

Partnerships for Disaster Reduction-South East Asia
Phase 4

CBDRM and POVERTY REDUCTION

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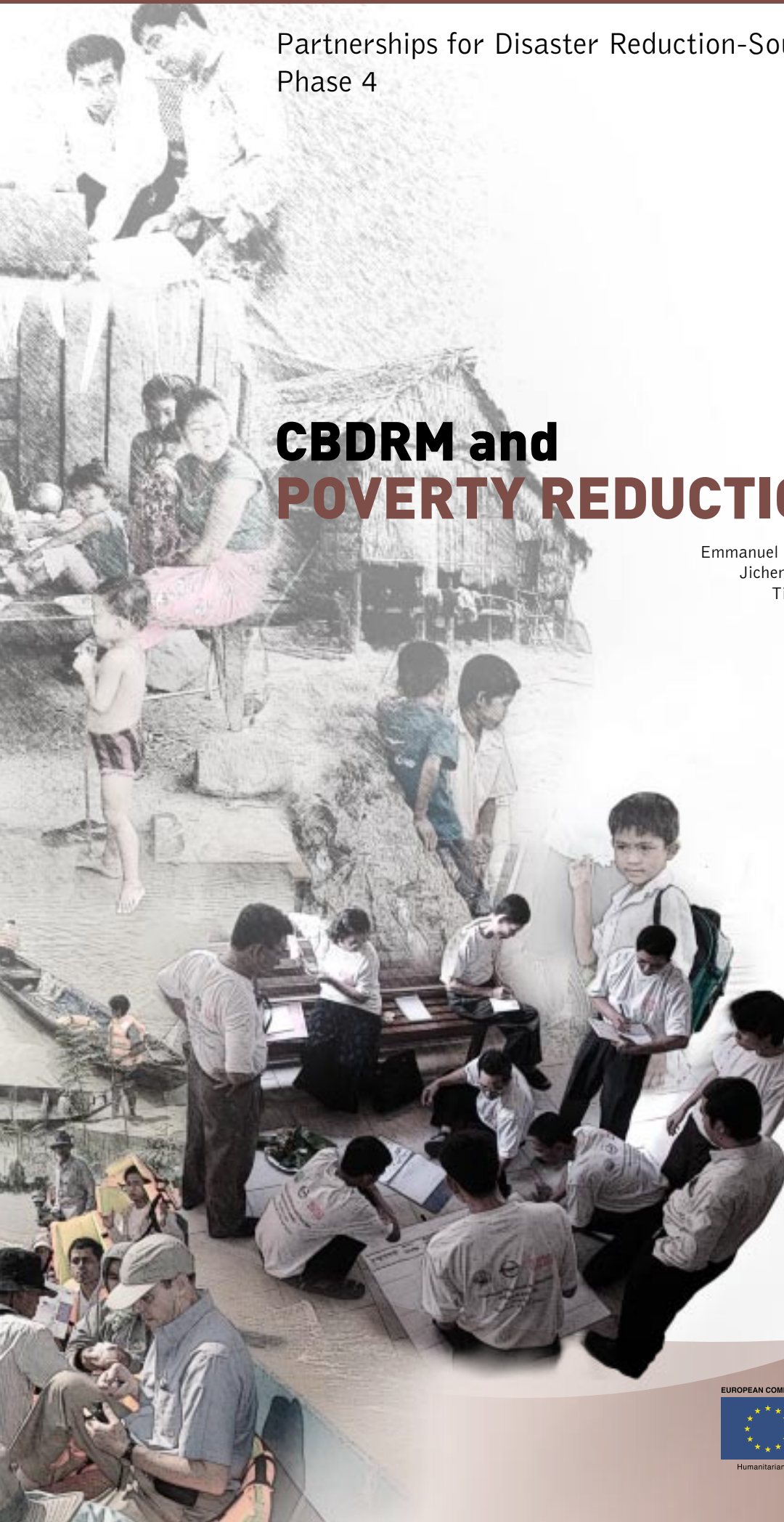


TABLE OF CONTENTS

1	INTRODUCTION
3	DISASTER RISK MANAGEMENT AS PART OF DEVELOPMENT PLANNING
5	REGIONAL EXPERIENCES ON DRM FOR POVERTY REDUCTION
5	DRM IN POVERTY ALLEVIATION PLANS
7	WAYS OF INTEGRATING DISASTER RISK MANAGEMENT INTO DEVELOPMENT PLANNING
8	COMMUNITY-BASED DISASTER RISK MANAGEMENT APPROACH
12	CRITERIA TO IDENTIFY CBDRM GOOD PRACTICES
15	CONCLUSIONS AND RECOMMENDATIONS
15	PROMOTING CBDRM
16	PRIORITY ACTIVITIES FOR FOLLOW-UP ACTIONS
17	BIBLIOGRAPHY
17	BACKGROUND PAPERS
17	ISSUE NOTE
18	REFERENCES
19	ANNEX 1. SUMMARY OF RECENT CBDRM ACTIVITIES IN VIET NAM
21	ANNEX 2. SUMMARY OF CBDRM PROJECTS IN CAMBODIA
27	ANNEX 3. SUMMARY OF CBDRM PROJECTS IN THE PHILIPPINES
34	ANNEX 4: POPULATION AFFECTED BY NATURAL DISASTERS IN SOUTHEAST ASIA, 2000 – 2007

CBDRM and Poverty Reduction

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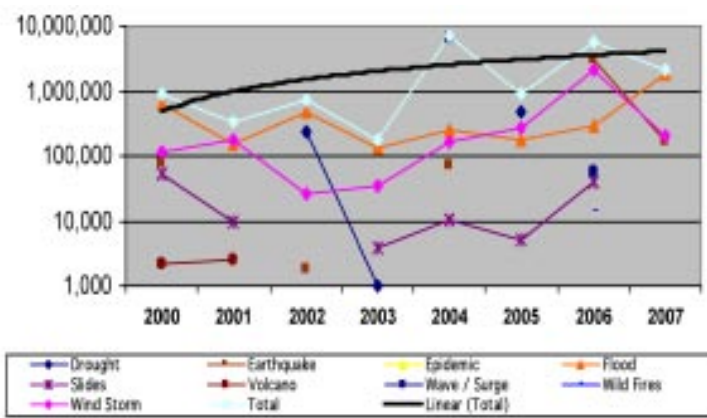
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^{ff} The views expressed herein are those of the authors and do not necessarily reflect those of the United Nations, ADPC or Governments of the participating countries of PDR-SEA 4.

INTRODUCTION

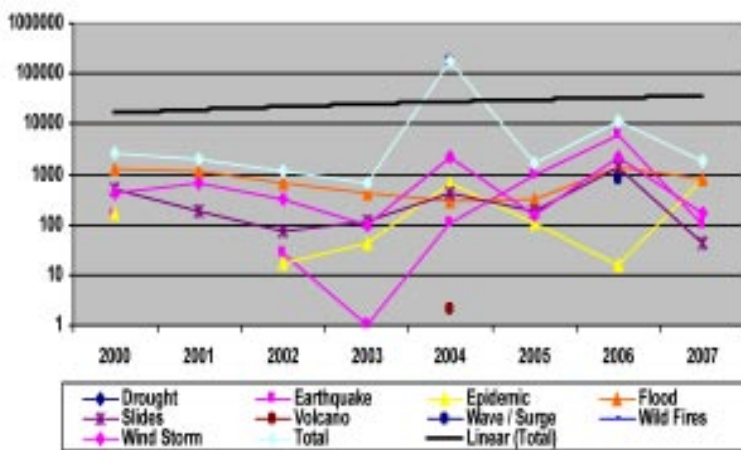
The relationship between the risk of disaster and poverty has been thoroughly studied in various case studies conducted in disaster prone countries. In least developed countries faced with recurrent national disasters, dealing with disaster risk management is a continuing development and policy challenge for poverty reduction. The ECHO-funded programme, "Partnership for Disaster Reduction - South East Asia Phase 4 (PDR-SEA4)," aims to build the resilience of communities to natural disasters, and is committed to address core issues of the disaster – poverty cycle erby reducing the vulnerability of communities to natural disasters and enhancing the institutional tools for disaster risk management in project countries in the region.

Figure 1. Economic Damage in South-East Asia



Source : UNISDR 2007.

Figure 2. Deaths by Natural Disasters (2000-07: 199, 245 people)



Source : UNSIDR 2007.

Natural phenomena caused by climatic and/or geologic changes become disasters when they result in adverse impacts on people, on their economic assets and other sources of well-being. These phenomena like typhoons, floods, droughts, earthquakes and tsunamis are considered natural occurrences. While much has been achieved to understand their origins and physiographic and physical characteristics, we are limited in preventing them from happening. And when they do occur, especially in highly populated areas, they tend to escalate into a disaster. Under these dire circumstances, the poor are the most highly vulnerable to the effects of these natural disasters. Studies of the World Bank, the United Nations Development Programme and the Food and Agriculture Organization, among others, confirmed that recurrent risks of disaster limit people’s opportunities and choices, which are necessary to improve human development necessary for strategic poverty reduction goals in poor countries and communities.

Statistics show that in Southeast Asia, cyclones and floods are the most devastating natural disaster events. In some countries like Indonesia and the Philippines, earthquakes and tsunamis are standing threats. According to

the UNISDR¹, 140 windstorms and 198 floods had hit the region from 1991 to 2005. During the same period, the Disaster Management Office of Vietnam estimates that the rate of occurrence was 2.24 percent, killing more than 435 people annually and causing economic losses close to 1.5 percent of the country's gross domestic product (GDP). In Cambodia, the Mekong River and Tonle Sap Lake – two major source of food and livelihood to 87 percent of the population living in watershed plain – face increasing risk of flood every year (CARE 2001). Floods and droughts in these areas are projected to further increase vulnerability of communities, – a serious blow to poverty alleviation efforts in these countries.

As already pointed out in many studies, poverty incidence is observed to be higher in areas where natural disasters occur. Poverty incidence is almost at 50 percent in disaster-prone communities in Viet Nam and the Philippines. Livelihoods of these communities are primarily dependent on agriculture, including farming, fishery and livestock. In urban areas, the poor who live in high risk areas such as in riverside or creekside slums also have higher exposure to natural disasters.

The link between poverty and natural resource depletion has also been identified because both elements play a major role in increased vulnerability of the poor to disasters. Recent research studies show that with the onset of global warming, there is an upward trend in the frequency and intensity of natural disasters. The absence of enabling conditions such as institutional capacity, human resources, access to market, together with social barriers such as social marginalization and discrimination, leaves the poor with fewer opportunities to uplift their socio-economic condition, much less improve the quality of their life, which can lead to dependence on available natural resources, and hence, higher likelihood of depletion. To illustrate the link between poverty and natural resource depletion, the exploitation of mangrove forests for developing shrimp farms in Vietnam in the 1990s led to increased vulnerability to storm and tsunamis. Mangrove plantations serve as natural embankment to protect coastal people from storms surges. As stated by UNDP: "poor households and poor nations throughout much of the world face two disadvantages: the inability to generate income and the vulnerability to physical social and economic downturns. The onset of drought and floods in a context of conflict, inflation, disease and recession had severely hit marginalized groups and least developed countries. Furthermore, repeated exposure to these downturns and risks reinforces the conditions of poverty."²

In the context of high vulnerability and exposure to natural disasters, the PDR-SEA 4 aims to mainstream community-based disaster risk management (CBDRM) into socio-economic development policies, and strengthen national and local capacities for the implementation of the Hyogo Framework for Action (HFA) to build the resilience of communities in the project countries in Southeast Asia. It is expected that these objectives would contribute to alleviating poverty and reducing inequality by creating enabling policy environments for disaster risk management and ensuring local people's participation in CBDRM.

¹ UNISDR: Disaster Statistics 1991-2005

² UNDP: Poverty, "Sustainable Development and Disaster Reduction", World Conference on Disaster Reduction

DISASTER RISK MANAGEMENT AS PART OF DEVELOPMENT PLANNING

The recent and ongoing efforts of ECHO and other development organizations on mainstreaming disaster risk management (DRM) into development policies and planning reflect the conceptual shift from emergency response to disaster-risk management. The shift takes into account the need to enable communities to cope with recurrent disasters and save more lives and assets. Developing countries in Southeast Asia – Viet Nam, the Philippines and Cambodia - have been pursuing efforts to meet this challenge. Viet Nam has recently updated its national strategy for natural disaster prevention, response and mitigation targeting accomplishment by 2020. The Philippines and Cambodia have been regularly reviewing and upgrading its DRM plans and methods.

Mainstreaming disaster risk management into socio-economic development planning is vital to ensure the security of people and assets and achieving development goals without generating new risks. In the past decade, research had shown that to be effective, DRM must be integrated within a poverty reduction framework that combines holistic development planning. This holistic approach involves wider participation of key stakeholders - governments, NGOs and private sector - to coordinate operations, mobilize resources and raise awareness for development policy planning. UNDP (2004) reports that "...making disaster risk reduction explicit in the planning of development could enable a broad participatory decision-making process, in which levels of acceptable risk can be debated on a case-by-case basis. National and municipal governments will need to be lead actors in this process, perhaps aided by international actors". In practice, integrating disaster risk management into development planning could be done in the following sectors: housing and infrastructure development, industrial and agricultural development, and the introduction of new technologies. UNDP (2004) further states:

This requires a two-pronged strategy. On the one hand, risk information can be used through instruments such as land-use planning and building regulations to increase the resistance, safety and sustainability of development interventions. On the other hand, it is necessary to evaluate the possible impacts of economic development in terms of risks in other locations and for other social groups).

Socio-economic development programs and projects intended for poverty alleviation could result in either direction: reduced or increased disaster risks to communities depending on whether DRM is given adequate consideration in development planning. For instance, while dams can provide cheaper power rates and irrigation, they may be a source of increased flooding to other communities if disaster risk mitigation is not properly planned for in its design. The same is true for resource-extractive industries like mining. As urban population grows rapidly, poorly planned and constructed urban development projects may cause additional strain to the risks already faced by the urban residents, especially the urban poor. According to UNDP 2004 report³, rapid urbanization and rural livelihoods configure the main disaster risks in the context of contemporary development. Rapid urbanization leads to the mushrooming of unsafe living environments for new immigrants and poor people in rapidly expanding cities in developing countries. While in rural areas, livelihoods become at risk due to a range of factors: poverty and asset depletion, environmental degradation, market pressures, isolation and remoteness, weak or lack of social services, and climatic fluctuations and extremes. In addition, global climate change makes rural livelihoods more risk-prone by increasing uncertainty.

³ UNDP, Reducing Disaster Risk: A challenge for Development, 2004

REGIONAL EXPERIENCES ON DRM FOR POVERTY REDUCTION

The South-East Asian sub-region is one of the vulnerable sub-regions of Asia and of the world. Here, not only economic growth is recognized as a world's phenomenon, but also the increasing trends in economic damage and number of deaths due to disasters over the past decade. Poverty incidence in this part of the world is recognized as an important socio-economic issue of development. The experiences compiled by PDR-SEA 4, on the basis of consultations with DRM partners in Cambodia, the Philippines and Viet Nam; references available to the project; and through the Internet; can be briefly described in the following sections.

DRM IN POVERTY ALLEVIATION PLANS

Development plans have the ultimate goal of alleviating poverty by addressing these factors adversely affecting the poor. Several studies, including a recent Asian Development Bank study, argue that one of the causes of poverty is basically the lack of sustained economic growth where the poor can benefit through gainful employment. The poor are vulnerable to events that create shocks in the economy, and these include sudden price increase brought about by global instability, armed conflict and natural disasters, among others. In the Philippine setting, as well as in other countries in the region, factors that affect the poor are: a) low education or skills to be competitive in searching for jobs; b) poor health conditions; c) lack of ownership of productive assets; d) access to support in production and trade like irrigation, roads etc.; e) supportive policy environment; and f) governance.. Recent development literature pay attention to how disasters have been retarding, if not totally pushing back, gains brought about by economic progress or by good development policies, plans and projects. Governments can plan and implement programs that can eliminate the factors that prevent the poor from getting out of poverty; assets can be redistributed; mass feeding and health services can be integrated in schools; free education can be expanded and economic policies can be enhanced - but sustainability of poverty reduction programs will always be at risk if disaster risk management will not be integrated in the development planning stages. When disasters occur, the poor will be the most hard-hit in terms of food sufficiency, access to infrastructure and education, human life protection, livelihoods and displacement. Eight scenarios that are drawn up include:

1. Loss of lives within the poor families may mean the loss of breadwinners where other members of the families depend on for their survival;

2. Destroyed school buildings may mean higher school drop-outs and lower education levels for the children;
3. Destroyed health centers, hospitals and water supply will exacerbate the already fragile health conditions of the poor;
4. Destroyed bridges and farm-to-market roads will mean losses for the farmers whose incomes depend on their produce, which are mostly perishable;
5. The urban poor will likewise suffer from higher food prices due to food supply interruption or hoarding in the aftermath of a natural disaster; Destruction of houses will be a great opportunity loss for the poor who will have to spend for repairs instead of food and education for their families;
6. Crop destruction may likewise cause the collapse of credit cooperatives, where the poor get their financial needs for production;
7. Shortage in food and other staples may cause instability in certain governments, causing more insecurity for the poor.

To mitigate such unfortunate consequences, national and local governments and the local communities should be made conscious of the adverse consequences of putting aside disasters in development analysis and planning. Urgent actions need to be taken at the governance and grassroots levels with climate change gathering pace and as climate-related extreme events are getting more destructive, more frequent, and less predictable.

Disaster-risk management bridges an important gap between development and disaster management. DRM in general support goals of economic growth and poverty. It protects livelihood and necessary infrastructure, thereby supporting sources of income. Failure to immediately address the effect of disasters will have implications on subsequent actions. For instance, the destruction of bridges and farm-to-market roads will adversely affect perishable farm produce, where the poor get their income. Such reduction in market supply will result in higher prices, exacerbating the standard of living of the poor in the cities. Therefore, initial gains in poverty reduction can be pushed back by a single natural disaster. The restoration of damaged factors of production will again require additional resources to bring back the poor to their pre-disaster conditions.

On a bigger scale, with the uncertainties brought about by climate change, DRM is a growing concern of individual countries, as well as international bodies as climate change may be on an irreversible trend. According to IPCC report (2007), it is most likely that climate change will lead to more severe extreme weather in the next 20 years, and to an increase in both frequency and intensity of natural disasters. The International Red Cross has observed the number of disasters reported during the period 1994 – 1998 reached an average of 428 per year. During the period 1999 - 2003, that number had increased by two thirds (2/3)- reaching 707. The biggest rate of increase by far – 142 percent – had occurred in less developed countries.⁴ Climate change is overwhelmingly critical to poverty reduction as two-thirds of all disaster events worldwide are climate or weather-related like floods, tropical cyclones and drought. Climate change will have serious implications to the rural poor since they are dependent on agriculture and aquaculture whose outputs are very susceptible to extreme

⁴ Anders Wijkman, "Climate will change everything", International Disaster Reduction Conference IDRC Davos, 2006

Case Study Climate Change and Human Development in the Mekong Delta

For the past 15 years, Viet Nam has made spectacular progress in human development. Poverty levels have fallen and social indicators have improved, putting the country ahead of schedule on almost all of the MDGs. Climate change poses a real and imminent danger to these achievements—and nowhere more so than in the Mekong Delta.

The Mekong Delta is an area of special concern. One of the most densely populated parts of Viet Nam, it is home to 17.2 million people. It is also the 'rice basket' of the country, playing a critical role in national food security. The Mekong Delta produces half of Viet Nam's rice and an even larger share of fisheries and fruit products.

Climate change poses threats at several levels. Rainfall is predicted to increase and the country will face more intensive tropical storms. Sea levels are expected to rise by 33 cm by 2050 and 1 metre by 2100. For the low-lying Mekong Delta this is a particularly grim forecast. The sea-level rise projected for 2030 would expose around 45 percent of the Delta's land area to extreme salinization and crop damage through flooding. Crop productivity for rice is forecast to fall by 9 percent. If sea levels rise by 1 metre, much of the Delta would be completely inundated for some periods of the year.

How might these changes impact on human development in the Mekong Delta? While poverty levels have been falling, inequality has been increasing, driven partly by high levels of landlessness. There are still 4 million people living in poverty in the Delta. Many of these people lack basic health protection and school drop-out rates for their children are high. For this group, even a small decline in income or loss of employment opportunities linked to flooding would have adverse consequences for nutrition, health and education. The poor face a double risk. They are far more likely to live in areas vulnerable to flooding—and they are less likely to live in more robust permanent homes.

weather conditions. Also, because of extreme drought, forest fires are likely to be more frequent. Furthermore, any decrease in food production due to disasters and climate will not only severely exacerbate poverty but may also create societal chaos that can undermine political institutions and governments, as seen in the tensions from world increase in prices of grains and rice..

Development practitioners, therefore, need to redefine disasters as "normal" events in the development process and could no longer ignore the mutually reinforcing adverse effects of natural disasters, poverty and environmental degradation, and of late, climate change. A degraded local ecosystem can increase the intensity and frequency of natural disasters, which in turn exacerbates poverty incidence. The poor are also more likely to exploit natural resources just to earn meagerly for them and their families. DRM needs to be fully projected in the development planning for poverty reduction to prepare local and national authorities and communities better for these disastrous events.

WAYS OF INTEGRATING DISASTER RISK MANAGEMENT INTO DEVELOPMENT PLANNING

On the national level, governments can apply DRM through institutionalized mechanisms, requirements or standards to implement development activities. There are existing tools or mechanisms where DRM can be incorporated in the overall development plans. One of these development plans is land-use planning. Usually based on scientific

atmospheric and geologic data and information, specific areas are designated for specific uses. Local governments usually have the power to prepare and implement their own land use plans with the assistance of national government agencies. For instance, the choice of industrial sites, housing areas, etc. should consider not only the economic returns but also of its sustainability and resilience to natural disasters. Based on both scientific and local knowledge, land-use plans set the rules on the location of various socio-economic activities to bring about maximum benefits and ensure sustainability.

Existing CBDRM plans can be used by government development planners in land use planning while project developers can use the same CBDRM plans in their EIA report preparation.

Another tool where DRM can input significantly is in the preparation of environmental impact assessment (EIA) for major development projects particularly those that concern resource-extraction like mining, dams, etc. In countries like the Philippines, a law requires the preparation of EIA study/report prior to the granting of a permit to commence implementation. The EIA report not only covers the effects on air, water and soil quality but also includes how such development projects will mitigate the occurrence and impacts of natural disasters. Another tool and mechanism that can support DRM is the updating of local building codes and standards, particularly for the structures that will be constructed in the communities. Within these tools, CBDRM plans can input significantly. Existing CBDRM plans can be used by government development planners in land-use planning while project developers can use them in their EIA report preparation. CBDRM plans can assure the communities that their concerns have been properly considered. Similarly, by assisting in identifying risks and hazards in a community, scientists and engineers will have added information in working for appropriate infrastructure standards.

To complement land use plans and the EIA processes, the review and upgrading of building codes and standards will provide additional strength in mitigating disaster risks. For instance, until the major earthquake that struck the Philippines in 1990, people were not fully aware that the soil underneath Dagupan City was prone to liquefaction. Had this information been known and disseminated before the earthquake, the required structural strength of the buildings could have been modified. Similarly, planning and design of the infrastructure for the sectors which provide basic services like power and water can strongly consider preparedness measures like separate independent controls to minimize service disruption. For example, although the power source was not affected, several villages were out of power after a strong typhoon hit one of the provinces in the Philippines since the electric cooperative's few main control switches are located in a concentrated area that was strongly hit by the typhoon.

COMMUNITY-BASED DISASTER RISK MANAGEMENT APPROACH

Since the commencement of Phase 1 in 2001, PDR-SEA has been working with governments, civil societies and communities to promote (CBDRM) in Southeast Asia. Community-based disaster risk management implies not only the involvement of communities and local people in the decision-making and implementation of the disaster management principles from risk assessment, mitigation, preparedness, rehabilitation; it also entails the application and adaptation of local indigenous risk-coping knowledge and practices into risk reduction strategies. It is intended to make communities and people primarily responsible for their their overall protection and

resilience from natural disasters; thus ensuring sustainability. With this approach, people in communities are at the heart of decision-making and management activities, and the poorest groups are given equal rights and sufficient support to address the root causes of their vulnerability.

Most of the CBDRM activities in the region have five cross-cutting components: a) awareness raising and education; b) community organizing; c) action planning for mitigation and preparedness; d) drills; and e) networking among community stakeholders. Other projects in the region deal with transfer technology like the structural strengthening of village houses in Viet Nam. While some focus on natural resource regeneration like mangrove replantation, upland reforestation, etc (See Annexes 1 – 3 for a summary of CBDRM projects in Viet Nam, Cambodia and the Philippines). As observed in the projects in Viet Nam, Cambodia and the Philippines, there are several advantages in adapting CBDRM as part of an overall poverty reduction strategy. First, community people are the first to respond when disasters occur. Outside help are likely to come within 24 hours or more after the occurrence of disasters, similar to the aftermath of a strong typhoon that struck the province of Albay in the Philippines, burying several villages at the slopes of Mayon Volcano in late 2006. Given the extent of damage and the unpredictability of these events, local communities must be equipped to respond to them. CBDRM projects within the region usually have trainings in search and rescue operations; first aid/emergency medicine; emergency shelter; health and sanitation among others.

Second, in terms of preparedness and mitigation, community members know the local terrain; the history of previous natural disasters; and indigenous knowledge of impending disasters like changes in animals' behavior (as demonstrated by the local people within the Taal volcano in the Philippines); physical change in the environment (like rising water level, land movements). With this local knowledge incorporated in planning, CBDRM plans and proposed mitigating actions are easier to implement.

Third, the locals know the social acceptable norms or societal/cultural relationships that are vital in implementing successful disaster risk management organization, risk identification, mitigation and coping mechanisms. The role of local leadership and power relations are considered in CBDRM action plans. These norms are particularly observed in the identification of needs during evacuation (e.g., social segregation, acceptable food and arrangement, gender segregation).

Fourth, raising community awareness and encouraging participation in CBDRM promote ownership and ensures sustainability - communities are likely to implement their action plans if they involved in the creation. In Viet Nam, communities are eager to provide their own counterpart in implementing their CBDRM project and/or in requesting for government assistance after development CBDRM plans. On the other hand, the lack of appreciation and ownership of the people caused the stealing of seismic monitoring equipment in Mt. Pinatubo in the Philippines.

Fifth, it is easier to introduce new scientific technologies that are adapted to local tradition, knowledge and skills. For example, house retrofitting to improve their resilience to storms and floods have been piloted in Viet Nam. In Agusan

Case Study Flood and Typhoon-Resilient Homes through Cost-effective Retrofitting in Viet Nam, Development Workshop France

A Development Workshop France (DWF) programme demonstrates that communities can be a dynamic force in reducing risks directly related to local contexts, and that their potential can be mobilized through participatory commune-level disaster risk reduction planning, training and outreach, and preventive strengthening of housing and public buildings.

The DWF Programme seeks to help reduce the impact of typhoons and floods on housing and public buildings; loss of housing being specifically a major family setback with repercussions on all other aspects of family life and development. The Programme kicked off in 1999 and is still continuing with further phases planned.

Based on risk identification and the need to show how preventive action can reduce the identified risks, the Programme involves local and grassroots consultation and preventive action planning. Its central theme is to make families and the community active players in the process of reducing the vulnerability through the integration of storm resistant techniques in existing and future building. Demonstration and training have equally been key components of the Programme's strategy. The average cost of preventive strengthening is 250 \$ per house. Since the start of the programme families have always contributed to such preventive action, covering some 60% of the costs. From 2002 DWF has piloted the provision of credit for house strengthening, and families have amply demonstrated that they will borrow and repay these short term loans (18 months) to cover part of the costs

Overall, the Programme shows that preventive strengthening of housing and public buildings is viable, cheap and effective. As hundreds of families have participated, the impact is now both popular - people now trust the approach - and official - provincial authorities have issued orders telling people to apply the DWF prevention approach. Last but not least, Typhoon Xangsang in 2006 clearly demonstrated that the DWF approach works.

(Source: ISDR. 2007. Building Disaster Resilient Communities: Good Practices and Lessons learned)

This shows a community-based DRM programme implemented in Viet Nam by Development Workshop France.

marsh in the Philippines, where indigenous peoples live on floating houses, reinforced floating clinics and schools have been erected using a combination of modern engineering and indigenous knowledge. Outside the region, the USAID assisted in improving technical design of brick houses in the earthquake-prone countries in the Middle east.

Lastly, it has been noted that CBDRM as a component of a poverty reduction program is more effective in terms of cost which also increases its sustainability. For instance, it costs about \$ 10,000 for Oxfam in Viet Nam to pilot a CBDRM project in four (4) communes. At this level, saving even just about 5 lives a year due to disasters will be more than worth the project cost.

It has been noted, however, that CBDRM activities need strong community organizations to carry out the planning, implementation, monitoring and evaluation of its activities. The community must be aware of local conditions of the disasters and its impacts and be able to initiate rather than merely apply the best practices into their communities. A strong organization will promote community participation that reinforces and builds local people's confidence, skills and ability to respond to risks, and tackle other challenges in disaster reduction and poverty alleviation. While setting up new community organizations are ideal, experience has shown that one does not need to create new community organizations to implement CBDRM projects. For instance, CARE Viet Nam utilized existing organizations to introduce its projects.

Mangrove Forest to Protect the Environment and People Living Along the Coast

Viet Nam is the centre of Southeast Asia and has a coastline of 3,260km. In areas prone to monsoons, there is a regular threat of natural disasters such as storms and tidal waves. Research in Japan (Samabuddi, 2005) showed that every 100m of mangrove forest can reduce a tidal wave's height by up to 50% and strength by up to 90%.

In 1943, Viet Nam had about 408,500 ha of mangrove forest but this number has been reduced rapidly, to 155,290 ha in 1999 (Sam et al, 2005), and 68,035 ha in 2004 (Ministry of Natural Resources and the Environment, 2005). This is largely due to population increases and deforestation for aquaculture.

In the most disaster-prone provinces, the Viet Nam Red Cross (VNRC) has facilitated plantation of mangrove forests. So far the project has supported eight provinces from Quang Ninh to Ha Tinh to expand their mangrove cover. This innovative project started in 1994 and since then VNRC members and staff have planted more than 22,000 ha as a sturdy defence 'strip', protecting approximately 100 kilometers of sea and river dykes. Other activities of the project include capacity building by providing training on community-based disaster preparedness, sphere standards, and an introduction to disaster preparedness (DP) for children.

According to a report by independent evaluators in November 2005, "the biggest typhoon of the last 10 years hit Thai Binh Province in July 1996, killing nine people and causing damage of up to 581 billion VND. Compared to Typhoon Damrey in 2005, we could see significant changes and effects in terms of early warning, awareness raising, disaster preparedness planning, dyke systems, mangrove forest, and evacuation. There were no human losses and property damage was about 178 billion VND."

In terms of the project's contribution to the living standards, the incomes of the poor families living in these project provinces have been increased. In the first years, mangrove planters and guards get a monthly allowance of 100,000 to 180,000 VND. Later, greater profits are generated by the mangrove itself. In Thanh Hoa Province, villagers can collect baby crabs or fish that live in the mangrove forest and sell these at market. They earn at least 20,000 VND per day or 120,000 VND during peak season. The strong protection provided by the mangroves also encourages local people to invest in fish and shrimp farming, as the risk from natural disaster is minimized. This increases incomes for pond owners and job opportunities for others in the region.

This shows how environmental measures can mitigate the impacts of storm surges and tsunamis.

Thus, when people invest in planting and protecting the mangrove forest, they receive both safety and financial benefits, which promotes sustainability of the project. In addition, by involving and building the capacity of stakeholders and local communes in the whole decision making process, the likelihood that positive interventions can and will be continued beyond the end of the project is increased.



CRITERIA TO IDENTIFY CBDRM GOOD PRACTICES

The ECHO Advocacy Network Initiative (DANI) in Viet Nam, which is composed of seven international NGOs working as partners for CBDRM, has published good examples of CBDRM practices in 2007. The examples cited in the publication were based on the four criteria, summarized below:

1. Innovativeness: Has it developed new and creative solutions to common problems?
2. Positive and tangible impact: Does this constitute a positive and tangible impact to communities that are negatively impacted by disasters?
3. Sustainability: Does this contribute to a sustained reduction in disaster risks or sustainable improvement in disaster preparedness?
4. Potential for replication: Can this serve as an inspirational framework for generating policies and initiatives elsewhere?

All of the projects published in the book have certain levels of strengths and weaknesses with regard to the individual criterion outlined above. For instance, while all of the projects have training and awareness-raising components, the improvement of the construction of houses in the villages of Viet Nam is impressive in that it was built on local knowledge by introducing simple technologies to increase the structural strength of the local houses. On the other hand, the MRC-ADPC trainings in CBDRM have targeted educators and children in the Mekong delta. Such innovation will have greater degree of sustainability since the educators have the opportunity to teach and shape the minds of the next generation of leaders.

The set of criteria used by DANI in their publication is sufficient to generate new best practices in CBDRM. Aside from the four criteria, the following general principles were considered in the CBDRM projects in the 3 countries:

1. Local political and/or social structures existing in the area were respected. New organizations need not be created if existing associations or cooperatives can carry out the responsibility of the CBDRM activities. The design of the CBDRM projects ensured community participation in all aspects - from community organizing, training, awareness raising, implementation and monitoring.
2. DRM activities should be built on existing knowledge rather than superimposed to the community. For instance, technologies that were later introduced were an upgrade of the knowledge in the communities. With this, projects are easier

to continue and be carried out by the community after the end of project assistance.

3. The projects were cost-effective. The CBDRM projects were much cheaper than structural mitigation activities. Moreover, the cooperation and collaboration by local governments and the communities themselves generated additional resources and counterparting arrangements for the projects.
4. The trainings and knowledge shared were based on scientific findings. Aside from the nature of storms and floods, key CBDRM activities and concepts such as search and rescue and emergency first aid, climate change concepts and consequences were also introduced. Such higher level concept of disaster can open wider perceptions in the community.
5. The CBDRM projects did not encourage "dole-out" or welfare mentality. The projects implemented did not put emphasis on the reliance on external sources, but rather on self-reliance and community interdependence.

Is it innovative?

Is it different?

Is it sustainable?

Considering the lessons and experiences from the DANI experience, an expanded set of criteria may be devised with the help of sub-questions:

Is it replicable?

1. Innovativeness: Has it developed new and creative solutions to common problems?
 - *Is the solution building on local knowledge?*
 - *Is the solution based on scientific findings?*
2. Positive and tangible impact: Does this constitute a positive and tangible impact to communities that are negatively impacted by disasters?
 - *Have there been quantified differences between the past practices and the innovations implemented like numbers of lives lost; houses destroyed, etc.?*
 - *Has the project generated more participation from the community and other sectors?*
 - *Has the project promoted self-reliance and deviated from the traditional dole out or welfare mentality among the people?*
3. Sustainability: Does this contribute to a sustained reduction in disaster risks or sustainable improvement in disaster preparedness?
 - *Have the activities been initiated by the project continued by the community?*
 - *Can the project activities be financial and operationally sustained by the community in terms of implementation, operation and maintenance?*
 - *Can the initiatives using the CBDRM approach be institutionalized?*
4. Potential for replication: Can this serve as an inspirational framework for generating policies and initiatives elsewhere?
 - *Can the project activities be upscaled and adopted on a higher and broader level (i.e., incorporated into legal*

instrument like ordinances, building codes, EIA process, etc)?

- *Can the project design, processes, technology and methodologies be applied to localities with similar conditions (like same hazards and risks)?*

Alternatively, the set of criteria for CBDRM activities can be generally reduced to the inter-relation of: innovativeness, sustainability; replicability.

Innovation

Innovation can absorb the criterion on being 'new'. Innovativeness can apply to processes that will generate maximum participation and/or absorption of new knowledge for disaster preparedness, mitigation and prevention (PMP). On the other hand, innovativeness can be related to the introduction of new methods and procedures, which can strengthen simple community infrastructure like houses, water supply, health centers, etc. Innovation can also apply to new methods of early warning systems or a more efficient way of hazard mapping. For instance, DRM concepts were introduced through local dramatic clubs, which commands greater attendance from the people.

Sustainability

Sustainability can refer to the possibility that CBDRM initiatives that had been introduced can continue after the project ends. This can include the ease of implementing/operating and maintaining certain innovations/technologies; the cost and affordability of continuing the projects' requirements; as well as the acceptability of the project outcomes and implementation arrangements to the community and the local authorities. For example, will a new housing technology require a higher maintenance cost every year?

Replicability

Replicability will involve the combination of the processes of CBDRM and the acceptability of the ideas, methods etc. that were introduced during the implementation. For instance, certain skills that are needed must be present to replicate a CBDRM in a certain area.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the above analysis and findings, poverty reduction policy must be conceived, planned, developed and implemented in the local context in order to ensure effective participation of key stakeholders, especially the poor. For this reason, CBDRM, which is a locally-motivated process, is a good approach to address the core issues of the disaster-poverty vicious circle. To maximize CBDRM integration into development planning, two recommendations are formulated for discussion at the Fifth Disaster Management Practitioners' Workshop of PDR-SEA program: promotion of CBDRM and priority activities for follow-up actions;

PROMOTING CBDRM

With very encouraging results from pilot projects within the Southeast Asian region, CBDRM projects should be advocated in other countries. First, advocacy of CBDRM should primarily target policy-makers - national and local officials - who have control over budgetary resources for legislative and administrative action. Convincing governments to pursue CBDRM can focus on its cost-effectiveness in reducing losses to human lives and economic assets, among others. The reduction in social and economic costs can help disaster-prone countries, especially in least developed regions, which have lesser budgetary resources.

Second, advocacy should likewise target NGOs whose efforts on disaster management are still focused on the traditional relief and rehabilitation. Sharing of CBDRM experiences and project can also serve as a platform for joint advocacy. eResults can also present quantitative and qualitative data (e.g., lives lost or saved; houses and buildings destroyed; losses to assets of production like fishing boats; number of illnesses prevented; etc.).

Third, the private sector and development donors must be also be oriented through successful project results the comparative effectiveness of preparedness over relief. Donors have given substantial donations for relief since they derive not just goodwill but promotion of their business/endeavor. In the Philippines, private business donations to disaster victims can claim tax credits for their donations in cash or in kind.

Lastly, the multilateral and bilateral donors should be also strongly consider the cost-effectiveness and cost-efficiency of CBDRM compared to the traditional relief and rehabilitation. Donors can also be encourage to realign their fund commitments and grant assistance in piloting CBDRM to disaster-prone communities. Multilateral agencies whose assistance usually comes in terms of loans, grant incentives can be integrated into loans as incentive to borrower governments to implement or pilot-test CBDRM.

...poverty reduction policy must be conceived, planned, developed and implemented in the local context in order to ensure effective participation of key stakeholders, especially the poor.

In the end, an effective CBDRM advocacy should be able to demonstrate ability to bring social and economic benefits.

PRIORITY ACTIVITIES FOR FOLLOW-UP ACTIONS

Developing and promoting CBDRM as a new paradigm or as a vital component of poverty reduction strategies requires further study and conceptual rethinking, as well as adjustment in assumptions of poverty targets. Among the priority activities is the sustained implementation of on-going CBDRM projects and undertaking an independent evaluation of their effectiveness and efficiency based on their stated objectives. This means that individual projects should be evaluated in terms of the community organizing and planning processes undertaken; appropriateness of the technology transferred; and the collaborative efforts within and among communities.

Second, awareness-raising on the potential impact of natural disasters within the backdrop of climate change and global warming should be extended to individual countries as well as countries faced with the same hazards and risks. Provision of alternative livelihood or sources of income can be further pilot-tested and/or intensified to mitigate the potential effects of climate change which will heavily impact on agriculture.

Third, technology transfer and information-sharing should flow from the international community to the country/national level and eventually trickle down to the community level. New information and technology available should be shared, tested and integrated in CBDRM projects.

Lastly, policy studies could be undertaken to look into present and emerging policy aspects of CBDRM. Aside from the cost-benefit analysis of prevention and mitigation, studies should also deal with incentives to national and local governments and communities to implement CBDRM. These incentives can cover the role of financial incentives, tax measures, insurance schemes and other instruments that will promote CBDRM. Related to this, damage assessments should likewise be improved as instruments of measuring efficiency and effectiveness of DRM-related programs and projects.

Continuing research, education, awareness-raising, testing of new methodologies and information campaign will ensure sustainability and interest in CBDRM for policy makers and stakeholders alike.

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ANNEX 1. SUMMARY OF RECENT CBDRM ACTIVITIES IN VIET NAM

Viet Nam has a long history of experience in coping with emergencies due to either natural or man-made disasters. However, the country has still embarked on upgrading its disaster-risk management practices using the community-based approach, among others. The strong participation of international NGOs in this undertaking has been substantial. Since 1991, a considerable stock of good practices in community-based disaster risk management (CBDRM) in Viet Nam can already be noted. Almost all CBDRM projects have built on a participatory approach wherein strengthened capacities of community members in risk assessment, identification of mitigation and preparedness measures, decision making, implementation, networking, and even resource mobilization has become a desired goal in itself. Projects heavily engaged in community organizing, consultation, training and advocacy have led to the development of community-based disaster risk management plans and their eventual integration into community development plans. Communities being trained on CBDRM, participating in hazard, vulnerability and capacity assessment (HVCA), planning and prioritizing their disaster risk reduction activities, and integrating and advocating for these priorities into local/community development plans have been predominantly pursued in projects such as the Area Development Programme (ADP) of World Vision Viet Nam (WVN), the Safer Community Planning (SCP) approach of the Canadian Centre for International Studies and Cooperation (CECI), and the 'Getting Prepared' Project of CARE Viet Nam. How disaster risk management plans can further enhance social and economic objectives is a concern that is directly addressed in some CBDRM projects that are multi-sectoral in approach. Combining disaster mitigation and environmental management through mangrove plantation and protection leading to increase in income and creation of other livelihood opportunities is an example of these projects.

The involvement and commitment of both national and local governments, as enabling and institutionalizing agents, in these projects are significant. Almost all ADPs allocate 2 to 10 % of total annual budget for disaster preparedness, relief and mitigation, based on priorities and needs identified in the planning process. SCPs, once prepared at the village level and compiled into a commune level plan, are given fund allocations based on the agreed priority activities of communities and district and commune governments. The Viet Nam government has implemented a number of administrative reforms to decentralize planning and budgeting and provided guidelines for participatory planning. A number of international organizations have been supporting this decentralization cum participatory policy by requiring that loan or grant investment be based on Village Development Plans and Commune Development Plans.

To ensure effective and responsive disaster risk management plans, CBDRM projects in Viet Nam have invested substantially on capacity building activities which maximized existing local skills and resources as well as tapped locally-available mechanisms and institutions. Some capacity building approaches are needs-specific, that is, customized and directed to the communities' perception of their own risks and ways to manage these risks. The trainings and technology transfer provided to local construction workers and builders on retrofitting techniques and building homes resistant to storms and cyclones by Development Workshop France (DFW) have ensured the availability and affordability of required skills and resources in house strengthening. After the provision of structural packages to reconstruct and reinforce damaged and destroyed infrastructure for water disaster reduction, trainings were given to government personnel and the community on operations and maintenance of infrastructures for salinity intrusion control, protection of river bank and dyke, and increase in fresh water storage. Recognizing the distinct vulnerability of children in disaster emergencies, several CBDRM projects have focused on building capacities of educators to enhance the preparedness of school environment and the children themselves especially in times of floods and typhoons. A Save the Children project provided an opportunity to more than 1,200 children from 30 schools to participate in CBDRM activities particularly in trainings on child

rights, disaster risk reduction, and HVCA. Supplementing the knowledge and skills acquired by the communities to effectively respond and manage their vulnerability to disasters is the provision of tools in hazard mapping and risk assessment. CECI implemented the "Hazard Management Maps" project to provide communities and local officials with more complete information on vulnerable areas in a format and language that they could easily understand and apply. The project enabled the communities to complete a primary hazard map and then compared and improved these maps with digital technology based on inputs from academic and research specialists.

CBDRM projects in Viet Nam have also focused on building and improving public awareness and understanding of current and evolving concerns on disaster risk management. Foremost of which is the growing threat of global climate change on the lives and properties of communities especially those located in typhoon and cyclone-prone areas. A pilot project by the Viet Nam Red Cross was developed to integrate climate change into existing disaster preparedness programmes. This entailed raising understanding among authorities, VNRC staff, communities, and other stakeholders; and improving vulnerability and capacity assessment tools to take into account destructive effects of unpredictable changes in global weather.

Aside from non-structural mitigation measures such as capacity building, public awareness and advocacy, some CBDRM projects have implemented structural measures as ways for communities to immediately appreciate their involvement and investment in disaster risk management efforts. Some projects have provided funds and expertise for reconstruction of small-scale infrastructures for water disaster risk reduction such as dykes and water channels; construction of search and rescue centers; construction of dams to protect agricultural lands against strong winds and sand-drift or salt-water intrusion; and strengthening of loudspeaker systems for early warning.

Intrinsic in most of these CBDRM is the conscious effort to build and strengthen cooperation and networking among concerned stakeholders: the beneficiaries, community-based organizations, national and local governments, nongovernmental organizations (NGOs), donor community, and on a limited scale, the private sector. Some projects have even directed their activities towards strengthening cooperation and communication among partner organizations such as the ECHO Advocacy Network Initiative (DANI, which is a joint cooperation of eight nongovernmental organizations to promote CBDRM and improve coordination among key disaster management stakeholders in Viet Nam. The DANI project provides a platform for these eight NGOs to work through the Natural Disaster Mitigation Partnership of the government in a more coherent and coordinated manner. Cooperation at the community level is likewise intensified through the creation of Disaster Preparedness Mitigation Action Teams which enjoin villagers, people from Commune Flood and Storm Committees, commune authorities, and representatives from civil society organizations representing women, farmers and youth under a project implemented by CARE International. After undergoing trainings, these teams are expected to develop disaster preparedness management plans which are consolidated into commune-level plans and possibly integrated into socio-economic development plans. Because of the partnership and confidence gained through the project, the team members and commune leaders have extended their collaboration to implement and fund other activities not part of the project. Volunteer network has also been developed as community's front liners in disseminating information, education and communication messages on disaster preparedness, and supporting implementation and monitoring of village disaster action plans. This project, being implemented by Oxfam Hongkong, has produced a network of 123 volunteers in eight communes where in 60% of the members are women while the rest come from youth and village representatives.

The sustainability potential of the CBDRM projects in Viet Nam can be demonstrated by communities being able to continue and build on the activities and outputs resulting from these projects. Communities, to sustain these gains, should at least enjoy a major stake in decision making process, have the capacity to maintain and operate affordable disaster reduction

measures and mechanisms at household and village levels that maximize local knowledge and resources and newly acquired skills, and demonstrate the confidence to network with development partners. These indicators should all lead to significant levels of improvement in the protection of lives and properties, and in the living conditions of vulnerable groups residing in disaster-prone communities.

ANNEX 2. SUMMARY OF RECENT CBDRM PROJECTS IN CAMBODIA

POVERTY IN CAMBODIA⁷

Poverty in Cambodia is overwhelmingly a rural phenomenon. In 2004, poverty incidence in Cambodia is around 35%. Significant regional differences exist in the poverty rate. While only about 5% of the Phnom Penh residents are poor, nearly 25% in other urban areas are poor. In rural areas, poverty rate is more than 39%. Of the total number of the poor, more than 91% lives in rural areas compared with 8% in other urban areas and only 1% in Phnom Penh. In absolute numbers, 4.4 million (93.4%) live in rural areas while 0.3 million (6.2%) live in other urban areas and only 15,000 live in urban Phnom Penh. The share of the food poor also follows a similar pattern. This shows that the fight against poverty in Cambodia must involve development and productivity increase of the rural economy to accelerate the growth of rural incomes and opportunities. Poor households tend to have larger dependency ratio and family size. Poverty incidence significantly rises for household sizes larger than five persons. Poverty rates are high among those whose household heads have little or no education. Similarly, years of schooling and literacy of household heads are strongly related to poverty. This shows the lack of human capital on the part of the poor and brings out the importance of investing in human capital as an effective means of fighting poverty in Cambodia. In terms of sectoral employment, poverty incidence is high among households whose heads earn their living as mining, agricultural and construction workers. Targeting agriculture, however, is most important as it accounts for 63% of the total number of the poor in the country. Thus, the most effective way for poverty reduction in Cambodia is to accelerate rural (agricultural) growth that would benefit the overwhelming majority of the poor.

The poor, especially the poorest 20%, tend to reside in remote and isolated areas where they have limited access to infrastructure and basic services. The distance to roads, markets, bus stop, and many other extension and input services monotonically increases from higher to lower quintiles. The poorest 20% are especially isolated from permanent markets and health care facilities. Villages in which the poor reside have much less health and education facilities. In particular, sharp differences exist in access to secondary schools and all types of modern health service providers. Conversely, the poor have more access to untrained and traditional health service providers.

DISASTERS IN CAMBODIA⁸

Cambodia covers an area of 181,035 square kilometers and is divided into 21 provinces. It is bordered to the North by Thailand and Laos, to the East and South by Viet Nam, and to the South and Southwest by the Gulf of Thailand. Most of Cambodia's land is relatively flat with vast tracts of land given over to rice production. Other areas of Cambodia are mountainous, including the Dangrek, Cardomen and Elephant mountain ranges.

⁷ Excerpts from "A Poverty Profile of Cambodia: 2004", www.mop.gov.kh/Situationandpolicyanalysis/PovertyProfile/tabid/191/Default.aspx. This section is specifically intended for readers who want to know more about the poverty situation in Cambodia.

⁸ <http://www.adrc.or.jp/countryreport/KHM/2003/page1.html>

Climate and Seasons

As a tropical country, Cambodia is bathed in almost all year sunshine and has a high average temperature. There are two distinct seasons, the dry and the monsoon. The monsoon lasts from May to October with southwesterly winds ushering in the clouds that bring seventy five to eighty percent of the annual rainfall often in spectacular intense bursts for an hour at a time with fantastic lightening displays. The dry season runs from November to April averaging temperatures from 27 to 40 degrees Celsius.

CURRENT ENVIRONMENTAL HAZARD

Previously, illegal logging activities throughout the country and strip mining for gems in the western region along the border with Thailand have resulted in habitat loss; declining biodiversity (in particular, destruction of mangrove swamps threatens natural fisheries); soil erosion among others. In rural areas a majority of the population does not have access to potable water.

Natural hazard

Currently Cambodia is particularly prone to annual river-flooding during the monsoon-raining season while other phenomena also frequently occur such as; tropical storms, droughts and forest fires etc. Those hazards are major factors cause occurrence of natural disasters that lead to reduction of the pace of sustained economic development in this country. Many Cambodian communities, especially those that are situated along the two major watersheds-Tonle Sap and Mekong Rivers- have been extremely vulnerable to the effects of those natural hazards. These natural phenomena are both a curse and a blessing as the farmers depend on the annual rainfall for crop production and have developed an extensive water management system to trap and store water to be utilized during periods of drought. In this way, many parts of the country are capable of harvesting a primary rice crop and a secondary harvest of vegetables or other cash producing commodities. But in the series of consecutively extreme flood years, floods washed away dams, dikes and distribution structures, destroy crops and livestock, damage homes, temples, schools, clinics, roads, and other community infrastructure and caused the loss of human lives. These increasingly lead Cambodia to food shortage, loss of economic output, health contamination and consequently hunger and poverty.

The Mekong River and its hazards

The Mekong River is the world's 12th longest river system, with a total length of 4,400 km, a drainage area of 795,000 sq. km and an average annual runoff of 475,00 million cubic meters. The Mekong River Basin possesses the regions' largest potential water resources. Floods in the Mekong Basin are part of the daily life of the people. But food security, poverty reduction and sustainable development are not possible with extreme flood events that cause great loss of property, and severe disruption of livelihood. Every year, floods of varying intensity affect the Cambodia along two natural major watersheds, Mekong River and Tonle Sap Lake. Both Mekong River and Tonle Sap dominate almost the land of paddies and forests of Cambodia. The Mekong River bisects the eastern third of the country north to south, flowing out of Laos through Cambodia and into Viet Nam with its 500km length. Annual monsoon rains swell the Mekong causing the Tonle Sap to reverse it course, flooding Tonle Sap Lake and affecting the northwest region of the country.

Cambodia's chronic annual flooding reached catastrophic proportion in September 1996. As a result of heavy rains in China, Laos and Viet Nam, the Mekong River rose dramatically in mid-September, causing serious floods in six provinces along the river. The consequence of the flooding affected 1.3 million people with over half requiring urgent emergency aids. That was generally acknowledged to be the worst flooding in more than 30 years of Cambodian history as more than 600,000 hectares of crops and 50,000 homes were damaged or destroyed. The flood also seriously damaged such infrastructure and critical facilities as schools and other public buildings. Floods have occurred later in the years in 1999, 2000 and 2001.

In the year 2000, heavy rainstorms flooded the entire Mekong River watershed. More than eight million people in Laos, Cambodia and Viet Nam were affected, plus two million in Thailand. The estimated damages are shown as follows:

Laos- USD 19.5 million, 398,760 people affected and 15 dead Cambodia- USD 157 million, 3.5 million people affected and 347 dead Vietnam- USD 285.7 million, 5 million people affected and 448 dead.

The flood of 2000 affected all the four countries in the Mekong River Basin including Lao PDR, Cambodia, Viet Nam and Thailand. But it was in Cambodia that the most severe effects of flood were felt based on reports compiled by the Mekong River Commission (MRC). The deaths in Cambodia constituted 43% of total deaths (800) in all countries affected, while direct damages represented 40% of total damages (estimated at USD 400 million) in all of these countries. The member states of MRC expressed deep concern about this flood as it reached extremely high water levels. The flood of 2000 was more serious than previously recorded in Cambodia, when severe flooding in the area occurred in 1961, 1966, 1978, 1984, 1991, and 1996.

In 2001, Cambodia was again affected by flood and drought though the country was still in the process of recovering from the effects of the 2000 flood disaster. The increasing frequency of extreme climate events has resulted to worsening and more frequent damaging floods in Cambodia such as those that contributed to flooding in 2001.

HISTORY OF DISASTERS IN CAMBODIA		
	1982-1991	1992-2001
Total no. of people reported killed	100	1,094
Total no. of people reported affected	900,000	13,336,614

Source: IFRC World Disaster Report: 2002

Due to effects of storm and strong rainfall affecting Thailand, Laos, and China, including the very fast water flow from Yaly Dam in Viet Nam into the Mekong River, some provinces were severely affected by flood on 13-15 August 2001, at a level that have not been experienced before. The flood also brought sedimentation into the Mekong River and Bassac River and caused damage to many national and rural roads and bridges.

On the other hand, due to strong rains in Phnom Penh and in some areas in the country and the fact that waterways are narrower downstream, the water flowed down significantly slower than its normal flow. Some districts in the provinces located near the Viet Nam border, had high flood level above the danger level for a longer period of time, a condition that was not earlier anticipated.

While vast numbers of areas were flooded in 2001, some areas in Cambodia were also affected by drought, some areas had insufficient rainfall from early months of the year until the end of 2001. There was severe shortage of water for drinking or household and agriculture and livestock use. In some areas, people could not plant rice due to unavailable rice seeds that were depleted during the previous year and when rain came by the end of the year it appeared that the rice season would have been significantly delayed. It was estimated that the total direct damages of disasters in 2001 was at USD 36 million.

In year 2002 ten province were stricken by drought, seventy-six (76) districts/Khan and four hundred and twenty (420) communes/sangkat. The most severely affected provinces were

Kampong Speu, Prey Veng, Takeo, Kandal and Odor Meanchey. Populations affected were 442,419 families consisting of 2,047,340 people. Total damages were approximately estimated at USD 21,500,000 dollars, particularly on rice plantation with 62,702 hectares damaged.

On the other hand, floods again occurred along Mekong River region and Tonle Sap lake similar to the flood in year 2001. There were 89 communes, 38 districts in 6 provinces around Tonlé Sap Lake affected. Due to this flood, 12 km were cut and damaged. Also affected by flood were 129 schools, 14,356 houses and 7 health centers. Damages to infrastructure were 2 school buildings, 35 houses. On the agriculture were 45,003 hectares of rice plantation and to livestock with the death of 56 cows, 22 water buffaloes and 1,690 pigs. Human casualties were 29 people dead by drowning with children comprising most of the death with 9 females. Total damages were approximately estimated at USD 12,450,000 dollars.

Response to Disasters

The cabinet level institution of the Royal Government of Cambodia (RGC) - the National Committee for Disaster Management (NCDM) - attempted to cope with and respond to those annual catastrophes for the past seven years. The effort was considered largely effective under the circumstance of an emerging country where both the government and its people have still limited resources to respond to a disaster of those scope and magnitude. Early warning for floods, weather forecasts and prediction of the extent and severity of the floods were not yet accurate. Flood prediction was only available for one day forewarning and only at national and provincial level. Indeed, from a preparedness perspective, the length of forewarning was not adequate. Additionally, although television broadcasts provide situational update on floods, no public awareness about its consequences and what local actions need to be taken before and during the flood were provided.

Absence of partnership agreement and implementing guidelines for PCDM collaborative action prohibited the effectiveness of coordination and cooperation between PCDM, NGOs and international organizations. One of the most important lessons learned from the flood of 2000 is that there is an urgent necessity for improving inter agency or inter organizational coordination. As a starting point, the NCDM is improving its capacity, system and procedures in damage and needs assessment and reporting. To strengthen the local capacity building in Information Disaster Management System, public awareness especially among the disaster management officials of the provincial and district level and training courses on Standardization of Disaster Information Definition and Reporting formats should be pursued.

CBDRM IN CAMBODIA⁹

CBDRM has many names

Oxfam America calls it as "Community Risk Reduction Program". The program of the Cambodian Red Cross (CRC) is "Community-based Disaster Preparedness" or CBDP. While the Lutheran World Federation Cambodia implements the "Community-based Disaster Preparedness and Mitigation Project". The disaster management institutions call it differently but they all accept it as community-based disaster risk management or CBDRM program.

There are other several organizations implementing CBDRM in Cambodia namely Oxfam, Chamroen Cheat Khmer, Church World Service, Plan International, Action Aid, and local NGOs like NAPA and KWWA, among others. The CBDRM projects implemented in Cambodia are pretty much the same as those in Viet Nam and the Philippines in terms of principles, objectives, scope and strategies. The elements of community organizing, awareness-raising, training, action planning, and integration in local development plans, among others, are present in Cambodia's CBDRM projects. This is not surprising considering that the same international NGOs advocating and supporting CBDRM are operating in the three countries.

⁹ Five lessons learned on CBDRM in Cambodia based on interviews and visits to Oxfam America, Cambodian Red Cross, Danish Red Cross and Lutheran World Federation last 24-27 March 2008.

Moreover, the various exchange of information among the countries enabled the sharing of common experiences in CBDRM among governments. There is unanimous agreement that implementing the CBDRM approach has advantages. Perhaps, the most important is that it increases people's ownership of the program. According to Oxfam, the participants themselves identify the risks, and then their options to reduce those risks and finally the inputs available to them. This way, as Cambodian Red Cross found out, the community understands better their CDBP program. The big difference noted is that people before see disaster-related programs on need-basis or when there is disaster. With CBDRM, the program has been integrated in the community development plans.

Community is where the action is

Understanding the context of "community" is crucial in any CBDRM program. Perhaps the most honest answer you can get in assessing the success and impact of CBDRM programs is that they must come from the people working at the field-level. Although project reports can provide a glimpse of the success and challenges happening at the community-level, the field-officers are still the best source of information based on their experience and interaction with both community leaders and members.

One way of ensuring CBDRM activities are integrated in the mainstream of community activities is to ensure that they are part of the local development plan. This means coordinating with local government officials and more importantly, convincing them to allocate financial resources on CBDRM activities. So, raising the awareness of the community leaders about CBDRM is a must.

When local politics is considered, one will realize that mainstreaming CBDRM in the local development plan is probably not an easy task. Are the communities truly represented the local development planning process? Do community leaders voice the real needs of their community? These are some of the issues that CBDRM studies may want to investigate in the future.

CBDRM needs more people to be effective and sustainable

Almost all CBDRM programs in Cambodia rely on volunteerism at the community-level. While this is generally good, CBDRM coordinators want to see their programs to be driven by competent people sustained over a period of time. Hence, capacity building and the need for more people are the two often-mentioned problems in implementing CBDRM. Cambodian and Danish Red Cross are developing and still refining a "model" for community-based disaster risk reduction. In this model, key stakeholders are identified starting from the disaster-affected communities, to community leaders, up to the national agency, which is the National Committee for Disaster Management (NCDM). This highlights the need for a permanent organizational structure for disaster management especially in the village levels in Cambodia. Moreover, looking at the core components of the model (see below), people who will be involved in CBDRM are expected to be knowledgeable and competent in many areas, which means a lot of training is needed to develop a good field worker or coordinator.

ROLE OF GOVERNMENT IS VERY IMPORTANT

In a review of the Hyogo Framework of Action (HFA) commitments of the Royal Government of Cambodia, some of the gaps identified are: (i) key government ministries not represented in the multi-institutional task force for disaster risk reduction; (ii) absence of national policy and law on disaster management; (iii) general lack of awareness and understanding of disaster risk reduction is not considered a priority by almost all government ministries.

A strong National Committee for Disaster Management (NCDM) in Cambodia will enable the disaster management institutions at all levels to become more effective in their work. Hence, everyone is looking up to NCDM to provide leadership and guidance in coordinating a lot of activities from the national to the commune level.

Core Components of the CBDRR Model

- **Core Disaster Management and Risk Reduction Trainings**
 1. Red Cross Orientation (7 principles of Red Cross Movement, International Humanitarian Law, Cambodia Red Cross Vision and mandate, roles and responsibilities of Red Cross Volunteers, etc)
 2. Disaster Response and Preparedness
 3. Hazard, Vulnerability and Capacity Assessment
 4. Village Disaster Reduction Plan
 5. Commune Disaster Reduction Plan
 6. Community-based First Aid and Health
 7. Strengthening Disaster Management Capacity
- **Core Capacity Building and Skills Enhancement Trainings**
 1. Community Organizing
 2. Mobilizing community resources
 3. Basic participatory techniques and facilitation skills
 4. Adult learning and advanced facilitation skills
 5. Participatory monitoring and evaluation
- **Participatory Monitoring and Evaluation (PM&E)**
 1. Baseline survey
 2. Establishment of PM&E plan and PM&E committee at village level
 3. Cross visits to other Cambodian Red Cross villages and to other disaster risk reduction projects in Cambodia
 4. Annual participatory reviews at village, commune and provincial levels
 5. Annual feedback of lessons learned to village, commune and provincial levels
- **Participatory Risk Assessment Process at Village Level**
 1. Hazard vulnerability and capacity assessment by Red Cross Volunteers
 2. Participatory risk analysis by Red Cross Volunteers
- **Action Planning Process**
 1. Facilitate the development of a Village Disaster Reduction Plan
 2. Facilitate the development of a Commune Disaster Reduction Plan based on commune level needs and interests
- **Disaster Reduction Measures (Small-scale Micro-projects)**
 1. Beneficiary selection, proposal writing and micro-project implementation planning
 2. Structural and non-structural disaster mitigation measures at village level
 3. Disaster preparedness measures at village level
 4. Disaster preparedness measures at commune level
- **Other Trainings**
 1. Communication with community skills
 2. Personal empowerment
 3. Operation and maintenance
 4. Disaster risk communication and awareness raising followed development of public awareness campaign
 5. Awareness raising on Gender
 6. Awareness raising on Natural Resource Management

Linking CBDRM and poverty reduction

CBDRM practitioners firmly believe there is a connection between poverty and disaster. However, most of the CBDRM activities are still very much focused on “disaster risk reduction”. Therefore, there is a need for a conscious effort to fully relate CBDRM to poverty reduction strategies and the local as well as national development plans.

ANNEX 3. SUMMARY OF RECENT CBDRM PROJECTS IN THE PHILIPPINES

CBDRM IN THE PHILIPPINES

Before the paradigm shift the then prevailing emergency response to disaster risk management in order to reverse the increasing trend in disaster occurrence and loss, the Philippines has initiated in various ways and means the concept of community-based disaster reduction management (CBDRM) principles, then known as community-based disaster management. The government through the Department of Social Welfare and Development's Bureau Emergency Assistance has promoted Family and Community Disaster Preparedness to local government units. This has been supported by the National Disaster Coordinating Committee (NDCC), the highest policy-making body in the country in relation to disaster management. The municipality of Guagua in the province of Pampanga which near Mt. Pinatubo in Central Luzon and the province of Albay where Mayon Volcano is situated were among the local government units which adopted and excelled in the community level disaster management. On the other hand, NGOs and people's organizations started to develop an alternative approach with in the mid 80s. After the successive disasters within the last decade and a half – from strong typhoons, earthquakes and volcanic eruptions- and the positive effects of CBDRM, more NGOs, government agencies and local government units which have taken on CBDRM strategies. The Philippine National Red Cross has implemented its Integrated Community Disaster Planning Program since 1994. Other agencies such as World Vision, Caritas-Manila and the Philippine Relief and Development Services have integrated CBDM into their existing emergency services. At present, there a number of NGOs both local and international who have adopted the CBDRM principles. Aside from those mentioned, the others who are doing successful CBDRM as part of their socio-economic programs and projects are Plan International, International Organization for Migration, Christian Aid, Oxfam, among others. The bilateral and multilateral donors like have likewise been actively supporting CBDRM with their financial and technical assistance.

The CBDRM in the Philippines as in the other countries aims to make communities resilient to natural disasters and make the people self-reliant rather than dependent on outside help after disasters. The same CBDRM principles, components or elements are generally present in CBDRM in Viet Nam and Cambodia, among other countries in the region. These are:

- a. Communities are organized to elicit peoples' participation. This involves awareness-raising in the community where the people are further engaged in risk identification; planning; team formation; drills, etc. In all these activities, the community members are the main actors.
- b. The plans created and actions to be taken are community-specific and identified through analysis of the community's disaster risk, hazards, vulnerabilities and capabilities.
- c. Existing capabilities, knowledge and skills are respected and recognized. CBDRM builds upon and/or strengthens existing coping strategies and capacities, social and cultural values; organizations and resources.
- d. CBDRM principles and activities are being integrated into local development plans especially poverty reduction to address the causes of vulnerabilities which retard socio-economic development.

- e. Partnerships and networks are built with national and local governments, NGOs and the private sector to support CBDRM. The facilitating and catalytic role of NGOs should be absorbed by the government to institutionalize the CBDRM process.

Overall, CBDRM in the Philippines as in other countries are a) integrated and comprehensive which includes pre-, during and post-disaster measures utilizing both structural (infrastructure) and non-structural preparedness and mitigation (health, literacy, public awareness, education and training, livelihood, community organizing, advocacy, reforestation and environmental protection, etc); and b) multi-sectoral and multi-disciplinary which considers roles and participation of all stakeholders in the community and combines indigenous/local knowledge and resources with modern science and technology. These are all developmental in nature and meant to empower the people by increasing their options and increasing their capacities and access to resources.

There are several noteworthy CBDRM initiatives in the Philippines covering both structural and non-structural interventions. For instance, as part of the collaborative project entitled Partnership on Disaster Reduction on Southeast Asia (PDRSEA) Phase 4, the province of Albay, with the technical support of Asian Disaster Preparedness Center (ADPC) and National Disaster Coordinating Council (NDCC), assisted the Camalig Municipal Disaster Coordinating Council (MDCC) in integrating Disaster Risk Reduction (DRR) components and strategies in their Comprehensive Land Use Plan (CLUP). The project is also enhancing the early warning system and evacuation procedures at the barangay/community level. Because of its proximity to the foot of Mayon Volcano, the Camalig Municipality was identified as one of the high risk areas in Albay province. Similarly, the International Organization for Migration (IOM) has constructed about 1,250 temporary shelter units of temporary shelter to decongest school buildings which are being used as evacuation shelters. This project enabled the school children to resume their education and gave the community a sense of normalcy after the super typhoon that occurred in December 2006. In addition, the IOM included the formation of community coordination focal groups which served also as vehicle in promoting CBDRM through trainings along with local government officials. For its part, Plan International assisted the province by repairing and building typhoon-resistant school buildings based on scientific knowledge – from soil testing to construction. The people in the communities participated in the planning process for site development and have provided counterpart in terms of land on a higher ground and labor. Plan also implemented DRR trainings involving the Parents, Teachers and Community Association for their child-centered DRR. Through community integration and participation, this project imparted to the people the value of organizing themselves and empowered them with the knowledge that they can work before and after a disaster for their common good.

On the other hand, the Christian Aid is implementing the project Building Disaster Resilient Communities by engaging the government, academe, scientists and other sectors in order to build on the strengths of these stakeholders for CBDRM. The project seeks to incorporate DRR concepts into community development through the sustainable livelihood approach and in the preparation of national and local development plans. Among the specific activities are in agricultural activities and livelihood enhancement through understanding of soil modalities and disaster-resilient crops; enhancing family synergy of vulnerable households through gender and development strategies; disaster resilient housing; integrating DRR in planning and budgeting processes; integrating of savings mechanisms in disaster rehabilitation; and organizing household groups or cells for DRR. Climate change concepts and natural disasters have likewise been initiated and included in DRR awareness raising and training programs.

CBDRM is being practiced nationwide in the Philippines and there are other stories that tell how effective the results are. Generally, experiences in the Philippines show that a wide range of innovative structural and non-structural preparedness and mitigation measures can be done by building on and strengthening local coping strategies and capacities. Community participation throughout the processes of assessment and planning results in ownership,

commitment and collective actions in DRR. With the participation of local governments, CBDRM is cost-effective as the community provides resources as counterpart. Aside from strengthening social cohesion and cooperation, CBDRM opened the window of opportunities for the integration of disaster risk management into the local development planning and budgeting processes that lead to self- and community empowerment.

Below is a brief on the collaboration between the government and NGOs for the CBDRM activities in the province of Albay.

COMMUNITY-BASED DISASTER RISK MANAGEMENT: THE ALBAY CASE

BACKGROUND

From a small settlement known as Albaybay (meaning by the bay), the province of Albay emerged as the main source of hemp used for skipping rope during the early part of the 18th century. Created under Act No. 2711 on March 10, 1917, Albay is spread over an area of 2,552 square kilometers. It consists of seven hundred twenty (720) barangays, (fourteen (14) municipalities and three (3) cities. Legaspi City has been officially designated as the province's capital and site of regional offices



Source : PAGASA.

The province is located at the southern tip of Luzon between the provinces of Camarines Sur on the north and Sorsogon on the south. It is bounded on the east by the Pacific Ocean, on the northeast by the Lagonoy Gulf, and on the west and southwest by the Burias Pass. Albay has 1,861,524 km. of roads with concrete and asphalt roads interconnecting the growth centers to the municipalities and barangays of Albay. The only air transport system in the province is the Legaspi Airport. Other means of transporting goods and people is through water transportation; two national ports are situated in Tabaco and Legaspi. In addition, there are six municipal and six private ports situated in Legaspi City.

Legaspi City has a trading economy although agriculture remains the main source of livelihood. Its main crops are rice, root crops, vegetables, and abaca products. There are rich deposits of non-metallic reserves, fertilizer materials, perlite, bentonite, and white clay. Its rich fishing grounds are sources of supply and livelihood by the adjacent towns in Albay.

Preferred investments are in the areas of tourism (resorts and hotels), transport facilities, recreation, cement manufacturing and production, ceramics production, and processing of livestock and poultry. The most popular and internationally known tourist spot in Albay is the Mayon Volcano, which used to have the most perfect cone before the recent eruption. It stands majestically at 2,462 m. from a broad base about 10 km. in radius. Other tourist attractions in Albay are the ruins of Cagsawa Church in the town of Daraga, the Calabiding (Bat) Caves, located in Camalig, and the Balubagon Boiling Lake in Manito, south of Legaspi City.

Based on May 2000 census, Albay's population was recorded at 1,090,907, making it the 22nd most populous province in the country. The urban population constitutes 19.6% of the entire population, proving that Albayanos are predominantly living in rural areas.

RISK PROFILE

The climate in eastern part of Albay has a very pronounced maximum rainfall from November to January. Rainfall is evenly distributed throughout the year in the western part. The province has a yearly average of 20 typhoons ranging from 60-180kph. These



Source : PHILVOCS

typhoons accounted for the loss of 214 lives in 1981, some 420 lives in 1988, and 58 in 1989.

The Mayon is the most active volcano in the country having erupted over 47 times in the past 400 years. The most destructive eruption of Mayon was in February 1, 1814. Its lava buried the town and church of Cagsawa. The Mayon has been restless since 1999, when it unexpectedly emitted a large plume of ash startling local residents. A series of eruptions followed in 2000 and

2001. Prior to this, the last major eruption of the Mayon was in 1993, causing the death of 77 people and evacuation of approximately 50, 000 residents.

Recent Disasters in Albay			
Name of Disaster	Date of Occurrence	Casualties	Damages (in PhP)
Super Typhoon Reming	30 Nov 2006	Dead: 604 Injured: 1,465 Missing: 419	3,230,435,702.00
Super Typhoon Milenyo	27 Sep 2006	Dead: 14 Injured: 176	795,544,260.00
Mayon Eruption	Jul-Aug 2006	Zero casualty	54,000,000.00
Mayon Eruption	2001	Zero casualty	None
Mayon Eruption	2000	Zero casualty	284,076,061.22
Typhoon Loleng	2 Nov 1998	Zero casualty	829,880,952.48
Typhoon Rosing	3 Nov 1995	Zero casualty	None
TOTAL			5,193,936,975.70

Source: NDCC

DISASTER WORSENEED POVERTY IN ALBAY

The Philippines was hit by four typhoons in 2006: Milenyo in September; Neneng and Paeng in October; and Reming in November. These events triggered landslides, flashfloods, mudslides, widespread flooding and together with the associated high winds, caused destruction and damage to homes, community buildings, communications facilities, roads, bridges, agricultural crops and fishing farms. The National Disaster Coordinating Council (NDCC) estimated that the cumulative effects of these typhoons brought more than three million persons displaced, more than a thousand dead, three thousand more injured, about nine hundred missing and close to a million damaged houses. Initial assessment of damage to agriculture and infrastructure was placed at almost PhP20 billion.

In the 2006 tragedy, the province of Albay was hardest hit. Approximately P4 million damages were incurred by the province. Being largely dependent on agriculture, the typhoons messed up the local economy. Business activities also slowed down affecting the provision of much-needed jobs and hampered food production efforts which contributed to the increase in the price of basic commodities. Based on the official poverty statistics released by the National Statistics Coordination Board (NSCB), Albay's poverty incidence of 40.28% scored the lowest in among the Bicol region's six provinces in 2000. Poverty incidence in Albay improved in 2003 at 34.42%; exhibiting a decrease of 5.86 percentage points. However, the 2006 poverty situation report of NSCB showed Albay with a higher poverty incidence of 37.8%. This increase in poverty rating can be attributed to the extensive losses that the province sustained due to the series of destructive typhoons of 2006.

GOVERNMENT RESPONSE

Albay Public Safety and Emergency Management Office

The Provincial Government of Albay has an organized Provincial Disaster Coordinating Council (PDCC) which has overall control of disaster preparedness and response activities. The Albay Public Safety and Emergency Management Office (APSEMO) was established to serve as a permanent secretariat of the PDCC. The APSEMO formulates policies and plans for the protection and preservation of the welfare of the local populace in times of calamities and other emergencies.

The effectiveness of the APSEMO in coordinating the early evacuation of residents was demonstrated with the consistent zero casualty record after major eruptions of the Mayon Volcano. Community assemblies and issuances of early warning and advisories helped protect the population at risk. However, the APSEMO was caught off-guard by the series of typhoons in 2006. These natural hazards were not only stronger but also affected new areas in the province. With barely a month's interval in between these typhoons, the people were exhausted and resources were depleted. The continuous typhoons were extraordinary and gave rise to circumstances never before experienced by the province.

According to Mr. Cedric Daep, Head of the APSEMO, the numerous casualties that resulted after Typhoons Milenyo and Reming may be attributed to the following:

- Most communities failed to timely evacuate to avoid the wrath of Typhoon Milenyo. Most stayed home to protect their properties while those who evacuated returned back to fix their houses after bringing other members of the family to evacuation sites.
- The actual rainfall of 467mm in a span of 24 hours was equivalent to one month of typical rainfall in the region;
- The discharge capacity of river system, which was already destroyed by the Typhoon Milenyo, could no longer control the flow of mud and flood from the Mayon;

- When typhoon Seniang struck in December, there were no more evacuation centers available because most areas were destroyed in September by Typhoon Milenyo;
- Likewise, the river channels were already full of the debris;
- Most areas hit by mud and debris flows were areas previously unaffected by typhoons, indicating the creation of new paths of lava and lahar, as well as new landslide patterns.
- A vulnerable population was left without access to evacuation-advisory broadcasts by local radio because the electric line destroyed during Typhoon Milenyo were not yet restored;
- All communication networks and warning capabilities of PDCC-Albay were destroyed by the earlier typhoon.

Office of Civil Defense

The Office of Civil Defense (OCD), through its regional field office in Bicol, has been conducting disaster preparedness activities in Albay years before the occurrence of the major disasters enumerated above.

In 2003 the OCD, in coordination with the APSEMO, held a “Disaster Management Workshop for Albay Municipal Disaster Coordinating Council” and a “Trainers’ Training for City Disaster Coordinating Councils on Community- Based Disaster Preparedness”. In 2004, the Office intensified the conducted Disaster Preparedness Orientation in both public and private schools. Under the auspices of JICA, a seminar was also organized on Mayon Comprehensive Disaster Preparedness. Using the United Nations High Commission on Refugees (UNHCR), the OCD also conducted a Regional Training of Facilitators’ on Contingency Planning in Albay. In 2005, the OCD launched the “Safe Ka” Typhoon Advocacy Video Production coupled with radio plugs using local dialect. With the technical assistance of Department of Health, Philippine National Red Cross, Philippine Navy, and Philippine Coast Guard, the OCD was able to organized specialized skill trainings on Basic Life Support, First Aid, and Water Safety. In 2007, a barangay level intervention was strengthened through the conduct of community-based disaster preparedness seminars, barangay household workshops, and mapping exercises. For the current year, the OCD is collaborating with the Asian Disaster Preparedness Center (ADPC) in the conduct of institutional capacity development on community-based disaster risk management at the municipal level.

Other National Government Agencies/Departments

PAGASA	Issuance of timely weather bulletins, installation of rain gauges, launching of upper air receiving equipment that gathers data on relative humidity, wind intensity and velocity, temperature, pressures, and other parameters necessary in detecting weather disturbances.
PHILVOCS	Tsunami drills, volcano activity monitoring
MGB-DENR	Production of geo-hazard maps, hydrological survey and assessment
Department of Education	Training on DRR and Emergency Preparedness planning in Schools
Department of Public Work and Highways	Structural mitigation: construction/repair of flood control dikes, rehabilitation of roads and highways, re-channeling and earth-diking of heavily silted and covered gullies and rivers

Other Partners Involved in Disaster Risk Reduction in Albay

Asian Disaster Preparedness Center (ADPC)	Partnership in Disaster Reduction in Southeast Asia (PDRSEA) Phase 4 Project: Integrating Disaster Risk Reduction (DRR) components and strategies in the Comprehensive Land Use Plan (CLUP) and in enhancing early warning system and evacuation procedures at the barangay level
International Organization of Migration (IOM)	Relief to Typhoon "Reming" victims by handling transport of relief supplies, construction materials and personnel, coordinated with government to improve living conditions of the displaced population
Plan International	Albay Disaster Response Project: Enhancing School Community Safety Against Disasters: Municipalities of Cagraray, Batan, and Rapu-Rapu
Save The Children	Disaster Preparedness and Emergency Assistance: Municipalities of Guinubatan and Camalig
World Vision Development Foundation	Albay Shelter Assistance Project: Municipalities of Sto Domingo, Bacacay and Malilipot
Pampanga Disaster Response Network, Inc (PDRN)	Emergency Assistance towards Increasing the Disaster Management Capacity of Communities Affected by Typhoon Reming in the Bicol Region
Philippine Relief and Development Services, Inc (PhilRADS)	Training on Critical Stress Debriefing: Municipality of St Bernard

Albay benefited from seven (7) CBDRM related activities each implemented different international and local NGOs. These NGOs are the Asian Disaster Preparedness Center (ADPC), International Organization of Migration (IOM), Plan International, Save the Children, World Vision Development Foundation, Pampanga Disaster Response Network, Inc (PDRN), and the Philippine Relief and Development Services, Inc (PhilRADS). The latest of these CBDRM projects is ADPC's Integrating Disaster Risk Reduction (DRR) components and strategies in the Comprehensive Land Use Plan (CLUP) and in enhancing early warning system and evacuation procedures at the barangay level. This was recently concluded in the municipality of Camalig.

ANNEX 4. POPULATION AFFECTED BY NATURAL DISASTERS IN SOUTHEAST ASIA, 2000 – 2007

The Total of Affected by Natural Disasters in Southeast Asian Countries, 2000 – 2007

	Cambodia	East Timor	Indonesia	Lao PDR	Malaysia
Drought	1550000	0	15000	0	0
Earthquake	0	0	3293312	0	0
Epidemic	17000	336	88510	9685	991
Flood	6625182	3558	2374242	1053000	313156
Slides	0	0	308611	0	0
Volcano	0	0	114982	0	0
Wave / Surge	0	0	35000	0	0
Wild Fires	0	0	0	0	0
Wind Storm	0	8730	3715	0	41655
Total	8192182	12624	6233372	1062685	355802

Source: "EM-DAT: The OFDA/CRED International Disaster Database
www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium"

	Myanmar	Philippines	Singapore	Thailand	Timor-Lesté	Viet Nam	Total
	0	0	0	5000000	0	1710000	8275000
	0	73351	0	0	0	0	3366663
	0	774	2227	1965	0	200	121688
	157628	1374248	0	11058377	1215	9065210	32025816
	0	235341	0	100	0	0	544052
	0	195496	0	0	0	0	310478
	12500	194	0	58550	0	0	106244
	0	0	0	0	0	0	0
	60075	24590011	0	85869	0	5633982	30424037
	230203	26469415	2227	16204861	1215	16409392	751739

Partnerships for Disaster Reduction - South East Asia (PDR-SEA) is a multi-phased project implemented by UNESCAP and ADPC with funding support from the European Commission Humanitarian Aid department (ECHO) since 2001. The Phase 4 of PDR-SEA aims to institutionalise the effectiveness of CBDRM into socio-economic development process through strengthening of national and local capacity for the implementation of the Hyogo Framework for Action in order to build up community resilience in the project countries of Cambodia, Indonesia, the Philippines, and Viet Nam. The project activities involve in strengthening and institutionalising CBDRM through local-level pilot activities, facilitating information dissemination through existing regional and national disaster risk management networks, enhancing ownership of CBDRM programs by developing the capacities of local authorities and promoting CBDRM through Disaster Management Practitioners' Forum.



The European Commission Humanitarian Aid department (ECHO) was set up in 1992 to provide rapid and effective support to the victims of crises outside the European Union. Recognising the importance of pre-emptive measures, ECHO launched its disaster preparedness programme, DIPECHO, in 1996. Disaster Preparedness ECHO targets vulnerable communities living in the main disaster-prone regions of the world and aims to reduce the vulnerability of the population. Between 1996 and 2004, ECHO provided more than 78 million Euro for 319 projects worldwide. These demonstrate that simple and inexpensive preparatory measures, particularly those implemented by communities themselves, are extremely effective in limiting damage and saving lives when disaster strikes. ECHO funds support training, capacity building, awareness-raising and early-warning projects as well the organisation of relief services. The programme has shown that even simple precautions can help save lives and property when disaster strikes. The funds are directed through ECHO and implemented by aid agencies working in the regions concerned. For more details, please visit http://ec.europa.eu/echo/index_en.htm



The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) is the regional arm of the United Nations Secretariat for the Asian and Pacific regions, located in Bangkok, Thailand. UNESCAP is committed to materialise the visions of the United Nations Millennium Declaration, which was adopted by the UN General Assembly in September 2000. The PDR-SEA project is being implemented jointly by UNESCAP and ADPC at the regional level. For more details, please visit <http://www.unescap.org>



The Asian Disaster Preparedness Center (ADPC), established in 1986 is a regional, inter-governmental, non-profit organisation and resource center based in Bangkok, Thailand. ADPC is mandated to promote safer communities and sustainable development through the reduction of the impact of disasters in response to the needs of countries and communities in Asia and the Pacific by raising awareness, helping to establish and strengthen sustainable institutional mechanisms, enhancing knowledge and skills, and facilitating the exchange of information, experience and expertise. For more details, please visit <http://www.adpc.net>

Partnerships for Disaster Reduction-
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Phase 4

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