

**PROVENTION CONSORTIUM**  
**Community Risk Assessment**  
**and Action Planning project**

## CAMBODIA – Kompong Cham, Prey Veng and Kandal



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## Cambodian Community Based Flood Mitigation and Preparedness Project

**CRA Toolkit**  
**CASE STUDY**

This case study is part of a broader ProVention Consortium initiative aimed at collecting and analyzing community risk assessment cases. For more information on this project, see [www.proventionconsortium.org](http://www.proventionconsortium.org).

**Bibliographical reference:** MacLeod, Kurt, *Cambodian Community Based Flood Mitigation and Preparedness Project*, Proceedings of the Regional Workshop on Best practices in Disaster Mitigation, ADPC, (2002). Cited in: World Bank Institute of Distance Learning

Additional background information was collected for this guidance note through correspondence with Mr. Kurt MacLeod (contact information provided below), and from the *PACT Evaluation Report* (2000), available on the ProVention website at <http://www.proventionconsortium.org/?pageid=43>.

Click-on reference to the **ReliefWeb country file for Cambodia:**  
<http://www.reliefweb.int/rw/dbc.nsf/doc104?OpenForm&rc=3&cc=khm>

**Note:**

A Guidance Note has been developed for this case study. It contains an abstract, analyzes the main findings of the study, provides contextual and strategic notes and highlights the main lessons learned from the case. The guidance note has been developed by Dr. Ben Wisner in close collaboration with the author(s) of the case study and the organization(s) involved.



## **Case Study**

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### **CAMBODIAN COMMUNITY BASED FLOOD MITIGATION AND PREPAREDNESS PROJECT<sup>1</sup>**

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#### **ABSTRACT**

The Cambodian Community-Based Flood Mitigation and Preparedness Project (CBFMP) was launched in September 1998 under the Asian Disaster Mitigation Program. It was jointly implemented by the Cambodian Red Cross, PACT and The International Federation of Red Cross and Red Crescent Societies.

The objective of the program was to establish sustainable, replicable non-government mechanisms for disaster mitigation and preparedness with a focus on flooding. This was accomplished through:

- empowering communities to develop solutions to flooding;
- providing communities with a higher degree of security from natural disasters;
- training local village volunteers in Disaster Preparedness concepts and techniques;
- establishing Village Disaster Committees to implement participatory processes for identifying
- solutions to reduce impact of natural hazards to their communities; and,
- mobilizing funds to create or refurbish disaster preparedness infrastructure.

Under the demonstration phase of the project, Red Cross volunteers were seen as the best vehicle to assist in implementing the project at the local level with target communities given their broad based network throughout the country. The Red Cross volunteers were trained in disaster preparedness techniques and supported local communities living along the country's two major watersheds of the Mekong River and Tonle Sap. The project was implemented in the three highly flood-prone provinces of Kompong Cham, Prey Veng and Kandal.

The project had the unique opportunity to measure the impact and gather lessons learned from implementation before and after one of the area's worst floods in four to seven decades that occurred in 2000. The three target provinces made up 48.9% of the people in the country affected by the flood and 58.4% of the deaths.

#### **The major lessons learned from the project included:**

- involve local level communities in developing solutions to flood preparedness;
- the use of community development best practice methodologies can enhance the success of community-based flood mitigation and preparedness projects;
- use traditional organizational structures in communities to assist in flood mitigation measures;
- ensure that community level project implementers are well trained in flood preparedness techniques and empowered to mobilize community members in developing solutions;

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<sup>1</sup> Proceedings of the Regional Workshop on Best practices in Disaster Mitigation, ADPC, 2002

- where flood preparedness demands are greater than financial resources available, it is essential to train and mobilize local communities to seek for funding outside the community; and,
- it is important to develop relationships between communities, government national disaster management departments and donors focusing on disaster preparedness to instill sustainability measures for continued activity support;
- Distinguish between activities that are useful for community organizers and the community themselves

The demonstration showed that community involvement in flood preparedness is an essential component to flood mitigation. By involving community members it not only increases the likelihood of increased action by communities to help mitigate flood disaster but also brings communities together to address flood issues cooperatively. In the event of a flood, cooperative actions among communities can lead to a great probability of decreased damage, deaths and economic devastation in the affected communities.

### **Introduction and Background**

The primary natural disasters in Cambodia are floods, droughts, and fires. Cambodia is particularly susceptible to flooding along two major watersheds, the Mekong River and Tonle Sap. The Mekong River bisects the eastern third of the country from north to south and annually causes the Tonle Sap River to reverse course, flooding the Tonle Sap communities and affecting the far northwestern regions of the country. Farmers depend on the surplus waters for rice cultivation and secondary crops and have devised extensive water management systems to trap and store the water. But in years of extreme flooding, the high waters can wash away dams, dikes and distribution structures, destroy crops and livestock, damage homes, places of worship, schools, clinics, roads and other community infrastructure plus cause loss of human life.

Cambodia's development challenge stems from the past decades of war and civil strife coupled with a concomitant incidence of poverty that often act as obstacles for people or government preparing for or responding to a disaster. Due to these hindrances, disaster preparedness challenges include:

- a lack of community attention to hazard monitoring, dissemination, preparedness and effective response measures;
- the absence of facilities, equipment and infrastructure that mitigate the impact of hazards;
- a poor understanding of the vulnerability of infrastructure to the effects of hazards;
- a limited understanding of practical and appropriate technologies;
- the absence of a core group of trainers and committed advocates for prevention and preparedness measures;
- inadequate or absent funding resources for disaster prevention and preparedness; and,
- inadequacies of the system for recording damage and post-disaster needs.

The Cambodian Community Based Flood Mitigation and Preparedness (CBFMP) Project was designed to address these challenges at the community level.

### **1. Floods in Cambodia prior to and during project implementation**

Cambodia's chronic annual flooding reached serious levels in 1996. As a result of heavy rains in China and Laos, the Mekong River rose dramatically in mid-September, causing serious floods in six provinces along the river. Generally acknowledged to be the worst floods in 25 years, over 1.3 million of Cambodia's 12 million people were affected and nearly half of these required urgent emergency aid. The 1996 floods affected some 600,000 hectares of crops, 50,000 houses and seriously damaged such infrastructure and critical facilities as schools and other public buildings.

The Ministry of Education, Youth and Sports (MOEYS) reported \$2 million damage to schools. The CRC and the National Committee for Disaster Management (NCDM), a cabinet-level institution of the Royal Government of Cambodia (RGC), attempted to cope with and respond to the calamity.

In 1997 there were early floods in Kratie and Kampong Cham while drought affected many provinces causing food shortage to people living in remote areas. Due to the change of water current of the Mekong River, there were landslides along the riverbank in Phnom Penh, Kandal, Kampong Cham and Prey Veng provinces. Typhoon Linda hit the island of Pou-Le-Wei causing destruction of houses along the coast and wreckage to fishing boats in the sea. In 1998 Cambodia experienced drought, with WFP feeding over 1,000,000 people a day.

The floods of the year 2000 were some of the most devastating in recent memory. These floods were characterized by some as the worst in 40 years and by others in 70 years. They were notable for their intensity and duration, starting as early as July (one to two months early) and not subsiding until middle to end of November. The floods resulted in 400 deaths, affected 3.6 million people, a considerable loss of livestock and extensive damage to infrastructure and personal property.

## **I. The Community Based Flood Mitigation and Preparedness Project**

### **1. Goal and Objective of Project**

The **goal** of the CBFMP project was to help reduce the vulnerability of Cambodian citizens to natural disasters, primarily floods, through the establishment of an integrated, community based disaster preparedness and mitigation system.

The **objectives** of the CBFMP project were:

- To develop a range of practical, low cost, community based preparedness and mitigation strategies using an integrated community based approach to identify flood related development needs.
- To establish a sustainable institutional framework for identifying and implementing those strategies during and after the demonstration project.
- To identify sustainable sources of funds (international, national and community resources) that support community-based preparedness and mitigation and can be applied at the village level in flood-prone communities.

### **2. Project Partners Agencies – description, roles and responsibilities**

The project was jointly implemented by CRC, Pact and The Federation through a Management Committee chaired by the Federation which coordinated funding and project implementation issues.

**CRC** - The Cambodian Red Cross was chosen as the implementing partner due to their extensive network of 4,465 Cambodian Red Cross Volunteers (CRCVs) throughout the country. The Cambodian Red Cross (CRC) has traditionally served as an auxiliary to government in disaster management, particularly for relief. Since the reunification of CRC in 1994, the International Federation of Red Cross and Red Crescent Societies (IF) has provided technical and capacity building support to the CRC. In late 1996, with the assistance from the Federation, CRC began a transition from traditional disaster relief activities to the development with the Community Based Disaster Preparedness program (CBDP).

Prior to the project, the CRCVs had received training in Red Cross methodology and techniques mainly centered on Community-Based First Aid (CBFA). This project herald one of the first times when CRCVs would be directly involved in mobilizing communities to create solutions that would

mitigate floods in the project area. The CRC managed funds received from Pact to recruit and train volunteers and staff in the community-based disaster preparedness and coordinate the implementation of local demonstration projects.

**IFRC** - The Federation provided project management support through the assignment of one Disaster Preparedness Delegate (DPD) to work with CRC and other parties in the implementation of the project and provided funding associated with the DPD to strengthen CRC staff capacity.

**Pact/Cambodia** - Pact was the recipient of grant funding from ADPC to implement the CBFMP. Pact also managed ADPC funds to coordinate the participation and support of local non-governmental organizations (NGOs) in the implementation of community-developed mitigation activities. The primary program was achieved through a sub-grant to the CRC to implement the project through training and supporting CRCVs.

### **3. Process – for launching the project**

Once a strategic plan had been established, there was an orientation on the CBFMP Project for the Provincial Branch Staff of the CRC in Kampong Cham, Kandal and Prey Veng provinces. The Disaster Management Department (DMD) of the CRC was responsible for delivering training in Community Based Disaster Preparedness. To this end, CRC recruited two trainers and two coordinators and conducted a three-day Training of Trainers for the DMD training team and the Provincial Branch Staff.

In addition, a local NGO, Social Services of Cambodia, was contracted to provide training in community organizing for the CRC training team. The goal was to build the capacity of CRC staff in project related technical areas who could then train the CRCVs in the targeted districts. The DMD training team developed a training curriculum based on the initial CBDP and incorporated technical resources from ADPC.

### **4. Project Components – Activities**

#### **A. Training, Resource Materials and Continuing Education**

One of the core activities of the CBFMP was building the capacity of RCVs in disaster management and community organizing through providing a series of intensive training programs. The training modules included:

- 1) Red Cross Values and Volunteer Responsibilities
- 2) Disaster Management and Hazard Mapping
- 3) Leadership and Community Organizing

After the second module on disaster mitigation and hazard mapping, the volunteers returned to their communities to conduct a mapping exercise. This was intended to serve as an organizing and mobilizing tool. The volunteers used the maps to identify the hazards and vulnerability in the community. In addition, The CRC and Federation organized brainstorming and planning sessions once or twice a month for the trainers to further assist CRCVs. This was seen as a very beneficial follow up and continuous training strategy, which helped reinforce skills learned during the training courses.

During site visits and group meetings, CRC trainers and coordinators assisted communities and the CRCVs to develop solutions to mitigate the problems of flooding. In-service strengthening of training strategies and skills in CBDP for the CRC training team was reinforced by an ADPC facilitator in addition to two CRC staff who attended an ADPC training program in Bangkok. In addition, the Deputy Director of DMD attended the UDM-2 training course and a DMD trainer attended the Community Based Approach to Disaster Management course.

An important component of the project was to work through traditional community-based structures. In some cases, the CRCVs worked with existing village Disaster Committees and in

other cases, where the village did not have a Disaster Committee, the CRCVs worked with other existing village community development groups and committees. Outside of CRCVs and the village project committee, project participants encompassed a wide spectrum of community members including men, women, students, monks, and the village elders.

## **B. Demonstration Project**

After module three training was completed, the CRCVs returned to their villages to mobilize communities to identify flood hazards and develop solutions to address the problems. The end result was community-developed strategies. The communities were encouraged to first identify what the community itself could manage in the strategic plans from resources within the village and secondly, to develop proposals to address projects that would require additional financial resources. These proposals were submitted to CRC headquarters through the provincial branch structure.

The Management Committee received 23 proposed mitigation solutions. The Committee had developed very simple approval criteria including: it was a community-based preparedness activity; the project benefits had to reach a broad base of people within the community; there was a ceiling of US\$1,500 per community; and, the community had to commit at least 15% of cash or in-kind contribution. Reporting requirements and financial monitoring details were also developed. In cases where the proposal did not satisfy the criteria, the proposals were sent back to the communities through the CRCVs with clear instructions for proposal revisions. The community proposed activities generally focused on the water control structures necessary for livelihood (repairing dams and dikes, cleaning irrigation ditches, culverts and water gates) or access (raising road levels or constructing small bridges). Material contributions normally consisted of people bringing their tools or providing soil for increasing the height of roads. When local resources could not cover the cost of the proposals, additional fund-raising was conducted on the communities' behalf by Pact. Funds were disbursed to communities in two installments after an initial orientation to accounting for the treasurer of the local disaster committee.

## **C. Information and Networking**

Stakeholder meetings were held to share lessons learned between project participants, NGOs, donors, and the RGC. DMD refined and revised the training manual, which was based on the initial CBDP curriculum and ADPC materials. The manual reflects lessons learned from the training experience and is available in both English and Khmer.

Pact contacted provincially-based NGOs in Prey Veng (Padek), Kampong Cham (Action Against Hunger, Save the Children Australia, House of Hope-Inner Change, United Nations High Commissioner for Human Rights) and Phnom Penh/Kandal (AusAID, American Red Cross, Oxfam, World Vision International, CWS, JVC, Christian Outreach, UNDP and Caritas Cambodia) for financial support of community solutions. Oxfam provided its funds through Nak Akphiwat Sahakoum (NAS), a local NGO.

These additional stakeholders created a link between participating communities and donors that could continue beyond the project period and help ensure sustainability.

## **5. Results Achieved**

At the time of project completion:

- 23 communities had developed flood mitigation and preparedness activities
- these solutions impacted 5,496 households in the project area
- 159 CRCVs had completed either Phase I and/or Phase II training in CBDMP
- 8 international NGOs had been mobilized to fund community-based proposals.

In addition, based on the project's success, CRC decided to extend CBDP training to 7 new target provinces in 2001 showing in-country commitment to replicate the methodology.

## **6. Lessons Learned**

Over an 11-month period, two assessments were conducted by Pact to determine lessons learned. As a demonstration activity, the Management Committee felt was imperative to identify best practices so that the approach could be replicated in a more efficient and successful manner. The methodology was continually honed based on these lessons.

Major lessons learnt include:

### ***Involve local level communities in developing solutions to flood preparedness***

Government and NGOs are often the first approach structures used in flood preparedness. This project showed that communities can and are willing to take an active role in preparing themselves. Albeit, communities often need a catalyst to make this happen and in this case the CRCVs served that purpose. Communities offer disaster preparedness programs a plethora of resources and local level knowledge that can result in higher probabilities of programs success.

### ***Distinguish between activities that are useful for community organizers and the community themselves***

Programs often overlook the value of indigenous knowledge and solutions. Often a community knows the area best, has more accurate information on disaster patterns and areas, and can best prioritize what inputs will lead to the greatest benefit for disaster preparedness. For example, the mapping exercise conducted during the project provided more value to the CRCVs than to the community. The community members found the exercise to be a waste of their time since they knew the areas most prone to flooding based on historical knowledge and did not need to the mapping exercise to determine those areas. However, these types of Participatory Rural Appraisal (PRA) techniques can also serve the dual purpose of mobilizing and sensitizing the community. It is important to let community members know what is important as part of the project process and that their inputs, although seemingly invaluable to them, serve as necessary information for outsiders who desire to assist the community.

### ***The use of community development best practice methodologies can enhance the success of community-based flood mitigation and preparedness projects***

Community development best practices have been widely recorded over the past 20 years. For any disaster preparedness project that wishes to work in a community, it is important for the project staff to be well sensitized to community development issues and how to foster community participation. For example, most villagers have seasonal schedules that can greatly effect the level of effort they are willing to commit to a project. Planting and harvesting seasons are not good times to implement community based projects due to the heavy workload that farmers have in the fields. In this regard, the CBDMP project built the capacity of the CRCVs in community development and mobilization methods. Participation of the community members and the use of participatory methods is an essential component of community work and any project working with communities should have strong capacity in these areas.

### ***Use traditional organizational structures in communities to assist in flood mitigation measures***

All communities have organizational structures at the local level unless they have just emerged from civil strife and crisis. Some of these organizational structures are traditional, civic, religious or newly created by development or government agencies to efficiently implement programs. It may not be necessary for the disaster preparedness program to create new structures but should first look at existing structures and determine if they can take on the added responsibilities of a Disaster Committee. The traditional or local organizations structures present an invaluable resource to any disaster preparedness program and should be incorporated, when possible, into the design.

***Ensure that community level project implementers are well trained in flood preparedness techniques and empowered to mobilize community members in developing solutions***

One of the difficulties in the CBDMP project was the low capacity of the CRCVs in disaster preparedness methods. The project did build their capacity through extensive training. This training could have been even more intensive and ongoing to ensure better success. Community development organizers must be empowered to carry forward the tasks they have been given by a disaster preparedness program. They should feel that they have all the tools needed to bring about change at the local level and the added organizational support necessary. Roles of the community mobilizers should be well explained to the community so that responsibilities are clear. By working through a network like the Red Cross, the volunteers did have access to larger organization support through decentralized branches that could provide technical and logistical assistance. In a case like this, it is therefore equally important to build the capacity of the whole network and not just the community based workers. This institutional commitment will help ensure sustainability.

***Where flood preparedness demands are greater than financial resources available, it is essential to train and mobilize local communities to seek funding outside the community***

Not all community based flood preparedness solutions can be implemented only by the community due to financial restraints. Land that is prone to flooding tends to be occupied by some of the poorest people in the world. Therefore, they have limited access to financial and materials resources to implement projects, especially when it comes to infrastructure solutions such as bridges, culverts, embankments, etc. Flood preparedness programs should incorporate networking initiatives into the design whereby communities become linked to government and non-government agencies that can provide financial resources for higher-end, more material intensive solutions. Even so, in order to incorporate ownership at the community level, there are resources such as labor and local level materials that will always be available and should be a requirement for project approval.

***It is important to develop relationships between communities, government national disaster management departments and donors focusing on disaster preparedness to instill sustainability measures for continued activity support***

In addition to providing external resources, government agencies and non-government organizations can play a long-term role in assisting the community in disaster preparedness measures. A disaster preparedness program should bring these stakeholders to the table early in the project and work with the community to develop long-term relationships with them. A community-based disaster preparedness program is designed to act as a catalyst that will set into motion continued community action. The probability of the community continuing to determine flood preparedness measures increases when more stakeholders are involved and assist the community as they develop new measures that may need external assistance.

These best practice measures derived from lessons learned should be considered when initiating a community-based preparedness program. Communities are a vital component to disaster preparedness and even in a country like Cambodia, where traditional community structures were devastated during many years of civil strife, the project showed how integral the community can be to developing their own sustainable solutions.

## **7. Replication and Conclusion**

The successful completion of demonstration activities in Cambodia offers several opportunities to promote and create favorable conditions for replication of the CRC's Community Based Disaster Preparedness (CBDP) program, both within CRC and among the broader non-governmental community in Cambodia as well as other countries.

The development of disaster preparedness training capacity within the CRC and delivery of the training to cover 150 Red Cross Volunteers (RCVs) has proved a success. Twenty-three

communities have developed flood mitigation solutions. These activities exceeded the project design in both numbers of activities and in-kind contributions generated.

This program can be used as an example for other countries that desire to incorporate communities as an essential component to disaster mitigation and preparedness. The lessons learned present valuable design consideration that will help other programs implement successful programs wishing to bring community members to the table. Involving communities in disaster preparedness programs provides a venue for these communities to implement their own solutions thus inculcating ownership and an increased probability of sustainability.