NLSS, 2007 and CBS, 2012). Only about 25% of Nepal's surface area is suitable for agriculture purpose. About 21% of the land is cultivable of which 54% has irrigation facilities (MoAD, 2012) and remaining is the rain fed. The agriculture practice is governed and guided by rainfall and totally dependent on climate. Due to increasing population, safe land is scarce and people are occupying marginal lands for their livelihood



*Marginalized agricultural practice and sedimentation in cultivated land making more vulnerable to Disaster (Photo: Paudel K.)*





Participants of HFA2 Roundtable discussion held in October, 2015, Kathmandu.

thereby increasing susceptibility to different types of hazards.

#### **Climate change and its Impacts:**

Nepal is affected by many natural Hazards and recent data shows that the frequency of natural disasters such as floods, landslides, etc. has increased. Nepal has witnessed an increase in the frequency and intensity of disasters such as floods, landslides, forest fires, etc continuously which affects the large number of population (mainly indigenous, poor and women), livelihood, and infrastructure due to low adaptive capacity.

#### **Loss from water induced disasters:**

The analysis of hydroelectricity and alternative climate model reveals that 20 - 100% increase in the intensity and frequency of river flows. The direct economic costs of climate change on water induced disasters at the national level were estimated to be an additional US\$ 100 - 200 million/year by 2050, equivalent to 0.6 - 1.1% of current GDP per year with an upper estimate of almost 3%. (IDS Nepal et. al., 2014)

#### **Opportunities:**

Besides all these challenges, there are several opportunities for HFA 2 implementation. Because DRR is a highly prioritized sector in Nepal it is incorporated in the plan, policy

and programs of Nepal Government. In 2010 – 2013, Government plan has focused on Natural Disaster Management for sustainable development. In addition, GoN has highlighted the role of private sector, local body, NGOs, CBOs and involvement of security forces has ensured for the effective implementation and sustainability of the programs. The government has prepared different legal frameworks for the disaster management in Nepal: National Strategy for Disaster Risk Management in Nepal 2009, Disaster Preparedness and Response Plan (DPRP) in Districts 2010, National Adaptation Programme of Action (NAPA) and Local Adaptation Plans of Action (LAPA). The main goal of these frameworks is to improve people's livelihood through climate change impact mitigation and adaptation and its promotion in national and local plans. Still Nepal is in political transition phase making its constitution from the constitution assembly and yet to be decided as federal state which will be helpful in the implementation and making local body accountable in DRM sector. ■

- **Dr. Dinesh Chandra Devkota**,  
Policy Advisor; **Mr. Keshav Paudel**,  
Environmental Officer; and  
**Mr. Sujit Karmacharya**, Program  
Coordinator, IDS Nepal

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# Training Needs Assessment on DRR-CCA in Assam: Reviewing Resilience

As Assam being the gateway of North-eastern states, glimpses various avenues of development, hazards of various origin put a constant threat to its prospect of development. Every year a significant volume of developmental outcome is being eaten away due to the states vulnerability to these hazards. To name the most dominant and visible in this regard is flood and river erosion in both the riverine valleys (Brahmaputra and Barak Valleys). A significant amount pressure had been persistent on the State exchequer to deal with menace of flood and erosion every year. Further, Climate Change has been contributing in both increasing the frequency and magnitude of this hazard in multiple ways such as erratic heavy rains, melting of Himalayan glaciers etc. All this has lead to the emergence of a different outlook for thinking, planning and practicing measures for reducing the impact of these hazards by increasing the capacity of different segments of vulnerable population.

It has been recently accorded high priority to increase investment in Disaster Risk Reduction (DRR) in the public domain. As the nodal government agency to coordinate and implement the disaster risk reduction initiatives in the state, Assam State Disaster Management Authority (ASDMA) had been implementing different projects and programs for promoting and sustaining disaster risk reduction of which capacity building of stakeholders through training has been a dominant area. Between 2009 and 2013, a total of 1818 training programs involving 5, 47,062 participants were conducted. The focus was manifold ranging from

Search and Rescue, First Aid, Planning for DRR in Schools and Hospitals, Mass Casualty Management and many other such areas involving participants like government officers, teachers, children, doctors, civil society organisations and others., For these trainings, ASDMA had conducted a Training Needs Assessment in 2011 which had its exclusive focus on Disaster Risk Reduction. But, climate change as a concern in both cause and effect relationship was not considered in-depth in that assessment.

As the global community was moving towards strengthening the vision of DRR through the development of post 2015 framework (HFA 2) which focuses on seven different areas of priority for ensuring the goal of sustainable development integrating climate change concerns, ASDMA also envisioned to incorporate and integrate climate change concern in its ongoing DRR initiatives particularly the training and capacity building ones. As Assam forms a part of the targeted State for GoI-UNDP Program on "*Institutional and Community resilience to disasters and climate change*" which was lead by ASDMA in the state, it was an opportunity for ASDMA to retrospect the entry points for climate change concerns with a systematically designed study. Thus, the Training

Needs Assessment for DRR-CCA was visualized with the primary goal to suggest options for valid and sustainable integration of disaster risk reduction and climate change adaptation. This study was designed and conducted by the All India Disaster Mitigation Institute.

The study followed a bottom up approach and incorporated the views and expressions of different stakeholders. As a part of the methodology, different tools were used such as literature review, district level search conferences, state level workshops etc. The focus was on bringing out a feasible and inclusive pathway for integration.

It was interesting to see that the study highlighted the level of awareness among the participants on climate change concerns. The participants themselves in large majority vowed about the existing gaps in their knowledge and skills which created the insufficiency for dealing with climate change and disasters. Though there was the State Action Plan on Climate Change in place Assam along with National Plan of action of India, the participants were hardly aware and involved in any sorts of actions associated with them. The SAPCC no-doubt is the best available and easiest possible literature for understanding the local context and projections related to

- The Assam State Disaster Management Authority (ASDMA) has taken several measures to safeguard Assam from the adverse impacts of recurring disasters ailing the state.
- A Training Needs Assessment (TNA) was conducted by ASDMA to facilitate integration of climate change concerns with its larger capacity building initiative.
- The TNA exercise highlighted a lot of areas of integration such as DRR, Community Based CCA, involvement of children etc.

climate change. These existing gaps in knowledge and skills make it more imperative to strengthen the basics and the best possible solution as recommended by the study was integration. This integration based approach facilitates new information to be incorporated into the planning of programmes and plans and creates the opportunity to identify what need to be changed or added. The study basically highlighted inclusion of local projections and climate change and also suggested topics such as DRR and CCA, Community Based Climate Change Adaptation. The study also suggested involvement of all concerned sectors, using children as "active agents" in leading the change. As different department specific measures of both training and non-training requirements were highlighted in the recommendations, it will be obviously interesting to see the pathway through which the progresses are lead by the concerned departments and agencies.

It is imperative for the ASDMA to move up with the recommendations and facilitate such an environment where effective integration can be achieved. The knowledge and skills gaps must be highlighted to the concerned departments through adequate sensitization. The further design and implementation of trainings must be dynamic and should incorporate the ongoing developments in the field. There is no doubt that the study has given a road map to the state for leading the initiatives on DRR-CCA integration, it would really an interesting matter for observation how effective the implementation of the recommendations are achieved in the near future. The investment made in this regard is praiseworthy but is really a beginning and across the nation, eyes' will be on Assam to see the changes which structured integration can bring in the state. ■

- Sonali Das, AIDMI

#### INFORMATION SHARING

## Self Study Programme at NIDM

### National institute of Disaster Management (NIDM)

Under the National Disaster Management Act 2005, the National Centre for Disaster Management of the Indian Institute of Public administration was upgraded to National Institute of Disaster Management (NIDM) in October 2003. Union Home Minister is the President of NIDM. The main role of NIDM is in human resource development, capacity building, training, research, documentation and policy advocacy in the field of Disaster Management. National activities are done under key academic divisions namely Policy, Planning and Cross Cutting Issues; Geo-Hazards Risk Management; Hydro-meteorological Hazards Risk Management; and Response and training. Apart from various trainings, NIDM gives consultancy services to the officials and local authorities and performs knowledge integration on disaster management in the country. NIDM also hosts the SAARC disaster management centre and publishes journals, newsletters, reports and training modules.

The All India Disaster Mitigation Institute (AIDMI) is introducing the idea of integrating Disaster Risk Management (DRM) with Community Based Adaptation (CBA) in India with NIDM.

### Self Study Programme on Disaster Management for Youth

National Institute of Disaster Management (NIDM) offers self study programme on disaster management. The course would benefit those who work or wish to work to manage disasters in India. The course aims to raise the level of knowledge on disaster management of government officials and other officials as also create interest and awareness on disaster management to general public. Citizens can register online at [www.nidmssp.in](http://www.nidmssp.in) to any of the ten listed courses of NIDM web based programme. The registration is free of cost. The users can access the programme anytime and from anywhere after login.

All India Disaster Mitigation Institute (AIDMI) is working with NIDM to develop integration of Disaster Risk Reduction (DRR) with Community Based Adaptation (CBA) in self study courses.

### Online Courses on Disaster Risk Management for Youth

Looking at the need to enhance the capacity and to develop a sense of preparedness among communities, NIDM in collaboration with the World Bank, Washington conducts online courses for various key stakeholders in the field of Disaster Risk Management (DRM). This flexi time course is interactive and convenient for users. Apart from one basis course with a fee of Rs. 1500/- the institute offers nine thematic courses with a fee of Rs.1000/- each. These thematic courses are open to those who have completed the basic course or have basic subject knowledge. These nine courses focus on DRM such as Comprehensive Framework, Community Based, Earthquake, Identification, Assessment and Analysis, Safer Cities, Gender Aspect, Financial Strategies, Damage and Reconstruction Needs Assessments. ■

- AIDMI Team



# Promoting Sustainable Agriculture

*Improved Cook Stoves and their by-product (Biochar) Application into Soil: A case study from Koraput District, Odisha, India*

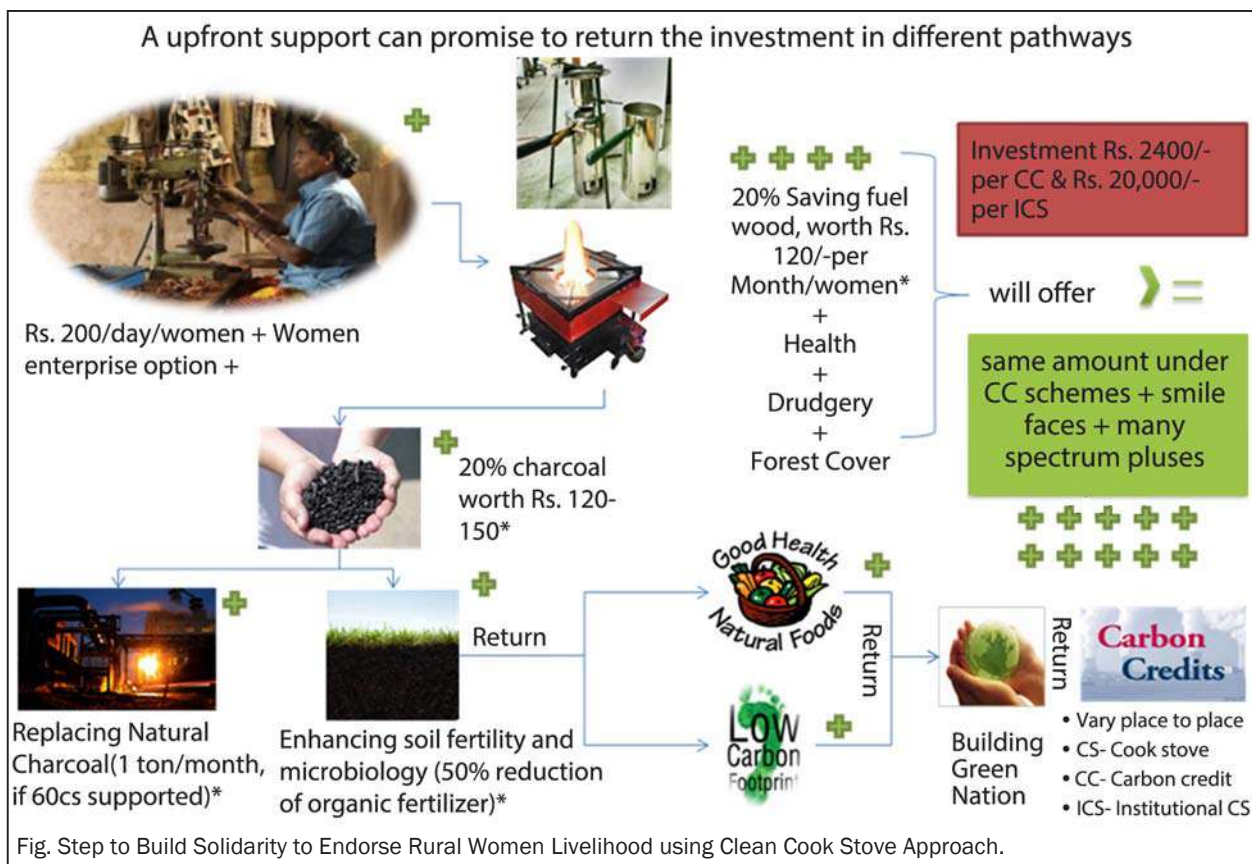
In the backdrop of a persistent energy crisis and raging debate on lack of coal linkages in India, Greenpeace has released its assessment report on Renewable Purchase Obligation (RPO) titled Powering Ahead on Renewables: Leaders and Laggards, which decides ranks of all states and their performance in renewable energy security and their supply. At higher authorities' level, it just calls for revision of RPO mechanism based on equity principle. Now, these mechanisms have limits with no focus to deal sector specific situations such as household and small enterprises which endure the most.

- As energy crisis debate rages on in India, the use of improved cooking stoves in the tribal households of Jeypore, Odisha has emerged a good practice that can be replicated in other parts of the country as well.
- The advantages include reducing the drudgery of women, improving their health, improving the efficiency of fuel-wood supplies.
- Since Odisha is known to be highly vulnerable to disasters and climatic extremes, up scaling such innovations can help the state in fostering resilience.

Women have always been responsive for managing household energy systems, and tribal households in Jeypore, Odisha, India are no different. Past studies have established the role of improved cooking stoves (ICS) in rural areas by reducing workload of women and enhancing health while

increasing efficiency in fuel-wood supplies.

Crop production in home gardens (HG) through the use of residues from the ICS is a widespread practice observed in the study region. Substituting clay stoves with ICS is likely to play an important role in





reducing drudgery and improving soil health. The Alleviating Poverty and Malnutrition (APM) in Agrobiodiversity Hotspot project made an attempt in making use of top-lit updraft gasifier stove whose residue (biochar) was applied blend with compost (BioC<sup>+</sup>) in HGs to enrich soils.

The research study concludes that: (i) the adoption of ICS and BioC<sup>+</sup> application have gender implications, (ii) use of the ICS has reduced women and men's labour and time spent for Fuel-wood collection, (iii) increasing opportunities for women and men to be involved in growing crop for enhancing their well-being, (iv) this adaptation practice has multiple

environmental benefits and(v) from a policy perspective, study aiming into consideration priorities, roles and interests of women concurrently develop appropriate skill sets.

Odisha can take a lead on a constructive policy on renewable energy through domestic and institutional sectors ICSs. Recent understanding in both sectors, along other sectors on renewable (biomass, biofuel and biogas, solar, etc.), Odisha has achieved less than 35%, the proposed activity emerged as leader in terms of driving a constructive policy for renewables. Odisha is backward but they can display astuteness by accepting the fact that decentralized system can generate livelihood at remote areas

where opportunity and access of government plans are really lacking. This state is also famous for natural calamities (Ex-heat waves, flood, drought), severe migration and losses of natural biodiversity, which directly, indirectly impacts the climate change and GHG emission and above steps can support purchasing power of individual but positive effect will be multidimensional in long term. ■

- Jay Anand with Chaudhury Shripati Mishra, B. Chandra Guptha, Trinath Taraputia, and V. A. Nambi, Climate Change Program, M S Swaminathan Research Foundation, Tamil Nadu

*Acknowledgement: International Development Research Center (IDRC), Canada, Farmers and Field Technician of MSSRF*

## ECOSYSTEMS RECOVERY

# Why Local Communities Participate in Enhancing Restoration Mangrove Ecosystems in Odisha to Mitigate Impacts of Cyclonic Storms?

### Introduction

The state of Odisha in eastern India is frequently affected by cyclonic storms (Bahinipati, 2014), which negatively affect the well-being of rural households in the coastal villages. In the past few decades, the state experienced severe and super cyclonic storms in the years 1971, 1982, 1999 and 2013 (Bahinipati and Sahu, 2012). These events disrupted the livelihoods of households living in the fragile coastal environment. For instance, a loss of around 7397 human lives particularly in the undivided Cuttack district in 1971, and 9177 human lives during the 1999 super cyclone (Bahinipati and Sahu, 2012). It is expected that these events are likely to increase in the foreseeable future due to climate change, particularly in the developing nations.

In the context of Odisha, a few studies found that mangroves act as a natural barrier in reducing impacts from cyclonic storms and also providing various livelihood opportunities to local households (Badola and Hussain, 2005; Das and Vincent, 2009). Therefore, different activities have been undertaken at the community, civil society and government levels to enhance mangrove conservation in coastal Odisha; because of this, an increasing trend was observed in the recent decades. For instance, the area under mangroves was 199 km<sup>2</sup> during 1987, and increased to 222 km<sup>2</sup> as of 2011.

### Voluntary Participation of Communities to Enhance Mangrove Restoration

Over the years, it has been observed that the mangrove ecosystems in

coastal Odisha is affected by multiple threats, e.g., unsustainable economic growth, high population density, sea level rise and river erosion and government policy (Bahinipati and Sahu, 2012). In particular, Upadhyay and Mishra (2008) found that anthropogenic factors are responsible for 80% of the degradation of mangrove forests in Odisha. From this, one can say that participation of the local communities is imperative to enhance mangrove ecosystems. Because of its positive externality, it also attracts the attention of both the civil society and government over the years to promote mangroves through both action and academic research. Afterwards, various funding agencies (e.g., TEEB, MFF, etc.) and ministries of state and national governments (through



Fencing to plantation site by community members of Chakamohanpur village, Kendrapada District, Odisha.

integrated coastal zone management) have been shown interest to promote mangroves, particularly in coastal Odisha. Under this, various activities have been undertaken such as restoration and afforestation of mangroves, generating awareness about various benefits of mangrove ecosystems, enhancing other rural livelihood opportunities, etc.

With funding from Centre for Environment Education (CEE), Rufford Small Grant Foundation, Mangroves for the Future (MFF) and Integrated Coastal Zone Management Programme (ICZMP), APOWA has taken the initiative to restore mangrove forests in the coastal Talukas of Kendrapada district of Odisha. Since the coastal communities have also realized the importance of mangroves, they have shown interest to voluntarily participate in the restoration Programme. At the village level, a community network was constituted such as 'Village Mangrove Councils (VMC)' which have taken the entire responsibility to restore mangroves around the village. Because of this, the households in the village are becoming a watch dog for the sustenance of the mangroves. Simultaneously, other livelihood opportunities also provided to the various households in the village in

order to reduce dependency on mangroves. As a result, some of the degraded land was restored with mangroves in a few coastal villages of Kendrapada. We have learnt that the vulnerable people in the coastal Odisha are interested to voluntarily participate in mangrove conservation. The government programmes for enhancing mangroves should consider people in the mangrove restoration process and also provide them alternative livelihood opportunities.

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- In the past, Odisha has experienced several devastating cyclonic storms.
- Climate change is likely to increase the frequency and severity of these cyclonic storms in Odisha.
- Mangroves have emerged as a natural barrier to the adverse impact of cyclonic storms in the state.
- Various agencies such as APOWA, CEE and MFF are working with the communities of coastal Odisha to restore mangroves as a means of resilience against cyclones and as a viable livelihood option.

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# Lucknow Declaration on Mainstreaming DRR and CCA in Development Planning

Based on the outcome of deliberations and discussions held in this Conference, on 20<sup>th</sup> October 2014 at Lucknow, we the participants of this workshop arrive at following conclusions which are to be adopted as Lucknow declaration on Mainstreaming DRR and CCA in Development Planning:

- Need for skilled person-power at level of SDMA & DDMA for key and specific needs of mainstreaming.
- There is need of multi-stakeholder platforms at various levels (state, regional, district and lower) that promote a process of shared learning of perspectives of vulnerabilities, identification, design and implementation of actions, that involve government, civil society, academia, NGOs and community.
- The assessment of damage from disasters is currently based on a broad estimate and is made at meso scale. Hence, it does not capture the micro variations (across villages/ towns), and leads to ineffective response actions.
- Climate downscaling data is available currently at agro-ecological zones (SAPCC) and needs to be refined at higher resolution (district levels).
- Improper siting of critical infrastructure (such as airports, solid waste dumping sites, hospitals, etc.) in hazard prone zones leads to higher damages.
- Infrastructure design codes/ standards in key sectors (housing, water supply, drainage etc.) need to be developed for reducing risk from disasters and climate impacts.
- There is a need to improve the availability of data for assessing disaster damages (/vulnerability) by sectors and to implement the monitoring mechanisms of adaptation related activities.
- There is need to strengthen system for monitoring of damages and vulnerability parameters. One way to address this concern is to have a separate section in DDMP.
- There is need to develop synergy between coordination and monitoring committees in SAPCC and DDMA, though both the entities are/will be headed by the District Magistrate.
- There is need for a dedicated funding for DRR and CCA integration though specific budget provisions exist for Disaster Management.
- Given the greater impact of disasters and climate change on poor and marginalized sections in community including women, children and the poor, mainstreaming needs to emphasize on addressing their needs and responses designed accordingly.
- Disaster Management theme has statute (DM Act 2005) and backed up by executive orders (as issued by Chief Secretary for integrating DRR and CCA in development plans). Similar statutes and executive orders are absent in the sphere of CCA.
- State level policy/ practice/ guidelines are very important and needed to actualize effective mainstreaming of DRR-CCA at district and lower levels. ■

- Ms. Chicu Lokgariwar,  
India Water Portal

- The mainstreaming of disaster risk reduction and climate change adaptation is necessary for the achievement of development outcomes.
- The Lucknow Declaration of October 2014 supports this mainstreaming across national and sub-national levels in India.
- The main action points of this declaration include the need for skilled person-power at the level of SDMA and DDMA, the need of micro assessments and multi-assessment platforms.

## Asia Europe Meeting-East Asia Summit in Delhi in 2014

Many of the member countries of Asia Europe Meeting (ASEM)-East Asia Summit (EAS) have faced enormous socio-economic losses on account of devastating disasters. With the rise of frequency and severity of disasters, ASEM 11<sup>th</sup> Foreign Ministers Meeting (FMM11) in November 2013 after the success of EAS-India Workshop on "Building Regional Framework for Earthquake Risk Management" laid down a Roundtable Meeting on Disaster Management for ASEM-EAS countries. The two days Roundtable was organised by Minister of Home Affairs and Minister of External Affairs, Government of India on December 4-5, 2014. It focused on use of technology to save lives and reduce response time and building capacities through sharing best practices, developing joint ventures amongst ASEM member countries and to launch Virtual Knowledge Portal (VKP), deliberations on the board structure and functioning of the VKP.

All India Disaster Mitigation Institute (AIDMI) introduced the Climate Development Knowledge Network (CDKN) work in the event and the scope of its projects in the region. ■

- AIDMI Team

## Regional Energy Node and Disaster Risk Reduction

India is a region wide node for energy transfers in South Asia. The existing node must be protected from disaster risks and the future growth must include protection from disaster.

To understand better the political and economic underpinnings that facilitate regional energy market formation and cross border energy trade in South Asia and to recommend strategies for its South Asian Regional Initiative for Energy (SARI/E) program, USAID (United States Agency for International Development) engaged Social Impact, Inc. (SI) to conduct a political-economy analysis of cross-border energy in the South Asia region in 2012<sup>1</sup>. More work is needed in this direction.

The study concluded that the countries of SARI-East (Bangladesh, Bhutan, India, Nepal and Sri Lanka)

are market-focused and poised to develop commercial trading arrangements that, in conjunction with the "virtual energy grid", can facilitate the expansion of energy trade among each of its five member countries. While India represents a stable core for SARI-East, SARI-West (Afghanistan and Pakistan) has neither a stable core nor a central engine for economic growth; making it a high risk/high return environment for the development of energy projects. Energy projects will lead investment portfolios in South Asia.

The concept of a Regional Energy Grid implies a series of physical connections among the countries of South Asia. The anticipated unification of the Indian electricity grid by 2014, combined with (a) the development of strategic, bilateral interconnections between India and its neighboring countries, and (b) the

potential expansion of existing electricity exchanges to encompass energy market transactions throughout the region, is building a platform for regional energy trade. This "Virtual Energy Grid" represents a realistic goal for South Asia over the next 10 years. And also an opportunity to creatively enhance the benefits and set aside the disadvantages.

India shares a border with each of its South Asian neighbors, except Afghanistan, the Maldives and Sri Lanka. When India is linked to each of these countries, as well as to Sri Lanka, by suitable high-tension, bilateral interconnections, India could serve as the nodal point for energy transfers around the region. This nodal role is not only important to climate compatible development debate but also to resilient economic development of South Asia. ■

- Mihir R. Bhatt

1 USAID (2012), SARI/E POLITICAL ECONOMY ANALYSIS USAID/INDIA. Final Report: Executive Summary. This publication was produced for review by the United States Agency for International Development. It was prepared by Social Impact, Inc. with Management Systems International, and Nexant.

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