United Nations Development Programme – Bangladesh

PROJECT COMPLETION REPORT

(01 April 2008 – 30 June 2010)

Earthquake Risk Reduction and Recovery Preparedness Programme in Chittagong Hill Tracts Area

Chittagong Hill Tracts Development Facility (CHTDF)

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Chittagong Hill Tracts Development Facility (CHTDF)
IDB Bhaban (7th Floor), Shere-e-Bangla Nagar
Agargaon, Dhaka-1207

July 2010

PROJECT SUMMARY

Award ID:	00011503
Project Title:	Earthquake Risk Reduction & Recovery Preparedness Programme in CHT Area
Project Start Date:	01 April 2008
Project End Date:	30 June 2010
Project Budget:	US$ 800,000
Implementing Partner:	UNDP Bangladesh
Responsible Parties:	UNDP in partnership with the Ministry of Food and Disaster Management (MoFDM) and the Ministry of Chittagong Hill Tracts Affairs (MoCHTA)
Objective:	To strengthen the institutional and community level capacity to plan and implement earthquake risk reduction strategies and disaster preparedness and recovery in the three districts of the CHT region.
Long term Outcome:	Human security is strengthened and vulnerability to social, economic and natural risks is reduced.
Short term Outcome:	Institutions, structures, policies and capacities for disaster risk management are developed in selected earthquake vulnerable areas in CHT
Major Outputs:	Major key outputs are as follows: • Seismic hazard and vulnerability assessment database/ knowledge products • Institutions and communities trained on disaster management • Public made aware on the risks and how to cope with earthquake hazard • National and local stakeholders provided with information, lessons and best practices at international level on earthquake risk management
Strategies:	The project is implemented through (1) development of a scientific database of knowledge and facts on existing and probable risks and vulnerabilities; and (2) local institutional capacity building providing training and awareness building activities.
Beneficiaries:	The ultimate beneficiaries are the people of the Chittagong Hill Tracts (CHT) area of Bangladesh, particularly in the municipalities of Rangamati, Bandarban and Khagrachari; direct beneficiaries are the local institutions in these municipalities
Contact Person:	Patrick Sweeting, Project Director, CHTDF, UNDP

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ABBREVIATIONS

ADPC	Asian Disaster Preparedness Centre
BBS	Bangladesh Bureau of Statistics
BCPR	Bureau of Crisis Prevention and Recovery
BNBC	Bangladesh National Building Code
CDMP	Comprehensive Disaster Management Programme
CHT	Chittagong Hill Tracts
CHTDF	Chittagong Hill Tracts Development Facility
CHTRC	Chittagong Hill Tracts Regional Council
DMC	Disaster Management Committee
ERRP	Earthquake Risk Reduction & Recovery Preparedness Programme
GIS	Geographical Information Systems
GPS	Global Positioning Systems
HAZUS	Hazards United States
HDC	Hill District Council
IEC	Information, Education and Communication
MoCHTA	Ministry of Chittagong Hill Tracts Affairs
MoFDM	Ministry of Food and Disaster Management
MW	Micro Wave
NGO	Non-Government Organization
PBF	Plate Boundary Fault
PRA	Participatory Rural Appraisal
PIC	Project Implementation Committee
RC	Reinforced Concrete
SAARC	South Asian Association for Regional Cooperation
ToT	Training of Trainer
UNDP	United Nations Development Programme
UNO	Upazila Nirbahi Officer
UP	Union Parishad

EXECUTIVE SUMMARY

Bangladesh lies in an active tectonic zone which extends throughout Himalayan, Shillong plateau and Rakan-Yoma region and parts of the adjoining Indo-Ganges flood plains (Brammer 2004). In the past, between 1869 and 1950, there have been seven major earthquakes with magnitude exceeding 7 on the Richter scale that occurred in the region which had some effects on Bangladesh. Of the seven events, two (1885 and 1918) had their epicenters within Bangladesh.

Chittagong Hill Tracts (CHT), one of the regions in Bangladesh, lies within the periphery of Bengal basin which is one of the most seismically active zones in the world. Located in the confluence of India, Burma and Eurasia plate, the land is extremely prone to earthquakes and in the past has experienced some of the earthquakes in 5.1 to 5.5 richter scale had recorded.

Considering the potential vulnerabilities and risk, the Chittagong Hill Tracts Development Facility (CHTDF) of the United Nations Development Programme (UNDP) has initiated the Earthquake Risk Reduction and Recovery Project (ERRP) in the three major municipalities of Chittagong Hill Tracts region i.e.; Rangamati, Khagrachari and Bandarban. The project was designed to strengthen the institutional and community level capacity to plan and implement earthquake risk reduction strategies and disaster recovery preparedness in the CHT region.

The project has provided support to the government to build a database of information and maps related to seismic hazards, risks and vulnerabilities across all three districts of the CHT, through desk review, surveys and assessment. With these data, the vulnerability of buildings (residential, commercial and mixed), lifelines (water supply, road and electricity supply line) and other critical infrastructures have been assessed.

At the same time, the project has raised awareness of municipal officials, staff, community people, masons, schools children, religious leaders and professionals on building codes and good construction practices, and provided first responder training in disaster prone areas and supported CHT municipalities, wards and communities to develop disaster preparedness plans.

The CHTDF has established a mechanism through block grant and Letter of Agreement (LoA) where each municipality has been given the opportunity to manage and implement disaster management activities. The municipalities have established Disaster Management Committees (DMC) for better coordination and management of disaster issues and incidents.

This pilot project developed the basic data, tools, knowledge and institutional support mechanism that are needed in every municipality in order to mitigate the risks brought about by a disaster like an earthquake. The project has also developed the means to estimate damages in case such disaster occurs. It has proven that awareness and knowledge of how each member of a community can contribute to risk prevention and how to support each other in the event of a disaster.

At the end of the project, the local and national governments as well as community leaders have unanimously adopted way forward strategies to ensure disaster preparedness. Though it's a case study, the results of the project will serve as a challenge for the UNDP and the Government of Bangladesh on how to replicate in other areas of the country and sustain disaster management program.

1. INTRODUCTION

1.1 Background

The Chittagong Hill Tracts (CHT), located in the south eastern part of Bangladesh, consists of three hill districts: Khagrachari, Rangamati and Bandarban. The CHT is home to 11 ethnic communities (as per CHT Accord), with each of them having their own distinctive language, culture, and tradition, and *Bengalees* – the majority ethnic group in Bangladesh.

The total area of the CHT is 13,295 square kilometers and the estimated population is 1.3 million. The region is geographically distinct from the plains, made up of very steep, rugged hilly terrain and in many places, dense bamboo jungle. The rough terrain, remoteness of villages and various political issues associated with a protracted conflict have seriously impeded the economic development of the region.

The CHT is considered vulnerable to environmental and other risks because of its hilly terrain, difficult communications, ethnic and cultural diversity, the settlement patterns of its population and 25 years of internal conflict.

CHT lies within the periphery of Bengal basin which is one of the most seismically active zones in the world. Located in the confluence of India, Burma and Eurasia plate, the land is extremely prone to earthquakes and in the past has experienced some of the worst earthquakes recorded. The catastrophic earthquakes of 1962 and 1982 are believed to have been partially responsible for the diversion of the old Brahmaputra River, from the west of its main distributory (Arial Khan), to the present Pandma Channel. Since 1860 over 20 shallow and intermediate earthquake epicenters have been recorded in Bangladesh and the states.

Over the past 150 years, Bangladesh, and the surrounding region, has experienced seven major earthquakes (Mb=7). Specifically, CHT also faced several earthquakes like the Bandarban earthquake (Mb=6.0) on 21 November 1997, the Moheshkhali earthquake (Mb=5.1) on 22 July 1999 and the Barkol (Rangamati) earthquake (Mb=5.5) in July 2003 (source JRC 2005).

Considering the vulnerability of the CHT area to earthquake risks, and as part of the Regional Programme on Earthquake Risk Reduction and Recovery, the UNDP Country Team with representatives from the Ministry of Food and Disaster Management and the Ministry of Chittagong Hill Tract Affairs proposed in 2008 the establishment of The Earthquake Risk Reduction and Recovery Preparedness Programme (ERRP) in CHT area through the UNDP programme called Chittagong Hill Tracts Development Facility (CHTDF).

The project was designed to strengthen the institutional and community level capacity to plan and implement earthquake risk reduction strategies and disaster recovery preparedness in the CHT region. It has targeted 3 main municipalities (Rangamati, Bandarban and Khagrachari) taking into account that within these municipalities there are around a million holdings of brick masonry construction which are non-engineered. Furthermore, CHT road networks are also in high risk because of their locations by hill sides.

The project was implemented by CHTDF from April 2008 to June 2010 with a funding of $800,000.

1.2 Project Area

The project was implemented in the three municipalities of the three hill districts.

Rangamati

Rangamati Municipality (*Pourashava*) is located at the district head quarter of Rangamati Hill District. The district is surrounded by Tripura, India in North; Bandarban district and Myanmar in south; Mijoram, India in East; Khagrachari district and Chittagong district in West. Rangamati Pourashava is located at the central part of the district on the hill top and surrounded by Kaptai Lake in three sides.

Rangamati Pourashava is the only urban area of Rangamati *Sadar upazila (sub district)*, consists of nine *wards (sub division of municipality)* and 36 *mahallah (sub division of wards comprised of 3 to 4 adjacent communities)*. The total area of Rangamati Pourashava is about 64.75 square kilometers including part of Kaptai Lake and hilly forest area. Total household of the municipality is 13,620 (BBS Report, 2005). The town is developing a bit haphazardly mostly cutting hill side which is a threat to the newly developed settlements with possible landslides.

Bandarban

Bandarban municipality (*Pourashava*) is located within the administrative boundary of Bandarban Sadar upazila. Bandarban is bounded by Rangamati district on the north, on the east and south by Myanmar and on the west by Chittagong and Cox's Bazar districts. Total area of the municipality is 25.9 square kilometers and total number of household of the municipality is about 6,392 (BBS Report, 2005).

Major part of the municipality is surrounded by hills and river on the north and east. In the past, some development projects in this town have been implemented on the hills without proper consideration of its natural features. This has resulted to a number of natural disasters like land slides.

Khagrachari

Khagrachari municipality (*Pourashava)* is located within the Khagrachari Sadar upazila of Khagrachari district. Total area of the municipality is 13.04 square kilometers with a total household of 8,134 (BBS Report, 2005).

A big part of the municipality is located on plain land. Major structure type of the buildings in this town is a combination of masonry buildings, bamboo frame structure and Reinforced Concrete (RC) structure. The town is comparatively low in building density and fine grain in spatial distribution.

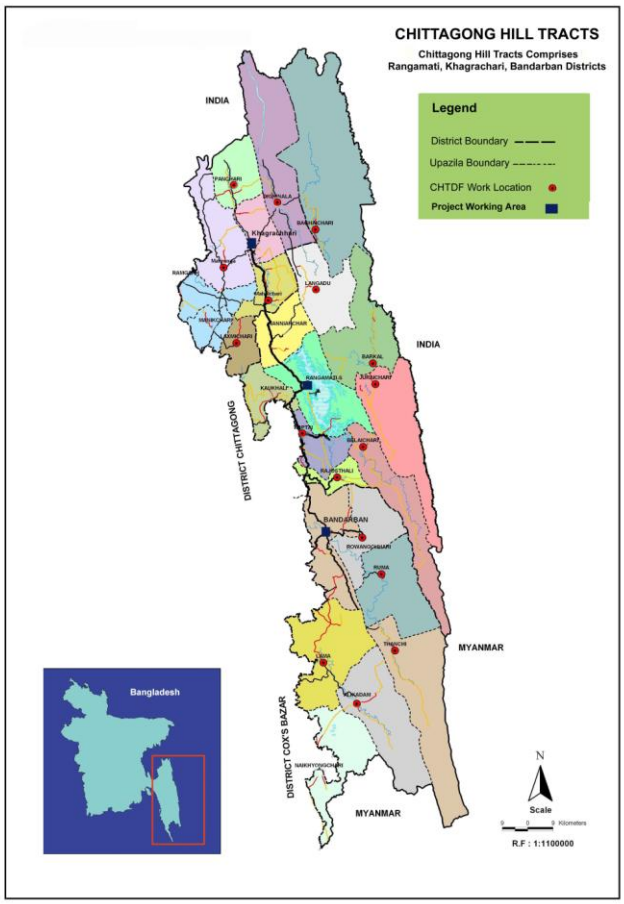

Figure 1.1: Project Area Map

1.3 Objectives and Major Activities

The overall objective is to strengthen the institutional and community level capacity to plan and implement earthquake risk reduction strategies and disaster preparedness and recovery in the three districts of the CHT region.

To realize the objective, the project has implemented a range of activities and produced corresponding outputs, which are outlined as follows:

- Developed standard seismic hazard and vulnerability maps for the Chittagong Hill Tracts districts.
- Strengthened institutional and community capacity building for earthquake resistant construction, preparedness and mitigation.
- Organized public awareness and information campaign activities in selected communities in the three hill districts,
- Developed and disseminated knowledge products
- Conducted seismic safety survey of the existing vital structures in the three hill districts and identified most vulnerable public buildings
- Shared and exchanged national and regional information, lessons and best practices on policy feedback and advocacy

2. KEY ACHIEVEMENTS

2.1 Seismic Hazard and Vulnerability Assessment

The CHTDF engaged the services of a non-government organization, the Asian Disaster Preparedness Centre (ADPC) to conduct an assessment on the seismic hazard and vulnerability of the CHT region. The study consisted of analyses of historical earthquake events to determine the magnitude, probability and impact of earthquakes. Physical vulnerability studies, through topographical and geological surveys and mapping techniques on the ArcGIS platform, were conducted to ascertain the potential risks that earthquakes will pose on land, housing and public infrastructure of the CHT.

The following are the major outputs of the assessment:

2.1.1 GIS-based Base Maps

As an input to hazard and vulnerability assessment, the project produced GIS (Geographical Information System)-based maps (representing basic infrastructures) relating to seismic hazard and vulnerability of the earthquake disaster in the three hill municipality areas.

The base maps served as tools to describe the seismic vulnerability characteristics of the existing building stock, essential facilities and lifeline facilities in the three hill municipalities. The topographic map, high resolution satellite images, relevant secondary and field survey data were combined to verify the accuracy of these base maps.

2.1.2 Building Inventory/Profile

The building inventory was also developed as a tool for assessing the seismic vulnerability of existing building and it includes data such as building structural type, number of floors, building occupancy class, number of building occupants, cost and seismic vulnerability characteristics of buildings.

2.1.3 Lifeline Data

Lifeline data i.e. water, electricity and communication system in the city area were likewise collected through field surveys and verified with satellite images.

2.1.4 Vulnerability Maps

Vulnerability maps of the infrastructures, essential facilities and lifelines were developed based on the building and lifeline inventories. Earthquake loss was estimated by means of scenario events and impact assessment, including building damage, critical facility damage and functionality effects on lifelines.

2.1.5 Land Use Maps

One of the outputs to the vulnerability assessment are base map and land use maps for the municipalities. The exercise was carried out based on extensive physical feature survey conducted during the month of October 2009 to January 2010. The entire physical survey was accomplished through GPS (Global Positioning System)-based advanced survey technique. High resolution satellite image was used to identify the features followed by plot to plot field verification.

Land use information were collected during physical survey through personal inquiry from the building/space users. For determining land use classification for this project, a wide variety of references including Bangladesh National Building Code (BNBC), land use provisions prescribed by other city plans of the country and academic references have been considered. After reviewing all these references, the consultant has worked out a land use classification that can serve the purpose of the project.

2.1.6 Building Database

No detailed GIS based detailed map of the study areas was available before carrying out of the study. So, the project has taken initiatives to develop detail GIS based base map to identify buildings and other infrastructures in the three hill municipalities. All data acquired and synthesized in preparing the base maps are stored and maintained in an integrated GIS database system which was handed over to the CHTDF office in Rangamati.

In Rangamati, 18,733 buildings were digitized from Satellite images. A total of 2,027 buildings were surveyed for phase I (preliminary) and for phase II (detailed) and phase III, 391 and 14 buildings has been surveyed respectively.

In Khagrachari, 11,936 buildings were digitized from Satellite images. A total of 1,273 buildings were surveyed for phase I (preliminary) and for phase II (detailed) and phase III, 128 and 20 buildings have been surveyed respectively.

In Bandarban, 7,410 buildings were digitized from Satellite images. A total of 1,268 buildings were surveyed for phase I (preliminary) and for phase II (detailed) and phase III 126 and 16 were surveyed respectively. All the surveyed buildings data were then entered to analyze using the HAZUS software.

2.1.7 Housing Pattern Study

For seismic vulnerability assessment, a study on existing building stock or housing pattern in terms of structure type, occupancy type, total floor space, number of stories etc. is a prerequisite.

Thus, a detailed survey was conducted to observe more than 38,000 houses in the three hill municipalities.

2.1.8 Geological Engineering and Seismic Hazard Maps

Subsurface investigation is essential to determine engineering properties of subsurface materials for the preparation of engineering geological and seismic hazard maps. A number of geological investigations were carried out in the project period in order to assess the seismic hazard. The investigations include geomorphic survey, subsurface investigation, shallow seismic survey, array micro-tremor measurement, single micro-tremor measurement.

Detail field work has been carried out to select the locations for geotechnical borehole based on different geomorphological and geological units in the study area. Subsurface investigation was conducted in 9 places for Rangamati, 10 for Bandarban and 11 for Khagrachari municipality with the highest depth of 30 meter. Split-spoon samplers have been used to collect disturb samples. Disturbed samples are used mainly for soil classification tests and visual classification.

Shallow seismic survey was conducted at 15 locations of each of Rangamati, Bandarban and Khagrachari municipalities respectively. The locations for shallow seismic survey were identified based on the geomorphic maps developed for these towns. Array

Micro-Tremor measurement was done in these three towns at 3 locations each in the respective areas. Single micro-tremor measurement was done at 32 locations in Rangamati and 31 locations each in Bandarban and Khagrachari municipality. Engineering Geological maps and Seismic Hazard maps were produced on the basis of these survey results.

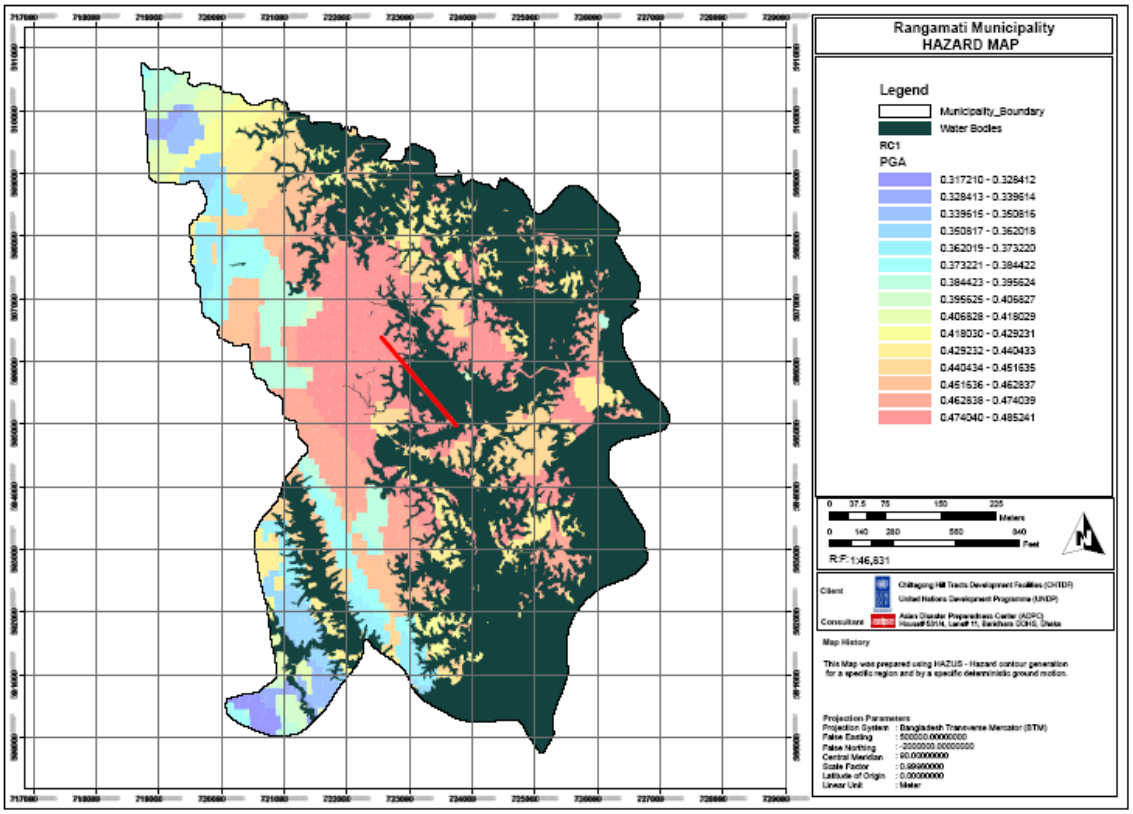

Figure 2.1: Seismic Hazard Map of Rangamati Municipality

2.1.9 Landslide Susceptibility Maps

One of the objectives of this study is to prepare landslide susceptibility maps of Bandarban, Rangamati and Khagrachari Municipality. Since the hilly terrain exists in these municipalities and settlements are increasing over the time, it is important to know about the potential landslide areas. The analysis of landslide susceptibility was performed based on the developed contour map, geomorphologic map and ground water table data of the project area.

Then the geomorphologic map and borehole data were interpreted into three geologic classes. From the ground water table and digital elevation model map soil condition at level of sliding was determined. After generation of the entire necessary maps, the geographic information system based natural hazard loss software HAZUS (Hazards United States) was used to determine the landslide susceptibility map.

All the acquired and stored information will be an important basis for the three municipal authorities for development of earthquake preparedness plan. The information also will be used for area development plan and municipality revenue collection purposes.

2.1.10 Vulnerability Assessment

Comprehensive analysis was done for vulnerability assessment buildings and lifelines of Rangamati, Bandarban and Khagrachari. For buildings vulnerability assessment three level surveys was conducted. Level-1 survey was conducted for 2027, 1268 and 1273 buildings respectively in Rangamati, Bandarban and Khagrachari municipality. Level-2 survey was conducted for 381, 126 and 128 buildings respectively for Rangamati, Bandarban and Khagrachari. A total number of 52 buildings were considered for Level-3 Survey from all three municipalities.

In order to assess the structural vulnerability of critical infrastructures, separate study was conducted to survey 52 buildings as critical infrastructure. These includes municipality buildings, fire service station, hospital building, telephone and telegraph buildings, district hill council building of the respective municipalities, one school each from the 9 wards under 3 municipalities. Several factors like plan irregularities, short Column effect, pounding possibilities. Buildings on slope land were considered during this study.

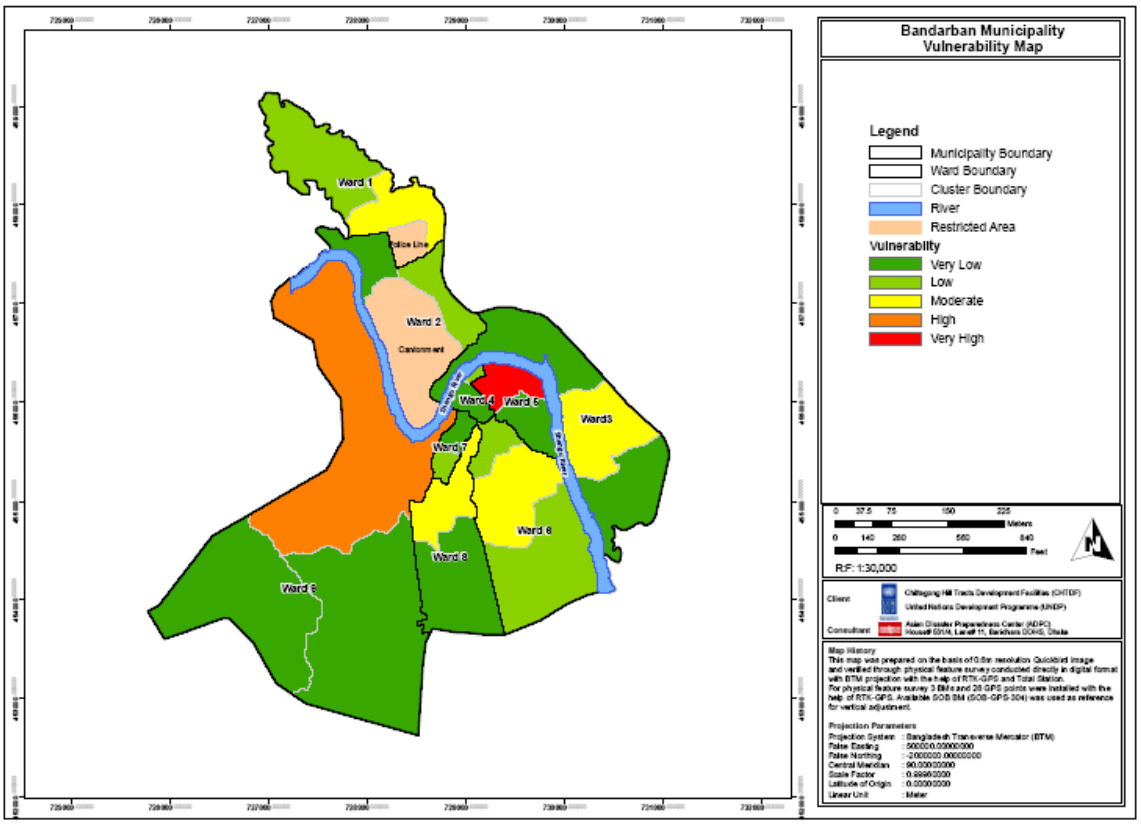

Figure 2.2: Vulnerability Map of Bandarban Municipality

2.2 Institutional and Community Capacity Building

The main activities conducted under this project component were training, workshops, drills and advocacy for capacity building and skill development of the relevant government officials as well as different cross sections of the community people living in the three hill municipality areas. These can be summarized as follows:

2.2.1 Grants to the Municipalities

One of the capacity-development mechanisms instituted by the project is through a grant mechanism where the municipalities were given financial support to hire technical persons who served as focal points on disaster management and purchase the necessary logistics support.

Table 2.1: Schedule of Block Grants to CHT Municipalities

Sl. No.	Project Initiative	Location / Place	Benefiting Organization or Community	Total Budget (USD)	Key Results / Outcomes
01	LOA with Rangamati Municipality	Rangamati	Rangamati Municipality	USD 50,925	Institutions, structures, policies and capacities for disaster risk management are developed and the vulnerabilities of communities are reduced & Disaster risk reduction integrated into development planning
02	LOA with Bandarban Municipality	Bandarban	Bandarban Municipality	USD 50,925	
03	LOA with Khagrachari Municipality	Khagrachari	Khagrachari Municipality	USD 50,925	

Through the project, three focal points regarding ERRP have been recruited in the three municipalities with the proper logistic support e.g. computer, printer, multimedia and so on. The focal persons have provided support to the municipalities in strengthening their capacities by conducting various trainings, meetings and workshops as agreed in the letter of agreements signed between CHTDF and the municipalities. The municipality and the project staff have developed their skills in preparing reports and documents using computer aided facilities.

2.2.2 Training

Basic ToT for Municipality Staff

A 3 day basic ToT on Earthquake Risk Reduction and Recovery Programme (ERRP) was organized for municipality staff members to enhance their knowledge and skills regarding earthquake preparedness and risk reduction. A total of 22 participants including 10 female staff have attended the training course. The training session covered the topics - participatory rapid assessment risk/ hazard assessment, discussion on vulnerability assessment process, risk reduction methods, preparedness, prevention and mitigation.

Participants of ToT course held in Bandarban

Ward Level Contingency Planning Workshop

The project has organized 27 contingency planning workshops at ward level in three municipalities with participation of 675 community people that include 310 women. All the members of the ward level Disaster Management Committees (DMC) also participated in the workshops. The main objective of the workshops was to assist the local communities in preparing ward level contingency plan including plans for mitigating and reducing vulnerabilities, risks and impacts of the earthquake. The participants also identified the local level potential resources in reducing earthquake vulnerabilities.

As an output of the workshop, the participants had formed four committees comprising five members of each for search and rescue, first aid support, shelter management and relief management at ward level. Roles and responsibilities for each committee members have been spelled out, so that they can coordinate well in case of emergency.

Training for Masons

The project has organized 13 training for the municipality registered masons to promote safer building construction methods. The main objective of the training was to enhance the knowledge and skills of the local masons on the earthquake-resistant construction technology. A total of 220 three hill municipalities' registered masons including five women attended the training course. The trainings for masons were conducted with facilitation of the master trainers and included practical session on safe construction demonstration. The training course also focused on the basic principles and theory of earthquake-resistant construction technology and rules and regulations about Bangladesh National Building Code (BNBC).

Training for Private Builders

A one day training course was organized for the private builders in three municipal areas. The people living in the municipality areas and who applied to the municipal authorities for approval of the building design were nominated as the participants of the training course. A total 196 participants including 42 women attended the course in 10 batches. The objective of the course was to introduce the building code and housing construction by-laws among the participants. The course also included the topics on safe construction and government legislations that regulate the quality of building materials and safe construction practices.

Training for Work Supervisors

Most of the municipality Work Assistant / Supervisors who are engaged in day-to-day supervision of the construction activities have non-technical background. A 3 day training course was organized by the project for the work assistants of municipality and other institutions, who are regularly involved with construction activities of different infrastructures such as schools, public buildings, museums, government office buildings assigned by the organization. A total of 160 work assistants including 15 women have attended the training course in 8 batches.

The participants were benefited by enhancing their technical knowledge that would result in better quality control of public/private construction works.

Training for Civil Engineers

The project has organized a 4 day training course to train 31 civil engineers in two batches on application of the computer aided structural analysis software. The course

participant engineers have acquired technical knowledge on the use of the software in checking the building design submitted for municipality approval. This knowledge will expedite the approval process.

Training for Ward Level Volunteers

A one day training course was organized for urban volunteers to develop their knowledge on earthquake preparedness, first aid, and search and rescue operations. A total of 303 urban volunteers including 152 female were provided training in 12 batches.

Training for the Religious Leaders

Religious leaders were trained by the project to develop their knowledge on earthquake preparedness and risk reduction options. It was aimed that the religious leaders will work as the project agents to create awareness of the community people on earthquake preparedness and risk reduction options. Project has provided one day training to 125 religious leaders in 6 batches.

Practicing earthquake safe construction getting knowledge through project training

Ms. Nomita Chakma (58) lives alone in Dewan Para area of Rangamati municipality as her children are working outside of the town.

She owns 10 decimal of land and intended to construct a two storied building on it. Getting permission from Rangamati municipality, she started construction work, meanwhile her neighbor complained to the municipality regarding violation of building construction law through crossing the boundary line demarcated in the approved drawings.

The municipality investigation team visited the construction site and observed that the complainant also not followed the building construction rules.

In the meanwhile Ms. Nomita Chakma attended a training session organized for builders by Rangamati Municipality through financial and technical support of ERRP of CHTDF. She acquired primary knowledge on construction materials quality and introductory ideas about to follow building code in construction of earthquake safer building. Through this training she realized that the mason has misled her which eventually increased the construction cost but reduced resistance of the building against earthquake.

At discussion session, she emotionally expressed her views as "*thanks to my neighbour, who complained against me and I had to suspend my work. As soon as I go home, I will instruct the mason to construct the building following the building code to make it better resistant against earthquake*".

She had also expressed her satisfaction of the training as *"I would not be lived long, but I want to construct an earthquake safer building for my next generation to safe their lives from earthquake for a long period*".

2.3 Public Awareness Campaign/Knowledge Product

The project besides emphasizing on strengthening institutional capacity also highlighted raising mass awareness on earthquake preparedness at community level. Communities are amongst the most vulnerable group and there is a multiplier effect of educating the general public including women, children and elderly people. The following initiatives were implemented within the project period.

2.3.1 School Mock Drill

The main objective is to educate teachers and students to adopt necessary measures before, during and after an earthquake event to improve school safety. The following modules were carried out: sensitization; structural and non-structural vulnerabilities; school earthquake preparedness plan; school safety drills and guidelines for the teachers and students to cope with the situation before, during and after the earthquake.

Scholl mock drill session in Bandarban

The project has organized 30 school mock drills in the three municipality areas. Brief class lecture for school children to disseminate ideas about earthquake preparedness was also provided. Students were divided into several groups to play different roles during an earthquake. Demonstration took place in the respective school premises where evacuation routes were identified earlier and marked.

2.3.2 Earthquake Simulation

Three (3) simulations were organized in each of three hill municipalities involving 2,000 students and community members. The earthquake simulation covered step-by-step procedures for first responders rescuing people from collapsed structures.

The simulation sessions helped the participants to develop their knowledge on earthquake preparedness, rescue operation and first aid activities.

Earthquake simulation session in Rangamati

2.3.3 Household Level Awareness

Household level training sessions with participation of about 36,000 (1,800 households) people were conducted on earthquake preparedness in each ward of the three hill municipalities. This type of training is the first of its kind in the CHT. Posters and leaflets on earthquake risk awareness were disseminated / distributed among the participants during the household level training sessions.

17,000 sets of leaflets and 25,000 sets of posters on earthquake risk awareness were produced and disseminated / distributed among institutions, community people and

school children. The posters for school children awareness creation composed of the message on school evacuation plan, school drill and school safety tips. The posters for community people carried messages on safe building and nonstructural vulnerability.

In order to increase level of awareness the project has installed 12 billboards placed in the strategic locations of three hill municipalities. This billboard carried the message of earthquake vulnerability in CHT and kind of preparedness they can undertake even at family level. The project also published around 17,000 colour posters highlighting i) family level ii) structural iii) School level preparedness and iv) general awareness messages before, during and after any earthquake.

2.3.4 Celebration of National and International Day

The project led the celebration of the National Disaster Preparedness Day and International Natural Risk Reduction Day together with communities in the three hill municipalities. On National Disaster Preparedness Day, a public awareness campaign on disaster preparedness issues at household and institutional level was held with an outreach of 100 school students and community members. Information was disseminated on earthquake safety, preparedness measures and appropriate responses required in an earthquake situation.

2.4 Share and Exchange National and Regional Information, Lessons and Best Practices for Policy Feedback and Advocacy

2.4.1 Project Inception Workshop

Workshops were organized by the project team in the beginning of the project to share ideas, views regarding project implementation strategies. Participants were project staff, municipality staff and DMC (Disaster Management Committee) members in all municipalities. The project inception workshops helped municipality staff to plan and modify future strategies regarding earthquake risk reduction and preparedness.

2.4.2 Video Conference on Structural Vulnerability Analysis

A video conference on structural vulnerability analysis was held on August 17, 2009. The host of this conference was the Government of Japan (funding organization) and the key participants were project staffs in SAARC and technical professionals associated to this programme. Structural vulnerability analysis was one of the important activities under this programme. This video conference session helped the project staff to understand the task better from a practical point of view.

2.4.3 Regional Workshop

Throughout the project duration, regional workshops in Pakistan, India and Bangladesh were held. Representatives from the project and technical person from key stakeholders participated in the workshop to learn and share experiences from other countries.

The Bangladesh delegation to the ERRP regional programme coordination meeting in Kathmandu, Nepal on 10 – 12 August, 2008 presented the Bangladesh country programme to the forum. The delegation included the leader of the formulation mission and the project officer for the disaster management of the CHTDF. The delegation held a productive meeting with the Japanese delegation where issues around technical assistance were discussed.

The third ERRP Regional workshop held in New Delhi during 28-30 July 2009. The project manager of the project along with Director General, Disaster Management Bureau under MoFDM took part in the workshop to share Bangladesh chapter's activities. The workshop brought opportunities to share Bangladesh's experience and adopt new concepts from others as well as to replicate good learning since the same programme is being implemented in other SAARC countries.

2.4.4 Experience Sharing Sessions at Local Level

Nine experience sharing sessions at ward level and three sessions at municipality have been conducted on the outcome of vulnerability assessment. About 150 participants from different organizations including municipalities, MDC members, ward commissioners and community people were presented in the experience sharing workshops and shared their knowledge given their valuable suggestions regarding preparedness and reducing vulnerabilities in earthquake hazards.

Finally, a lesson learnt and visioning workshop has been conducted, where all the Mayors, policy makers and disaster management committee members were present. Total 28 participants attended in the workshop and expressed their views for municipality level future strategies and planning for earthquake preparedness and risk reduction.

2.5 Summary of Key Results

The conduct of the above activities resulted to the following outcomes:

2.5.1 Data and tools such as maps have been made available to assess the disaster vulnerability of the three municipalities. Further studies by the government or other institutions will benefit from these information and documents.

2.5.2 People were made aware and conscious of what contributes to disaster risks, what to do and how to cope up with during earthquakes. The knowledge gained will be shared to other members of the community.

2.5.3 Handbook was made available for training of trainers trained and on disaster preparedness who will replicate knowledge gained to other parts of the community.

2.5.4 Communities were organized to better coordinate and manage disaster risks in the event of earthquakes or other disasters.

2.5.5 National and local government officials were exposed to regional best practices and experiences on disaster management as basis for improving policies, laws and strategies.

2.5.6 Way forward strategies have been adopted by government and non-government institutions to sustain the ERRP.

3. MANAGEMENT ARRANGEMENTS AND PARTNERSHIPS

3.1 Project Management

The project was managed through the cluster DP&M (Disaster Preparedness and Management) under Chief-Implementation, CHTDF based at Rangamati. Like other programme clusters, the Cluster Leader, Disaster Preparedness and Management Cluster managed the programmatic aspects under guidance of Chief-Implementation. The project office was manned by three programme officers, one in each of three districts. CHTDF has offices at district level and the program officers of this cluster established a desk to manage district wise activities.

In each municipality, a Project Implementation Committee (PIC) was formed consisting of representatives of both parties. The PIC provided overall guidance in the implementation of programme activities as required in the Letter of Agreement with CHTDF.

At the Municipality level, there is a Disaster Management Committee (DMC) established by the Government to coordinate and manage disaster related issues such as preparedness, evacuation, rescue, relief and rehabilitation activities with municipal authorities. Ward Level Disaster Management Committee (WDMC) was also formed to manage and take care of their own ward activities related to disaster issues such as earthquake, landslide, flash flood, fire etc.

The project had recruited four personnel in each of the three municipalities as Programme Assistant (1) and Community Mobilizers (3). They were under the payroll of respective municipalities, so as to create a sense of ownership. Community Mobilizers were responsible for conducting ward level awareness sessions and to facilitate programme activities at grass root level. Programme assistants were responsible for providing administrative support to Focal person assigned by respective Municipality. In every ward, volunteer groups consisting of 11-12 members were formed. This group was responsible in creating general awareness on earthquake preparedness issues at the community as well as household level under the guidance of WDMC.

3.2 Partnerships

The project was formulated on the basis of a multi stakeholder's consultation across three hill districts and also at national and international levels.

At the international level, the project benefited from the regional programme being implemented across five SAARC (South Asian Association for Regional Cooperation) countries including Bangladesh, India, Nepal, Bhutan and Pakistan. The project opened opportunities for Bangladesh to learn experience and best practices from other countries having similar nature of work.

The project was also implemented emphasizing the partnership strategies with national level organizations like MoFDM through Comprehensive Disaster Management programme (CDMP) of UNDP. The three municipalities were the key partners.

As a result of partnership, the municipalities were given institutional support to work for the communities in reducing vulnerabilities and risks related with earthquake disaster. The project has extended the partnership building exercises up to the community level. The Disaster Management Committee (DMC) was formed at municipality level. These committees are now functioning to handle earthquake and other local disaster related

issues. The ward level DMCs were also formed to aware people at grass root level regarding earthquake preparedness and reducing vulnerabilities.

3.3 Financial Report

Out of the total $800,000 funds received for the project, total amount has been spent including GMS (**Annex 3**).

4. CROSS CUTTING CONCERN

4.1 Gender Equity

The project has considered gender equity in every aspect of the project. During formation of the various committees, in the selection of volunteers at ward level – participation of female were targeted at least 50%. Additionally, in all sharing meetings, female representatives participated, for the household sessions; participants were selected considering elderly women, pregnant women and widows.

4.2 Knowledge Management

The data collection tools, GIS data and maps developed and data analysis of the vulnerability assessment were documented by the consultancy firm contracted for the project study purpose. This report was shared with the management and other units of CHTDF, three hill municipality authorities.

Through the project, base maps in ArcGIS platform for three municipalities were made available. The database is now administered by the CHTDF Rangamati.

The project has also developed a Guideline on Earthquake Resistant Construction in the CHT context.

5. KEY FINDINGS, LESSONS LEARNT AND RECOMMENDATIONS

5.1 Key Findings

It is evident that through interventions of government and donor-funded projects in the CHT area, major socio-economic changes took place in these towns during the decade. Examples are fast growing population that brought about increased housing demand, and increasing land price in the built up areas and more stability in the political situation. There had been regulations to guide the town towards environmental friendly development. Despite that, weak institutional settings and faulty legislations led to environmental problems making the inhabitants vulnerable to different disasters like landslide, flooding water logging etc.

5.1.1 Vulnerability to Land Slides

In the three towns that were covered by the project, opportunities are expanding for them to become the major centers of the CHT region. This brings the need for a suitable land development and land use plan that would aim for an optimum use of the limited available lands towards a sustainable urban development.

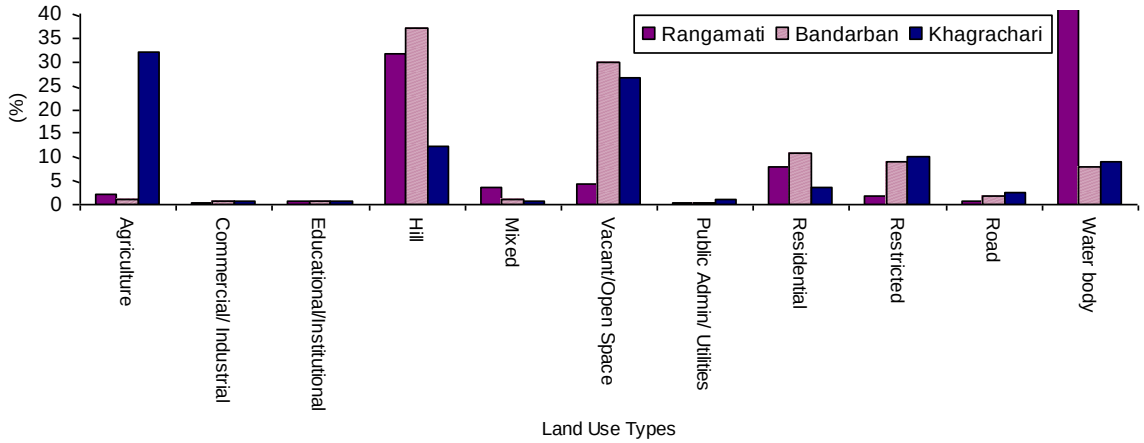

Figure 5.1: Land use Pattern in Three Hill Municipalities

The study results showed that Bandarban municipality has the largest land area for residential use. However, it has also the largest hilly area (37%). About 29% land of the municipality is still vacant which gives an opportunity for manageable and controlled development in the future.

It was observed that Rangamati municipality covers about 46% areas with lake and 32% is covered by hill. The other major coverage includes residential 8%, agriculture 2% and vacant land around 4%. The town is developed on the hill and development took place both on the top and slope of the hills. There is little opportunity for horizontal development in the municipality since it is located on the hill. About 4% land of the municipality is still vacant which gives very little opportunity for further development in the future (Figure 5.1).

Figure 5.1 also shows that about 32% of Khagrachari municipality is under agricultural use, 12% hill area, 10% restricted area with cantonment and government installations and 26% lands are still vacant. Among active urban uses, about 4% under residential use, 2.5% under road and rest comprises of commercial, public administration, public utilities, industrial and mixed uses.

5.1.2 Vulnerability to Building Collapse

The total number of buildings in Rangamati Municipality is 18,773 as identified during the physical feature survey. It is observed that the building type in Rangamati municipality is dominated by bamboo structure. About 66% of the houses of the municipality are of bamboo structure. About 16% of the buildings of the municipality are masonry and 11% is RC structure. Since this municipality of still not that developed, the number of RC & masonry structures are not that in big numbers.

About 86% of the buildings are under residential use followed by 8% commercial, 1% education, 1% industrial and 2.5% under different types of use.

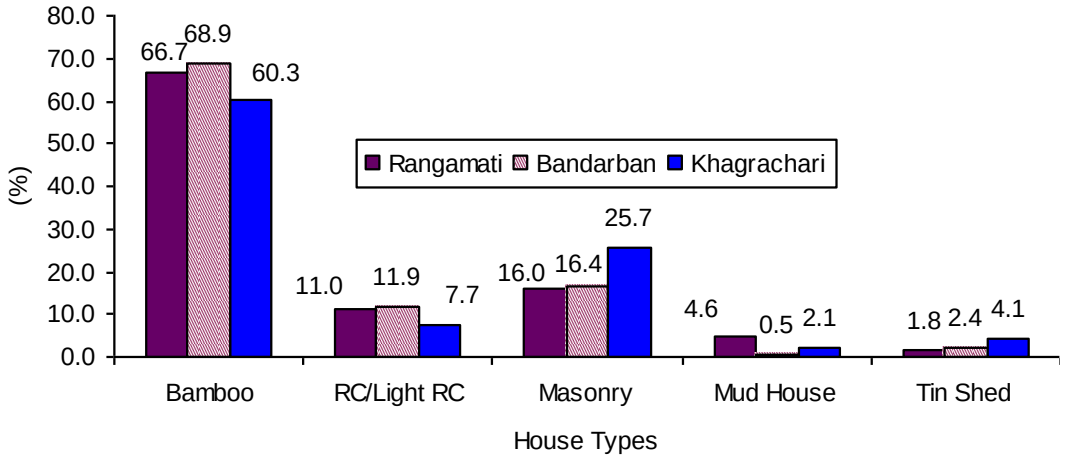

Figure 5.2: Housing Pattern in Three Hill Municipalities

A total number of 7,410 buildings have been identified in Bandarban Municipality. It is observed that the structure type in Bandarban municipality is dominated by bamboo houses. About 69% of the structures of the municipality are bamboo made. This is because of the traditional use of available building materials in the area (Figure 5.2).

The houses made of locally available materials are treated as *Katcha* structure with minimum threat to earthquake casualties. The other major structures are masonry buildings 16%, Reinforced Concrete (RC) 12% and Tin Shed about 2%. About 90% of the buildings in the municipality are of single storey and rest is above one storied. About 86% of the buildings in the municipality are under residential use. The other uses are mainly to support the dwellers of the municipality.

There are 11,936 buildings identified in Khagrachari Municipality. It was observed that the building type in Khagrachari municipality is dominated by bamboo structure. About 60% of the buildings of the municipality are of bamboo structure. This is because of the traditional use of available building materials in the area. The houses made of bamboo and other available materials are locally treated as Katcha structure with minimum threat to earthquake casualties. The other major structure are 26% masonry, 8% RC structure, 4% tin shed and mud house 2%. Bamboo and masonry structures are well spread over the municipality. About 85% of the buildings in the municipality are under residential use.

About 20% of the buildings are identified as high risk on structural point of views. Since these are the main places for providing service to the people during any emergency, it requires taking proper initiatives for repair or maintenance on urgent basis. Moreover, a number of school buildings are also identified as at high risk should be taken into account for repairing and maintenance. It is also identified that in Khagrachari about 20% and 24% of the surveyed buildings have plan irregularities and short column respectively. In Bandarban about 14%, 13% and 17% of the buildings have heavy overhang, pounding possibility and short column effect.

The earthquake scenario developed simulated results showed that an earthquake with 6 magnitudes originated from *beneath the Rangamati town*, would fully/moderately damage about 6,277 buildings/structures. This number is about 30% of the total number of the existing buildings of the town. The simulated results also showed that about 4,035 damaged buildings would be damaged with possibilities of repairing and 1971 buildings would be fully damaged.

In case of Bandarban, the simulated results showed that an earthquake with 8.5 magnitudes from PBF-1 may cause complete collapse of 1,055 buildings, extensive damage to 1,036 and moderate damage of 1,855 buildings.

Similarly, an earthquake originated from PBF-1 with 8.5 magnitudes may cause moderate damage to 4,013 buildings, extensive damage to 2,521 buildings and 1,961 buildings may totally collapse in Khagrachari municipality.

5.2 Lessons Learnt

5.2.1 Not just Awareness, but Understanding what Contributes to the Risks

The knowledge gained from various trainings and activities provided a basic foundation for the leaders and the communities to integrate disaster management into their work. In the different forum and meeting, key stakeholders highlighted that introducing disaster risk management should not be limited to raising awareness among school and communities or on how to be better prepared in case of earthquake, but equally important is to understand the underlying factors which contribute to the risk from earthquakes and other local natural disasters like - landslide, flash flood etc.

5.2.2 Everyone Has a Role

Each member of the community, whether a student, religious leader, construction worker, professional, can contribute in minimizing risks as well as enhancing preparedness among the people.

5.2.3 There is much to be done to Ensure Disaster Preparedness

The study conducted under this Project has revealed that CHT has a high vulnerability to disasters with the present land configuration, building structures and lifeline systems. It will take much time and substantial resources to improve the structures in order to lessen the risks, and the time starts now.

Tools must be developed such as maps, databases, laws, community networks, good structures, for better preparedness.

5.2.4 No one shall be spared in case of disaster, thus a need for Community Team Spirit

A strong community team spirit may lessen the damages in case a disaster occurs. This team is necessary before, during and after a disaster. These Disaster Management Committees are there to lead and coordinate support.

5.2.5 Enforcement of Existing Laws and Regulations is Critical

There are already existing laws such as the Building Code but are not properly enforced. Strong enforcement would minimize damages in the event of disasters like earthquakes.

5.3 Recommendations

The followings are the recommendations gathered from the various interactions initiated by the project with national and local officials as well as community leaders and from the study conducted by ADPC:

- Geological data will need to be generated, updated and used for planning and decision-making by policy-makers at national and local institutions, government or private, including research organizations. The CHTDF, in partnership with development partners, national and local institutions should develop the capacity of the municipalities along this direction. Policies should be enforced to ensure that data are properly stored and maintained. These data should be rendered public and made accessible.

- Seismic hazard vulnerability assessment should be integrated into the detailed area plan of Rangamati, Bandarban and Khagrachari municipalities. The urban fringe area should be supported to improve their response to hydro-meteorological and anthropogenic hazards (fire, drainage congestion, chemical pollution, etc.).

- Earthquake risk assessment and capacity development on disaster management should be expanded in the surrounding upazilas based on their vulnerability to earthquake events.

- GIS-based vulnerability atlas should be developed for each municipality, so that these can be used by municipal authorities and other government and development organizations in planning and implementing disaster risk management activities.

- Building code should be revised and its enactment ensured by further developing the monitoring capacity of hill municipalities. Retrofitting interventions should be carried out immediately for specific critical building.

- The respective municipalities should take initiatives to formulate land use plans in order to control the development. This will help to monitor the development within the town.

- Training for masons and bar binders will have to be replicated by the three hill municipal authorities. The trainings should be organized on demand basis and the participants would be selected in participatory way from all wards of the municipality through recommendations of the respective ward commissioner and verification of the municipal authorities.

- Open Space, Play Field and Natural Water Body Conservation Act 2000 clearly specified the need and provision of keeping open space, water bodies within the municipality. Unfortunately this provision has not been executed in most of the cases. Municipalities can take initiatives to execute the provision of the rules for preservation of open space and water bodies incorporating this into land use plans for the respective municipalities.

- To assist local government in building code implementation process, there is a need to continuously train engineers, executive officers, designers, house builders, house owners and material suppliers according to their level of technical knowledge.

- Currently there is no sufficient data on the segment of faults in Rangamati. Initiatives should be taken for in depth study in combination of Landsat images and field investigation to understand the active fault system in the region. Moreover, it is required in depth study on the epicenter of 2003 Borkol Earthquake.

- There should be regular monitoring by the municipalities so that no building (except permission) comes under non residential use. Building height restriction should strictly be monitored under the provision of Building construction rules 1996.

- Public awareness activities on earthquake risk management should be strengthened and expanded covering the general public.

- Specific surveys should be conducted to validate the most effective method of dissemination of the awareness material. This should take into account different literacy levels of the public and cover as much wide a range of population as possible. Prior to mass production of the material, it will be pre-tested on some of the target groups.

- Furthermore, CHT is atypical in terms of nature, landscape and ethnical diversity. It faces hazards different from rest of the plain land of the country. Bamboo Flowering, Flash Flood, Arson are some the hazards that prevails in CHT. So there is need to view CHT disaster management differently. A community based multi hazard approach should be the best suited one.

- This pilot project needs to act as catalyst to connect to the ongoing large scale programs both at institution and community. For sustainability of the process, it is also important to have a linkage with all concerned Ministries and its various outreach services.

This report operationally closes the project.

ANNEXES

Annex – 1: Training and Capacity Building

Annex – 2: Knowledge Products

Annex – 3: Financial Summary

Annex – 1: Training and Capacity Building

Sl. No.	Name or Title of the Training / Workshop Conducted	Attended beneficiaries / participants Types or categories	Training Course / Workshop duration (Day / week) x batch	Participants Attended			Key Results / Outcomes
				Total (No.)	Male (No.)	Female (No.)	
01	ToT for ERRP Staff of Municipality	Staff	3 days	22	12	10	Participants can independently carry out their roles and responsibilities
02	Ward level contingency plan workshop	Communities	1 day each x 27 batch	675	365	310	Communities could identify risk and resources within their respective ward and have a working plan by which risk reduction strategies are being implemented
03	Masons training	Masons	1 day each x 13 batch	220	215	05	Mason are already applying their knowledge and skill in their constructions
04	Private Builders training	Private builders	1 day each x 10 batch	196	154	42	Builders know about the building code and housing construction by-laws
05	Training for ward level volunteers	Volunteers	1 day each x 12 batch	303	151	152	Trained Volunteers are responding to local level hazards like accidents, fire etc
06	Training on Computer Aided structural analysis	Engineers	4 day x 2 batch	31	28	3	Plan as submitted by prospective builders are being checked by computer aided structural analysis software
07	ToT for Engineers	Engineers	4 day x 1 batch	14	13	1	Trained up engineers facilitated trainings sessions on earthquake safe construction techniques after graduation
08	Training for Work Supervisors	Work Assistant	3 day X 8 batch	160	145	15	Trained work assistant resulted in better quality control at both public and private constructions
09	Training for Religious Leaders	Religious leaders	1 day x 6 batch	125	125	0	Religious leaders do perform the preaching in more scientific and practical perspective
	Total			1,746	1,208	538	

Annex – 2: Study Report / Knowledge Products

Sl. No.	Title of the Study Report / Knowledge Products	Author(s)	Start Date	Completion Date	No. of Copies	Main theme / purpose / objective of the knowledge product / Study Report
1.	GIS based Maps of Three Hill Municipalities	CHTDF/ADPC	Nov. 2009	Feb. 2010	1	The base maps developed under ArcGIS platform as input for the seismic hazards maps showing basic infrastructures of the three hill municipalities
2.	Geological Investigation report of Three Hill Municipalities	CHTDF/ADPC	Dec. 2009	Feb. 2010	1	The geological investigation report was prepared as input for the seismic hazards analysis and vulnerabilities analysis of the three hill municipalities
3.	Final Report on Seismic Hazard and Vulnerability mapping for Rangamati, Bandarban and Khagrachari Municipality	CHTDF/ ADPC	Nov. 2009	Jun. 2010	10	The report summarizes the overall findings of the study on seismic hard mapping, vulnerability assessment, landslide study, critical infrastructure study, damage and loss assessment conducted under the agreement between APC and CHTDF.
4.	Guideline for Earthquake Resistant Construction in the Context of Chittagong Hill Tracts.	CHTDF	Jan. 2010	Apr. 2010	500	The published document is a training manual or guideline to assist the good practices in construction activities for the work assistants, foreman and field engineers to improve the quality of the constructed building regarding earthquake resistance.
5.	Earthquake Resistant Construction Handbook for Masons	CHTDF	Jan. 2010	Apr. 2010	500	The published document is a training manual or guideline to assist the good practices in construction activities for the masons to improve the quality of the constructed building regarding earthquake resistance.
6.	Report on Basic ToT for ERRP Staff	CHTDF	Jul. 2009	Aug. 2009	5	Summarized report on ToT courses conducted for the municipality staff to enhance their knowledge on earthquake risk reduction and preparedness issues.
7.	Leaflet on drop, Cover & Hold – Earthquake Preparedness	Rangamati Municipality	Aug. 2009	Sep. 2009	25,000	Awareness creation materials for community people regarding earthquake preparedness.
8.	Posters highlighting family and school level earthquake preparedness and general awareness creation	CHTDF	Dec. 2009	Jan. 2010	17,000	The awareness creation material was produced to disseminate the message among the mass people regarding earthquake preparedness and risk reduction before, during and after the event.

Annex – 3: Financial Summary

Summary of the BCPR Fund as of 30.06.2010

Summary of BCPR fund detailed (all amount in USD)								
Year	ASL / Cash Limit	Approved Budget	Encumbrance	Disbursement (B)	Total Expenditure	Remaining Cash / ASL Limit	Balance of Budget	Cash Balance
	A	B	C	D	E	F (A-E)	G (B-E)	H (B-D)
2009	800,000	567,201	183,441	259,948	443,389	356,611	123,812	307,253
2010	356,596	356,596			356,611			

Note : Please note that the Expenditure Column for 2010 (Column E) will not match as the Total of Encumbrance (Column C) plus Disbursement (Column D) since the Disbursement shown in 2010 include some of the Commitments of 2009 that have been paid in 2010

Expenditure detailed of BCPR (Disaster Preparedness & Management) for 2009								
Year	Fund Code	Project Code	Donor Code	Account Code	Description	Sum Amount		
2009	26930	00063957	00141	63405	Learning Costs	1,121		
2009	26930	00063957	00141	71305	Local Consult.-Sht Term-Tech	16,746		
2009	26930	00063957	00141	71405	Service Contracts-Individuals	60,883		
2009	26930	00063957	00141	71605	Travel Tickets-International	3,581		
2009	26930	00063957	00141	71610	Travel Tickets-Local	2,096		
2009	26930	00063957	00141	71615	Daily Subsistence Allow-Intl	2,750		
2009	26930	00063957	00141	71620	Daily Subsistence Allow-Local	5,087		
2009	26930	00063957	00141	72105	Svc Co-Construction & Engineer	179,705		
2009	26930	00063957	00141	72135	Svc Co-Communications Service	1,749		
2009	26930	00063957	00141	72425	Mobile Telephone Charges	387		
2009	26930	00063957	00141	72605	Grants to Instit & other Benef	153,789		
2009	26930	00063957	00141	72810	Acquis of Computer Software	8,163		
2009	26930	00063957	00141	74210	Printing and Publications	5,633		
2009	26930	00063957	00141	74505	Insurance	95		
2009	26930	00063957	00141	74605	Prepaid Project Expenses	1,709		
2009	26930	00063957	00141	76135	Realized Gain	(105)		
					TOTAL	443,389		

Expenditure detailed of BCPR (Disaster Preparedness & Management) for 2010 as of 30.06.2010								
Year	Fund Code	Project Code	Donor Code	Account Code	Description	Sum Amount		
2010	26930	00063952	00141	71305	Local Consult.-Sht Term-Tech	8,586		
2010	26930	00063952	00141	71405	Service Contracts-Individuals	83,581		
2010	26930	00063952	00141	71620	Daily Subsistence Allow-Local	11,194		
2010	26930	00063952	00141	72105	Svc Co-Construction & Engineer	120,498		
2010	26930	00063952	00141	72425	Mobile Telephone Charges	1,050		
2010	26930	00063952	00141	73105	Rent	28,699		
2010	26930	00063952	00141	73110	Custodial & Cleaning Services	45,127		
2010	26930	00063952	00141	73120	Utilities	6,571		
2010	26930	00063952	00141	74210	Printing and Publications	4,139		
2010	26930	00063952	00141	74505	Insurance	57		
2010	26930	00063952	00141	75705	Learning costs	7,108		
2010	26930	00063952	00141	75100	Facilities & Admin - Implement	40,000		
					TOTAL	356,611		
					Grand TOTAL	800,000		