Linking Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA) and Sustainable Landscape Development Goals in the Eastern Himalaya

Stakeholder Consultations on "Community perception of climate related disaster, preparedness and risk reduction A Report (Chungthang and Dzongu-North Sikkim; Rimbick and Darjeeling-Darjeeling) 2012

> Ashoka Trust for Research in Ecology and the Environment Regional Office for Eastern Himalaya/Northeast India Gangtok, Sikkim

I. Background

Disaster struck the Sikkim on 18th September 2011, when a powerful earthquake (6.9 on the Richter scale) shook Darjeeling, Sikkim and Eastern Nepal. More than 75 people perished, with most of the casualties being reported from Sikkim. Again there was widespread infrastructural damage caused by over 300 new and reactivated landslides. Several villages in North Sikkim were completely destroyed, others were cut off due to damaged roads, and in others, important local water sources were lost permanently due to altered hydrology. In none of these cases were local communities or government agencies prepared to deal with the human suffering, financial loss and physical damage that followed. Nor, it appeared, had planning been responsive to known regional seismic and climate-related risks.

In May 2009, tropical cyclone Aila swept over the Darjeeling Hills in West Bengal, India, pounding the steep hillsides with continuous rain for three days. The super-saturated soil cover liquefied and slid down-slope in dozens of locations. The storm claimed 25 lives in Darjeeling district and caused severe damage to roads, drains and other infrastructure. Some 300 villages in the Darjeeling Hills were affected and over 500 homes were damaged or destroyed. Crops in at least 50,000 ha of agricultural land was lost during the storm Breaches occurred at two major dam projects on the lower Tista River. Because Aila happened shortly before the onset of the monsoon, the subsequent intense rainfall exacerbated the destruction and hampered rescue and relief operations. In terms both of population numbers and area affected, such extensive damage was unprecedented.

Ashoka Trust for Research in Ecology and the Environment, Regional Office for Eastern Himalayas in Gangtok, Sikkim has been funded by START for a project "Linking Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA) and Sustainable Landscape Development Goals in the Eastern Himalaya".

The overall objective of the proposed work is to strengthen the climate resilience of socio-ecological systems in the Eastern Himalaya. Our longer-term goal is to develop and pilot a regional model for the integration of climate change information into risk reduction planning, and—more broadly—into rural development planning at the landscape scale. This model will combine four components: 1. Stakeholder perceptions assessments; 2. Knowledge synthesis, including preliminary climate modeling; 3. Capacity-building of local CBOs, NGOs and civil society organizations, and 4. Improving capacity of policy-makers by sharing research outputs and results on the ground. This process is necessarily place-based, but elements will be replicable in other areas including other parts of South Asia.

One of the initial activities of the project is to have wide scale consultations with the stakeholders in the project sites both at the state, district and village levels. The key objectives of the workshop were: 1) To communicate to key stakeholders about the objectives, activities and outcomes of the project. 2) To ensure that the identified project sites are appropriate to the context of disaster. 3) To understand the perception of key stakeholders on familiar and novel risks, drivers of threats, traditional coping mechanisms, expectations and understandings of climate-related changes, and risk reduction needs, lessons of current disaster management mechanisms

II. Methods:

- 1. Presentation of project objectives, activities and outcomes
- 2. Group work
- 3. Presentation of group work

III. Results/Outputs: The report focuses on the third objective of the workshop and the outputs documented here are about their preceptions from experience and observations

A. Key risks and drivers of disaster North Sikkim Chungthang:

Past disasters: Stakeholders from Chungthang discussed past disaster events like the devastating landslides that occurred in their area in 1978-79, an earthquake in 1980 and forest fires between 2000 and 2004- where 500 ha of forests were destroyed.

When asked about the cause of these disasters the stakeholders attribute it to beliefs like "sinful living", "breakdown of social traditions" but they also mention and "carrying capacity"- increase in population and demand. Some other reasons that were mentioned were deforestation, lack of land protection and diversion of water into dam and even glacier melt and global warming. Some other stakeholders identified "non-environ friendly way of life"- over use of plastics and improper management of their disposal, solid waste management where materials are dumped on the sides of hills, into rivers or land fills as risks. Some of the stakeholders identified climate change as one of the key drivers compounded by the impact of climate change on forests and other vegetation.

Dzongu

Stakeholders in Dzongu perceived road construction to be important for the development of their area but also felt that large-scale constructions like roads could be a key driver for disasters. The stakeholders also felt that there were many Government schemes like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Pradhan Mantri Gram Sadak Yojana (PMGSY) which translates to Prime Minister's Rural Road Construction Scheme where construction of road is at the centre of all activities. However no evaluation has been conducted from an environment and disaster perspective on these schemes to gauge their sensitivities to disaster and environment. Therefore the general perception was that DRR was not included in the planning process at any level from the local to the national level.

Stakeholders also expressed that hydropower dams planned and those being constructed to be a key driver of disaster in the region. They were apprehensive about the impact of a proposed dam on the environment of the villages in Dzongu and the livelihoods of the communities. Communities mentioned the 1984 disaster where the Manaul was affected and there was a rise in the local river and which lead to 3 other incidents in the area.

Darjeeling

Communities from around the Singhalila area observed that work on the second phase of the Ramam Hydropower project to be a major driver for future to disaster in the lower Singhalila area where most of the villages around the Singhalila National Park are located. Historically about 10 years ago, these areas started facing a large demographic change with increased population pressure resulting into more settlements. Inappropriate ways of construction was perceived to be one of the major drivers of disaster-particularly landslides. Agricultural practices were also observed to have decreased in the area as villagers felt that it was not "paying". Communities also expressed the drying up of water sources especially because of the deep tunneling activities that were disrupting the water channels. They also perceived that these activities, explosives used deep down in the earth could result in the loosening of soil that would lead to landslides in the long run.

Like other rural areas in the Darjeeling district, villages in the Singhalila landscape have many government sponsored development programmes. These mainly include building rural roads. Heavy machinery is used in these fragile spaces. Improper drainage in construction of roads and settlements make these areas vulnerable to landslides thus increasing the risk of an escalating disaster. Additionally the communities also perceived that some of the fragile areas of the landscape were threatened by other infrastructure construction and also non-treatment of existing landslides close to human habitation villages and in public places like schools. The other driver of disaster in the area was perceived to be the increase in demand for fuelwood with the growth of population resulting in the clearing of forested land and exposure to soil erosion and landslides in these areas with steep topography.

B. Coping mechanisms

Chungthang

Experiences of preparedness: Stakeholder consultations revealed that the coping mechanisms of these disasters were not well thought out and there was severe lack in all sectors of planning for disaster risk reduction and preparedness. Most of the coping mechanisms were reactionary and entirely dependent on the government line agencies like-the district line agencies or the security forces in the border or private companies building dams in the region. In the workshop, stakeholders mentioned not a single indigenous form of coping mechanism. The coping mechanisms mentioned were only in the form of relief and rescue and later rehabilitation. One of the key things that stood out was that the entire planning process of these disaster prone areas had the approach of "What after the disaster?" and no sector addressed the question "What before the disaster?"

The Into-Tibet Border Police (ITBP) is stationed in the border areas of the Himalayas helped the communities and the general public to cope by providing necessities like food, shelter and medicine. Institutionally four nodal agencies were setup in order to help cope with the disaster relief and rescue. ITBP is also mandated by the National Disaster Management Authority (NDMA) as the frontline organization on disaster preparedness from the village, state and national levels and is supposed to be ready within half an hour to one hour for providing firsthand relief materials like rations, electricity, storage, clothing, shelter, medicines,

The State Disaster Management Authority (SDMA) which has been set up as a requirement of the National Disaster Management Act has Block level and Panchayat level units and these with the Sub-Divisional Magistrate in the lead comprise of the Incident Command System and the Quick Response Team (QRT). This unit was at the centre of all the activities in the site coordinating the rescue and relief operations in the affected areas. Representatives from this unit also expressed that communication to affected local communities especially in remote areas and with no good road network were the key bottlenecks for managing the disaster after the incident. The unit also experienced that the affected communities were not aware about the relief and rehabilitation provided and many of them approached the higher authorities in the state capital rather than taking the facilities available at the Block level.

Dzongu:

The workshop interactions revealed that the communities were not prepared for the disaster and there was severe lack of awareness and sensitivity on disaster. However they felt that the social capital in the villages was one of the best resources available and was effective in most affected villages. Therefore implementation of disaster management and policies in future should consider these community-based efforts and the large social capital available. They felt that nature will take its course in the area but there has to be capacity enhancement on preparedness for disaster. Some of the suggestions were for land management- Terracing of agricultural land, plantation of trees and bamboos in the identified vulnerable areas and protection walls along the streams that flow through the villages which become the primary cause of disaster in the villages.

One of the main observations in the recent disaster was the impact on the entire communication system and mechanism in the area and it became non-existent for the communities and government authorities. The other factor that affected disaster management was road transport, which was almost absent for weeks. Planning for helipads in and around such disaster prone areas has to be very strategic as it is the only form of transport especially for life saving activities and first line rescue and relief operations. This was made difficult with the presence of the helipad in only one axis of North Sikkim while the Dzongu valley, which was the most affected area lies in another axis.

C. Lessons learnt in disaster management and preparedness *Chungthang*

In sites like Chungthang in North Sikkim which became land locked after the earthquake especially due to the landslides there were many bottlenecks for disaster response for the state as well as stakeholders from the non-government sector. Some of these included

1. Breakdown of Power supply: Severe shortage of power and the complete lack of an alternative arrangement for power supply made relief and rescue operations especially in the dark very difficult. One of the strategies adopted was the provision of Digiset light sets to the communities and the wider public by the National Hydropower Corporation.

2. Breakdown of communication system: There was a complete breakdown of the communication system both the wired and the wireless. In fact the participants observed that the authorities were confused about the location of disaster due to collapse of communication. Communication, which forms the backbone of such rescue and relief operations were not available for several weeks and over several months in certain places of North Sikkim. Thus it was almost impossible for authorities to visit these sites or send over rescue teams for relief and medical attention. These observations indicate a complete lack of preparedness for disaster to reduce the risk because there was no other form of alternative communication channels in those crucial hours after a disaster of such a scale. Communications tools like Satellite phones that are appropriate in situations like these are considered illegal because of the government policy on the use of such instruments.

3. Lack of clean drinking water-The stakeholders also identified not having clean drinking water after the disaster as a complete lack of preparedness in terms of town planning in Chungthang town. For several days the communities of this place did not have water for drinking and other sanitary purposes. There was no power to pump water from the river, which runs adjacent to the town. Therefore from a health perspective this was identified as a key indicator of preparedness for such disaster prone places.

4. Breakdown of road transport: The topography of the affected areas is very steep and difficult and the main highway passes along the river and these were dotted with landslides and slips. Every year landslides ranging in size and intensity affect these roads. The main aftermath of the earthquake in Sikkim was the land slides and slips in all these vulnerable spots. Therefore roads were completely closed down for months in certain places. Heavy machinery was put into service to clear many of these roads while chartered helicopters ferried people out of the area but this was very resource intensive with 300 sorties for 1000 people.

5. Food insecurity: Importance of public places like the Gurudwara, schools and community halls were experienced as these were used as communal kitchen where almost 2000 people were fed. Depleting food stocks in most of the affected sites were also indicators of the level of preparedness in North Sikkim and this continued for several months after the disaster struck and till the road transport to many of these remote areas were restored.

6. Reactionary response: According to most of the stakeholders the disaster response was very reactionary and the authorities, communities, the armed forces, government line agencies were not prepared with any plan or strategy in place. This was despite the fact that the areas in North Sikkim are known to be prone to disasters especially landslides which in this case was the aftermath of the earthquake. One of the key indicators of this was the focus of most of the rescue and relief operation in the semi-urban areas or along the highway. There was complete lack of preparedness to address the disaster impacts in the rural and remote areas.

7. Implementation of NDMA: Although Sikkim has policies and plans for disaster management under the aegis of the NDMA, the implementation was not found to be as effective. For example in Chungthang Block the Quick Response Team which is mandatory under the NDMA comprises of one officer level person in the team while others are people labourers who are responsible for carrying out physical activities. Therefore even this team lacks the any decision making power that a committee like this should ideally having. Capacity of the committee in terms of proper equipment, safety gear, training on relief and rescue is completely lacking.

Dzongu

1. Implementation of government funded schemes: The community representatives in Dzongu felt that there are many government schemes that have come to the area but the level of success is very low in terms of implementation. Government formed local groups like-Forest management committees, Eco-

Development Committees and Watershed management committees were present in the area planning for conservation and disaster management but the implementation of their plans and activities were considered a failure. Some of the issues that need focus in the area that would help disaster preparedness were-1) waste management especially controlling the intense use of plastics in the area and creation of models for best practices in waste management; 2) road construction without any drainage in the area thus affecting the villages down hill.

Darjeeling:

1. District Disaster Management Authority: The key stakeholder for disaster management in the district observed that there were static problems in general administration and therefore both the disaster management and preparedness are hampered. The District Disaster Management Authority (DDMA) personnel are not trained, no equipment and instruments available to carry out their duties effectively. The approach has always been reactive with a "post calamity response". Transfer of the officers in charge of disaster management on a regular basis was another issue as this does not give continuity to what one person has initiated and therefore it is always a process of re-inventing the wheel. One of the impediments identified was that the disaster management structure and system are virtually absent.

2. Disaster management policies: Till 2005 landslide was not identified as a disaster according to the Government. The spatial distance between the policy makers and the areas vulnerable to disaster was also perceived as one of the impediments of generating disaster preparedness. The disaster management policy is blanketed for 8 districts of the northern part of West Bengal. However to implement this is a challenge as the administrative set up of disaster prone area like Darjeeling is completely different. Despite the work on monitoring of landslides going on along the 2 main highways of the district – National Highway-55 and National Highway-35 recent record are absent for authorities like Disaster Management Authorities. Stakeholders also opined that current policy provisions cater to post-disaster management activities and around Rs. 35 crore is available. However, the approach of preparedness and disaster risk reduction before disaster occurrence is virtually non-existent. The district is yet to come up with a district management plan that is expected to be developed in the next 2-3 years.

2. Lack of political will: The key implementing institutions of any disaster management or preparedness strategy is at the Gram Panchayat level. However in the Darjeeling Hills the local government or Panchayat bodies have not had an election since the past 7 years. Now with the new administration structure in the form of the Gorkha Territorial Administration (GTA) the role of these institutions is not very clear. At the same time, the stakeholders opined that there was political interference in everything that is implemented at the village level be it any government sponsored development projects or relief and rescue operations post-disaster.

3. Livelihoods and disaster linkages: Stakeholders who have been involved in community level disaster management and preparedness activities in the Darjeeling hills observed that until this linkage is realized the risk reduction and preparedness among communities will never be achieved. There seems to be very little or no linkage to disaster preparedness and livelihoods currently in all these disaster prone sites. Some examples were loss of livestock in landslides, which are one of their valuable assets and insurance for these losses; loss of crops and their insurance. These insurance schemes to help poor and marginalised communities are completely lacking.

4. Networking for information: Information sharing in pre-disaster stage was identified as one of the most important activity among government institutions and civil society. ATREE was suggested to do a study of rainfall pattern. Information sharing for preparedness through text messages in phones was useful but this became limited by government's policy on limiting the number of such messages that could be sent in one day. This was due to a security policy. The use of the radio were experienced to be either very expensive and items like disaster preparedness treated as sensitive news and highly controlled. The internet would have been the most appropriate tool to be used but the connection to this facility in these disaster prone rural areas is very poor. However this was considered an important tool in the urban areas.

IV. Issues Flagged:

- Presence of a government prepared vulnerability map at the Gram Panchayat level in Darjeeling district, which should be used by the project and also updated.
- Empirical information to link disaster to climate change. Presence of an extensive discourse on linking disasters to climate change is part of a larger discourse. Eg. Heavy spells of rainfall have resulted in numerous landslides. Now there is also enough literature suggesting heavy spells over a day in parts of Sikkim as indicators of climate change as per Indian Metrological Department publication. These need to be further analysed.
- Sensitization of religious leaders to play a vital role in societies for advocating disaster preparedness.

Annexure1-LIST OF PARTICPANTS				
SL.NO	Name of the Participant	Organisation		
	North Sikkim-Chungthang			
1	Hanu Lepcha	General public		
2	Gyautson Lepcha	General public		
3	Datuk Lepcha	General public		
4	Noshay Lepcha	General public		
5	Netok Lepcha	General public		
6	Dawatshring	General public		
7	Norbu Lepcha	General public		
8	G. Pradhan	General public		
9	Chumee Sherpa	Integrated Child Development Services (ICDS) Supervisor		
10	Saraswati Pradhan	Integrated Child Development Services (ICDS) Supervisor		
11	Kezang Lachungpa	Block Disaster Manadement officer		
12	Azom Lepcha	Quick Response Team of the Sub-Divisional Magistrate		
13	Norzeng Lepcha	Energy Supplier		
14	Jampal Lepcha	Public		
15	Sonam Lepcha	Public		
16	Phutuk Lepcha	BOP		
17	N.G Sherpa	BAC Chungthang		
18	Suraj Sharma	Quick Response Team of the Sub-Divisional Magistrate		
19	T.wangchuk lepcha	Public		
20	Kumar Lepcha	Panchayat		
21	Lhundup Lepcha	Public		
22	Choaup Lepcha	Panchayat Secretaty Chungthang		
23	M.K.Chetri	Public		
24	Phurmit Lepcha	Quick Response Team of the Sub-Divisional Magistrate		
25	Narmu Lepcha	Public		
26	D. V Rao	SEW Infrastructures Ltd.		
27	T.R Dhman	Teesta Urja Company		
28	N.S Bhandari	Indo-Tibet Border Police		
29	S.K Rohilla	Indo-Tibet Border Police		
30	Chewang Lhamu	Police Department		
31	S.R. Marak	State Bank of India		
32	Dechen D.Bhutia	Department of Health		
33	Dr.Tshring Zombd	District Medical Officer		
34	Raj Kumar Yadav-IAS	Sub-Divisional Magistrate, Chungthang		
	North Sikkim- DZONGU			
1	C.D Lepcha	Community member Passindang		
2	Namgyal Lepcha	Mutanchi Lom Aal Shezum, Passindang		
3	Namgay Lepcha	Mutanchi Lom Aal Shezum and Head Maste Lingthay Primary School		
4	Sonam Dupden Lepcha	Mutanchi Lom Aal Shezum, Lingdong		
5	Sonam Wangdhup Lepcha	Community memberPanang		
6	Tenzing Lepcha	Tourism Entrepreneur Hee Gyathang		
7	Gyatso Lepcha	Tourism Entrepreneur Passingdang		
8	Neema Lepcha	Panchayat Secretary, Pentong		
9	Rickden Lepcha	Community member Pentong		

10	Lhendup Lepcha	Ecodevelopment Committee Pentong
	Singhalila Range - Rimbik	
1	Neema Sherpa	Panchayat Members
2	Johnson Rai	Panchayat Members
3	Binod Rai	Red Star Club, Dara Gaon
4	Sancharani Lepcha	Mahila Mandal Samathi
5	Salim Tamang	Krishi Kalyan Samathi
6	Maitaraj Rai	Srikhola Social Group
7	M.C Rai	Sapi Social Group
8	Mingma Sherpa	Real Rimbick United Club
9	Ambar Rai	Mitra Milan Yua Sang
10	Officer, In-charge of Lodhoma Police Station	
11	Uday mani Pradhan	Tourism entrepreneur
12	Chand Marda	President of Rimbik Business Association
13	Department of Health, Lodhoma Primary Health Center	
14	Durdershi Pradhan	School Teacher
15	Sanjeev Dahal	School Teacher
16	Milan Pradhan	School Teacher
17	J.N Chettri	School Teacher
18	Niraj Subba	School Teacher
19	Pemba Sherpa	Panchayat level Disaster Management authority
20	J. B Rai	Department of Livestock and Veterinary
12	Subashis Sengupta	Hoteliers Association
22	Deepan Tamang	Department of Forest
23	Passang Dawa Sherpa	Mahasang
24	Kamal Bhatarai	Press
25	Officer Incharge	Seem Suraksna Bai (Paramilitary)
26	Nirmal Pradhan	Gram Panchayat secretary
	Darjeeling town	
1	Christopher Lepcha	Anugyalaya DDSSS
2	Sudeep Jerome Bomzan	Anugyalaya DDSSS
3	Roshan Rai	Darjeeling Ladenla Road-Prerna
4	Mukund Malla	Tourism Entrepreneur and Eastern Himalayan Guides Welfare Assocn.
5	Uday Raj Chettri	Society for the Promotion of Youth and Masses – Darjeeling
6	Elvis Cormuz	Darjeeling Goodwill Centre
7	Deepandra Sunar	WWF India
8	Bharat Pr Rai	Federation of Societies for Environment Protection
9	Wg Cdr Praful Rao(Retd)	Save the Hills
10	Pasang D Lepcha	Mercy Corps-Community Health and Advancement Initiative Project

11	Dipen Tamang	Department of Forest
12	Mr. Arindram	Officer in Charge District Disaster Management Authority, Darjeeling
12	Purnima Sherpa	Deputy Superintendent of Police, darjeeling

Annex 2-Workshop document

Stakeholder consultation meeting of the project "Disaster Risk Reduction (DRR)" project Chungthang, North Sikkim-3rd September 2012 Dzongu, North Sikkim-22nd Spetember 2012 Rimbick-Darjeeling 17th September 2012 11th October 2012

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Outcomes of the workshop

1. Identification of key risks and drivers of disaster

- 2. Documentation of coping mechanisms
- 3. Lessons of disaster management mechanisms

Activities:

- 1. Presentation of project objectives, activities and outcomes
- 2. Group work
- 3. Presentation of group work