Sustainability in Grass-Roots Initiatives

Focus on
Community Based Disaster Management

April 2003

United Nations Centre for Regional Development
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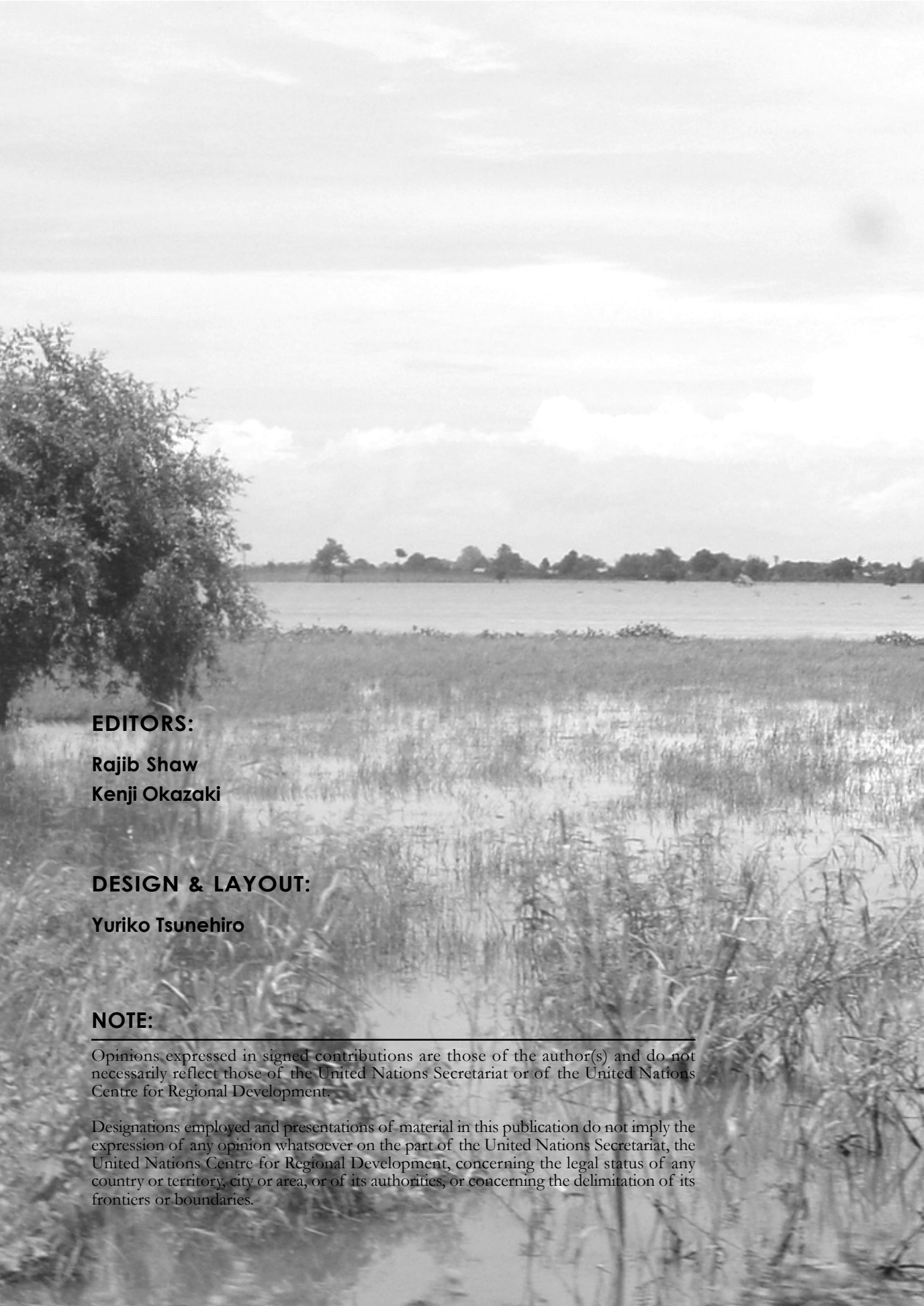

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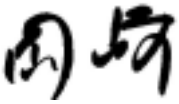
PREFACE

While the 20th century saw great developments in technology, at the same time it could not reduce the number of disasters and damage or number of victims. Due to rapid population growth, rapid urbanization, and environmental changes, it seems that disasters are increasingly diverse and complicated and our societies are even more vulnerable to disasters. Although human beings have various technologies to reduce the impact of disasters and the knowledge as to what kind of regulations are necessary, our communities still remain vulnerable, or more vulnerable to disasters. It is one of today's biggest challenges how our communities can be made safer against probable disasters which can potentially take place anywhere in the world. It is thus essential for sustainable and realistic disaster mitigation to empower people and communities so that they can understand the risks and can take appropriate actions to reduce the risk by themselves and for themselves.

In 2002, UNCRD launched a three-year project entitled "Sustainability in Community Based Disaster Management" with the financial assistance of the Great Hanshin-Awaji Earthquake Memorial Research Institute, with the aim of studying the effectiveness of grass-roots initiatives which lead to successful practices, and to carry out several pilot projects, in order to develop guidelines for sustainable community based disaster management. In the first year, the project identified key factors in successful community-based disaster management through six case studies; formulated a strategic framework for sustainability of these efforts in the local communities; and disseminated best practices of community-based disaster management. Local workshops were organized in the case study cities, and international workshops were organized, in India in December 2002 and in Kobe in January 2003, to disseminate these best practices.

This report is a summary of the experiences and findings of the project. We are confident that it will be very useful to those organizations and experts involved in disaster mitigation such as national and local governments, policy makers, engineers, NGOs, and community leaders. We can and must build resilient communities with the participation and collaboration of stakeholders. I hope that this report reaches the widest possible readership and thereby assists in equipping people for a safer life.



Kenji Okazaki
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1. EXECUTIVE SUMMARY

Rajib Shaw, UNCRD

Effective and successful disaster reduction initiatives are often attributed to the spontaneous participation of the communities and involvement of the people. In most cases, it can be observed that community initiatives produce results so long as there is external support from the government, nongovernmental organizations(NGOs) and/or international organizations. It is a common notion that grass-roots initiatives are the responsibilities of NGOs. Thus, the major challenges of the community based disaster management (CBDM) are:1) sustainability of the efforts at the community level, and 2) incorporation of CBDM issues at the policy level. To be effective and to create a sustainable impact, the application of CBDM must go beyond the initiative of local communities, NGOs and a handful of local governments. As part of an advocacy for more responsive and effective governance, central and state level governments should look at integrating CDBM in their policy and implementing procedures. To study these factors, UNCRD has formulated a three-year project. The goal of the project is to achieve safety and sustainability of livelihood for effective disaster mitigation, focusing on three key elements: self-help, cooperation, and education. This goal is to be achieved by setting and achieving the following specific objectives:

- To study the effectiveness of grass-roots initiatives which have led to successful practices,
- To devise a model for the sustainability of these initiatives in terms of policy options for undertaking future grass-roots projects,
- To apply the findings to various local communities, and
- To disseminate best practices through training and capacity building.

Annual output of the project is as follows:

Year 1 (2002): Development of Framework for Sustainability of CBDM,
Year 2 (2003): Development of Guidelines for Sustainability of CBDM,and
Year 3 (2004): Development of Handbook for Sustainability of CBDM

The framework is developed based on six case study experiences covering three hazards: Cyclones in India and the Philippines; Earthquakes in Indonesia and Nepal; and Floods in Bangladesh and Cambodia. This framework will be enhanced by the development of guidelines in the Year 2003, and the results will be summarized in the form of a handbook in the final year (Year 2004).

All six countries are highly vulnerable to natural disaster and, consequently, have adopted innovative approaches to community involvement as a long-term process. The State of Orissa in India, facing the Bay of Bengal is constantly visited by strong tropical cyclones, whereas the Philippines, located in the Pacific Ocean experiences 19-21 tropical cyclones every year with about 3-4 considered very damaging. Bangladesh and Cambodia share similar hazardous characteristics since their flood-prone communities are affected by annual floods due to intense monsoon rains and overflowing rivers which are shared by other countries in their respective regions. Nepal and Indonesia are two of the most earthquake-prone countries in the world and there is evidence that their risk exposure to future major earthquakes is very high. The level of community participation differs from country to country, which is considered to be the result of existing socio-political conditions.
The following six counterparts were chosen for the case studies:

Bangladesh: CARE Bangladesh,
Cambodia: Cambodian Red Cross,
India: Sustainable Environment and Ecological Development Society (SEEDS),
Indonesia: Institute of Technology Bandung (ITB),
Nepal: National Society for Earthquake Technology (NSET) Nepal, and
The Philippines: International Institute for Disaster Risk Management (IDRM).

To collect information on the case studies in a uniform way, a set of questionnaires was drawn up, and data were collected based on the following aspects:

- Identifying information about the project site
- Identifying information about the project
- Baseline characteristics, prior to the start of the project
- Motivation and purpose of the project
- Methodologies for community participation
- Methodologies for human resource and organizational development
- Methodologies for stakeholders' partnerships
- Methodologies for financial and community assets development
- Analysis of the results of the project
- Analysis of the current level of community participation, and
- Analysis of community perception on sustainability

Each agency/organization has highlighted certain conditions that they would normally put emphasis to within their regular mandate. Thus, in Bangladesh, where vulnerability is perceived to be a complex interaction between unsafe conditions, poverty, lack of access to resources, landlessness, societal pressures,

inequity, lack of education and other "under-development causes", vulnerability is comprehensively considered in the design of the CBDM programme. In Cambodia, the agency involved in the project put emphasis on food shortages, and the vulnerability of the means of food production. In the India case, peoples' lives and property, particularly livestock are considered most at risk as a consequence of the super cyclone that hit the State of Orissa in 1999. In the Philippines, the local government, which has the responsibility for local governance addresses the vulnerability of the general socio-economic development of the municipality. In Nepal and Indonesia, the agency puts emphasis on the vulnerability of physical structures, particularly school buildings vis-à-vis the effects of major earthquakes.

It is observed that for a CBDM to be successful, implementers should be adept at identifying and mobilizing as many stakeholders as necessary. In some cases, relationships among stakeholders are formal and legislated (Philippines and India), but some cases also show that informal relationships do not hinder partnership arrangements at the community level.

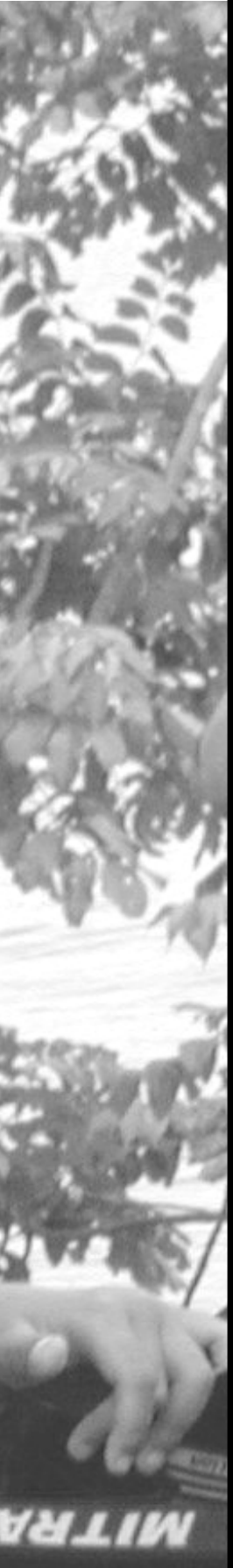
Most of the projects under study promote tangible accumulation of physical and economic assets to reduce vulnerability. These are in the form of:

- Village contingency funds, and availability of credit for income-generating activities;
- Micro-solutions, small-and medium-scale infrastructure projects that reduce the impacts of hazards;
- Equipment and materials such as for latrines, water supply, warning-communications and rescue and evacuation facilities;

Some studies focus on providing intangible "assets" such as technology in disaster resistant construction, and access to information centres. Most have attempted to integrate these projects into regular development planning and budgeting to ensure sustainability. This is done through legislation and incorporating vulnerability assessment and reduction into regular development projects.

Based on the experiences of the case studies, the following is a list of the factors that enhance the sustainability of CBDM.

1. Promotion and strengthening of a "culture of coping with crisis"
2. Enhancing people's perception of vulnerability
3. Recognizing the motivation of community initiatives
4. Increasing community participation and empowerment through institutionalization
5. Focusing on needs-based training approaches
6. Involvement of diverse stakeholders based on needs and objectives in both formal and/or informal ways
7. Promotion of tangible and intangible accumulation of physical, technological, and economic assets as project outputs
8. Promotion of the integration of community initiatives into regular development planning and budgeting to ensure sustainability.



2. INTRODUCTION

Rajib Shaw, UNCRD

Background

"Community is defined as a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together"[1]. Many people define community in different ways, however, the current definition is preferred because it is non-scale, and non-characterized. Thus, community includes not only the people living in a certain location, but also includes the local government, local business sectors, local academic bodies and NGOs. A natural event becomes a disaster when it causes losses of lives and/or properties. Since disasters affect people's livelihood, involvement of people as individual, and community as collective, are important to reduce the impacts of disasters.

Natural disasters occur every year and could happen anywhere in the world. The Great Hanshin Awaji Earthquake of 1995 hit the city of Kobe and other parts of Hyogo Prefecture in Japan causing serious loss of life and property. Immediately after the earthquake, many people were rescued from the debris by neighbours and relatives. Statistics show that 85 per cent of the people were either self-evacuated or were rescued by the neighbours[2]. This indicates the importance of community and neighbourhood immediately after such an event. Since the reconstruction programme incorporates both physical and social issues, involvement of people in the recovery process is the key to its success. It is said that Kobe reconstruction remains stagnant at the 80 per cent level, which has been comprised of physical recovery. Similar reconstruction programmes in other parts of the world also reach similar conclusions, that community participation and involvement is a universal process, and does not depend on the development level of the country.

[1] McMillan D. W. and Chavis D. W., 1986, Sense of Community: A definition and theory, Journal of Community Psychology, 14, 6-23.

[2] From Disaster to Community Development; The KOBE Experience, 2003, UNCRD

The other aspect of community involvement is its sustainability. Government organizations (GOs), NGOs, and international organizations implement various programmes both before and after disasters. Most of these are very successful during the project period, but gradually diminish as the years pass. There are many reasons for the gradual decrease of people's involvement in a particular project. The most common elements are partnership, participation, empowerment, and ownership of the local communities. Unless disaster management efforts are sustainable at individual and community levels, it is difficult to reduce the losses and scale of the tragedy. While people should own the problems, consequences, and challenges of any mitigation and/or preparedness initiative, it is necessary to see people's involvement in a broader perspective, which is related to policy and strategy.

Need and Priority

Community Based Disaster Management (CBDM) has been a popular term for the last several years[3]. However, in only a few cases has it been successfully incorporated into policy issues. It has been a common notion that CBDM is the responsibility of grass-roots organizations and/or NGOs. There are two major aspects in this regard: First, the best practices of CBDM initiatives become local initiatives, and are not properly disseminated. It was observed that even though there have been good examples of CBDM in specific locations within a country, these lessons are not transferred to other parts of the country, neither do they reach adjacent countries of the region. The other aspect is that due to a lack of recognition of CBDM initiatives at the national level, there are often limited resources devoted to these activities. Thus, in most cases, CBDM is seen in isolation, and distinct from national disaster mitigation practices, neither it is included in national development policy. Therefore, there is an increasing need to understand the basics of CBDM, and try to formulate a framework for incorporating CBDM into national policy issues with special focus on sustainability.

3 Maskrey A., Disaster Mitigation: A community based approach, 1989.

PNY Experience:

towards sustainable community recovery

After its initiation in 1999, the UNCRD Disaster Management Planning Hyogo Office focused on community initiatives in the Asian region targeting different stakeholders, from local government decision makers to schoolchildren. Although different stakeholders were targeted in different initiatives, an integrated approach was felt for a long time. After the devastating earthquake in Gujarat, India on 26 January, 2001, an initiative called the Patanka Navjivan Yojna[4] (PNY) was established in cooperation with various agencies in India and Japan. The goal and objective of the initiative was to train and empower local masons and communities with proper earthquake-safer technologies focusing on local traditions and culture. Emphasis was on ensuring confidence-building and

4 PNY is a Hindi word, meaning 'Patanka New Life Plan" in English.

long-term use of traditional technologies. The initiative was successful, especially in terms of community involvement and ownership. The other unique feature was establishment of strong cooperation and understanding among diverse stakeholders including local government, local NGOs, and international organizations. This cooperation scheme benefited every party involved in the initiative, but the actual ownership remained with the community. The initiative was considered as a successful model for sustainable community recovery.

An important challenge of the initiative was the exit policy of the outside agencies, including the local NGOs. The timing and the mode of exit were found to be an important aspect, in the sense that it should not have any adverse effect on future community involvement. Different schemes were developed to ensure the sustainability of the initiative at individual, community, and village levels; and also to disseminate the experiences to other parts of the country and region - the two main challenges often faced in community initiatives. Although the long-term impacts are yet to be seen, the experiences of PNY demonstrate the need to study sustainability issues of community initiatives for other types of hazards in other countries of the region.

Goal, Objective , & Activities of the CBDM Project

In 2002, UNCRD launched a three-year research project titled "Sustainability in Community Based Disaster Management", to study the effectiveness of the grass-roots projects and to suggest policy input for sustainability, which would be useful for different communities to take further action. This will also help to understand the gaps in community initiatives, and to take corrective action for the future. The study would be an evaluation on what has been done so far in CBDM with specific examples from the field, and what should be done in future for the sustainability of these efforts. In this study, the interlinkages of GOs, NGOs, and academic and international organizations should be reflected in terms of concrete projects and initiatives, and a model of cooperation should be devised.

Under the UNCRD's organizational mandate of promoting Sustainable Regional Development, the goal of the current study is to achieve safety and sustainability of livelihood for effective disaster mitigation, focusing on three key elements: self-help, cooperation, and education. This goal will be achieved by setting and achieving the following specific objectives:

- Study the effectiveness of the grass-root initiatives from the successful practices,
- Construct a model for the sustainability of these initiatives in terms of policy options for undertaking future grass-root projects,
- Apply the findings to different communities, and

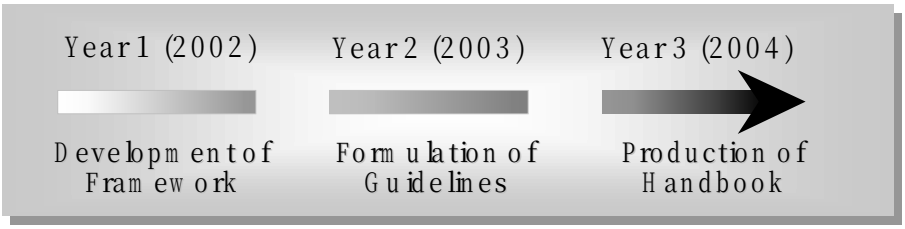
- Disseminate best practices through training and capacity-building.

During the three-year project, the following activities are planned:

Year 1 (2002): **Development of Framework**: Activities include: Field survey, documentation of best practices in the form of case studies, and preparation of the overall framework of action for the sustainability of community based disaster management (CBDM).

Year 2 (2003): Formulation of Guidelines: Activities include: Formulation of both general and specific guidelines, case studies on selected areas for verification of the implementation of guidelines.

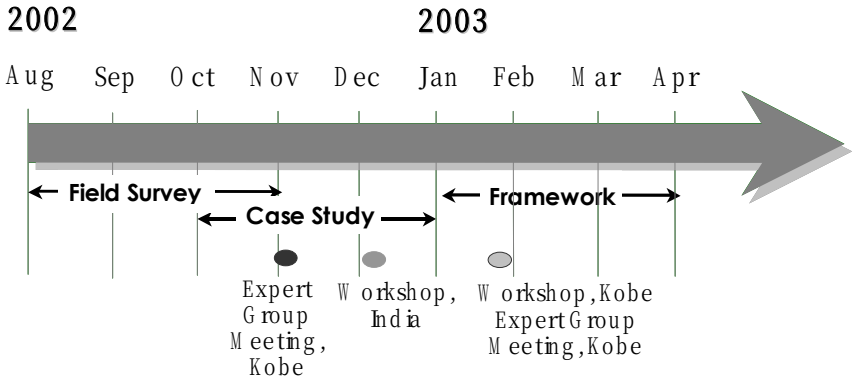
Year 3 (2004): Production of Handbook: Activities include: Completion of case studies, formation of the final handbook for sustainability of community based disaster management, and dissemination to wider communities.



In the first year of the study, there were three major objectives:

1) To identify the key factors of the successful community-based disaster management,
2) To formulate the strategic framework for the sustainability of the efforts in the communities, and
3) To disseminate the best practices of community-based disaster management.

The activities of the first year are shown in the following figure.

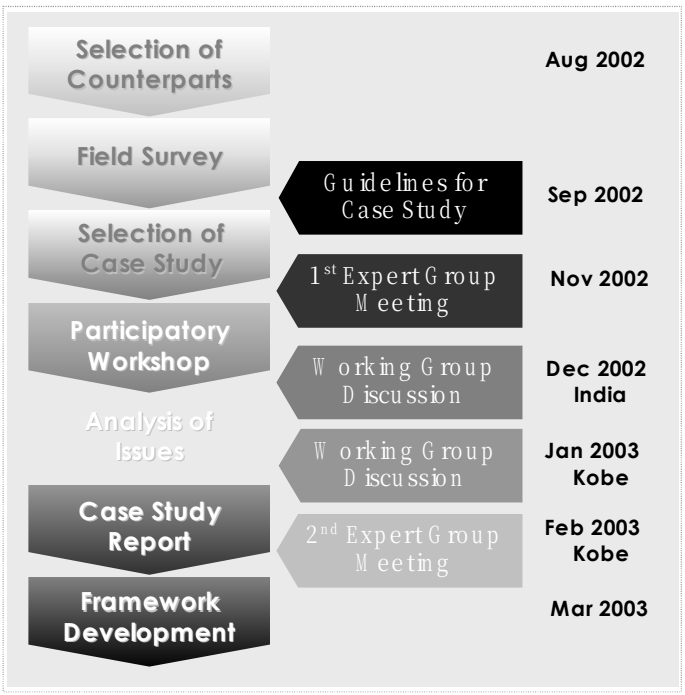


To identify the key factors for successful CBDM, six case studies were chosen in the Asian region targeting three specific hazards:

Cyclones (India and the Philippines),
Earthquakes (Indonesia and Nepal), and
Floods (Bangladesh and Cambodia).

Six counterpart organizations produced the Case Studies:

Bangladesh: CARE Bangladesh,
Cambodia: Cambodian Red Cross,
India: Sustainable Environment and Ecological Development Society (SEEDS),
Indonesia: Institute of Technology Bandung (ITB),
Nepal: National Society for Earthquake Technology (NSET)-Nepal, and
The Philippines: International Institute for Disaster Risk Management (IDRM).



The adjoining figure shows the flow of activities during the first year of the project. After the selection of counterparts, field-surveys were conducted in each country jointly by the UNCRD and the counterpart, and the Case Study site was selected. The consultant developed a set of guidelines for the Case Study. During the Case Study, local workshops were organized to collect information on the project. An expert group was formed in Kobe, Japan with the members of academic organizations, NGOs and government bodies. This group met twice during the project period[5]. These expert groups provided insights on the project methodologies through their experiences in Japan and other parts of the world. An international workshop-cum-Working Group discussion was held in Manesar, India from 2 to 4 December[6]. The second Working Group Discussion and International Workshop was held in Kobe from 30 January to 1 February 2003[7]. In this report, the activities conducted in the first year of the study are documented in the form of issues and policies, methodologies, case study experiences and analysis and recommendations. Based on these experiences, general and user-specific guidelines will be developed in the second year of the study.

5 A summary is provided in Appendix 2.

6 A summary is provided in Appendix 3.

7 A summary is provided in Appendix 4.

3. ISSUES AND POLICY

Sanny R Jegillos, IDRM

The classic definition of sustainability, developed by The World Commission on Environment and Development (the Brundtland Commission) is "*meeting the needs of the present, without compromising the ability of future generations to meet their own needs*". On the other hand, community based disaster management (CBDM) is described by the International Institute for Disaster Risk Management (IDRM International) as "*an approach that involves direct participation of the people most likely to be exposed to hazards, in planning, decision making, and operational activities at all levels of disaster management responsibility*".

Investigating the key success factors for "sustainability" and "CBDM" separately and jointly is a challenging task that this project endeavours to accomplish. It is so for the following reasons: Community processes (under CBDM) and actions to accomplish disaster reduction are much talked about in theory, but results are much more difficult to realize in practice.[1] On the other hand, disaster management projects, despite efforts at proper design are poorly maintained by beneficiary communities after financial and technical support has been phased out raising doubts as to their sustainability.[2] Thus, sustainability of CBDM project is *still* perceived to be a myth -unrealizable and difficult to achieve. For this basic rationale, it is worthwhile investigating sustainability of CBDM which this project endeavors to study using case studies from six countries.

[1] Living with Risk: A Global Review of Disaster Reduction Initiatives, ISDR, July 2002

[2] Discussions with Kobe Expert Group, November 2002

To begin with, CBDM as a disaster management approach received attention during the mid-1990s predominantly from NGOs involved in humanitarian assistance activities. Using the VCA Tool[3], NGOs recognized the importance of coping capability and vulnerability in planning and designing its programmes. The International Federation of the Red Cross and Red Crescent Societies (IFRC) and its member-National Societies (NS) were some of the first to embrace CBDM (and the VCA tool) as an integral approach in its disaster management programmes. Thus, starting from 1995, a series of sub-regional workshops were conducted in the Asia Pacific Region to promote CDBM and to provide a framework for its implementation at the national level. Under this, the National Societies of the Philippines[4], Bangladesh[5], India, Cambodia, and Viet Nam implemented CBDM on a pilot basis starting in 1996. It is to be noted that early adopters of CBDM among the NS saw the fit between the CBDM approach to their mandate of mobilizing voluntary action, a fundamental IFRC principle, and targeting the most vulnerable. Later on, the IFRC's Strategy 2010 clearly indicated institutionalizing CBDM[6] in their work in relation to their recent strategic vision " *to improve the lives of vulnerable people by mobilizing the power of humanity*". Thus, the IFRC and the NS are clearly among the major actors in promoting CBDM.

Subsequently, CBDM became popular by mounting mitigation and preparedness initiatives. Several other NGOs in many "southern" countries implement and actively promote variations of CBDM. This led to a realization that there exist a broad range of indigenous coping capabilities among the communities and in times of crisis, this is the most important means of survival prior to the arrival of humanitarian agencies. UNISDR further notes;

> *"that inhabitants of local communities represent the greatest potential source of local knowledge regarding hazardous conditions, and are the repositories of many traditional coping mechanisms suited to their individual environment. Thus they are the main actors in responding first at times of crisis and usually the remaining group as stricken communities strive to rebuild after a disaster."*

3 Vulnerability and Capacity Assessment, Woodrow and Anderson

4 The Philippine National Red Cross initiated the Integrated Community Disaster Planning Programme (ICDPP) a bit earlier, based on lessons learned on similar project in Albay Province, Bicol Region.

5 Bangladesh however had been implementing the much-noted Cyclone Preparedness Programme (CPP), a joint venture between the Government of Bangladesh and the Bangladesh Red Crescent Society. The CPP mobilizes volunteers in providing cyclone early warning information.

6 Being responsive to local vulnerability and capacity, Strategy 2010, The International Federation of Red Cross and Red Crescent Societies, pp 12-13

Indigenous coping capabilities unfortunately are oftentimes overlooked by policy makers in designing and implementing disaster management programmes. For instance, the World Disaster Report 2002 describes a case in Sri Lanka as follows;

> *" Despite an indigenous tradition of rain water harvesting and irrigation systems going back to the third century BC, policy makers in modern times have often overlooked the value of such technologies, and it is only recently the officials have taken much interest in household level structures. Government and other programmes have, however, been top down in their conception and application, installing tanks free of charge without providing training in the skills needed to build and maintain them properly."*

Due to this, the beneficiary community showed no commitment to continue the project; therefore the effectiveness of the project is in doubt, much more its sustainability.

On the other hand, the concept and definition of "vulnerability" continue to be an issue for many including the IFRC. The concept of vulnerability in programming is perceived to be "*useful but needed better definition.*" Recent documents about vulnerability lack clarity in the universal application of concepts and their operationalization. Conceptual definitions and guidelines appear to be case specific, particularly those directly related to the nature of hazards and the context and definition of vulnerability. For these reasons, addressing vulnerability in concept and application continue to be a baffling process.

Despite of these issues, many proceeded with CBDM, moving the conceptual and operational work in tandem in order to leverage the gains in understanding. Among the notable cases are: in Southern Africa, where the IFRC works with *PERI PERI,* in South America, where *LA RED* is the primary initiator and advocate, and in South Asia, where *Duryog Nivaran* actively promotes CBDM approaches. In addition, the Asian Disaster Preparedness Centre (ADPC) began a regional CBDM course in 1995 and then in 1998, IDRM International started its Local and Community Level Disaster Risk Management Course, which is also academically accredited. Also, many other NGOs such as CARE, CONCERN, OXFAM, ACTIONAID started their own versions of CBDM in several countries.

Among governments, Australia was one of the active implementers of community based emergency planning[7]. A recent Australian study[8] found that the extent of commitment by local government in taking action depends upon emergency managers making the right choices about **citizen involvement** in

7 Community Emergency Planning Guide, first published by the Government of Australia in 1991

8 Living with Risk: A Global Review of Disaster Reduction Initiatives, ISDR, July 2002, p142

planning risk reduction processes. This can build an informed constituency for disaster reduction and drive a real commitment among elected officials to take action. Key decisions include: objectives to be achieved by involving citizens; areas in the planning process where, and when citizens participate; which citizens to include; techniques to use in order to obtain citizen input; and information to be provided to citizens. Closer scrutiny of the Australian application of citizen involvement also reveals that involvement is guided by a top-down approach which may not be effective in promoting change, such as addressing the underlying cause of vulnerability that requires the substantial and deep involvement of the community. UNISDR states; [9]

> *"A bottom up approach is needed to promote change... Local communities are those most aware of the historical risk scenarios and the ones closest to their own reality. It is not only a question of public awareness, it is a question of local community groups having the chance of influencing decisions and managing resources to help reduce vulnerability and to cope with risks. Neither the widespread dissemination of prior experience nor the abundance of scientific and technical knowledge reaches local populations automatically. An informed and sustained programme of public awareness is essential to convey the benefits of experience to vulnerable communities in terms that relate to local perceptions of need. The effective use of knowledge not only requires wide dissemination, it must also be presented in a way that relates to local conditions and customs, own conditions and risks"*

9 Living with Risk: A Global Review of Disaster Reduction Initiatives, ISDR, July 2002, p 144

UNISDR further notes that;

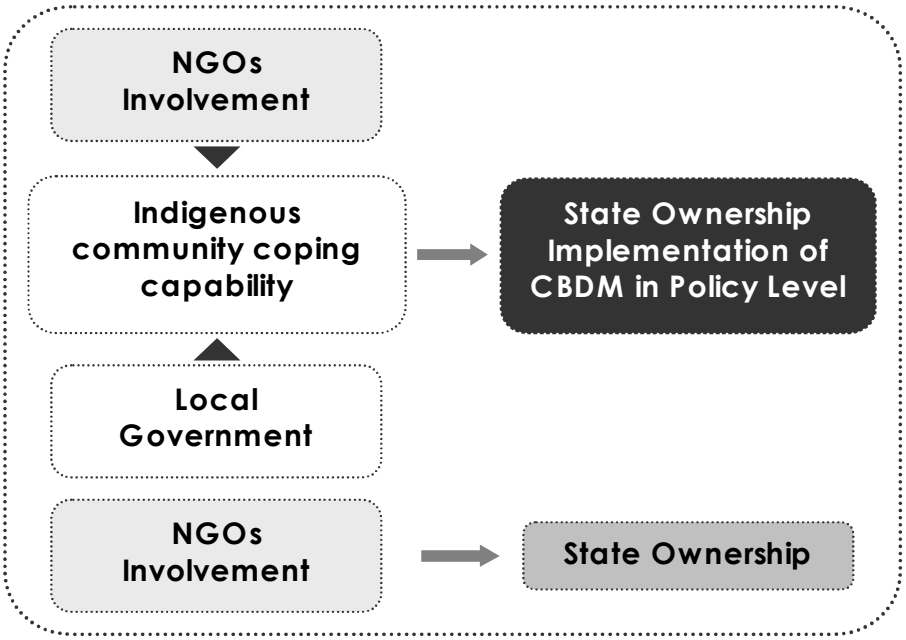
> *"In every community, knowledge, professional abilities, and experience fashioned from adversity can be found, but seldom are these resources called upon or fully utilized. A special effort is required to recall locally valued traditional coping mechanisms and strategies. The advantages of modern technology, such as those provided by GIS or access to satellite weather forecasts need not diminish the values of traditional wisdom. Vietnamese villagers maintained irrigation channels and protective dykes since the first century for a reason, just as Pacific islanders were guided in their choice of materials and construction techniques in building their earlier disaster resistant homes."*

Given the emerging "popularity" of CBDM, it is continuously evolving, from the recognition of the importance of traditional coping mechanism to the broader integration of almost all phases of disaster management. In the case of Bangladesh, community involvement is integral to the cyclone warning and dissemination processes. For the IFRC, CBDM is integrated into its long-term strategy to prepare communities for disasters and to mobilize volunteers. For

the Government of Australia and recently in the United States and Japan, the involvement of the community is increasing in local area disaster management planning. In the Philippines, only weeks after setting up emergency response teams, a community organization in a village rescued 31 families from rising floodwaters[10]. Immediately after the Gujarat earthquake in India in January 2001, an Indian NGO (Swayam Shiksam Prayong), joined many community-based organizations in the recovery effort. Drawing on their prior experience following the Latur earthquake in Maharastha State, India in 1993, they proposed a policy which would not only rebuild devastated Gujarat communities but reform and strengthen their social and political structures. The central concept was that people -especially women- need to rebuild their own communities. In Turkey, Turkish women displaced by the major earthquake that struck Turkey's Marmara region in August 1999, began organizing themselves immediately after the disaster.

10 IFRC World Disaster Report 2002, p15

There are a number of examples of the application of CBDM under different names. However these are carried out sporadically and oftentimes under an ad-hoc process without due regard for widespread replication or long-term sustainability. It can be noted from the earlier discussions that there appears to be an emerging trend towards the "users" of the CBDM approach. The figure in the next page illustrates this trend. The starting point for sustainability in CBDM lies in recognition and understanding the importance of the indigenous coping mechanisms of communities vis-à-vis the impact of disasters. The role of stakeholders is to strengthen coping capabilities rather than replacing them by imposing external culture and complex techniques. If community ownership is not promoted, it leaves a question mark on attaining sustainability. On the other hand, one must realize that individual households and communities are generally unaware of the hazards they face, underestimate those they know of while overestimating their ability to cope with any crisis. They also tend not to put much trust in disaster reduction strategies, and rely heavily upon emergency assistance when the need arises. This is why NGOs are getting increasingly involved in disaster reduction focusing primarily on public awareness and advocacy programmes. They particularly seek to encourage the desired shift in emphasis from emergency assistance and disaster response to the more engaged roles of local community participation in planning, vulnerability assessment, and risk management practices. On the other hand, recognizing that disasters happen at the local level, local governments are the primary actors in promoting the adoption of local disaster action plans. Oftentimes, these are developed as a response from a recent catastrophic event as the general public and community demand better preparedness and emergency response at the local level.



However, to be effective and to create impact, the application of CBDM must go beyond the initiative of communities, NGOs and a handful of local governments. As part of an advocacy for more responsive and effective governance, central and state level governments should look at integrating CDBM into their policy and implementing procedures. Among the disaster-prone countries in Asia, it is notable that Bangladesh, Viet Nam and Cambodia have recognized the importance of CBDM and thus are in the early stage of getting CBDM integrated into their national policy and strategy. If this is properly supported and sustained by national policy-makers and their international donor partners, there is a stronger likelihood of seeing more resilient communities able to protect themselves. Sadly though, these countries are the exceptions and many other countries see the "command and control" type of approach with limited community involvement as the dominant disaster management approach. Thus, we would like to see, in future, that CBDM will eventually become an integral component of national disaster management policies in disaster-prone countries.

Under this project, six case studies have been written upon which to base a conceptual framework on sustainability in CBDM. The formulation of such a conceptual framework from the case studies will guide the next steps for implementation in the next phase of the project. Based on these, the operational work (in the form of application of guidelines) and new case studies during selected countries will provide the feedback to rethinking the methodology and the conceptual framework. The success of this approach is likely to be enhanced by information-sharing, supporting in-country applied research, and working with stakeholders to gain their support for the new approach and to disseminating the new thinking and methodology. The following matrix shows the summary of the case study outputs, which are described in detail in the Chapter 5 "LESSONS LEARNED".

4. METHODOLOGY

Sanny R Jegillos, IDRM

Sustainability as a concept may differ among different type of people and organizations. For instance, to be sustainable[1], a community needs to overlap and integrate its social, environmental, and economic spheres. Each sphere or system has many components, and in every community, the quality, quantity, importance, and balance among them will be different. But most people agree that the six principles listed below, if addressed simultaneously, will build sustainability.

The Six Principles of Sustainability

A Community that wants to become more sustainable will:

1. Maintain and, if possible, enhance, its residents' quality of life
2. Enhance local economic vitality
3. Ensure social and intergenerational quality
4. Maintain and, if possible, enhance environmental quality
5. Incorporate **disaster resilience and mitigation**
6. Use a consensus-building, participatory process when making decisions

(adapted from Mileti 1999, p.31)

[1] Holistic Disaster Recovery: Ideas for Building Local Sustainability after a Natural Disaster, Natural Hazards Research and Application Information Center, University of Colorado, 2001, pp 1-3

For the purpose of this research, sustainability of CBDM means the ability to, or the capacity of a community to, maintain CBDM activities over time. It means that the community has a safer place to live, its vulnerability to disasters is reduced and that it has improved capacity to cope with future disasters. CBDM, under this concept therefore also contributes to **sustainable communities** as described in the box in the previous page. A community which implements successful CBDM has a better chance of being around in the future, of retaining its special character over time, and of being a good place for its residents to live and stay if it is resilient in the face of natural disasters. Although the hazards cannot be removed, a community can do a lot to make sure that they cause as little physical damage as possible, that productivity is only minimally interrupted, and that quality of life remains at, or quickly returns to, normal levels. Further, a sustainable community would think of hazards and disasters as integral parts of the much larger environment in which it exists. It would not rely solely on outside help(such as NGO or government), but instead shoulder responsibility for the risks that cannot be avoided, and for the return to normalcy after a disaster, if one does occur.

These are the preliminary insights into, or understanding of, sustainable CBDM, which this project seeks to investigate. The tentative assumption is that sustainability of CBDM results from: substantial community participation; how well a CBDM project has created a positive impact on the community, and the degree of community cohesion achieved. Thus, the purposes of the research are to:

- *analyse the current level of community participation,*
- *study the impact of the initiative or project on the community, and*
- *find out the essential factors for community cohesion.*

To accomplish these, case studies from six countries are investigated, namely India, the Philippines, Cambodia, Bangladesh, Nepal, and Indonesia. These countries are among the most disaster-prone countries in Asia if not in the entire world. The IFRC World Disaster Report 2002 listed the following data that show that disasters are serious problems affecting these countries.

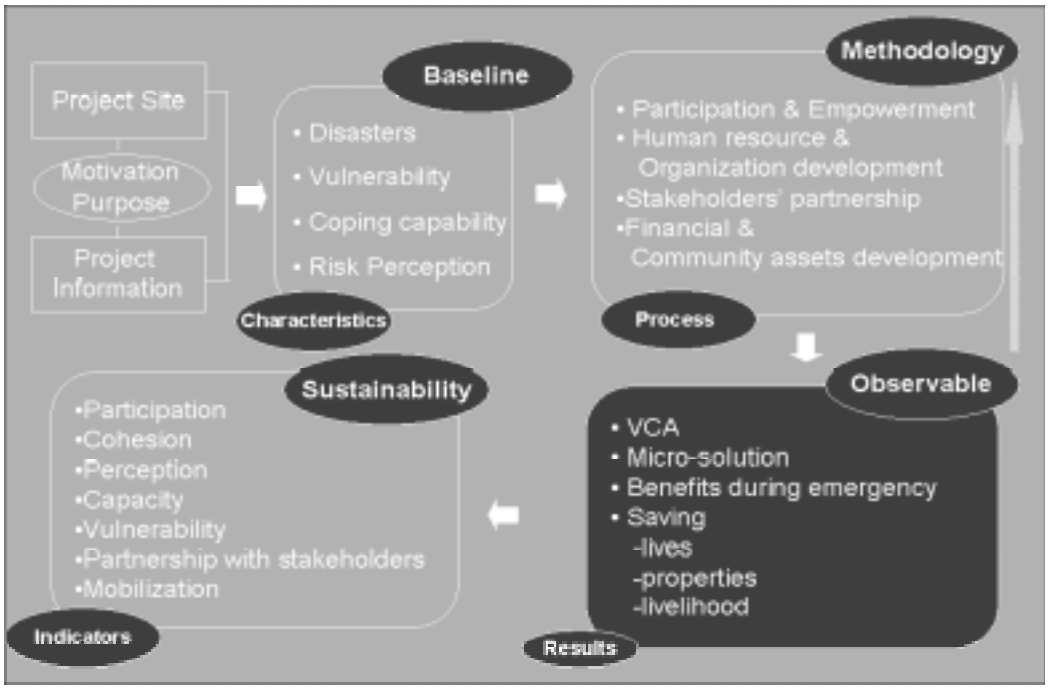
Country	Total no. of people reported killed (1982-1991)	Total no. of people reported affected (1982-1991)	Total no. of people reported killed (1992-2001)	Total no. of people reported affected (1992-2001)	Total no. of people killed (2001)	Total no. of people affected (2001)
India	31,679	661,808,091	76,134	460,525,111	21,193	36,651,662
Philippines	24,819	36,276,615	7,016	58,092,847	682	2,398,869
Cambodia	100	900,000	1,094	13,336,614	56	1,989,182
Bangladesh	166, 882	246,186,789	8,208	71,772,943	469	729,033
Nepal	2,075	918,152	3,633	931,794	154	21,026
Indonesia	4,290	1,976,685	9,469	6,891,601	1,080	52,287

Not surprisingly, it is in these countries where we see the early adoption of a CBDM approach, perhaps due to its necessity as a means for survival of communities. These are also areas where NGOs, and local governments appear to be more aware of the benefits of CBDM and proactive risk reduction strategies. It is in these communities where were we see pilot projects, trials and early demonstrations of activities and various CBDM approaches[2]. It is also in these countries where seemingly the application of CBDM is gaining popularity and high growth, a pattern discernible in other "new" development products. For these reasons, UNCRD's partners in these countries were requested to collect information based on a set of common guidelines.

2 See discussion in Chapter 3 ISSUES AND POLICY

Noting these, the following information was gathered by UNCRD's partners. Their relationship is also illustrated in the accompanying figure. *Appendix 1 shows the questionnaires used as the guidelines for the data collection for the case studies.*

- Identifying information about the project site
- Identifying information about the project
- Baseline Characteristics, prior to the start of the project:
- Motivation and Purpose
- Methodologies for participation.
- Methodologies for human resource and organizational development
- Methodologies for stakeholders partnership
- Methodologies for financial and community assets development
- Analysis of the results of the project:
- Analysis of the current level of community participation
- Analysis of community perception on sustainability



Criteria for selecting site or project for case study

The following are to be considered in the selection of the site or project. These criteria essentially distinguish a community from others, indicating that the site is disaster-prone and would likely to be exposed to future disaster impacts. More importantly, the community to be selected has demonstrated a level of motivation and community cohesion to address the consequences of disasters during pre-disaster and/or post disaster phases.

1. Frequency of occurrences and high probability of severe impact of any of these natural hazards: (floods, tropical cyclones, earthquakes).
2. Presence of conditions of any or all types of vulnerability to natural hazards:(physical, social, and economic).
3. Presence of a significant level of motivation in the vulnerable community to be proactive in disaster management.
4. Presence of formal and/or informal organization(s) which are involved in CBDM.
5. Presence of self-help and/or indigenous mechanisms addressing individual and community needs resulting from disaster-related problems.

Depending on the focus of CBDM, i.e. relevant stage in the disaster management cycle, the following additional criteria are to be considered:

6. Observable capability in using early warning information, participation, and/or self-help actions in prevention, mitigation, and prevention measures.
7. Observable capability in participating and/or self –help actions in emergency response and recovery.

Identifying information regarding the project site

This aspect describes the general condition of the site being studied. Information gathered includes basic information about location and physical features as they relate to being hazard-prone. It should also include distinguishing characteristics about the social, cultural, political importance of the area. Furthermore, a general description of the vulnerability conditions, and the underlying causes of disaster risks are elaborated under this section.

- *Name and location*
- *Geographical characteristics*
- *Demographic characteristics*
- *Social, cultural, economic, cultural, political characteristics*
- *History of disasters-characteristics, impacts, symptomatic and underlying causes*
- *Potential and emerging disaster risks that may affect the community*

Identifying information about the project
This section generally describes the origin and basic information about the project. This includes discussion on the basic elements or composition of the project, the set of activities undertaken, project inputs provided, and the types of resources made available. This section is important, as it will provide readers with a comparison on the type of project interventions that were used by various stakeholders in six (6) countries.

- *When did the project start? For how long was it implemented?*
- *What were the components of the project?*
- *What were the major interventions provided by the assisting organization?*
- *What were the resources made available, i.e., information, manpower, skills, finance, equipment, supplies, etc., and their sources?*

Motivation and Purpose
In every case, it is important to determine the factors that influence the initiation of the CBDM. Experience in disaster management shows that it is difficult to change perception and attitude of organizations and communities to shift from a "top-down"- command and control approach to a participatory paradigm. Under this section, the rationale for the CBDM is to be elaborated, by engaging the "pioneers" of CBDM into recalling how and why the CBDM came about.

- *What were the reasons for implementing the project?*
- *Who were the individual/s and/or organizations behind the planning of the project? If they are available for interview, discuss their views and why and how the project was initiated.*
- *What were the vision, goals, and objectives of the project? Who set these? What was the participation of the community in setting these?*

Methodologies for participation
A participatory process means seeking wide participation from among all the people who have a stake in the outcome of a decision such as what needs to be done to reduce the impacts of disasters. Under this condition, it is important to determine how project "decision-makers" identify concerns and issues, allow generation of ideas and options for dealing with these concerns; and help to find a way to reach agreement as to what steps will be taken to resolve them. Experience shows that engaging community stakeholders in a participatory process improves the quality and dissemination of information, fosters community cohesion, produces ideas such as micro or local-level mitigation solutions, and promotes a sense of ownership on the part of the community. These are important issues in ensuring sustainability of CBDM.

- *What were the responsibilities and resources of the assisting organization? What were the methods used to ensure participation of the community?*
- *Responsibility of community: What were the roles of the community in the project? What were their specific contributions to the project?*

Methodologies for human resource and organizational development

One of the underlying causes of vulnerability of communities is their lack of individual knowledge and organizational capability to address the consequences of disasters. While it is oftentimes assumed that because of their ability to "survive", communities are resilient, experience shows that due to population movements, lack of access to information such as an early warning, ignorance of the interface between man and environment and their effects on the configuration of disaster risk, communities are increasingly vulnerable. Due to this, most CBDM interventions put emphasis on human resource development and strengthening community organizations. It is therefore important to look at the range of intervention under this component.

- *Was a training needs assessment conducted? What types of training and related human resource development inputs were provided? What methods were used? Describe methods in the annex as necessary.*
- *Was an assessment of community organization conducted? What types of organization/community building inputs were provided? What methods were used?*

Methodologies for stakeholders' partnership

Stakeholders are broadly defined as anyone, - individuals or institutions, who may have contributed to the configuration of the disaster risks, oftentimes unwillingly, and/or those who are normally affected by impacts of disasters in a locality, and thus have "interests" in participating in CBDM. Under this, section, it is important to establish the extent of social support systems generated by the project including their roles and contribution. Furthermore, this section also describes which method have been employed in ensuring adequate stakeholders involvement in CBDM.

- *Apart from the community and assisting organization, who were the other major stakeholders in disaster management in the project? Did they have any explicit role in the project? What were they? What were their actual contributions to the project?*
- *What methods and/or activities were conducted to ensure participation of stakeholders?*

Methodologies for financial and community assets development

An important aspect that could enhance sustainability is the engagement of the community to develop its own economic base so that it would have the financial capability to respond to future impacts of disasters. Under this section, the project will investigate the extent and nature of methodologies that are used in building financial capabilities of communities. It also explores the community members' contributions to the project and how they are motivated to commit financial resources.

- *Was there an assessment of the community needs in terms of the finance and community assets necessary for disaster management? What interventions were provided by the assisting organization? By others? What were the contributions of the community in building up finance and community assets necessary for disaster management?*

Baseline Characteristics, prior to the start of the project

Whenever documentation is available, an analysis of the baseline characteristics prior to the project is conducted. This is valuable to determine comparison of the results of the project as they relate to what conditions exist prior to the initiation of the CBDM. Information to be gathered include the following:

- *What were the disaster-related problems that impact on the community?*
- *What were the important vulnerabilities of the community, which contribute to disaster risk?*
- *What indigenous coping capabilities existed within the community prior to the project?*
- *What was the prevailing perception of community members vis-à-vis disasters?*

Analysis of the Results of the Project

Under this section, a number of elements to describe the results of the project will be studied and analysed. In summary, they include a description of actual results in improving capacity and reducing vulnerability; quantitative and qualitative information related to human resource development and organizational development; presence of, and benefits from, physical-micro mitigation projects, and preparedness activities; anecdotal comments by community members to determine the actual benefits of CBDM during a recent crisis situation in the area. More importantly, an analysis of prevailing community perceptions about their ability to sustain the CBDM will also be studied and elaborated under this section.

- *What community-level solutions had been useful in reducing problems related to disasters? Describe their actual results. Why were they useful?*
- *Using the Vulnerability and Capacity Assessment (VCA) tool, what were the actual results in reducing community vulnerability and improving capacity (physical, social, and economic)?*
- *If relevant, what were the direct results of the project in terms of: training, human resource development, organizational development, micro-projects etc.*
- *Using story-telling techniques, to illustrate results of the project, what were the recent experiences of the community in recent disasters, how did the project interventions benefit them during the emergency-crisis stage?*
- *If documentation is available, what are the quantifiable benefits of the*

project in terms of saving lives, properties, livelihood, and reducing economic losses?

- *What were the important indicators that could provide evidence that community participated in disaster management?*
- *What are the underlying motivations for their continuous participation?*
- *How is community motivation and participation being sustained by the assisting organization? By the community leaders?*

What is the current perception of the assisting organization vis-à-vis

- *community's vulnerability and their exposure to disaster risks*
- *community's capacity to reduce future disaster risks*
- *community's ability to mobilize members to participate in on-going and future disaster management activities*
- *community's ability to obtain support with its external partners among NGOs, local authorities, "disaster experts" and other resource holders*
- *community's ability to continue community based disaster management without external support*

What is the current perception of the community vis-à-vis

- *its vulnerability and their exposure to disaster risk*
- *its capacity to reduce future disaster risks*
- *its ability to mobilize community members to participate in on-going and future disaster management activities*
- *its ability to obtain support with its external partners among NGOs, local authorities, "disaster experts" and other resource holders*
- *its ability to continue community based disaster management without external support*

5. LESSONS LEARNED

5. 1 Bangladesh Experience
Sajedul Hasan, CARE Bangladesh

5. 2 Cambodia Experience
Uy Sam Ath, Cambodian Red Cross

5. 3 India Experience
Manu Gupta, SEEDS

5. 4 Indonesia Experience
Harkunti Rahayu, ITB

5. 5 Nepal Experience
Amod Dixit, NSET-Nepal

5. 6 Philippines Experience
Jerome Casals, IDRM

5. 1 Bangladesh Experience

Sajedul Hasan
CARE Bangladesh

Country Profile

People's Republic of Bangladesh
Capital: Dhaka
Population: 133,376,684
GDP/capita: USD 1,602 *Source: UNDP Development Report 2002*

Major Disasters

Flood, Cyclone, Tornado

Project Data

Location: 1,000 communities on active flood plains in 20 high flood risk sub-districts
Duration: 5 years
Funding Agency: USAID
Partners: Local Government Engineering Department
Local partner NGOs, Union Parishads

Background

Floods in Bangladesh are almost an annual feature of peoples' lives which is, to a large extent, due to its geographical location and natural drainage system. The major river systems, including the Ganges, the Brahmaputra and the Meghna, pass through Bangladesh to reach the Bay of Bengal. The country has excessive rainfall, particularly in the upper catchment. Floods inundate a substantial part of Bangladesh every year from July to September. In a "normal" year about 20 per cent of the country is affected but under extreme conditions as much 60-70 per cent of the country would be inundated. Pervasive flooding in the low-lying areas of Bangladesh creates perennial challenges for households and their environment. Even in years of average floods, many households get inundated and income-earning opportunities become scarce during the flood season. The scale of flooding in Bangladesh can defy comprehension. Frequent flooding exacts a heavy toll especially on poor families in low-lying areas, where annual loss of life and what small assets people possess are considerable. The floods in 1988 captured the world media's attention as the worst in recorded history inundating nearly 60 per cent of the land area (52 districts out of 64) of the country and affecting 45 million people. The extent of total loss was estimated to be equivalent to US$ 1.2 billion. An estimated 7.2 million dwellings were damaged or destroyed in 1988. And the prolonged flooding of 1998 affected 10 million people and 60 per cent of the country. Often these statistics do not reflect the human misery and the adverse impact on the livelihoods of most individuals, families and communities affected by the disasters.

Generally, a major part of the country suffers due to flooding but it causes serious problems in the active flood plains in the main river channels (locally termed as chars[1]). Normal monsoon inundation tends to last for weeks rather than months, but floods can occur several times during the monsoon season.

1 *Char* is the Bengali term for a mid channel island that periodically emerges from the riverbed as a result of accretion. These areas are subject to regular flooding. Chars are located within the active flood plain of the major rivers. Active flood plain is characterized by more frequent, deep and severe flood.

In chars, erosion is also an important hazard. Villages are less permanent, as households move to adjacent areas when erosion occurs.

In general, the charland experiences mid level flooding every 3 years. Floods have several impacts on the life of char dwellers, direct impacts are the loss of lives, livestocks and poultry, damage to houses, household assets, boats, standing crops and lack of employment opportunities. Indirect impacts are linked to the exposure to diseases, malnutrition, starvation and an unhygienic environment. The dependency and indebtedness of poor households to their landlords and patrons also increases during floods, when cash is needed to purchase food, medical expenses and reorganization of assets and crops (Flood Action Plan, FAP, 3.1 Study).

The disastrous flood of 1988 demonstrated the need for more comprehensive flood plain planning. As a result, the Government of Bangladesh with multi-donor support, launched the Flood Action Plan (FAP) in order to formulate and implement technical, economic, and environmental rehabilitation and protection measures to counter the adverse effects of annual floods throughout the country. FAP 23, one of the major components of the Flood Action Plan, reviewed and evaluated the possible performance of ongoing flood-proofing activities.

Flood-proofing is defined as: *the provisioning of long-term, structural or non-structural measures that can be taken by individuals, families or communities to mitigate the effects of floods.*

The study concluded that national-, regional-, and community-level flood-proofing strategies have inadequately addressed the impact of annual floods on the livelihoods of poor and vulnerable households and communities, whose limited or virtually non-existent resource bases invariably prohibit their ability to plan and implement effective flood-proofing measures when compared to the rest of the population.

CARE Bangladesh with the financial assistance of the USAID undertook a 5-year (since fiscal year 1999) Flood Proofing Project. The project is being implemented through a partnership arrangement by CARE, Local Government Engineering Department of the Government, local partner NGOs and Union Parishads[2] (UP) in 1000 communities on active floodplains in 20 high flood risk sub-districts. These communities experience regular annual flooding as they are either located in the active floodplains of major river channels or the tectonic depression areas. This makes the project's geographical setup wide ranging. However, for this study the project location is zoomed in Kurigram district (northern part of Bangladesh), an active floodplain formed along and/ or within the Brahmaputra River.

2 Union Parishad is the local government.

Motivation & Purpose

The primary reason for designing and implementing this project is to reduce the adverse impact of flooding on the lives of the rural flood-prone communities which get inundated every year. The scale of inundation differs from year to year as determined by the flooding characteristics. Relative economic losses due to the magnitude of flooding leaves behind innumerable poor vulnerable and vulnerable. The poor, vulnerable communities cannot develop a strong coping mechanism of their own as they lack information and skill development options. The FAP –23 articulated the recommendations for flood-proofing activities through an in-depth cause and effect assessment. On the other side, CARE's experience in traditional disaster management activities through a relief-oriented approach spoke for a community-driven participatory disaster management programme. Many players, contributors like (USAID) and CARE–Bangladesh, government counterparts (Local Government Engineering Department), partner NGOs, communities, and research organizations are involved in the planning, implementation, and assessment process.

The community members become involved in the project from the very beginning. CARE and the partner organizations come to the community with a very wide and flexible goal and mission statement whose main message is to attain a sustainable mechanism through reducing the adverse impact of floods. Once they entered into community idea-sharing, dialogue, situation analysis, needs assessment, planning, and negotiating process for cost sharing and communities' contribution commenced with the active participation of the communities which continue for nearly six months. Many communities came up with their own unique flood-proofing plan even though they were affected by a common problem. The uniqueness originated from each community's capacity, social capital base and the potentialities they identified. A community representative committee, called Local Project Society (LPS) was also formed within this planning process.

Activities

Based on these propositions the Flood Proofing Project (FPP) was designed and started working in October 1999 and will conclude in September 2004. The project is community-based by approach and strategy and includes a wide range of programming components such as: Community Mobilization and Awareness. Household Flood Proofing Measures, Small-Scale Agriculture, Social Forestation, Infrastructure and Community Resource Management, and Income and Livelihood Protection. The major activities of the project are as follows:

Community Mobilization and Training

The project uses Participatory Learning and Action (PLA) methodology as an initial process of community mobilization. Application of PLA at the beginning of the project encourages community's participation in analysing and identifying the flood vulnerabilities, needs, and potential resources crucial for mitigating the adverse impacts of flooding, and strengthens the communities' capacity for managing the entire project by themselves. The project facilitates the mobilization, formation, establishment and continued proactive participatory management of flood preparedness committees in all participating communities. In each community, a committee termed as Local Project Society (LPS) is formed to execute the respective community's decisions and implementation of flood-proofing plans. The committee disseminates early warnings and establishes systems for evacuation as well as implementation of flood-proofing interventions. This essential component of the project ensures continued community ownership and responsibility for flood proofing and preparedness activities. The project arranges extensive training for capacity-building of LPS members and links the LPS with other development agencies and local government for sustainability of FPP interventions. The project also forms Mother's Clubs, Adolescents and Children Forums in each community and provides behaviour change education on flood preparedness, health, nutrition, etc. For follow-up learning processes and demonstrating the best practices, an advanced group called Community Based Volunteer (CBV) is promoted. CBVs closely work with the female community.

Structural Mitigation Measures

The structural flood-Proofing measures include making adjustments to infrastructure to keep water out or reduce water inundfation, e.g., raising homestead yards. The raised yards allow the residents spacing for cattle/ livestock shade, poultry-keeping, fodder-storing and ensure that possessions remain above floodwater levels. The other interventions are installation of latrines and tube-wells above peak water levels, the construction and renovation of community flood shelters/communal places, elevated village roads and small culverts, village markets and river ghats, etc. Many of these interventions have significantly reduced the additional burden on women during the flood season.

Small-scale Agriculture, Social Forestation and Erosion Control Measures

The project promotes small-scale agriculture and improved natural resources in the communities. These include homestead and roof top vegetable gardens in the raised or protected homesteads, tree plantation, social forestry, and livestock-rearing. FPP raises awareness and assists communities in planting trees and establishing nurseries in order to mitigate erosion and supplement income within communities.

Income and Livelihood Protection

Disruption in the local economy during and after floods is

manifested in shortages in employment opportunities, which can severely depress the incomes of poor people, who possess little food or financial reserves. The loss of income can result in severe malnutrition, and at times homelessness and displacement. People often incur debts in these situations, which impacts on their future livelihood security in an adverse manner.

The project identifies and supports alternative income-generating activities (IGAs) especially those which can continue throughout the flooding season in order to supplement the income base of poor households. Rural credits for various IGAs are undertaken through partner NGOs as an extension of their own credit programmes.

Accomplishments & Results

The project has changed significantly the livelihood of *char* people. In recent discussion sessions, the communities spontaneously identified the difference that occurred due to the project interventions. The first thing people mentioned was that now they have a committee (Local Project Society) whose presence reminds them of the Flood Preparedness and Management Plan. They were able to share their problems and solutions. The committee has linkages to other organizations and this strengthens its profile in the community. People talk about both the tangible and intangible benefits of the project such as the increased social status of those households with raised plinths. In Beparipara, for example, people from the mainland now express interest in marrying people who live on charlands. Households with raised homesteads have extended their social capital by extending shelter and basic resources (such as water and cooking facilities) to their neighbours from non-raised households during flooding while many of the non-raised households constitute the higher class. In Bhogoler Kuthi, residents of raised households have been invited to participate in village courts, or shalish. Improvements in infrastructure, particularly roads, have improved villagers' access to information, transportation, and employment.

To express the measurable change some quantitative references are drawn from Impact Assessment Surveys conducted in last 2 years. An annual post-flood survey (follow-up survey) of the project documented higher benefits among the poor households (direct participant households). Households with raised plinths experienced a dramatic decrease in asset loss compared to the baseline situation, the survey estimates that the loss of asset during flood time declined by 75 per cent since their household plinths were raised which resulted in savings of Tk. 5000 (US$91) or more per year. The other community structures such as flood shelters, schools, markets, etc., offer secure storage facilities to the non-raised households for protection

Photo taken by UNCRD at BDPC(Bangladesh Disaster Prepardness Center) site

of their assets. Nearly 90 per cent of households of both raised and non-raised category had their access to safe drinking water improved while 80 per cent of households were able to enjoy a normal diet with adequate vegetables.

The Post Flood Survey of the FPP project also assessed the knowledge level of the communities which participated in the project's Flood Preparedness and Management orientation courses. It showed that knowledge on precautions, preparedness, and measure usually taken before, during and after flooding to minimize risks had improved significantly. Findings of the survey showed that around 14 per cent respondents were still unaware of the above-mentioned knowledge issues while 86 per cent of respondents were found to be satisfactorily knowledgeable. Regarding different measures of precaution and preparedness the response was as follows: storing food during flood (70.8 per cent), saving or storing fuel (50.3 per cent), strengthening of the house structure (45.9 per cent), taking erosion-protection measures for homesteads (39 per cent), finding safe places for shelter (28 per cent), collecting temporary housing construction materials like bamboo, fences, polythene (21.3 per cent), storing livestock fodder (60.5 per cent), storing assets in safe places (75 per cent) and disseminating flood information and shelter management (86 per cent) (multiple responses).

Peoples' life-styles have also changed. In the baseline survey it was found that flood and flood-related problems were the major cause of temporary migration for these charland people. But after the project intervention, their migration pattern has been changed significantly. Majority of the respondents (57.6 per cent) reported that none of their HH members migrated anywhere during the last 2 months and of those who migrated the reasons are as follows: migrated because of economic reason (23.1 per cent), flood/erosion (0.6 per cent), cyclone/tornado (0.3 per cent) and drought/crop damage (0.1 per cent). But the most important benefit mentioned was the fact that they now felt free of trauma.

The sustainability aspect becomes visible within the life of the project. The institutionalization mechanism is taking a right shift. LPS members feel that their social status in the communities has increased significantly – they received more respect and found that others sought them out for technical support or advice on a variety of issues. The LPS members were often invited to work as mediators and to represent the society at local events, such as marriages and religious ceremonies. When asked about the intention of LPS members to participate in the Union Parishad (UP, the local level administration) election, from the village of Beparipara, five or six members planned to run for the position of UP member and one LPS member will campaign for UP chair. In Darar Par, the LPS president plans to stand for the position of UP member.

The most notable impacts, as cited by the community members, were after the mplementation of flood-proofing and different service providers were intervening in the communities. The reasons they mentioned were: their habitat had become secure; the resource base was increasing; the overall economic portfolio of the community had improved; people had gained knowledge and motivational power; and service providers had counted these changes as providing feasible grounds for investment.

The LPSs are becoming the loci of many small economic activities such as evacuation boat management (non-commercial use during the flood season and commercial use during normal periods), tree plantation management, and small nursery management and in every case they receive a certain percentage share which is earmarked for implementation of the Village Plan. The partner NGOs have started channeling their non-FPP services through many of the LPS committees. Many of them have taken proactive roles to establish linkages with other NGOs and government service facilities. They become able to create an image of credibility of their own which places them in the centre of many service delivery systems. Many LPSs have developed their village-specific sustainability plans in which they have identified their future vulnerabilities, how they could strengthen generation sources, how they could negotiate other agencies' resources, continue the participatory decision-making process and minimize the effects of flooding at community level etc. Some of these plans are incorporated in the Union Parishads' development plans and those of other development agencies.

Gender and women's empowerment are essential elements in the project activities. It's efforts to integrate and ensure women's active participation at every level of the project cycle has worked effectively. The Mother Club members and community-based volunteers (CBVs) have emerged as change agents within the community. Some of them are appointed as group leaders and/or village-level facilitators for other NGOs' service deliveries. Assessments conducted in the post-implementation period found that the Mother Club members and CBVs had successfully performed their intended jobs. They, along with the LPS members, disseminated early warnings for floods, suggested that people take preparation to cope with potential floods to reduce risk and losses. They also helped mothers to prepare homemade saline, arrange safe drinking water, take preventive measures for flood-related diseases and establish improved vegetable gardens. Many were successful in attaining the objective of forming Mother Clubs as other organizations and local communities recognized them. Newly intervening NGOs or partner NGOs which took up new activities demanded the involvement of Mother Clubs' members.

Photo taken by UNCRD at BDPC site

Livelihoods are important areas in which to strengthen local people's capacity to cope with disasters. Direct and indirect support for strengthening people's resources to increase their choices and opportunities for better livelihood options is an important factor and all the project interventions are highly correlated.

Major Challenges

The following are the major challenges for future consideration:

- The Flood-proofed communities are isolated, away from public delivery services and mobilization takes time;
- Community based disaster management needs effective planning, so that it can be ensured through true community participation and awareness build-up;
- CBO (LPS) and other participating agents need clear vision, management capacity, adequate knowledge, information and true facilitation which are fundamental for the success of CBDM;
- Legal status of CBOs and linkages with other development initiatives;
- Capacity-building of community (especially women) and ensuring alternative income-earning opportunities during the flood season;
- Integration of gender needs and women's empowerment in community based sustainable disaster management. Effectively engage the women in planning and preparedness activities;
- Ensuring community contributions to the project and provision of resource generation at the local level;
- Involving the local government in community based sustainable disaster management; it is recognized that the local government is the best positioned to provide leadership;
- Integrating disaster management with long-term development;
- Implementation and management of community-driven sustainability plan;
- Local coping mechanisms are ignored; while planning for enhancing capacity of the community, outside organizations must learn the existing coping mechanisms and how to improve them;
- Lack of understanding, knowledge and skill of planners and implementers in CBDM.

5. 2 Cambodia Experience

Uy Sam Ath
Cambodian Red Cross

Country Profile

Kingdom of Cambodia
Capital: Phnom Penh
Population: 12,775,324
GDP/capita: USD 1,466 *Source: UNDP Development Report 2002*

Major Disasters

Flood, Drought

Project Data

Location: Selected villages along the Mekong River
Duration: 1 year
Funding Agency: USAID, Pact Cambodia, ADPC
Partners: The International Federation of the Red Cross
The Red Crescent Societies Delegation
(the Federation) in Cambodia

Background

Cambodia is situated in Southeast-Asia and is bordered by Viet Nam in the northeast, Lao PDR in the northwest, and by Thailand in the southwest. It has a land area of 181.035 square kilometers consisting of 24 provinces and municipalities, 185 districts, 1,622 communes, and 13,861 villages. The actual population is 12,181,251 concentrated on both side of the Mekong River areas from Stung Treng down to Prey Veng Provinces. Geographically, Cambodia is a flat plain and a mountainous/plateau country. It has two mains water bodies: the Mekong River and Tonle Sap Lake including a number of small tributaries.

Cambodia is one of the most severely disaster-affected countries in the region. The primary natural disasters in Cambodia are floods, droughts and forest fires. Cambodia is naturally susceptible to annual flooding during the main monsoon season along two major watersheds, the Tonle Sap Lake and the Mekong River. Localized flooding caused by monsoon thunderstorms is also a serious threat as they periodically sweep the country. Severe flooding hit the country in 1961, 1966, 1978, 1984, 1991, 1996, 2000 and recently in 2001. In the 1996 floods, continuous heavy rainfall in China, Lao PDR, Viet Nam and Cambodia inundated the Mekong River affecting 1.3 million Cambodians with 600,000 ha of crops and 50,000 homes damaged or destroyed. The floods of 2000, on the other hand, were the worst to hit the country in more than 70 years. The total physical and direct damage was estimated at US$ 150 million, which is 40 per cent of the total estimated damages of US$ 400 million in the four countries in the Mekong River basin, i.e., Lao PDR, Cambodia, Viet Nam, and Thailand.

In the midst of recovering from the floods of the preceding year, the country was again affected by floods in 2001 signaling a worsening and more frequent occurrence of flooding. In addition to the floods, the country was also affected

by drought particularly in the Provinces of Battambang, Pursat, Prey Veng, Kompong Speu, Kampong Cham, and Svay Rieng which experienced insufficient rainfall throughout the year. The lack of drinking water affected not only the human population but livestock as well. In most of these areas farmers could not plant rice because of the unavailability of seeds that were damaged during the previous year. For the year 2001, NCDM estimated the total damage from natural disasters at US$ 36 million. Some 2,121,952 people from 429,698 families were affected not only by the destruction of homes, roads, bridges, irrigation facilities, agricultural crops and livestock but also by the food shortages that occurred as a direct result of the flooding and drought. Close to one million people were affected by flood-related food shortages, while over half a million were affected by food shortages caused by drought.

Motivation & Purpose

In addition to the damage to capital assets, agricultural crops and infrastructure, there are a number of various social, psychological, and economic losses suffered by the population affected by the disaster. Delivery of public services is also disrupted, not to mention the destruction of personal and family assets. In the areas visited under the evaluation for example, household income was reduced both in the short-as well as in the long term. For a country like Cambodia, the impacts of disasters can negate the achievements of previous decades of favourable economic growth and development. It is in this light, that the Cambodian Red Cross (CRC) has been implementing a Community Based Disaster Preparedness Programme (CBDP) in several of the country's provinces. It is also important to note that the Royal Government of Cambodia has had a relatively short history of governance and has only recently begun to establish institutional arrangements for the coordination and operation of disaster management efforts. Prior to this, the CRC had been playing the major role in disaster response and relief in the country. The emphasis of CRC's assistance is slowly evolving from relief to rehabilitation, from disaster response to disaster preparedness and from emergency assistance to development and capacity-building. In line with these developments, the Disaster Management Department (DMD) of the CRC has been restructured from a unit primarily responsible for food and relief distribution to a leader in disaster response, especially in emergency relief assistance, provision of logistical support and management of communication and information.

After the flooding experience of 1996, the CRC conducted a flood mitigation workshop among key personnel from 10 of its provincial branches. Participants to the workshop identified the most vulnerable areas along the Mekong River. In 1998, funding from USAID was received and made possible the design and initial implementation of CRC's Community-Based Disaster Preparedness

(CBDP). Technical support was provided by the Disaster Preparedness delegate from IFRC, the Asian Disaster Preparedness Center (ADPC) and PACT. The general objective of the CBDP programme of CRC is to improve the quality of life and capacity of the most vulnerable groups in Cambodia. This is to be accomplished through the implementation of a CBDP that will initiate a community-level process of community participation, empowerment and problem-solving undertaken by a community to prepare for, and respond to, the natural disasters that may affect them. It involves addressing or decreasing their vulnerabilities (e.g., damaged infrastructure, and livelihood and shelter needs) and increasing their capacities (i.e., knowledge and skills) to deal with the natural disasters that frequently occur.

Activities

Major activities undertaken with regard to CRC's implementation of its CBDP began with a preparation phase consisting of pre-operation activities at CRC's DMD and at the provincial branches. Activities at the DMD level included:

1. Staff recruitment and training them to be trainers by using the existing CRC's human resources guided by the DP Delegate of The Federation.
2. Development of training curriculum for RCVs, Training of Trainers (TOT) at the Community level.
3. Setting up of CBDP structure in the Disaster Management Department itself, to prepare to respond to the needs of the training programme, such as: criteria and procedure of RCVs and target selections, roles and responsibility of each training staff member.

At provincial branches, the following activities were undertaken:

1. Assignment of one Development Officer per province to be responsible for coordinating the implementation and training required by the programme.
2. The three Branch Directors were provided with a five day Training of Trainers (TOT) training.
3. Setting up a linking information system and channeling the information between the community to Branches and to the CRCNHQ.
4. Linking system between the community with Branches and the CRCNHQ.
5. System of coordination and linkage with CRC National Headquarters

After the completion of these activities, implementation of CBDP proceeds with the following activities:

At the CRC level:

1. Practice of the training methodology for trainers is conducted as self-preparation.
2. Master plan designs for the CBDP implementation programme.
3. Financial management process is set up according to the requirement of donors.

At the Branch level:

1. Coordination, cooperation and supporting process is issued to all Branch
2. Instructions and guidance are disseminated to the Branches.

At the Community level:

1. Communicate to the different levels of local authority and community as well as to the RCVs/participants.
2. Selected communities are informed of the programme and extensive information dissemination is undertaken through the Branch Directors, Development Officers and by the District, Commune, and Village leaders.
3. Coordination, cooperation, and field support.

Full implementation of the CBDP proceeds with the implementation of the following activities:

1. Conduct of a 3-day orientation course conducted by CD Department's trainers
2. Conduct of a 5-day course on the Disaster Management in General conducted by the DMD training team.
3. Conduct of first 5-day training course on Community Organizing which is conducted by the DMD training team.
4. Conduct of second 5-day training course on Community mobilizing, which conducted by the DMD training team.
5. Site visit series (5 times).
6. Group meetings (5 times)
7. Micro-solutions, project-proposal writing and submission for external funding and local recourse mobilization.
8. Endorsement of the required budget.
9. Micro-solution implementation.
10. Monitoring and evaluation of the implemented micro-solution.

Accomplishments & Results

Implementation of the CBDP programme has shown significant benefits and impacts on the lives of the villagers. These benefits are largely due to the implementation of small-scale mitigation projects, what are calls as "micro-solutions" or micro-projects (e.g., culverts, road raising, development or improvement of safe areas, etc.). Aside from reducing the physical vulnerability of the people in the villages, implementation of the CBDP programme has

also resulted in the increase of social and organizational capacities of the villagers. While this is extremely difficult to quantify, it is nevertheless just as important as the physical mitigating effects of the project. Increasing the capacities of people in the social, organizational, and attitudinal/motivational aspects has been shown to reduce vulnerabilities over time.

For many of these communities, this had been their first time to participate in a collective effort in a project that will benefit not only themselves but also the entire village, and the experience was new to them. In the course of implementing the project, they came to understand the value of collective action and the basic premise of disaster preparedness. Upon completion of the project, villagers reported experiencing a sense of achievement and a new perspective on their ability to initiate changes towards the improvement of their communities, from a sense of helplessness to a sense of effectiveness. This was even more evident in villages where the projects implemented proved to be effective in actually reducing the effects of flooding. The perceived social and organizational benefits the programme has provided the communities visited under the evaluation can be summarized as follows: (1) increased willingness of individuals to work for a common purpose; (2) potential continued use of collective action to solve community problems and decreased dependence on external assistance; (3) increased awareness of possible individual and community disaster preparedness measures; and (4) inculcation of positive attitudes among villagers in terms of their abilities to initiate changes towards the improvement of their communities.

Implementation of the CBDP Programme has resulted to the following:

- One hundred and twenty four (124) Community Based Disaster Management Councils (CBDMC) were established to supervise and manage community activity
- Some seventy seven (77) micro-solutions are being implemented
- Five (5) trainers have been trained on the CBDM at the DMD/CRC.
- Final version of training curriculum developed for the CBDP training programme.
- DMD/CBDP's structure is set up to support the training programme.
- Seven (7) Branch Directors assume the roles of CBDP trainers.
- Seven (7) Branch Development Officers are trained in CBDP.
- Five hundred and twenty five (525) Red Cross volunteers have been trained in CBDP.

Major Challenges

The Community Based Disaster Preparedness (CBDP) Programme has a very promising future in the country and the CRC, given its pioneering work and the opportunities available, can and should play a major role in initiating a design appropriate for local

conditions. Its subsequent dissemination and adoption as a programme which will help spur sustainable development can be a unique contribution by CRC in the development of Cambodia. For this to be achieved, however, the following challenges should be addressed:

- The implementation of the CBDP has been characterized by a continuous process of learning which has resulted in a number of changes and improvements in the programme since its inception. While this indicates a programme that is still at the stage of fine-tuning or refinement, CRC is taking the necessary steps to thoroughly refine its CBDP model. This is not to say that further improvements and modifications will not be made in the future but that a critical mass of experiences and learning has been accumulated that will now enable CRC to more clearly define its own concepts and approach to Community Based Disaster Preparedness.
- Based on the National Committee for Disaster Management (NCDM) action plan and policy pronouncements, there exists a definite and immediate opportunity for the CRC to promote, disseminate, and further implement its CBDP Programme. The CRC is one of the few organizations, if not the leading organization, which has been pioneering the concept and implementation of CBDP in the country. With an established excellent working relationship with the NCDM, it is in a unique position to forge a partnership with the NCDM in the area of community-based disaster preparedness.

- The design of the CBDP programme should be modified to incorporate a structured monitoring and evaluation strategy, including assessment and evaluation procedures at the community level. The CBDP programme should now be more specific regarding goals, objectives, outputs, accountabilities, and especially how performance will be monitored and measured. Monitoring and evaluation schemes must be built into the programme.
- CRC should continue to invest in its human resource capability, and should exert efforts to consciously maintain and develop a "core staff of DP specialists" within the DMD. In addition, the knowledge and skills of provincial branches (i.e., branch directors, development officers, RCVs and village disaster management committees) should also be subject to a more purposive and comprehensive capacity-building programme.
- CRC needs to take a long-term perspective on the financial and resource requirements of implementing CBDP in the country. This includes looking for other donors with more flexible terms (i.e., those that have a development perspective and/or appreciation of the disaster relief to development continuum) and establishing networks and partnerships with GOs, NGOs, and institutions.

5. 3 India Experience

Manu Gupta
SEEDS

Country Profile

Republic of India
Capital: New Delhi
Population: 1,045,845,226
GDP/capita: USD 2,535 *Source: UNDP Development Report 2002*

Major Disasters

Cyclone, Earthquake, Drought, Flood

Project Data

Location: Orissa
Duration: Year 2000 onward
Funding Agency: UNDP, DFID
Partners: Orissa State Disaster Management Authority (OSDMA), Local NGOs

Background

In 1999, a cyclone of unprecedented intensity hit the State of Orissa in India, on the 29th of October. The cyclone smashed through Orissa battering its coastal belt and leaving behind a ghastly scene of death and destruction. Twelve districts of the state were affected, with high winds uprooting trees, damaging countless houses and vegetation, disrupting communication systems, and killing around 10,000 people.

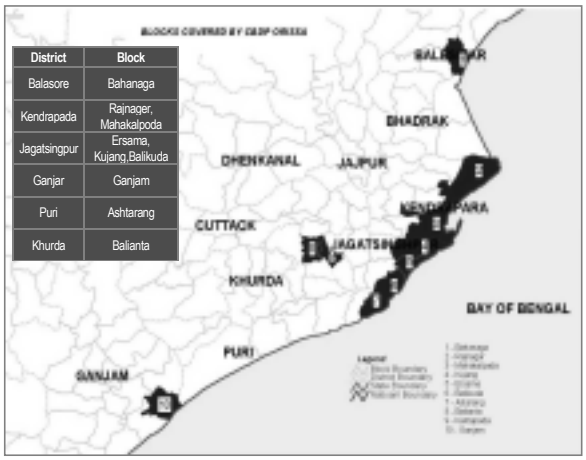
The cyclone took everyone unprepared. This massive loss of life and property therefore changed the state's focus on preparedness with respect to disasters. An effort was made to institutionalize the entire process of managing disasters, leading to the formation of an autonomous organization called Orissa State Disaster Mitigation Authority (OSDMA).

The post-super cyclone rehabilitation phase led to linkages with many UN agencies, multilateral and bilateral donors, and NGOs, which brought together valuable insights, experiences, and financial support.

One of the important programmes initiated in March 2001 in the post-super cyclone rehabilitation phase, by OSDMA was the 'Orissa Disaster Management Project', supported by the United Nations Development Programme(UNDP) and DFID under which **Community Based Disaster Preparedness Plans** (CBDP) were formulated.

The programme was carried out in 10 blocks in Orissa.

District	Block
Balasore	Bahanaga
Kendrapada	Rajnagar, Mahakalpoda
Jagatsingpur	Ersama, Kujang,Balikuda
Ganjar	Ganjam
Puri	Ashtarang
Khurda	Balianta



Major components of the programme were:

- Preparation of Disaster Management Plans at village and block lavels;
- Raising awareness of stakeholders on natural disasters though information and education campaigns;
- Formation of Disaster Management Committees;
- Formation and training of task forces with specialized training in villages;
- Creation of Community Funds;
- Mock drills to sustain training and mapping activities;
- Installation of early warning and alternative communication systems;
- Construction of mounds in low-lying areas and networking of institutions and individuals for effective disaster management.

Motivation & Purpose

Recurring cyclones and floods in Orissa have made the population extremely vulnerable. To minimize the losses in such emergencies, it is necessary that a system be created for increasing preparedness at every level, i.e., government, civil society, and community. Preparedness should start from the grass roots where the community is fully geared to organize itself during disasters to minimize the losses while organized civil society and government responses are immediate if the scale of the disaster warrants external intervention. With this view UNDP and DFID supported the CBDP project in the state. The total programme costs were US$320,000.

The main objectives of the project were:

- Preparation of District, Block, and Village(Gram Panchayat, GP)-level Multi-Hazard Disaster Management Plans,
- Formation and training of various Task Forces (e.g., Medical First Aid, Search and Rescue, Sanitation, Shelter Management, etc.) to respond to emergency situations,
- Enhancing community preparedness to face natural calamities and improving skills for faster recovery after calamities,
- Training and capacity-building of various stakeholders in disaster management (e.g. NGOs/CBOs, Youth Clubs, Self-Help Groups, Govt. department functionaries etc.),
- Vulnerability and risk reduction through incorporating disaster mitigation into existing developmental programmes/planning.

Activities

Under the CBDP project, many direct activities were undertaken. Many microprojects – such as establishment of block-level information centres, involvement of the corporate sector, setting up of HAM clubs were included in these activities. The following activities were undertaken in the project:

Block Disaster Management Plan

The probable hazards in the project areas are floods, cyclones, and fires. To tackle these, a multi-hazard management plan was prepared in all ten blocks.

The plan comprises different stages such as vulnerability and risk mapping, resource inventory, emergency response plan, preparedness plan and mitigation plan.

The Disaster Management Committee
This has been established in each block. The Committees are developing a plan of action for implementating the programme. Based on this, the role and responsibilities of the members of the committee are being defined. They are participating in various activities.

Risk and Vulnerability Mapping
The first stage of the plan is to identify the relative vulnerability of areas to different hazards and the risks to each block. The hazard mapping has been prepared taking into consideration the past impact and frequency of the hazards.

Resource Inventory
The identification of existing resources has been carried out to meet the need of an emergency situation. The identified resources include dealers for food supply, drinking water sources, safe houses, route clearing equipment, boats, generators, tractors and fodder. The list of volunteers, CBOs and addresses of government staff in different areas has been compiled.

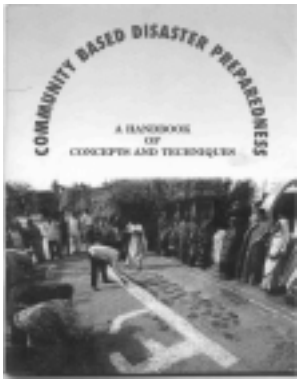
Training of Block Disaster Management Committee
The pertinent elements of training in the disaster management programme are disaster plans at different levels blocks/villages, role of PRIs[1]/CBOs/other line departments/volunteers, mock drill, etc.

1 PRI: Panchyeti Raj Institutions, meaning local government organizations.

Orientation programme
for Block Development Officers (BDO), Tahasildars, Officers in charge of Police Stations and National United Nations Volunteers - Project Officers (Disaster Management).

Gram Panchayat Disaster Management Committees
Committees comprise of the sarpanch (head of the village government), ward members, and other people's representatives, village leaders from each village, one teacher and two volunteers from CBOs. This Committee is expected to play the leading role during any emergency situation. Some of these members have been sensitized on disaster preparedness. A training/orientation session on disaster management has been being organized for them.

Volunteers Training
Volunteers selected by the PRIs and CBOs from each village are responsible for development of CCP and formation of task forces. They are the focal point to continuing the process at the village level.



Community Contingency Plan(CCP)
The CCPs comprise vulnerability mapping, resource mapping, and formation of task forces in each village during this quarter. Out of these, four villages have generated emergency funds for preparedness and two have conducted mock drills. Community members have been sensitized through distribution of leaflets and village meetings. Block Extension Officers and PRIs are helping volunteers in the process of development of CCP.

Block Disaster Information Centres (BDICs)
BDICs were set up for weather tracking, early warning dissemination, and storing and updating information related to disaster preparedness. In all of the operational blocks, the BDICs are functioning where weather tracking is done on a regular basis. GP-level disaster information centres have been set up in ten selected GPs (one in each project block). The centres are provided with computers and internet facilities for weather tracking and now provide computer training to PRI members, students, and self help groups.

HAM Club
Under promotion of HAM clubs, 500 volunteers were trained and forty HAM clubs were set up across ten blocks with requisite equipments.

Village Disaster Management Committees and Task forces
These proved very helpful during the 2001 floods, taking a leading role in relief distribution and ensuring proper coverage of relief support to victims as well as the evacuation of stranded people and ensuring proper hygiene by disinfecting drinking water sources.

The project has led to the creation of useful **IEC materials** including manuals on preparation of community and block-level contingency plans, training of task force members, posters, calendars, documentation of traditional coping mechanisms and how they can be improved and special forums on promotion of safe construction technologies.

Accomplishments & Results

The results of the exercises carried out under the project were put to the test during the 2001 floods in Orissa. The communities, unlike earlier, were able to organize and act quickly due to the presence of trained volunteers who were aware of the actions that needed to be undertaken. This is a proof of the tremendous success this project has achieved[2]. In addition to the public recognition of community efforts that have helped to boost community confidence, a high degree of sensitivity was visible during the interactive meetings held with the community in various districts.

2 One of the trained volunteers, a cycle rickshaw repair shop owner who was active during the floods, received the best volunteer award from the State government.

In terms of quantifiable benefits the project has been able to record:

1. 10 Block disaster management committees formed
2. 332 Block disaster management committee members trained.
3. 10 Multi hazard block disaster management plans prepared.
4. 205 Gram Panchayats disaster management committees formed.
5. 3,041 PRI s trained on disaster management.
6. 1,603 community contingency plans formulated
7. 377 Village contingency funds generated.
8. 2,055 volunteers trained on CCP developments
9. 2,474 task force members trained on rescue evacuation.
10. 2,327 task force member trained in water and sanitation
11. 2,313 task force members trained on shelter management
12. 2,313 task force members trained on carcass disposal
13. 10 block disaster management information centers strengthened
14. 9 GP disaster management information centers strengthened
15. 10 earthen mounds constructed in the low-lying areas to be used as safe places during flood season
16. 20 HAM clubs promoted in 10 blocks[3]
17. 693 volunteers trained in the operation of ham equipments
18. 106 mock drills in 10 blocks with all task force members

3 HAM clubs were formed as an alternative means of communication during disasters.

Major Challenges

Community and Local Officials felt confident about the outcome of the project. The major challenges lie in sustaining the effort. Also, the approach has to be recognized and integrated with development strategies at a strategic level. In the current context, such activities are still looked at in their project jackets. Appropriate policy environments and legal measures are still evolving.

The project has the makings of a "best practice" with such a wide-scale and comprehensive approach. The challenge now lies in integrating this exercise taking the emerging "disaster relief to development" paradigm. Under the new programme, initiated by the UNDP and the Government of India, an attempt is being made by up-scaling it to district level and making the District Development Officer the nodal person for its implementation.

Strategic-level exercises that recognize and integrate community-led initiatives will require attention. The coordinating agency needs to seize opportunities for tying in with other line departments of the government to recognize and integrate community-based work. Politically too, this would be a challenge.

The approach needs to be incremental. Quantitative results tend to overlook actual changes that may have taken place on the ground. The most appropriate would be to initiate the process through a series of pilot projects.

Sustaining the Efforts

Sustaining the capability and training of community volunteers is important. Disasters may not occur regularly, in which case it becomes important that the interest and training of volunteers is sustained. Annual events to organize mock drills and other related activities are essential to sustain sensitivity and enthusiasm.

It was also found that the elected local officials keep changing periodically. While this has a positive impact in terms of a wider base of trained leaders, the training modules themselves have to be continued by external organizations.

Creation of Community Contingency Funds is an important development. Examples from the project reveal how these funds could also be made self sustaining.

Programmes with high levels of community involvement need to be transparent and accountabilities clearly established. The mechanism itself ensures sustainability.

5. 4 Indonesia Experience

Harkunti Rahayu
ITB

Country Profile

Republic of Indonesia
Capital: Jakarta
Population: 231,328,092
GDP/capita: USD 3,043 *Source: UNDP Development Report 2002*

Major Disasters

Earthquake, Tsunami, Flood, Volcano, Forest fire

Project Data

Location: Bengkulu
Duration: 2 years
Funding Agency: UNICEF, city government, Ministry of Education, private sectors, individual contributions
Partners: ITB, Red Cross, UNCRD, JICA, Mosque youth group, Neighborhodd youth group, Woman neighborhod group, Radio Free Band Asc.

Background

Indonesia is an archipelagic country that is part of the Pacific Rim and a place where four tectonic plates meet, i.e. the Indo-Australian Ocean Plate, the Eurasian Continental plates, the Pacific Ocean Plate, and the Philippines Plate. The geodynamic position and the interaction of these four plates have made Indonesia one of the most earthquake-prone countries. According to the Indonesian Seismic Zone, approximately 290 citie, (60 per cent of the 481 Indonesian cities are located in the high seismic zone). On 4 June 2000 at 11:30 pm, Bengkulu, a small but expanding city in Sumatra, with a population of 313,000, was stricken by a devastating earthquake, 7.3 on the Richter scale with an epicentre about 33 km deep and 110 km southeast of the city. It caused significant damage to lives and property.

In most earthquake disaster situations, the causes of damages are partly due to the lack of understanding about the disaster and degree of preparedness in anticipating such disaster among the community. In many cases, some buildings and houses collapsed or were damaged due to poor construction resulting from defective design and defective work in terms of seismic safety measures. Many injuries are often caused by falling debris. From experience, the most critical stage of this situation is the first seventy-two hours during which the community is often isolated and/or blocked from easy access, consequently the community themselves are expected to help each other in saving lives while awaiting rescue and relief services. Community and disaster are two factors that cannot be separated, when there is a disaster,

community members will naturally help each other. The culture of helping others is an advantage in dealing with disaster management. Community participation in disaster management can be in the form of "to part" or "being part", meaning one being more proactive than the other.

Because of this, efforts in raising awareness and preparedness on earthquake safety measures among the community are essential, especially efforts which involve the community's active role. For the Indonesia case, this is in line with the paradigm shift in disaster management in Indonesia as a consequence of decentralization policy. Efforts at empowering individuals as well as communities which are prone to earthquake risk are an integral part of disaster mitigation efforts.

Therefore, the Institut Teknologi Bandung (ITB) with financial assistance from several different national and international partners has designed and, since June 2000, been implementing the CBDM project for the city of Bengkulu as a holistic approach to mitigate future earthquake disaster risks faced by the city through working closely with every component of the community to solve the current adverse impacts of the earthquake.

Rationale, Goal & Objectives

To reduce the impact of disaster risk in terms of loss of life and property, the mitigation intervention can be initiated at every stage of the disaster management cycle, meaning that the CBDM can be implemented as a pre-disaster initiative as well as a post-disaster initiative with awareness as the main essential element of both.

The rationale behind the project is that any city recently stricken by a strong and destructive earthquake would be more receptive to mitigation initiatives. It means that awareness of it would have become inherent among all component of the community; and awareness is the most important step to open people's minds to the importance of having the future disaster risk mitigated structurally and/or nonstructurally. However, the vision of the project is to save the lives of the people of Bengkulu from future earthquake disaster. While the goal of the project was to take advantage of the window of opportunity to promote earthquake disaster mitigation as an intervention initiatives in post-earthquake CBDM — *replicated* from pre-disaster mitigation initiatives conducted by ITB and partner institutions for the City of Bandung from 1997 until now.

The primary objectives of designing and implementing this project as a post-earthquake disaster mitigation initiative in Bengkulu city is simply to address and try to mitigate the adverse impacts faced by the city of Bengkulu and to

implement post-earthquake mitigation initiatives holistically to make the city a safer environment in the event of future earthquake disasters. However, detailed objectives of the project have emphasized five main activities:

- Identifying the situation and condition of Bengkulu city after the recent earthquake,
- Identifying the needs for mitigation initiatives to be implemented,
- Establishing a partnership among ITB and partner institutions within the community of Bengkulu,
- Implementing prioritized initiatives, and
- Monitoring and evaluating the project results.

Community appreciation of CBDM

- before the project initiation

As stated in the project background, the ITB has designed the project as a holistic mitigation initiative, consequently the community, as defined in the project, is also seen as holistic. The term "community" included all significant elements of the community in Bengkulu City, viz,: the mayor and the multi-sectored offices, community leaders, religious leaders, businessmen and corporate companies, NGOs and CBOs, university students and academic staff, journalists, free band radio associations, informal structures at the neighbourhood level called *RT and RW,* defense organizations at the neighbourhood level called *LKMD*, mosque-based youth groups, neighbourhood youth groups called *Karang Taruna*, women's groups at the neighbourhood level called *PKK,* and women's religious groups at the neighbourhood level called *Majlis Taklim*.

Earthquakes are the least common disaster compared to other natural disasters. Most local communities in Bengkulu had come to accept annual flooding as part of their lives due to frequent inundation. But they had become skeptical towards any disaster management effort, due to a slow and disoriented *Satlak* (PB, local government disaster management unit) in handling routine disasters such as floods. Thus during wide-impact disasters due to the June 2000 earthquake, the Bengkulu city was in chaos. Much damage, many donors, a large quantity of aid, etc., were flowing into the city but ironically the responsible agencies were often by-passed. The municipality, in general, was not prepared for wide-impact disaster conditions, due to a number reasons — stated before in previous sections, e.g., unskilled and untrained personnel, inadequate plan focusing more on relief and rescue, the attitude of the municipality that emphasized more on the economic and profit-making orientation rather than the disaster management orientation because of more intangible benefits.

Most damage to residential housing was mainly to nonengineered houses and new "modernized" masonry houses. Aside from the paradigm shift towards modern life-style values and the poor quality of the design and construction

practices, there was an enlightening aspect, i.e. many houses with indigenous architectural designs remained undamaged. The use of light structures and light roofing was inherited from former days and was ultimately shown to be seismic safe.

Thus, the Study Group on Earthquake Disaster Risk Mitigation of ITB has initiated collaboration with other interested institutions, which have become partners in working with the community in Bengkulu. These partners were both national- and international-level partners, i.e. Indonesian Ministry of Research and Technology, Indonesian Ministry of Education, ADPC/USAID OFDA through IUDMP, UNCRD, and Private Corporate. This initiative emerged from the field after preliminary surveys were conducted 48 hours after the earthquake occurred.

Activities

Before implementing the mitigation initiative for CBDM activities in Bengkulu, a quick study on the concept of replicating the preventive mitigation initiatives in Bandung was carried out by evaluating the success and hindrance factors and anticipating the hindrances as well as success factors that the team might have to face during the replication initiatives in Bengkulu. After a series of quick but comprehensive surveys to identify the earthquake impacts and community needs after the earthquake, the ITB team outlined some initiatives which could be taken for the people of Bengkulu. As an academic institution, efforts were outlined more for nonstructural and structural mitigation for different community target groups, emphasizing awareness and capacity building.

Public awareness activities

A series of public awareness activities was held concerning information on earthquake phenomena and the importance of being prepared for future earthquakes, involving many different target group such as the general public (community leaders, religious leaders, and government officials) and the school community. Workshop on potential earthquake disaster risks faced by the people of Bengkulu as well as recommended mitigation initiatives necessary to be carried out; the target groups were the mayor and government officials, and the legislature (members of the local parliament).

Training on structural mitigation

These training courses were designed for two different groups, i.e., engineering/university students and masons. For this activity, ITB has collaborated with ADPC/USAID, UNCRD, the local university and the Mayor's Office to conduct two different technical training courses. The training was designed to accommodate the theory of seismic-resistant design and construction as well as site visits to see the ongoing practice of retrofitting and reconstruction of school buildings.

Training on nonstructural and structural mitigation
These training courses were for the Training of Trainers on an "Earthquake Safety/ Preparedness Program for Schools", with the target group comprised of school communities from the most risk-prone cities/towns in Sumatra Island. For this activity, ITB has collaborated with the Ministry of National Education, the United Nations Children's Fund (UNICEF), and the Mayor's Office to conduct Training of Trainers on an "Earthquake Safety/Preparedness Program for Schools". The role of the education officials and the Teacher Training Center will be to act as the catalytic agents in the city to encourage the implementation of the programme in the schools within their specific region/authority.

Earthquake-resistant school prototype design
A school prototype design that can be implemented by any interested donors involved in the school retrofitting and reconstruction programme was provided by ITB and the team for this activity. ITB has collaborated with UNCRD and potential donors (such as oil companies, a private national television company, among others) for retrofitting and reconstructing the damaged schools. For the selection of contractors as well the supervision, ITB has provided a technical assistant to the Public Works Department of Bengkulu.

Building a simple earthquake-resistant house
To build a safe and simple house to be used as a demonstration model. For this activity, ITB has collaborated with the Ministry of Research and Technology to provide the design and construction material. Personnel will work with community youth groups in Muara Bangka Hulu Subdistrict. This was a learning process to familiarize individuals with the safety issues involved with design and construction through direct practice. The model house, located in the subdistrict office area, is currently used as a local health centre and women's group meeting place.

However, two years after the June 2000 earthquake, there are a lot of things to be learned. There is some strength in CBDM which affects the community way of life, but there are also weakness whereby the programme seems to have no significant effect on the community way of life.

Accomplishments & Results

The role of the Mayor in a number of initiatives was to *enforce and encourage the initiatives,* while participation by other members of the community in the city could be expressed by the commitment of Bengkulu City Government officials to help implementation, also in some cases participating in funding. However, it was shown that participation and cooperation by all community members was substantial and needed to be continued. The impacts of implementing holistic initiatives of CBDM are described in the following section.

The existence of POSKO

The **spontaneous emerging "Post Commando - *posko*"** in relief and rehabilitation should be maintained and institutionalized to maintain the spirit of anticipation for future disasters. If necessary, *Posko* focus and skills could be up-scaled to mitigation and reconstruction initiatives. This challenge has been answered by the efforts of the mayor to establish a new and effective scheme of disaster management for the city of Bengkulu, which basically involves institutionalizing the spontaneous *posko* into a "**Community Participatory Disaster Management Organization**". This new scheme has strengthened the existing structure of *Satlak* PB, by enriching the inter-sectoral coordinating unit with a community participatory organization to handle and manage future disasters.

Training and Capacity-Building

The major intervention for creating or increasing the capacity of *Posko* personnel through training, seminars, and workshop has increased their capacities considerably.

Various training, simulations, and drills on the prioritized target groups have increased the knowledge and skills in disaster management, which has eventually led to the building of confidence among people to anticipate future disasters as a part of their daily lives and be able to cope with, and mitigate, the worst impacts. To some extent, the skills and knowledge gained through training have provided them with new opportunities to improve their income by being effective construction workers. The intervention for school community initiatives has increased their capacity to protect schoolchildren from any future disasters, to prepare the students to protect themselves from earthquake disasters, and to open students' minds and change their attitudes to enable them to see disasters as a part of the daily lives.

Public awareness and public education

A series of briefings, public hearings and an education campaign aiming to increase awareness among the general public as well as to educate them with the disaster management measures has resulted in a more open attitude in perceiving disasters. Benefits at the individual level are that more informed individuals will be able to convey the message to their immediate environment and/or neighbourhood. In many cases, it has encouraged the public to make their own houses more earthquake proof. Increased awareness among the community regarding essential safety measures has led to self-help retrofitting initiatives on their own houses.

Reconstruction and Rehabilitation
Positive impacts were shown in having properly reconstructed schools, houses, and public facilities. Especially regarding schools, there were such significant numbers of schools (>10 school buildings) that have been reconstructed based on the standard design of prototype school buildings provided by ITB and partners. Most of these schools were constructed in compliance with technical specifications.

Advocacy and lobbying
Advocacy efforts of ITB and partners working closely with the local government officials has led them to be able to prioritize disaster management initiatives as curative efforts as well as preventative efforts, for example: rapid risk assessment and reviewing the spatial plan and encouraging parliament and the municipality to prepare regulations on building control.

Major Challenges

From the observation of post-earthquake activities, the following major challenges can be prioritized: Some favourable factors that are considered to be the catalytic initiatives are:

- City (cities) that have recently been stricken by strong and destructive earthquakes are more receptives to initiative for CBDM assessment as a step to risk mitigation
- Communities that are supportive of dissemination of experience will create an interest among its members to replicate the experience
- Strong leadership and political support from the Mayor is important
- Establishing contact with various related organization and agencies is likewise imortant
- Identifying local champions, at the local level as well as among national level organizations
- Developing common understanding on what can be done collaboratively on disaster mitigation within the limitation of resource availability
- An incremental approach: starting with small, workable projects then expanding towards a more general mainstreaming process
- Countries undergoing political and economical reform and a paradigm shift have transparent democratization and ongoing decentralization. Some issues are: the increased role of local governments; government as facilitator (vs. provider); community participatory approach in city planning; and competitive school-based management
- International and public support

Some hindrance factors that are considered to be catalytic initiatives are:

- Lack of priority due to the political and economic situation of the country which is an economy in transition (from 1998 up to now) and continuous structural change.
- Low awareness on the benefit of preventive/proactive mitigation vs. reactive emergency response among the general public and legislators
- Euphoria over democracy is an obstacle for the executive decision maker in political decision making on disaster mitigation policy, no matter how good the leadership of the mayor is.
- Lack of accurate data and information that affects the accuracy and the applicability of the analysis
- The disaster management institutions have not been empowered and still put heavy emphasis on emergency response and less on prevention and mitigation side of disaster
- No law/act on disaster and disaster management to enhance the initiative in mitigation and prevention of disasters
- The slow decision-making process due to Lack of time and coordination among the decision maker because mitigation related work is not in the first priority list
- Lack of follow-up actions by decision makers in transforming the results into operational practice, socializing them in order to reach a wider audience.

5. 5 Nepal Experience

Amod Dixit
NSET-Nepal

Country Profile

Kingdom of Nepal
Capital: Kathmandu
Population: 25,873,917
GDP/capita: USD 1,327 *Source: UNDP Development Report 2002*

Major Disasters

Earthquake, Flood, Landslide

Project Data

Location: Ward 34, Kathmandu Metropolitan City
Duration: Year 1998 onward
Funding Agency: NSET, World Seismic Safety Initiative(WSSI)
Partners: Ward Committee of Ward 34,
Kathmandu Municipal Corporation,
Advisory Committee of Ward 34 DMC,
Ward 34 DMC, Senior Citizens

Background

Nepal has a long history of destructive earthquakes. In the 20th century alone over 11,000 people lost their lives due to earthquakes in Nepal. The last earthquake in active memory was the 1934 Bihar-Nepal Earthquake, which produced strong shaking in the Kathmandu Valley, the country's political, economic, administrative, and cultural capital, and destroyed 20 per cent and damaged 40 per cent of the valley's building stock, including many historic sites. This earthquake was not an isolated event. Three earthquakes of similar size occurred in the Kathmandu Valley in the 19th century: in 1810, 1833, and 1866. The seismic record of the region, which extends back to 1255 AD, suggests that earthquakes of this size occur approximately every 75 years, indicating that a devastating earthquake is inevitable in the long term and likely in the near future.

Earthquakes are thus an unavoidable part of the Kathmandu Valley's future, just as they have been a part of its past. However, a large earthquake near the Kathmandu Valley today would cause significantly greater human loss, physical damage, and economic crisis than caused by past earthquakes. With the valley's burgeoning population of about 2 million people, uncontrolled development, and a construction practice that has actually deteriorated over time, the valley, Nepal's political, economic, administrative, and cultural capital, is becoming increasingly vulnerable to earthquakes with each passing year. Kathmandu Valley has an urban growth rate of 6.5 per cent. Nepal developed a building code in 1994, but its implementation has not been institutionalized and more than 90 per cent of urban construction is built without the input of an engineer and without considering seismic forces.

The decision of the National Society for Earthquake Technology (NSET) to implement the Kathmandu Valley Earthquake Risk Management Project (KVERMP) was aimed at improving this situation, and start a process towards

managing the earthquake risk in the Valley. The KVERMP was implemented during 1997-2001 jointly by NSET and GeoHazards International (GHI), as part of the Asian Urban Disaster Mitigation Program (AUDMP) of the Asian Disaster Preparedness Center (ADPC), with core funding by the Office of Foreign Disaster Assistance of USAID.

Participation of the stakeholders began right from the project design phase: representatives of most of the government and non-governmental institutions in the Kathmandu Valley related to disaster management gathered in a project design workshop in March 1997, and chalked out the objectives and contents of KVERMP, as follows: 1) to evaluate Kathmandu Valley's earthquake risk and prescribe an action plan for managing that risk; 2) to reduce the public schools' earthquake vulnerability; 3) to raise awareness among the public, government officials, and members of the international community resident in Kathmandu Valley, and international organizations about Kathmandu Valley's earthquake risk; and 4) to build local institutions that could sustain the work launched in this project.

Motivation & Purpose

The motivation for implementing KVERMP was the realization of ever-increasing earthquake risk in Nepal and in the Kathmandu Valley in particular, and the need to address the problem by mobilizing resources and developing synergy among all stakeholders — government agencies, private business, and local communities. The idea of relying upon the community for implementing mitigation measures was not included in KVERMP in any visible form. However, during the process of implementing KVERMP, especially, during the implementation of the school retrofitting programme, it became very clear that a successful earthquake vulnerability reduction programme couldn't be successful unless there is strong participation by the community. In Kathmandu Valley, less than 5 per cent of the new buildings are engineered ones, the rest, 95 per cent, is nonengineered. Obviously, the seismic performance of these nonengineered buildings cannot be improved if there is not full participation of, and ownership taken up by, the community.

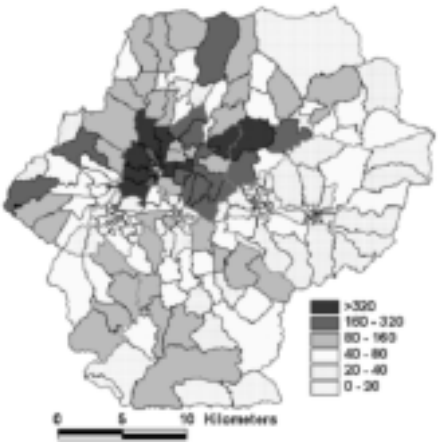
Another motivating factor for undertaking and continuously improving the school programme and the ward-level disaster management capability enhancement programme was the actual participation of the communities. Active discussions always took place in the advisory committees. Members volunteered to become a part of the school construction process and donated their time, while masons donated labour, and children and their parents contributed to the retrofitting programme by carrying construction materials. The elected local government (village development committee, district development committee, ward committee) became involved and began including NSET's school reconstruction into their annual programme for partial budget outlay. Businessmen from within the community donated money and materials (bricks, rebars, and cement).

Activities

The Earthquake Damage Scenario of Kathmandu Valley

A simple loss estimation study was conducted for a hypothetical repeat of the 1934 earthquake in modern day Kathmandu Valley. The location and vulnerability of Kathmandu Valley's infrastructure was determined through interviews with about thirty institutions that operate important facilities or emergency response systems. It was concluded by extrapolation of the casualty data for some recent earthquakes and applying them to the conditions of the Kathmandu Valley that estimates of 40,000 deaths and 95,000 injuries in Kathmandu Valley's in the next major earthquake would not be unrealistic.

The loss estimates were explained in an earthquake scenario document that was written in layman's terms and published in both English and Nepali (www.nset.org.np) and distributed widely. This document includes a description of possible damage to various vital systems in Kathmandu, and an explanation of the repercussions of this damage on life in Kathmandu Valley.



JICA Study Report (2002)

The Kathmandu Valley Earthquake Risk Management Action Plan

As a response to the extreme risk identified in the loss estimation study, the project with over 80 government and nongovernmental institutions formulated a plan to systematically reduce this risk over time. The Prime Minister of Nepal officially released and endorsed this plan in January 1999.

The purpose of the plan is to assist His Majesty's Government, concerned agencies, and the municipalities in the Kathmandu Valley to reduce the Valley's earthquake risk over time by coordinating and focusing risk management activities. The Plan identified ten priority actions.

The action plan is currently being implemented by NSET under the Kathmandu Valley Earthquake Risk Management Action Plan Implementation Project (APIP) that started in September 2000. Main components of APIP include: i) School Earthquake Safety Program (SESP); ii) Improving seismic performance of existing buildings by reducing nonstructural vulnerabilities in typical Nepalese homes and offices; and 3) Earthquake Awareness.

While the whole of the KVERMP and APIP process are locally-driven with wide involvement of local institutions and communities, and almost all of the project components strongly incorporated community-based approaches, this paper provides the highlights of only three components: SESP, the Earthquake Awareness Program, and the Municipal Capability Enhancement Program. These components are conspicuous by a high level of community involvement in their design and implementation.

School Earthquake Safety Program (SESP)

Public schools in Nepal, both their buildings and their occupants, face extreme risk from earthquakes. Management of the public schools is largely the responsibility of the local community: the government provides the curriculum, teachers's salaries, and textbooks. The rest has to be managed by the community. Usually a very low budget is available for the school management

system as the tuition is either free in lower classes or the fees are very low. Such conditions result in very high seismic vulnerability of school buildings. This fact was evidenced during the 1988 Udayapur earthquake (M 6.6 Richter) in eastern Nepal. Six thousand schools were destroyed in this event, luckily during nonschool hours. Such massive damage to the school infrastructure disrupted the affected community: approximately 300,000 children were unable to properly attend schools for several months after the event.

The SESP project included a vulnerability assessment of Kathmandu Valley's public schools as an example of how to conduct earthquake risk mitigation projects in Nepal. The purpose of this assessment is not to identify individual schools as vulnerable, but to quantify the risk faced by the entire system. It is targeted to assess the structural vulnerability of the existing public school building stock and to prescribe a system of seismic strengthening. A preliminary assessment, carried out with the involvement of the school headmasters revealed a pathetic scene – not a single building out of about 1,100 buildings belonging to 643 public schools complied with the seismic standards set by the national building code. Dismantling and reconstruction on that scale was out of question. The only solution was to develop a simple system of seismic retrofitting and mobilizing the community for implementing the retrofitting and/or reconstruction of the school buildings. A pilot retrofitting project carried out in Nangkhel, Bhaktapur, arrived at three important conclusions: 1) involvement and ownership by the community makes the retrofitting programme more feasible on technical, financial, social, and cultural aspects; 2) at very little extra cost, the retrofitting programme may serve as the forum for earthquake preparedness training for teachers, parents, community leaders and children, and 3) it triggered a very effective programme of mason training focusing on earthquake-resistant building construction. Additionally, the masons and also the communities realized through SESP that the basic principle of earthquake-resistant construction of vernacular buildings is simple, and the measures, in fact, were practiced by communities in various forms until the advent of modern construction materials such as cement and steel.

Currently, the SESP consists of three closely inter-knit subcomponents, namely, (1) Training of masons; (2) Training of teachers and parents on earthquake preparedness and preparedness planning; and (3) Seismic retrofitting or earthquake-resistant reconstruction of public school buildings. The SESP employed simple technology, which was easily understood by the local community. A series of advisory committees established at the district and community levels provided the required oversight and transparency to the project. All this increased the transfer of ownership of the programme – SESP has become almost self-sustaining, with NSET providing only technical assistance. Furthermore, it has been found that the masons trained in earthquake-resistant technology of construction convinced other home owners to invest slightly more for reducing the seismic vulnerability. It has been found that a school program in one particular community has prompted 15 private houses to be constructed according

to seismic safety specifications each year because of the replication of the technology by the trained mason. The demand for SESP has grown widely – from the government and from the public.

Earthquake Awareness Program

Prior to 1997, public awareness about earthquakes was very low in Kathmandu and throughout the country. KVERMP, and currently, the APIP, have greatly increased the awareness. This fact has been acknowledged widely. NSET's awareness strategy is a combination of three initiatives: a) institutionalize earthquake awareness in sustainable forms such as the annual Earthquake Safety Day or the creation of municipal and ward-level Disaster Management Committees (DMC) and help the committees implement awareness-raising and other mitigation initiatives, b) use all possible means of public education such as electronic and print media, in-house publication of posters and fliers, and c) emphasize earthquake awareness in each component of the project.

Nepal observed the 5th Earthquake Safety Day on 16 January 2003. Earthquake Safety Day is observed in all district headquarters of Nepal by organizing different programmes that target specific audience. There are programmes, such as the National Meeting, in which political leaders make commitments towards earthquake safety. Rallies with wide participation of citizenry and communities are also organized in most cities and towns. While the first Earthquake Safety Day activities in 1999 were organized only in Kathmandu, this year all of the 75 district headquarters observed the Day by organizing different activities. This shows the involvement of the grass roots in earthquake awareness.

Earthquake awareness efforts of NSET also include providing assistance in establishing local government earthquake risk management institutions as well. The Kathmandu Metropolitan City (KMC) created a Disaster Management Unit as part of the city government. Other municipalities in the valley are also considering establishing Disaster Management Units, and are working with NSET to start the process. NSET has also been active in educating ward-level officials, and at this time 4 wards have created their own DMCs made up of neighbourhood residents and community-based organizations. Now KMC has programmes to create similar DMCs in all wards. DMCs are found to be an effective platform for communities to learn about the risk, identify their roles, and contribute towards implementation of the earthquake risk mitigation measures.

Awareness raising targeted all sections of the society: from officials and decision-makers at the central government level through the municipal authorities and communities in the municipal and village wards. It also targeted the influential members of the private sector, and international community and representatives of donor agencies resident in the Kathmandu Valley. Influential organizations abroad concerned with Kathmandu Valley's earthquake risk were also specific targets of our awareness-raising programme.

Municipal Capability Enhancement Programme

This programme started informally as part of the KVERMP in 1997 when the KMC created a Disaster Management Unit as part of the city government.

NSET provided technical assistance in developing the Unit's plan especially for community-based awareness and training programmes. Subsequently, the dimension of the cooperative programmes increased both in content and extent. At present, the municipal disaster activities of NSET include assistance in the establishment of DMCs at ward level, assistance to the DMCs in the assessment of resources and vulnerabilities in the ward, action planning for mitigation and preparedness, organizing training programmes for school students, parents and other citizens together with other NGOs, community-based organizations, and clubs.

NSET assisted KMC to become a part of the Earthquakes and Megacities Initiatives (EMI) and is working with the municipality in identifying ways for enhancing seismic safety and improving municipal capability for earthquake vulnerability reduction and emergency response planning. Kathmandu is now a member of the Mumbai, Kathmandu, Shanghai, and Dhaka cluster of the EMI Cluster City Project. NSET serves as the technical advisor.

In January 2003, NSET started the implementation of the Municipal Earthquake Risk Management Project (MERMP) as the consolidation phase of KVERMP. MERMP is a replica of KVERMP embodying all its successes and positive experiences. ADPC/AUDMP is providing the institutional and financial support under core funding from OFDA.

Accomplishments & Results

Increased Awareness and Changed Mindset

There is a significant change in the level of knowledge on the earthquake risk among Kathmandu people because of the implementation of KVERMP and APIP. The community-based initiatives of earthquake risk reduction contributed significantly. There is an increased demand for earthquake safety generated at the community level. This is reflected in the annual development programme of the Kathmandu District Development Committee (KDDC) that opted to incorporate earthquake safety in its development projects. KDDC and the Bhaktapur Development Committee at times have considered association with NSET's SESP as a prerequisite for the release of government funds for capital repair of school buildings or their retrofitting. This is an example of the strength of the bottom-up approach.

Establishment of a System of Retrofitting

The school component of KVERMP grew into a solid SESP that is being replicated almost in a sustainable way with ever decreasing outside funding. SESP demonstrated not only the technical and economic feasibilities, but also its social and cultural acceptability. The impact has been overwhelming. The spin-off effects are many – mason training, training of parents and teachers, establishment of earthquake safety clubs, preparation of school earthquake safety plans. However, the most significant impact was the creation of demand for safer construction.

Establishment of the Nepal Forum for Earthquake Safety (NFES)
NFES aims to influence mainly the formal construction sector and includes as members representatives of concerned government agencies, private consultancies, contractors, manufacturers of construction materials, professional engineering societies. NSET's efforts towards earthquake safety in Nepal were definitely one of the influencing factors for the establishment of the forum. There are reasons to believe that the success of the informal, community-based initiatives, especially the SESP, were instrumental in creating awareness among the formal sector on the necessity of earthquake safety.

Implementation of Building Code

Recently, Lalitpur Sub-Metropolitan City (LSMC), one of the five municipalities of Kathmandu Valley, decided to include seismic consideration in the building permit process. This is perhaps one of the first case in South Asia, where Building Codes have been mandatory in the pre-earthquake situation. The ground work for such decision of the municipality was created by a lot of community-based work initiated by the Japan International Cooperation Agency(JICA). This includes community watering, community-based earthquake risk management action planning using PRA/PLA building seminars, earthquake drills, and other awareness raising programmes including the Earthquake Safety Day. NSET as well as NFES have continued assisting LSMC by training their engineers and inspectors in aspects of earthquake-resistant construction. One of the highly successful programs in this regard is a joint LSMC-NSET weekly program of interaction with homeowners and builders for the purpose of developing mutual trust.

Increased Demand for Academic Courses in Disaster Management and Earthquake Vulnerability Reduction
A curriculum has been outlined for the course of earthquake engineering at Bachelors' level at Pokhara University. Similarly, the Nepal Engineering College is starting a program on disaster management for which a curriculum is under development. The academic institutions in both cases requested NSET to assist in the curriculum development process. NSET is providing such assistance.

Major Challenges

Lack of Experience in Disaster Risk Reduction at the Community Level
There are not very many precedents for community based earthquake risk management in developing countries, and methodologies of earthquake risk management suitable for a given community need to be charted from scratch. Adequate knowledge for reducing the risk exists; however, implementation of risk reduction measures is a major challenge. Therefore, learning from success stories and replication of the successes should be given the very highest priority.

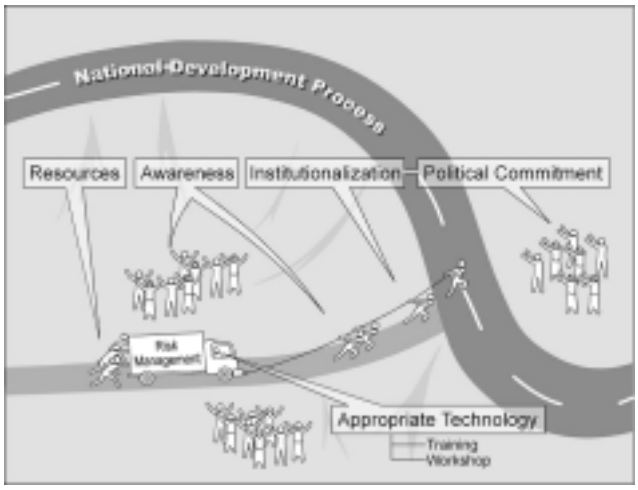
Lack of Attention towards Disaster Risk Reduction
Amidst conflicting priorities for development and provision of basic services such as education and health, earthquake risk management receives low priority.

Myth of High Cost of Earthquake Vulnerability Reduction Prevails
Communities tend to shy away from earthquake risk reduction efforts because of the prevailing notion that such efforts are costly and out ofreach. Against this background, it is necessary to aggressively propagate the concept of incremental safety i.e. achieve safety on a step-by-step basis.

Non-conducive Environment for CBDM
The project has demonstrated a high level of participation by the stakeholders both in the school programme and in ward-level disaster management activities. Participation means voluntary contribution of time for the programme, active discussion in general meetings, rendering of individual service as advisors and members of different working committees, financial or in-kind contributions at the meetings, and maintaining continuous involvement in the project works. However, a lack of proper policy or legal environment makes it very difficult to provide continuity of efforts and sustainability of CBDM efforts. Much of the success continues to be dependent on the individual nature of the officials in the disaster management unit of the local government, the officials at the local office of the education department, or the ward chairperson.

Lack of a Mechanism for the Involvement of Local Government
While existing regulations do allow for the involvement of communities in running the affairs of the local public schools in the form of a management committee, they are not detailed enough to guide the whole process smoothly. There is no expressed motivational environment, and much depends upon the attitude of individuals, and chance. In such conditions, the success of CBDM depends also upon the uniformity of the political outlook of the main players, and their commitment.

Dependency on External Support
Erroneous notions of high importance to external support as compared to the importance of the local commitments exist. Self-help with judicious use of available resources in the community is more important than the amount of money received in donations.



Lack of Well-Trained Professionals
Earthquake engineering is rarely taught in Bachelor's degree classes of engineering. In such conditions, formal engineered construction lacks proper seismic design and detailing.

Limitation of Retrofitting
In the Kathmandu Valley, there are many building that cannot be retrofitted. Examples of such buildings could be very old buildings of 200-300 years of age, buildings constructed with unburnt bricks layered in mud mortar.

Increase Coverage
For the past five years, NSET has concentrated its efforts only in the Kathmandu Valley. It is necessary to go beyond the Valley before the next disaster strikes.

5. 6 Philippines Experience

Jerome Casals
IDRM

Country Profile

Republic of the Philippines
Capital: Manila
Population: 84,525,639
GDP/capita: USD 3,971 *Source: UNDP Development Report 2002*

Major Disasters

Cyclone, Flood, Earthquake, Volcano

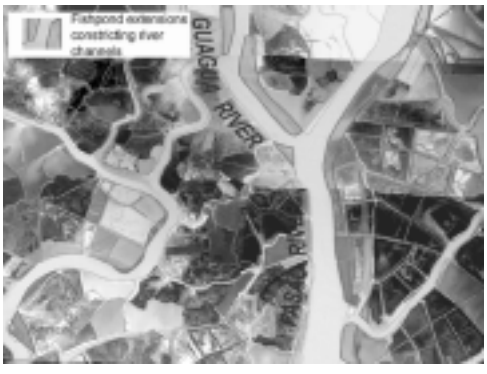
Project Data

Location: Guagua, Pampanga province
Duration: Initiated in 1988
Funding Agency: Local Government Unit(internal allocations)
Local business and socio-civic organizations
Corporate Network for Disaster Response, Mondragon Foundation, Immigrant families from the United States
Partners: Guagua United Action for Rehabilitation and Developmetn(GUARD), Betis Economic Foundation(BEF)

Background

The geographical location and physical environment of the Philippines makes the country prone to various kinds of hazards including earthquakes, volcanic eruptions, typhoons, storm surges, floods, drought, tsunamis, and landslides. The Philippines is located along the "Pacific Ring of Fire", where the continental plates collide causing periodic earthquakes and volcanic eruptions. The Philippine archipelago is also located at the western edge of the Pacific Ocean and is therefore regularly visited by typhoons and monsoon rains, which cause floods, storm surges, landslides and other forms of destruction.

Because of the frequency of their occurrence and the magnitude of their impact on the national economy, typhoons and floods are considered the major causes of disasters in the Philippines. The Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) estimates that 47 per cent of the average annual rainfall in the country is due to typhoons. Typhoons are major causes of flooding, storm surges, high winds and landslides. About 20 typhoons enter the Philippine Area of Responsibility each year. Of these, an average of 9 actually cross the country. In addition, an average of two typhoons do not make landfall but cause damage. Nine of the country's 14 regions are severely hit by typhoons each year, which mainly occur between the months of July and November.



Among the factors that contribute to the occurrence of flooding in the municipality is the fact that the province of Pampanga is home to one of the largest watershed areas in the whole of Luzon island. The position of the municipality near the Pampanga river delta also underlies its susceptibility to flooding. Furthermore, the municipality is located in a low-lying area with

a gentle slope that serves as a catchment area for several large river systems including the Pampanga River and the Pasac-Guagua River just prior to their reaching the South China Sea.. The flooding is triggered by typhoons and rains, which regularly occur during the wet or rainy season. The 1972 flood in the region (one of the worst calamities to hit the Central Luzon region), for example, was primarily due to the combined effects of monsoon rains and typhoons.

Other man-made factors also contribute to the occurrence of flooding in the municipality. Most early settlements in the province were built on riverbanks when fishing constituted a major industry in the region. Residential houses as well as public and commercial buildings are seen along many riverbanks, often constricting the width of major rivers and their tributaries. The growth of the fishponds' industry has inevitably led to the illegal encroachment of fishponds along and into the rivers themselves, thus decreasing their channel capacity. In addition to this, the improper disposal of solid waste becomes evident right after the occurrence of a typhoon or flooding event when they are visibly seen to be blocking critical drainage systems.

This was very much the situation in 1988, when the quiet municipality of Guagua located in the central Luzon province of Pampanga, experienced yet another wave of flooding brought about by the annual arrival of typhoons and monsoon rains. This time, however, members of the local business community advocated and lobbied with the municipal mayor to address the perennial flooding problem which had begun to affect the central business district(CBD) located in the heart of the municipality. The municipal mayor responded by calling for municipality-wide meetings and consultations to come up with an acceptable course of action and gain the acceptance support of its citizens for implementation of possible solutions.

In the midst of advocating and lobbying with central government agencies for the implementation of flood mitigation measures that had been identified and planned by the municipality in consultation with its constituents, a 400 year dormant volcano erupted in their midst. The 1991 eruption of Mt. Pinatubo was considered a disaster of global magnitude that altered climactic conditions worldwide. The eruption led to the deposition of an estimated 10 billion cubic meters of pyroclastic materials and ashfall on the slopes of the Pinatubo mountain range. During the next several years, these deposits would mix with the water generated by typhoons and monsoon rains and cause the downstream flow of "lahar"[1]. The result was the total or partial burial of entire villages, river channels, and other secondary and tertiary water tributaries. The landscape and topography of the central plains in the region were significantly altered. Even today, more than a decade after the eruption, the geological changes brought about by the volcanic eruption continue to bring flooding with every typhoon and rainy season.

1 An Indonesian term used to describe the mixture of volcanic debris, ashfall, soil, mud and rainwater that flowed down the slopes of the volcano and surrounding mountains.

Motivation & Purpose

The disaster management experience of the community in Guagua is an interesting case in the sense that their current disaster management and response capabilities did not materialize out of a pre-planned and well-funded disaster management program. There was no clear and comprehensive disaster management framework or model that was used when disaster preparedness and mitigating measures were first advocated and initiated by community stakeholders. Rather, the Guagua community's current disaster management program is a result of a spontaneous evolution that occurred throughout the years as a result of their constant reflection and absorption of the lessons they learned in dealing with the effects of disaster events every year for several consecutive years.

The origin or roots of community participation in the municipality's disaster management can be traced to a local business sector lobby in 1988 for a more concrete and effective response from the local government to address a worsening flooding problem. Their primary objective and motivation was simple – economic and business losses were rising to unacceptable levels as a result of the annual typhoons and rain-induced flooding. Significantly, the flooding had, for the first time, started to affect the CBD located in the heart of the municipality. While this process initiated a local government-community dialogue, the primary impetus for the continuation of community disaster response efforts and their eventual development into a full-blown municipal disaster management programme came from the obvious need for concerted action in the face of the magnitude and scale of the devastation and impact caused by the 1991 volcanic eruption of Mt. Pinatubo particularly the certainty of the occurrence of future disaster events.

Activities

The major activities enumerated below, implemented in the course of several years, are responsible for the evolution of the municipal and community disaster management mechanisms and structures into what they are today.

Community Participation and Involvement
Under the leadership of the municipal mayor, the municipality was able to solicit the active participation of a very broad spectrum of representation from various sectors of the population including academia, religious organizations, women's groups, public transport drivers and operators associations, market vendors, and local business organizations. The extensive use of a "multi-sectoral consultative assembly" was the primary means of obtaining community consensus and cooperation in the municipality's response to disaster events.

Early Warning and Communication
Through the assistance of local amateur radio enthusiasts, the municipal government had quick access to communications personnel and equipment at the onset of disaster events. Eventually, the municipal government was able to establish the Wawa Radio Communications Network (WARCON), a centralized communication system that involves monitoring of water levels and volcanic mudflows at strategic locations, monitoring of rainfall, sounding of waterways, and a system of coordinated (with central and provincial government disaster response agencies) early warning dissemination to various villages that were expected to be adversely affected.

Community Mobilization and Information Dissemination
This was undertaken through the formation of Barangay (village) Information Organizing and Networking Cadres (BIONIC) which organized and strengthened village-level disaster management councils who then took the lead in all disaster management activities at the village level. The BIONIC teams also conduct disaster preparedness orientation and training in the villages during the dry summer months.

Disaster Rescue, First Aid, and Retrieval
This involved the organization and training of a Disaster Assistance Response Team (DART) capable of undertaking rescue, first aid, evacuation and retrieval operations singularly or in coordination with regional and provincial disaster response agencies, police and military units.

Engineering and Infrastructure Support
A number of small- and medium-scale disaster mitigating projects were designed and implemented by local government and private community organizations. The municipality's engineering office provided technical support for all the projects. Over the past years, these have included construction of spur dikes, sandbagging, pilot channels, clearing or declogging vital waterways, dredging, and dike construction.

Capacity-Building and Training
Funding and technical expertise were accessed by networking with established GOs and NGOs that provide training and consultancy on the various aspects of disaster management. Capacity building activities included the conducting of disaster drills and simulation exercises with other government agencies, non-government organizations and other neighbouring local government units(LGUs).

Policy Development and Advocacy
This consists of the strict implementation of all pertinent disaster management laws, executive orders and local ordinances

pertaining to the organization and operation of disaster management bodies at the local or community level. This component also included the review, formulation and development of new ordinances required for an effective and timely disaster response capability, including the passage of local "tax" ordinance mandating the pro-rated contribution of all citizens to a municipal disaster fund.

Accomplishments & Results

There are two significant results of the municipality's disaster management experience. One is the demonstrated capacity and highly visible confidence of the community, as a whole, to respond to a disaster event. This is seen as direct result of the creation and development of an effective municipal and community-level disaster management programme and can be better appreciated if we consider that this was accomplished with limited external assistance and funding. Community organizations and stakeholders are unanimous in expressing confidence that the community can rise to the challenge of any and all disasters now or in the future. This sentiment appears to emanate from the fact that they feel they have already survived through the worst conditions imaginable and will therefore be able to cope with disasters of lesser magnitude. They have acquired the trust and confidence born from working with each other. The two major umbrella organizations in the municipality, the Betis Economic Foundation (BEF) and Guagua United Action for Rehabilitation and Development (GUARD), likewise expressed full confidence in the disaster management approach of the municipality and are more than willing to continue working with them.

The community is proud of their disaster management experience and the way all members of the community cooperated and acted as one with the local government resulting to the preservation of their town and their way of life from the onslaught of lahar flows. In spite of this, they recognize the certainty of the continued occurrence of disaster events, particularly flooding, due to the drastic and almost total change of the area's geographic and hydrologic characteristics. This fact has not discouraged them as the important thing, as one municipal government official puts it "... is that we have a very good understanding of the potential hazards we face and at the same time we have also come to know ourselves very well and have a realistic assessment of our capabilities, of what we can and cannot do..."

The second most significant result of the Guagua disaster management experience is the estimated substantial reduction in the adverse economic effects of lahar flows and flooding. Implementation of community-planned and implemented small and medium-scale flood mitigation projects is

perceived to have led to the preservation of economic assets (i.e., agricultural land and business infrastructure) from the onslaught of volcanic lahar and a significant reduction in the extent and duration of flooding in the municipality from the historical experience of 2 to 3 months to the current experience of 2 to 3 weeks. These projects include the construction of a 2 km secondary dike, sandbagging activities on critical and vulnerable parts of the main dike system, dredging of secondary and tertiary river systems, and maintenance of pilot channeling.

In an attempt to quantify the economic benefits of the community interventions, municipal officials have come out with calculations estimating potential losses and opportunity costs running to several billion pesos(P) in agricultural and economic assets from the onslaught of volcanic lahar. The estimated amount is based on the value of the assets and of the value of the goods and crops that the agricultural and economic assets would have otherwise produced. In addition more than P 100 million in business transactions would have otherwise been foregone if flooding would continue to affect the municipality for 2 to 3 months instead of the current effect of only 2 to 3 weeks. This estimate is based on historical records of gross business tax receipts of the municipality multiplied by the estimated shortened duration of the flooding events.

These achievements were, in turn, made possible by the attainment of the following:

- The active participation of community organizations in the planning and implementation of disaster management activities and projects from village-level disaster management councils to the mobilization of private sector financial resources
- Formalization and institutionalization of a mechanism for direct community participation, through the creation of a consultative and coordinative council of stakeholders, and responsibility in the formulation and implementation of disaster preparedness, mitigation, and response efforts in the municipality
- The enhancement of capabilities of disaster response personnel involved through conduct of various training (i.e., rescue and retrieval, advance life support, etc.), the conduct of simulation activities on fire incidents, evacuation due to threat of flooding and lahar flow,
- Formulation and implementation of local policy and legislation in support of disaster management
- Initial steps and activities undertaken towards a multi-hazard disaster management approach and inter-municipal cooperation and coordination

Major Challenges

The following areas of concern represent the potential opportunities and threats that will affect the future of the disaster management programme of the municipality:

- While formal and established mechanisms and structures have been established that allow the full participation of community stakeholders in disaster management, this does not ensure the continued participation of the various sectoral groups, especially with the incidence of disaster events having been greatly reduced in recent years.
- Disaster management programmes and activities have been integrated into the overall socioeconomic development plans of the community because in the previous years the magnitude and certainty of lahar flows and flooding was the main deterrent to the socioeconomic development of the municipality. Since these threats have considerably subsided, the challenge of integrating disaster management activities anew in future master development plans of the municipality will become more difficult to achieve.
- Maintaining the active and participatory nature of the established Local Economic Development Council will be tested in the coming years by local government officials and municipal mayors who might not subscribe to the participatory approach or who may no longer view disaster preparedness and management as important elements in the overall development of the municipality.
- Further development and refinement of local policies and laws that support disaster management (e.g., modification or reformulation of the local ordinance establishing the lahar control measure fund so that it can be used for all other types of disaster events and allowing the disbursement of disaster funds for disaster awareness, capacity building, prevention and mitigation activities and projects)
- Higher levels of interventions are required at the village level particularly in the areas of participation and capacity-building to ensure the sustainability and effectiveness of the programme at the municipal level. Community leaders have recognized that while they have been able to effectively address disaster threats and events largely on their own, the financial and technical support of external and larger organizations will be required to further improve the readiness and efficacy of village-level disaster management capabilities. Municipal officials have also acknowledged that lack of linkages with external organizations is the weakest component of the municipality's programme.

1999 GAWAD GALING POOK AWARD
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Disaster Management in Community Development
Guagua, Pampanga

6. ANALYSIS AND RECOMMENDATIONS

Sanny R Jegillos, IDRM

This chapter presents the common elements and characteristics of the six case studies. The discussion includes highlighting the factors useful for enhancing sustainability and those that may hinder this process. From these, recommendations that may be considered are listed as a conclusion.

Common Elements & Characteristics

Frequency of Natural Hazards and a Culture of Coping with Crises

There is no doubt that the six countries studied are exposed to frequent, violent, and devastating natural hazards. The State of Orissa in India, facing the Bay of Bengal is constantly visited by strong tropical cyclones, whereas the Philippines, which lie in the Pacific Ocean experiences 19-21 tropical cyclones every year with about 3-4 considered very damaging. Bangladesh and Cambodia share similar hazard characteristics since their flood-prone communities are affected by annual floods due to intense monsoon rains and overflowing rivers that are shared by other countries in their respective regions. However, exceptional floods that are severely damaging occurred which had significant impact on lives, safety, property, economy and environment. Nepal and Indonesia are two of the most earthquake-prone countries in the world and there is evidence that their risk exposure to future major earthquakes is very high. It is also important to note that these are not the only major hazards that affect these countries, in fact the same countries face the threats of major volcanic eruption (The Philippines and Indonesia), severe drought (India and recently in Cambodia in 1991), and coastal flooding (in Bangladesh due to tidal bores caused by cyclones, and in Indonesia, due to tsunami, resulting from marine earthquakes).

Due to constant exposure to frequent hazardous events, a "culture of coping with crisis" would naturally evolve in these communities. This is further influenced by the perception that these environmental extremes are naturalistic and unpreventable. Thus, the level of awareness that disasters will happen in the future is high among individuals in these countries.

On the other hand, due to different economic and political structures in these countries, public awareness that may be used for mobilization and action vary significantly. In some of these countries, access to hazard and early warning information is better than others. Although, globally, the technologies on calculating risks from natural hazard occurrence and intensity are varied, some countries under study have a better ability to estimate risk than others. These are important issues to highlight as they influence a community's perception and interests to sustain a CBDM. Mileti[1] states that the degree of risk mitigating adjustment is positively associated with: perceived benefits-costs of implementation of risk mitigating policy; image of damage which is influenced by a community's experience of disasters, access to information, and ability to estimate future risk.

1 Disasters by Design, D. S. Mileti, 2001

Vulnerability & Choices of Elements at Risk

Not surprisingly, the case studies further show that there is no common concept or definition of vulnerability. Each agency/organization studied which is supporting "vulnerable element at risk" have highlighted certain conditions that they would normally emphasize within their regular mandate. Thus, in Bangladesh, where vulnerability is perceived to be a complex interaction between, unsafe conditions, poverty, lack of access to resources, landlessness, societal pressures, inequity, lack of education and other "underdevelopment causes", vulnerability is comprehensively considered[2] in the design of the CBDM programme. In Cambodia, the agency involved in the project put emphasis on food shortages, and the vulnerability of the means for food production. In the India case, peoples' lives and property, particularly livestock are considered most at risk as a consequence of the super cyclone that hit the State of Orissa in 1999. In the Philippines, the local government, which has the responsibility for local governance, addresses the vulnerability of the general socioeconomic development of the municipality. In Nepal and Indonesia, the agency puts emphasis on the vulnerability of physical structures, particularly school buildings vis-à-vis the effects of major earthquakes.

2 "Comprehensive" here means that the nature of vulnerability is described in terms of unsafe conditions, dynamic pressures, and root causes. For further explanation, see At Risk-Natural Hazards, Peoples Vulnerability, and Disaster, Blaikie, Cannon, Davis, Wisner, 1994

However, in CBDM, an important truism must be to engage the community to be the active actor in vulnerability assessment. It appears that in the case studies, the local people's perception of vulnerability is not uniformly given as much attention against the perceptions of the agency assisting. Most of the case studies are presented using "objective risk assessment" where scientific and experts' calculations of risk are the primary bases for defining vulnerability.

Experience of IDRM International in its CBDM activities indicate that for communities, vulnerability is a subjective condition, influenced by differing socioeconomic status, experiences with disasters resulting in varying perceptions of vulnerability by members of community. Based on their perception, they then make choices based on the alternatives and options available to them rather than being guided by the experts' estimates of risks.

One lesson can therefore be learned from a comparison of the case studies which reveals the above is that local people's perception must be given due importance. If this is done, the likelihood of community "making the right choices", i.e. sustaining CBDM is improved.

Motivation & Purpose

The case of Bangladesh is classic, since the implementation of CBDM was based on an in-depth study of the cause-effect relationship of hazards, vulnerability and (the lack of) coping strategy. The project also evolved from the experiences of the implementing agency of the seemingly hopeless and vicious cycle of poverty-disasters-dependency on emergency relief-underdevelopment. The case study also indicates that the community is the primary actor in the planning and implementation of the local projects, but with adequate participation of other stakeholders including central and local government, partner-local NGOs, research organizations, and donors. In Cambodia, the project was initiated as a natural extension of the mandate of the agency to mobilize volunteers and targeting the most vulnerable whenever relief is required. Thus, the motivation seemingly is to increase the efficiency of the agency in the delivery of its services by engaging the participation of the community in preparedness actions and local mobilization in times of disasters. Due to recurring cyclones and floods in Orissa, India, which made the population extremely vulnerable, it became both apparent and necessary that a system be created for increasing preparedness at all levels, i.e., government, civil society, and community to minimize the losses in such emergencies. It was recognized that preparedness should start from the grass roots where the community should be fully geared to organize itself during disasters, while organized civil society and government responses are immediate if the scale of the disaster warrants external intervention. In the Philippines, as a result of the advocacy work of the local business sector, the project was initiated as a manifestation of good and effective local governance. Thus, the main purpose of the project is to protect and ensure the positive socioeconomic development of the residents of the municipality. In Nepal, out of fear for the likelihood and potential of a very serious major earthquake (estimated to be due in the near future), and the need to address the problem by mobilizing resources and developing synergy among all stakeholders - government agencies, private business, communities, - the project was initiated. The idea of relying on the community for implementing mitigation measures was not there in the initial design of the project in any visible form. However, during the process of implementation, especially, during the

conduct of the school retrofitting programme, it became very clear that a successful earthquake vulnerability reduction programme couldn't be successful unless there is strong participation by the community. In Indonesia, the project was initiated based on an evaluation of the lessons learned following a recent major earthquake in the area and previous experience in a pre-earthquake mitigation activity in another part of the country. The study concluded that the development of the capacity of local community-stakeholders is crucial in order not to repeat similar recent mistakes that contributed to vulnerability.

In summary, the ranges of motivation for the initiation of the CBDM vary in different cases, which make them worthwhile listing below. CBDM approaches in the case studies are initiated to:

- address the underlying causes of vulnerability as part of a broader development effort and to reduce their dependency on outside assistance;
- mobilize volunteers and target the most vulnerable;
- increase preparedness of community in consonance with civil society and government response to impacts of disasters;
- protect and ensure positive socioeconomic development; and
- reduce deaths and massive destruction of properties.

Although they seem to be related to each other, the differences are also discernible. This indicates that motivation for the initiation is subjective, based on the perceptions and choices that community and supporting agencies make.

Participation & Empowerment

In the case of Bangladesh, the community is involved in the project from the very beginning. The agency and the partner organizations came to the community with a very wide and flexible goal and mission statement whose main message is to attain a sustainable mechanism through reducing the adverse impact of flood. The project uses Participatory Learning and Action (PLA) methodology as an initial process of community mobilization. Application of PLA at the beginning of the project encourages community's participation in analysing and identifying the flood vulnerabilities, needs, and potential resources crucial for mitigating the adverse impacts of the flood, and strengthens the communities' capacity for managing the entire project by themselves. The project facilitates the mobilization, formation, establishment, and continued proactive participatory management of flood preparedness committees in all participating communities. In each community, a Community Committee termed a Local Project Society (LPS) is formed to execute each community's decision and maintenance of flood-proofing plans. The committee disseminates early warnings and establishes a system for evacuation as well as implementation of flood-proofing interventions. This

essential component of the project ensures continued community ownership and responsibility for flood-proofing and preparedness activities.

In Cambodia, the agency involved uses participatory approaches to train people in hazard, vulnerability, and capacity assessment. This is conducted in cooperation with local authorities including the District, Commune, and Village leaders. By engaging volunteers, community members, and commune and village leaders in this process, a committee called the Community based Disaster Management Committee is formed. It does not have any formal authority, but it is routinely involved by the government and other NGOs in matters pertaining to designation of evacuation areas ("safe areas"), and targeting beneficiaries for relief and distribution.

In the case of India, participation is in institutional form in the establishment of Gram Panchayat Disaster Management Committees: Committees comprise of the Sarpanch, ward members and other people's representatives, village leaders from each village, one teacher and two volunteers from CBOs. This Committee is expected to play the leading role during any emergency situation. Some of these members have been sensitized in disaster preparedness. A training/orientation on disaster management has been organized for them. In addition, volunteers are selected from each village and made responsible for development of a Community Contingency Plan (CCP) and the formation of task forces. They are the focal point to continue the process at village level. The CCPs comprise vulnerability mapping, resource mapping and formation of task forces in each village during this quarter.

In the case of the Philippines, the local government provided for the mechanisms and structures for community and private sector participation in the municipality's socioeconomic development, particularly in the planning and implementation of disaster management programmes and projects. This was done in accordance with the Local Government Code that institutionalizes NGO and private sector involvement in the local development council. It has also established a radio-based central communication system involving the establishment of observation posts in strategic locations of the critical dikes and river systems, including deputization and use of private sector volunteers, coordination and directly linking with the main provincial disaster coordinating organization. At the village level, the approach was the formation and use of an information-gathering, dissemination, and citizen-mobilizing network at the barangay/village level through the use of duly elected village leaders, councilmen and citizen volunteers. They also served as conduits and mobilizers for the active participation of village people. Furthermore, the local government organize and train Disaster Assistance Response Teams to respond to rescue, evacuation and retrieval operations. These groups are institutionalized in the development plans and policy of the municipality with annual allocation of resources, thereby ensuring sustainability and continuity.

In Nepal, the participation of communities is evident in undertaking and continuously improving the school programme and the ward-level disaster management capability enhancement programme. Active discussions always took place in the advisory committees. Members volunteered to become part of the school construction process and donated their time, masons donated labour, children and their parents contributed to the retrofitting programme by carrying construction materials from the river to the site. The elected local government (village development committee, district development committee, ward committee) became involved and began including school reconstruction into their annual programme for partial budget outlay. Businessmen from within the community donated money and materials. Noteworthy too, is the intensive public awareness which is the focal strategy for mobilizing participation from all elements of the society. The agency's awareness strategy is a combination of three initiatives: a) institutionalizing earthquake awareness in sustainable forms such as the annual Earthquake Safety Day or the creation of municipal and ward-level Disaster Management Committees (DMC) and help the committees implement awareness raising and other mitigation initiatives; b) using all possible means of public education such as electronic and print media, in-house publication of posters and fliers; and c) emphasizing earthquake awareness in every component of the project. While the first Earthquake Safety Day activities in 1999 were organized only in Kathmandu, this year all 75 district headquarters observed the Day by organizing different activities. This shows widespread involvement of the grass roots in earthquake awareness.

In Indonesia, mobilizing participation is carried out through public awareness activities. A series of public awareness activities on earthquake phenomena and the importance of being prepared for future earthquakes was conducted for different target groups such as the general public (community leaders, religious leaders, and government officials) and the school community. For this activity, the agency has collaborated with the Ministry of Research and Technology, the Mayor's Office, and the local university. The response of the general public was unexpected, since most people were angry because the public education should have come earlier so they could have been more prepared to deal with the 4 June earthquake. In addition, workshops covering discussion on potential earthquake risk and recommended mitigation initiatives are conducted for the mayor and government officials, and the legislature (member of local parliament).

In summary, the methods for participation and empowerment that seek to sustain and institutionalize the projects are as follows:

- use of participatory approaches (PRA/PLA) involving communities in hazard, vulnerability, capacity and resource assessment as a basis for community planning;
- formation of informal organization which would represent the community

in coordination activities with formal local authorities;
- institutionalizing mechanisms such as a formal committees or councils with legal tie-ups with local government authorities;
- sustained public awareness involving all major stakeholders; and
- the community's active involvement in almost all phases of the project from planning, monitoring, and evaluating.

Human Resource & Organizational Development

In Bangladesh, the project arranges extensive training for capacity-building of the Local Project Society (LPS) members and links the LPS with other development agencies and local government for sustainability of interventions. The project also formed Mothers Clubs, Adolescents and Children Forum in each community and provided behavioural change education on flood preparedness, health, nutrition, etc. For follow-up learning process and demonstrating best practices, an advanced group, called Community Based Volunteers (CBVs) is promoted. CVBs closely work with women of the community.

In Cambodia, training is a major component of the CDMP. The agency made extra efforts to mobilize external expertise to develop, test and finalize a formal CBDM training curriculum. The curriculum addresses various levels of target groups including staff training at the national and provincial levels, training for volunteers, and community-level training.

In India, the pertinent elements of training for the Block Disaster Management Committee in the disaster management programme are disaster plans at different levels block/ GP villages, role of CBOs other line departments/ volunteers, mock drills, etc. Orientation programme for Block Development Officers (BDO), *Tahasildars*, Officers in charge of Police Stations, National United Nations Volunteers, Project Officers (Disaster Management), were also conducted. Volunteers selected by the PRIs and CBOs from each village and responsible for development of CCP and formation of task forces were also trained. The project has led to the creation of useful IEC material. These include manuals on preparation of community- and block-level contingency plans, training of task forces, posters, calendars, documentation of traditional coping mechanisms and how they can be improved, and special forums on promotion of safe construction technologies.

In the Philippines, capacity-building and training activities include the conduct of disaster drills and simulation exercises with other government agencies, NGOs and other neighbouring local government units.
In Nepal, the agency provided technical assistance in developing the Katmandu Municipality Disaster Management Unit's plan especially for community-based awareness and training programmes. Subsequently, the

dimension of the cooperative programmes increased both in content and extent. At present, the municipal disaster activities of the agency include assistance in the establishment of Disaster Management Committees (DMCs) at ward level, assistance to the DMCs in the assessment of resources and vulnerabilities in the ward, action planning for mitigation and preparedness, organizing training programmes for school students, parents and other citizens together with other NGOs, CBOs, and clubs.

In Indonesia, focus was on technical training on structural and nonstructural mitigation: 1) Training on structural mitigation. This training was designed for two different groups, i.e., engineers/university students and masons. The training was designed to accommodate the theory of seismic resistant design and construction as well as site visits to see ongoing practices of retrofitting and reconstruction of school buildings; 2)Training on nonstructural and structural mitigation – These training coursess for schools through Training of Trainers on "Earthquake Safety/Preparedness Program for School", with the school community from most earthquake-prone cities/towns in Sumatra. The training curriculum is designed so that trainees can convey the earthquake safety messages to the schoolchildren by developing "School Action Plans for Earthquake Safety/Preparedness " and their implementation. Under these, the children with the teachers and the school authorities will have sessions to study the phenomena of earthquake and available safety measures, such as nonstructural and structural mitigation as well as the school disaster response such earthquake drills and evacuation procedures.

Training approaches based on the six case studies indicate that training varied in accordance with the objectives of the project and the needs of the community for training. A common element however is that the delivery of training is conducted through established organizations and institutions. This includes engaging the local university, local committee, formal leaders, and established emergency services. The underlying reason for this is perhaps that training should be well targeted to include those who have current responsibilities over implementing the project components. With the right choices of training participants, the likelihood of these individuals and organizations continuing to sustain CBDM is likely.

Stakeholders' Partnership

Almost all projects have very broad stakeholders' participation. This includes, individuals at risks, such as women's groups in Bangladesh; informal and formal leaders at the village level; volunteers with specific roles, such as in warning and evacuation; villagers with specializations like those who are mobilized to protect dikes and masons who can build earthquake-resistant structures; local business sectors, schoolteachers and administrators, district and municipal authorities, research groups, people's organization, NGOs/civil societies, technical resource groups, central government, national universities, UN agencies, and international donors. This exhaustive list indicates that for a CBDM to be successful, implementers should be adept in identifying and mobilizing as many stakeholders as necessary. In some cases, relationships

among stakeholders are formal and legislated (Philippines and India), but some cases also show that informal relationships do not hinder partnership arrangements at the community level. It would seem that the choice is dependent on the political structure in a particular country and the perceived level of governance in the area. Experience, however, shows that formal institutional arrangements among stakeholders improve accountability and transparency, which is important for sustainability of CBDM. Likewise, based on the case studies, role allocation among stakeholders can be summarized in the table below.

Sustainability in CBDM: Roles and Relationships

Community	Local Level Organization (NGO and/or Local Government Unit)	National Organization/s	International Organization/s
• Coping mechanism • Awareness and positive behavior • Choice • Participation • Culture • Livelihood	• Local Planning • Capacities • Training • Networks • Empowerment • Transparency • Accountability • Good governance • Institutionalization • Local legislation	• Comprehensive approach • Policy and Legal Instruments • Infrastructure Development • Hazard Monitoring, Prediction Science • Early Warning System • Sustainable Development Policy and Implementation • Data, Information and Communication Technology • Finance	• Strategy • Sustainable Development Policy • Link to Environment, Development and Poverty Reduction Programmes • Conflict Resolution of Trans-boundary Issues • Financial and Technical Support

Financial & Community Assets Development

In Bangladesh, the project supports local structural flood-proofing measures including making adjustment to structures to keep water out or reduce water entry, e.g., by raising the homestead yards of poor families. The raised yards allow the residents spacing for cattle/livestock shade, poultry-keeping, fodder-storage and ensures that possessions remain above flood levels. The other interventions are installation of latrines and tube wells above peak water levels,

the construction and renovation of community flood shelters/communal places, village roads and small culverts, village markets and river ghats, etc. Many of these interventions have significantly reduced the additional burden of women during the flood season. The project also promotes small-scale agriculture and improved natural resources in the communities. These include homestead and rooftop vegetable gardens in the raised or protected homesteads, tree plantation, social forestry, and livestock rearing. FPP is aware of, and assists, communities in planting trees and establishing nurseries in order to mitigate erosion and supplement income within communities. The project likewise identifies and supports alternative income generating activities (IGAs) especially those that can continue throughout the flood season in order to supplement the income base of poor households. Rural credits for various IGAs are undertaken through partner NGOs as an extension of their own credit programmes.

In Cambodia, community based disaster management committees identify local micro-solutions and formulate proposals to the agency. The micro-solutions include construction of small culverts, repair of irrigation dikes, latrines and water supply system in safe areas. While funds are externally generated, the community provides labour and in some cases, provides cash contribution mobilized from residents of the community.

In India, under the CBDP project, many micro-projects were initiated, such as establishment of block-level information centres, involvement of the corporate sector, and setting up of HAM clubs. Funds were also mobilized to raise some areas for evacuation purposes. The study also reports the establishment of village contingency funds in 377 villages.

In the Philippines, the local government is involved in overseeing and facilitating the planning and implementation of small infrastructure projects, including construction of secondary dikes, and sandbagging activities on breached channel systems. It was also able to formulate policy leading to the drafting and passage of local laws or ordinances mandating financial contributions from all citizenry of the municipality. By integrating disaster management into the overall municipal socioeconomic development plans, there is now a regular allocation of funds for disaster management at the community level.

In Nepal, there is a significant change in the level of knowledge on earthquake risks of Kathmandu people because of the implementation of KVERMP and APIP. There is an increased demand for earthquake safety generated at the community level. This is reflected in the annual development programme of the Kathmandu District Development Committee (KDDC) that opted to incorporate earthquake safety in its development projects. KDDC and the Bhaktapur Development Committee at times have considered association with NSET's SESP as a prerequisite for the release of government funds for capital repair of school buildings or their retrofitting.

In Indonesia, a prototype school with earthquake-resistant design that can be implemented by any interested donors involved in school retrofitting and reconstruction programmes was provided by the agency. Another demonstration model (housing) was built under the project. The model house located in the area of the subdistrict office is currently used as a local health centre and meeting place for the women's group

Most of the projects under study promote tangible accumulation of physical and economic assets to reduce vulnerability. These are in the form of:

- village contingency funds, and availability of credit for income generating activities;
- micro-solutions, small and medium-scale infrastructure projects that reduce impact of hazards;
- equipment and materials such as for latrines, water supply, warning-communication, and rescue and evacuation facilities;

Some focus on providing intangible "assets" such as technology in disaster-resistant construction, and access to information centres.

Most have attempted to integrate these projects into regular development planning and budgeting to ensure sustainability. This is done through legislation and incorporating vulnerability assessment and reduction into regular development projects.

Summary: Factors that Enhance Sustainability of CBDM

Based on the above, the following is a list of the factors that enhance sustainability of CBDM.

1. Promote and strengthen, a "culture of coping with crisis" among community members by improving the community's access to information, ability to learn lessons from previous disaster experiences, and ability to estimate future disaster risk.
2. Local people's perception on vulnerability assessment must be given due importance enabling them to make the right choices for reducing their vulnerability.
3. Recognize that the ranges of motivation for the initiation and sustainability of the CBDM are subjective in nature based on perceptions and choices that the community and supporting agencies make. These may include all or some of the following: To:
    - o address the underlying causes of vulnerability as part of a broader development effort and to reduce their dependency on outside assistance;
    - o mobilize volunteers and target the most vulnerable;

- o increase preparedness of community in consonance with civil society and government response to impacts of disasters;
- o protect and ensure positive socioeconomic development; and
- o reduce deaths and massive destruction of property.

4. The methods for participation and empowerment are important, based on the case studies, the following worked well in sustaining and institutionalizing the respective projects.
   - o the use of participatory approaches (PRA/PLA) involving communities in hazard, vulnerability, capacity and resource assessment as a basis for community planning;
   - o formation of informal organization which would represent the community in coordination activities with formal local authorities;
   - o institutionalizing mechanisms such as a formal committee or council with legal tie-up with local government authorities;
   - o sustained public awareness involving all major stakeholders; and
   - o the community's active involvement in almost all phases of the project from planning, monitoring, and evaluation.
5. Training approaches based on the six case studies indicate that training varied in accordance with the objectives of the project and the needs of the community for training. A common element however is that the delivery of training is conducted through established organizations and institutions. This includes engaging the local university, local committee, formal leaders, and established emergency services. The underlying reason for this is that training should be well targeted to include those who have current responsibilities over implementing the project components. With the right choices of training participants, the likelihood of these individuals and organizations to continue to sustain CBDM is likely.

Photo taken by UNCRD at BDPC site

6. This exhaustive list of stakeholders in each project indicates that for a CBDM to be successful, implementers should be adept in identifying and mobilizing as many stakeholders as necessary. Experience shows that formal institutional arrangements among stakeholders improves accountability and transparency which is important for sustainability of CBDM.
7. Projects should promote tangible and intangible accumulation of physical, technological and economic assets to reduce vulnerability. These are in the form of:
   - o village contingency funds, and availability of credit for income generating activities;
   - o micro-solutions, small and medium scale infrastructure project that reduces impact of hazards;
   - o equipment and materials such as for latrines, water supply, warning-communication, and rescue and evacuation facilities;
   - o technology in disaster resistant construction, and access to information centres.

8. Promote the integration of these projects into regular development planning and budgeting to ensure sustainability. This is done through legislation and incorporating vulnerability assessment and reduction into regular development project.

APPENDIX

APPENDIX 1

GUIDELINES FOR RESOURCE PERSONS[1]

[1] These guidelines were prepared by Sanny Jegillos, the international consultant for the project, in consultation with UNCRD.

CRITERIA *for Selecting Projects for a Case Study*

1. Frequency of occurrences and high probability of severe impact of any of these natural hazards: (floods, tropical cyclones, earthquakes).
2. Presence of conditions of any or all types of vulnerability to natural hazards: (physical, social, and economic).
3. Presence of significant levels of motivation in the vulnerable community to be proactive in disaster management.
4. Presence of formal and/or informal organization/s which are involved in CBDM.
5. Presence of self-help and/or indigenous mechanisms addressing individual and community needs resulting from disaster related problems.

Depending on the focus of CBDM, i.e. relevant stage in the disaster management cycle, the following additional criteria should be considered:

6. Observable capability in using early warning information, participation, and/or self-help actions in prevention, mitigation, and prevention measures.
7. Observable capability in participating and/or self–help actions in emergency response and recovery.

ISSUES *to be considered*

- *To analyse the current level of community participation,*
- *To study the impact of the initiative or project to the community, and*
- *To find out the essential factors for community cohesion.*

1. Identifying information about the project site

- *Name and location*
- *Geographical characteristics*
- *Demographic characteristics*
- *Social, cultural, economic, cultural, political characteristics*
- *History of disaster-characteristics, impacts, symptomatic and underlying causes*
- *Potential and emerging disaster risks that may affect the community*

2. Identifying information about the project

- *When was the project started? How long was it implemented?*
- *What were the components of the project?*

- *What were the major interventions provided by the assisting organization?*
- *What were the resources made available, i.e. information, manpower, skills, finance, equipment, supplies etc. and their sources?*

3. Motivation and Purpose

- *What were the reasons for implementing the project?*
- *Who were the individual/s and/or organizations behind the planning of the project? If they are available for interview, discuss their views and why and how the project was initiated.*
- *What were the vision, goals, and objectives of the project? Who set these? What was the participation of the community in setting these?*

4. Methodologies for participation and empowerment

- *What were the responsibilities and resources of assisting organization? What were the methods used to ensure participation of community? Describe in the annex as necessary.*
- *Responsibility of community: What were the roles of the community in the project? What were their specific contributions to the project?*

5. Methodologies for human resource and organizational development

- *Was training need assessment conducted? What types of training and related human resource development inputs were provided? What methods were used? Describe methods in the annex as necessary.*
- *Was an assessment of community organization conducted? What types of organization/community building inputs were provided? What methods were used? Describe methods in the annex as necessary.*

6. Methodologies for stakeholders partnership

- *Apart from the community and assisting organization, who were the other major stakeholders on disaster management in the project? Did they have any explicit role in the project? What were these? What were their actual contributions to the project?*
- *What methods and/or activities were conducted to ensure participation of stakeholders? Describe methods in the annex as necessary.*

7. Methodologies for financial and community assets development

- *Was there an assessment of the community needs in terms of finance and community assets necessary for disaster management? What interventions were provided by the assisting organization? By others? What were the contributions of the community in building up finance and community assets necessary for disaster management?*

RESULTS*of the Project*

1. Baseline Characteristics, prior to the start of the project

- *What were the disaster-related problems that impact on the community?*
- *What were the important vulnerabilities of the community, which contribute to disaster risk?*
- *What indigenous coping capabilities existed within the community prior to the project?*
- *What was the prevailing perception of community members vis-a-vis disasters?*

2. Analysis of the Results of the Project

- *What community-level solutions had been useful in reducing problems related to disasters? Describe their actual results. Why were they useful?*
- *Using the Vulnerability and Capacity Assessment (VCA) tool, what were the actual results in reducing community vulnerability and improving capacity (physical, social, and economic)?*
- *If relevant, what were the direct results of the project in terms of: training, human resource development, organizational development, micro-projects etc.*
- *Using story-telling techniques, to illustrate results of the project, what were the recent experiences of the community in recent disasters, how did the project interventions benefit them during the emergency-crisis stage?*
- *If documentation is available, what are the quantifiable benefits of the project in terms of saving lives, properties, livelihood, and reducing economic losses?*

3. Analysis of the current level of community participation

- *What were the important indicators that could provide evidence that community participated in disaster management?*
- *What are the underlying motivations for their continuous participation?*
- *How is community motivation and participation being sustained by the assisting organization? By the community leaders?*

4. Analysis of community perception on sustainability

What is the current perception of the assisting organization vis-a-vis

- *community's vulnerability and their exposure to disaster risk*
- *community's capacity to reduce future disaster risks*
- *community's ability to mobilize members to participate in on-going and future disaster management activities*
- *community's ability to obtain support with its external partners among NGOs, local authorities, "disaster experts" and other resource holders*

- *community's ability to continue community based disaster management without external support*

What is the current perception of the community vis-a-vis

- *its vulnerability and their exposure to disaster risk*
- *itscapacity to reduce future disaster risks*
- *its ability to mobilize community members to participate in on-going and future disaster management activities*
- *its ability to obtain support with its external partners among NGOs, local authorities, "disaster experts" and other resource holders*
- *its ability to continue community based disaster management without external support*

ADDITIONAL MATERIALS

to be gathered if available

1. Relevant Maps
2. Description of participatory methods and actual results
3. Photographs - disaster situation, community activities, projects, others illustrating benefits of the project.
4. Community disaster management plan
5. Testimonials from selected individual beneficiaries, and/or local authorities

APPENDIX 2

KOBE EXPERT GROUP MEETING

for "Sustainability in Community-Based Disaster Management"

In connection with the above project, UNCRD Hyogo Office organized and conducted the "Kobe Expert Group Meeting" twice during the project period. The first meeting was held on 7 November 2002 at UNCRD Hyogo Office and the second was held on 30th January, 2003 in the Yomiuri Shimbun Hall. The group consisted of representatives of academicians, an international organization and an NGO group involved in the rehabilitation of Kobe Earthquake.

Members of the Kobe Earthquake Expert Group were as follows;

1) Mr. Yoshiteru Murosaki, Professor, Kobe University
2) Mr. Masami Kobayashi, Professor, Kyoto University
3) Mr. Masayuki Watanabe, Senior Advisor, Japan International Cooperation Agency (JICA)
4) Mr. Masakiyo Murai, Representative, The Collaboration Center for Hanshin Quake Rehabilitation (NGO's Kobe)

The objective of the meetings was to discuss the overall project direction and to analyse the methodology for sustainability issues in six case studies for the above project. The participants were the Kobe Earthquake Expert Group, the international consultant, and UNCRD staff. In addition, representatives of Great Hanshin-Awaji Earthquake Memorial Research Institute and Hyogo Prefectural Government also joined the meeting as observers.

The expert group provided advisory comments based on their experiences of Kobe Earthquake, taking into consideration the local conditions of the target countries. The group's comments and experiences were reflected in the project implementation. Furthermore, the output of the meetings were summarized and presented in the international workshops, which was held in Delhi, India (December 2002) and in Kobe, Japan, (January 2003).

First Kobe expert Group Meeting

Date: 7 November 2002 (Thursday)
Time: 13:00-17:00
Venue: UNCRD Hyogo Office
Agenda:

1) Welcome and Introduction (Kenji Okazaki)
2) Overview of Community-Based Disaster Management (CBDM) in 6 case study countries (Rajib Shaw)
3) Issues of Sustainability in CBDM (Sanny Jegillos)
4) Comments from Kobe Earthquake Expert Group
5) Adjourn

Second Kobe expert Group Meeting

Date: 30 January 2003 (Thursday)
Time: 15:00-18:00
Venue: Yomiuri Kobe Building 4F
Agenda:

1) Welcome Remarks (Kenji Okazaki)
2) Country Presentations: major findings of the six Case Studies
3) Discussions and Comments
4) Future direction
5) Adjourn

APPENDIX 3

ACTAHEAD

An international workshop on CBDM

As a part of the project, SEEDS, FES (a German development foundation), and UNCRD Hyogo Office jointly organized a workshop 'ACTAHEAD' on 2-4 December 2002, in India. The purpose of the workshop was to discuss CBDM issues from an integrated policy perspective, and recommend possible future direction of CBDM focusing on sustainability, introducing the 6 case studies. The number of participants was 40, which included government officers (both central and state governments), representatives of NGOs (both national and international), UN and bilateral organizations (UNDP, UN OCHA, JICA), academicians, professionals (architect, engineers, and urban planners), and the mass media.

Although a late starter compared to its other development counterparts, the disaster management community has gradually embraced the concepts of community-based disaster management over the last ten to fifteen years. The last ten to fifteen years have seen a number of community-based disaster management projects coming up in different parts of the developing world. Some of these have worked very well while some represent good constructions of "success" stories. Almost in all cases, the "successes" have been driven by outside players such as a few committed NGOs. While there is a growing body of knowledge that talks about successful cases, these projects barely scratch the surface of the needs of the countless vulnerable communities. This workshop tried to give a hard look at community-based disaster management – the existing concepts, practices and trends — and raised questions such as:

- *Does CBDM really work?*
- *Is CBDM a panacea to the problems of social, economic and physical vulnerability?*
- *Is the successful experience really transferable or replicable? Or is it very context-specific?*
- *In a context where government (however effective or ineffective) is still the eminent domain, how do the community-based approaches link with the local governance issues?*
- *Will CBDM always be "managed" by outsiders?*
- *How do we replicate/ upscale the success stories?*
- *Do we need to build a community of CBDM practitioners? If yes then how and towards what end?*
- *What are the accountability issues? Are the CBDM projects accountable to the regional structures (downstream impacts)?*

- *Can the CBDM encourage communities to demand greater accountability from their local, provincial and central governments?*

The workshop was divided into plenary sessions and three parallel sessions, based on three themes: 1) capacity-building and cooperation, 2) sustainability and up-scaling, and 3) policy integration. Following were the main outputs of discussion:

Capacity-Building and Cooperation

Experience shows that Disaster Management being multi-disciplinary in nature requires wide-ranging inputs from Government, Non-Government, International Agencies, Universities and Other specialized institutions. Recent examples of healthy cooperation between these agencies in India and elsewhere in Asia have led to remarkable results. Cooperation has yielded not just better results for the community but has also enabled institutions to build on their own capacity based on the experience and expertise of the organizations they have partnered with. Cooperation and Capacity-Building among various stakeholders working at the grassroots would provide the most effective enabling mechanism for any policy that is formulated.

Sustainability and Up-scaling

There have now been far too many good practices that have taken place in the disaster-vulnerable regions of the world. However, most of these good practices have remained confined to their local communities only. Their potential in influencing attempts to reduce vulnerability in other parts of the world is enormous especially since regions which face similar disaster threat have similar vulnerabilities and capacities. Lately, various documentation attempts by the international agencies including the UN-ISDR and brought them into the global centre stage. However, this is not enough. In order replicate good practices widely, identifying factors that can make such practices sustainable and scaleable are necessary. A discussion on Sustainability and Up-scaling of Good Practices from various local communities of Asia and other parts of the world formed the core of the Policy Framework.

Policy Integration

In large countries such as India, recent major disasters have strengthened the need to define a national policy management of disasters in the country. Existing development policies are also being re-examined to incorporate disaster prevention and preparedness. However, there has been limited debate on the content and thrust of these policy initiatives. How can the policy enable transfer of good practices and research to the most threatened communities? Incorporating grassroots experiences within possible constraints would provide real substance to the National Policy. A debate on what the National Policy on Disaster Management should seek to achieve would be carried out in parallel to the above discussions.

The workshop emphasized the importance of lobbying for the CBDM at different levels, including awareness raising of common people, and advocacy in the policy level with the government and development partners. Dissemination of best practices and sharing experiences, with concrete examples, methodologies and outputs of successful CBDM case studies from different countries were found useful.

APPENDIX 4

INTERNATIONAL WORKSHOP

Earthquake Safer World in the 21st Century III
People, Communities, and Disasters: Roles and Responsibilities

UNCRD Hyogo Office organized an international workshop on "People, Communities and Disasters: Roles and Responsibilities" from 30 January to 1 February 2003 to throw light on the disaster issue at individual and community level. The workshop was jointly organized with the Hyogo Prefecture, Kobe City, the Yomiuri Shimbun, Citizen Towards Overseas Disaster Emergency (CODE), and was supported by the Great Hanshin Awaji Earthquake Memorial Research Institute, NTT Data Corporation and NTT Data Community Produce Corporation.

Natural disasters are recurring events in many countries. Earthquakes, floods and cyclones occur every year throughout the globe, causing significant damage to lives and property. Disaster mitigation and management process should differ in different countries as they have their respective cultural and social backgrounds. While it is very important to consider disaster issues at the country-level, province-level or city-level, it remains less-effective, so long as it does not penetrate to the level of the community and individual.

Today, people are much concerned about their environment, and this issue is successfully prioritized in many of the high level meetings among heads of state and/or in international organizations such as the United Nations. However, this was not the case 20-30 years ago. Continued efforts, both at the individual and organizational level have made it possible. Thus, people's involvement and commitment is very important for the success of the effort.

United Nations Centre for Regional Development (UNCRD), emphasizes "Human Security" as one of its major focus area. Under this umbrella of Human Security, UNCRD Disaster Management Planning Hyogo Office is involved in the safety and sustainability of communities through disaster preparedness and mitigation. After its inception in 1999, the office conducted several projects with the theme of community involvement and participation with three key-words; self-help, cooperation, and education.

Reconstruction of Afghanistan is another area which receives significant attention from all over the world. Afghanistan needs to develop human resources. The Hyogo Office is trying to develop a human resource development programme, focusing on the training and capacity-building at the community level for earthquake-safer construction practices, as this country is in one of most earthquake threatened areas of the world.

In the above context, the International Workshop on "People, Communities and Disasters: Roles and Responsibilities" aimed to throw light on the disaster issue at individual and community level, and would like to see how their needs and priorities are integrated with the disaster reduction initiatives. In this regard, the experiences of the Great Hanshin Awaji Earthquake of 1995 had much to offer.

The first two days of the workshop focused on the sustainability issues of community based disaster management. Representatives of six countries presented their views and experiences of grass-root projects for different types of hazards. Roles of people were discussed based on the experiences of Japan, Bangladesh, and Fiji. It was found that education is the key element for disaster-reduction initiatives. Maiko High School of Kobe, Japan, is the pioneering school in this regard to initiate the disaster and environment courses. Similar efforts are being initiated in Turkey and India after the devastating earthquakes of 1999 and 2001, respectively. Lastly, discussed were the experiences of Japan, Taiwan, and India and their implication to pre-disaster mitigation activities in other parts of the world.

The third day of the workshop focused on the recovery and reconstruction in Afghanistan. The current problems were emphasized in the speeches of the President of the Office for Disaster Preparedness (ODP) and Deputy Minister of Ministry of Urban Planning and Housing (MUPH). The gender issue was a focus area in the reconstruction of Afghanistan. UNCRD, in collaboration with NGO groups of Kobe and Afghanistan initiated a project on the safety and sustainability of human lives and livelihood with emphasis on earthquake-safer non-engineered construction. All these experiences were summarized in the panel discussion, and the future needs and priorities were emphasized.

In total, 450 people participated in the workshop, including professionals, representatives of government, nongovernment, academic and international organizations from 12 countries, and students, teaches and citizens of Hyogo prefecture. The workshop proceedings describe the discussions of three days, and highlight the major issues and concerns for effective disaster mitigation initiatives. We hope that the earthquake-threatened communities, professionals, practitioners and international organizations will find the proceedings useful.