What are the steps in hazards mapping?

RISK AND RESOURCE MAPS could be simple hand drawn sketch maps. These could be sufficient basis for a focused discussion on how to lower the vulnerability to the local hazards. But in order to provide maps that could also aid municipal planners, the ICDPM can come out with drawn maps to scale by using GPS and compass, and plotted their findings on GIS (Geographic Information System) maps prepared from official topographic maps. However, these maps are *not* mapped with the level of accuracy of cadastral surveys.

How to recognize and identify hazardous areas

IN ORDER TO IDENTIFY hazard areas in the community ocular survey (hazard mapping) is conducted by a team; ICDPP staff together with the LGU development planning coordinator, a land expert representative from the Department of Environment and Natural Resources (DENR), Barangay Disaster Action Team (BDAT Volunteers) and elder members of the community who have thorough knowledge about the topography of the barangay and disaster occurences in the past that can be assessed as basis for vulnerability. With the use of scaled base map, compass and Global Positions System (GPS) the team could plot the exact location of hazard areas and local resources. The data gathered during the survey is being consolidated and presented during a community assembly for validation and to be submitted to the ICDPP technical staff at the National Headquarters for digitization. During digitization of maps possible corrections regarding exact coordinates and compass bearing fo what is mapped are thoroughly made. After completion, the fully digitized maps are submitted back to the community used as reference in the formulation of barangay disaster action plan (BDAP). The plan contains priority problems perceived by the community and list of alternatives to treat them.

The mapping process starts when the target barangay is identified:

First, the community jointly compiles a hand drawn "spot map" – this may be adequate in some planning, but if GIS resources are available, the next steps are:

- Official topographic maps are digitised (the details of the paper maps transferred to a computer) to establish a base map with existing rivers, roads, contour lines etc.
- A large-scale print of the base map is used in the field by the PNRC and BDA T.
- The maps and associated notes are returned to the mapping office at the DMS where the hand-plotted features are digitised and a series of printouts sent for



proof reading with the community (step may be repeated),

After corrections, the mapping office makes final printouts for use in the community and for the municipal planning office.

At the PNRC, an in-house GIS capacity is established to maintain know-how that can also serve the general disaster management services. It is hoped that this would gradually encompass many other functions in the national headquarter.

How are the maps used?

WITH THE DIGITIZED MAP the community together with the BDAT could assess what hazard



they are at risk from and suggest possible mitigation measures.

IN ORDER FOR the community to identify the appropriate mitigation projects, Participatory Rural Appraisal (PRA), an assessment tool, is conducted and facilitated by the trained BDAT. Local resources needed for the construction of the mitigation project could be identified during the facilitation of PRA.

BDAT, community leaders and some influential people in the

community will lobby the said disaster action plan to the LGU for funding support. To insure statutory assistance from the government the BDAP is intergated into the development plans of the LGU; Barangay, MUnicipal and PRovince. To carry out this process BDAP will submit a resolution to the barangay council for the integration of the BDAP into hteir annual investment plan. When it is already integrated, the BDAT and the barangay council will submit a joint resolution to the municipal government requesting for the integration of the BDAP into their municipal development plan and the same procedure made for the province.

ON THE PART OF THE LGU, the digitized maps are used as reference in their land use planning. With the exact location of risk areas depicted in the map, LGU planners could analyze proper land use and other future developments in the community. It is very essential for the LGU to consider hazard maps before implementing development projects in the community to avoid waste of effort, time and noney. What is considered an appropriate site for constructing physical projects based on strategic ocation may turn out a hazard are if the digitized map is considered.

Why the need for Local Disaster Action Plans?

IT HAS BEEN OBSERVED that disaster management practice in the Philippines has been reactive and focused on responding to emergency situation. As an alternative to this approach, the Community—Based Disaster Management promotes an active and preventive strategy by harnessing the people's potential in responding to disasters. One way of doing this is by formulating a local disaster action plan by the people themselves. But since the people are not used to doing

this type of activity, there is the need for external facilitators such as the PNRC staff in formulating the plan. The conduct of local planning for disaster management would help in achieving the following objectives:

- Understanding of the disaster situation in the community, including the hazards, vulnerable groups, the people's capacities and resources for disaster management.
- Identification and prioritization of community problems and issues that have to be addressed



- Formulation and implementation of strategies through non-structural and structural measures that can prevent, mitigate, prepare, and respond to disaster events.
- Development of the people's and organization's potential in the various aspect of community endeavors, specially disaster management.

AS DISCUSSED in the previous chapters, the BDAT and the community residents are to be mobilized in the conduct of community appraisal. The outcome of their data gathering and analysis shall become the basis for the formulation of the action plan.

THERE ARE TWO levels of planning in which the ICDPM is involved. The first is at the community level and the second at the municipal level. This section is concerned first with the first.

What are the challenges in coming out with community mitigation projects?

ONE OF THE components of the ICDPM is the implementation of the community mitigation projects. They serve to reduce the impact of natural hazards as well as in training the people in planning and project implementation.

THROUGH THE hazards mapping and analysis, the ICDPM staff at the Chapter facilitates a discussion to identify and prioritise the problems of the community projects. Based on the experiences from the ICDPP, this process can face a series of challenges:

- People could not agree on the project due to differences in their perception of the problem, or due to conflict of interests.
- There are great differences in the perception of "disaster mitigation projects", and problems in recognising the borderline or overlap with general infrastructure projects.
- Similarly, it is difficult to judge when improved footpath systems or hanging bridges should be considered general infrastructure development, or be considered important routes for evacuation or for relief team access.
- It is often a challenge for ICDPM staff to help assess, in each specific case, if there would be other more "relevant" mitigation measures that could do more to reducing vulnerability in relation to natural hazards than those first proposed by the community. Careful analyses and discussions with the community are required to identify the best long term preparedness tools.

THE TABLE below shows a wide spread in types of measures of the disaster mitigation projects implemented in four pilot provinces. Those in the mountain area, Benguet, had many foot trail systems installed compared to the other mainly coastal areas where seawalls were built. Primary health care related measures (water supply, toilets, health clinic etc.) have been implemented in all areas, and make up 40% of all projects. Infrastructure-improvements (hanging bridges, foot trails etc.) cover 29% of the projects, and flood/river control measures (seawall, erosion dikes etc.) make up 20%, evacuation/multipurpose centres 6%, and environment rehabilitation (reforestation etc.) 4%.

PART OF THE DISASTER preparedness training in ICDPP focused on raising the awareness of the local hazard situation. Based on discussions in community assemblies, the resulting Disaster Action Plan usually prioritises relevant hazard-oriented mitigation projects. Nevertheless, the political leaders tend to promote more popular and visible projects with little relevance for disaster prevention, instead of mitigation structures.

which may only prove its relevance vears into the future.

CAN ICDPM BE **EFFECTIVE** AGAINST ALL TYPES OF HAZARDS?

DIFFERENT components will have to be applied

to different hazard situations.

focuses on the relative small-scale

The **ICDPM** hazard types where

Type of mitigation measure	Number of projects in each province					
	Beng uet	Pala wan	S. Leyt e	Suri gao	Sum	
Drainage system		4			4	
Evacuation Center		1	1	4	6	
Flood control dike	1	1	1	1	4	
Footbridge	2	3			5	
Foot trail	24				24	
Health centre		4			4	
Health equipment	1				1	
Mangrove reforestation			1		1	
Public toilet	3				2	
Reforestation	3				3	
Rescue equipment	1				1	
River dike			5		5	
School toilets	1				1	
Seawall		T1	5	1	7	
Septic Tank	1				1	
Toilets (115 households)				1	1	
Water distribution	9	9	4	7	29	
Water source protection	1				1	
Total	46	23	17	14	100	

the community can actually identify and build some kind of mitigation measure to improve their safety. It has no illusions that it can erect any physical defence against the effects of volcanic eruptions, though the people's community-based preparedness capacity in this large scale disasters can never be discounted.

THE CENTRAL COMPONENT in ICDPM is the local Barangay Disaster Action Team which can make a difference against violent hazard types, for instance by:

- extending the public warning systems to the community level
- training the community in appropriate response and evacuation procedures, and
- being prepared to coordinate local response activities when disaster hits.

IN BUILT-UP AREAS, local BDAT can help long-term mitigation against earthquakes by pushing locally for adhering to earthquake-safe building codes.

HOW DO YOU COME OUT WITH A LOCAL DISASTER ACTION PLAN?

THE PROCESS in planning for disaster management starts with the assessment of the situation described in the previous chapter. This will become the starting point for the BDAT and the community volunteers who are actively participating in the ICDPM in formulating the disaster action plan. It should be emphasised that the PNRC staff serves only as facilitator and the people making the decision. The steps to be undertaken are the following:

- 1. Make an integrated analysis of the community disaster situation, focusing on the following:
 - Most common and potential hazards the community is facing
 - The attributes of these hazards in like its history, frequency, magnitude, areas and people affected.
 - Vulnerable groups in the community
 - Conditions of the people and in the community that make the people vulnerable.
 - Current/previous responses of the community in times of disaster events and possible alternatives.
 - Community resources that can be mobilised for disaster management
 - Outside organisations assisting the community
- 2. Identify and prioritise the disaster-related problems and issues. In making a problem analysis and in prioritising them, the following can be used as the criteria:
 - The magnitude of the problem_- those that have widespread and extensive effects in terms of losses in lives and properties
 - Gravity or seriousness of the problem in terms of urgency, thus requiring an immediate response such as epidemic.
 - Frequency of occurrence, what is most often affecting the community
 - Root causes a problem that causes another set of problems is to be addressed first (waste water contaminating potable waters during heavy rains, school placed in area sometimes flooded with schisto-infested water, etc.)
 - Manageability the resolution of the problem has to be within the capacity of the community to manage. (cannot prevent typhoons, but can construct safe water supply, can make evacuation center and realistic warning and evacuation plans for most vulnerable communities, etc.
- 3. Set objectives for the plan.
- 4. Identify the strategies and activities that can respond to the problems prioritise. (warning and evacuation plans, construct safe water systems, move school to safe location, identify safe housing areas for most critically endangered houses.)
- 5. Identify the resources needed and the persons responsible in each of the activity.
- 6. Set the time frame for the plan.

THERE COULD BE ONE, two or three priority measures in the plan. Other identified projects can be undertaken in the future. Technical support from the PNRC staff shall

provide assistance in the documentation and formulation of the plan. An initial draft can be written and presented to the community assembly for validation. Once approved by the people, the BDAT shall make a resolution approving the plan and requesting the Barangay Council to adopt the plan. The Barangay Council then makes a resolution requesting the Municipal Development Council to incorporate the plan in the Municipal Development Plan.

How does a Disaster Action Plan look?

AN EXAMPLE of a simple Disaster Action Plan is presented. This plan addresses the physical infrastructure projects (evacuation centre) and increased protection along coastline (mangrove planting), but also plans for increasing the awareness level and for long-term collaboration and resource allotment to mitigation work. Other Action Plans may include more health-related mitigation measures such as ensuring potable water supply during flooding situations.

THE PLAN CAN VERY well contain lower priority solutions/measures that would be important to implement in future years, although not all can be implemented with in a short time frame. A plan can list long term-priority-maybe some that are very important, but not yet feasible.

Annex 8.1

PROBLEM	Objective	Activity/Strategy	Resources Needed	Responsible Person	Time Frame
Loss of lives and properties due to storm surges	People living in the coastal areas will be secured during occurrences of storm surges	Construction of evacuation centre in the elevated area	Sand, gravel, hallow block iron bars, cement and other bldg, materials	Municipal planning development coordinator, ICDPP Staff, LGU officials and BDAT	June 1, 1999 to September 15, 1999
	Less damage of properties	Planting of mangrove/s along the coast	Seedlings		June 1, 1999 to September 15, 1999
No knowledge on evacuation management	Community people will be organized and trained in evacuation center management	Conduct community- based disaster management training	Facilitator / trainer Training materials	ICDPP - PNRC Staff, Department of Social Welfare and Development	September 20, 1999 October 2, 1999
Lack of funds for disaster preparedness activities	Provide funding to be used for some disaster preparedness activities	Lobby to LGU and submit resolution for funding; fund raising activity; budget allocation from internal revenue allotment; integration of the disaster action plan into the LGU development plan for regular budget allocation on disaster preparedness	Resolution , human resources	BDAT, Barangay Officials, ICDPP Staff	January 5, 1999



Plan Integration and Implementation of Disaster Mitigation Projects

/hat is done after the Disaster Action Plan is prmulated?

HE DISASTER ACTION PLAN formulated by the BDAT is rwarded to the Barangay Council for its integration in the Barangay evelopment plan.

NCE THE DISASTER ACTION PLAN (DAP) is formulated by a community and approved by the Barangay Council, it is imperative at this be incorporated in the Municipal Development Plan for proper plementation of the projects identified in the plan. The activities to be ne are the following:

Integration of the DAP in the municipal plans.

The barangay council makes a resolution requesting the Municipal Development Council to integrate the DAP in the municipal plans such as:

- Annual Investment Plan for the allocation in the annual budget.
- Comprehensive Municipal Development Plan for long term planning

It is expected that the Barangay officials and the BDAT would make representation with the Mayor and other LGU officials to facilitate the adoption of the plan. The PNRC staff can assist the community officials in meeting with the LGU officials.

Participatory development of technical study for the mitigation project.

One of the tasks of the LGU is the provision of the technical assistance in the development of the project plan such as the engineering design, detailed specification, budget estimate and the like. The Municipal Engineer and the Municipal Planning and Development Coordinators are the ones mobilized for these tasks.

Being participatory, the design of the projects has to be done with the active involvement of the community. The BDAT shall regularly consult with the LGU officials doing the technical plan. The community people

implementation of the projects identified in the plan it is imperative that this be incorporated in the Municipal Development Plan

for proper

can provide a lot of information and resources that can help in finalizing the project design. Community meetings shall be done to ensure that the people are aware of the development in the project and for them to see how they can later participate in the project construction.

3. Resource generation for project implementation.

Since the ICDPM is anchored on the LGU partnership, it is expected that the LGU would provide budget for the community projects. Its inclusion in the Annual Investment Plan is an assurance that a budget had been set for the project.

Other possible sources which the BDAT and the BC can tap to finance the project are the following:

- The Barangay Development Fund
- The Provincial Development Fund
- Congressional Development Fund that can be accessed through the concerned Congressman or - woman.
- Other government agencies
- Non-governmental organizations

4. Mobilization of community volunteers

The ICDPM is highly anchored on the principle of volunteerism. A cornerstone in the ICDPM success, apparently, is the availability of people who would be willing to volunteer. This is made possible by 'bayanihan', which is a voluntary collective action — or "help-your-neighbour" spirit — manifested in times of need.

Given the schedule of work and the type of skills needed as provided by the technical staff of the LGU, the BDAT encourage the people to volunteer for human resources. There are two sets of workers mobilised:

- The skilled workers who can be hired by the LGU as workers
- The community volunteers who do the clearing, hauling, digging and the like.

 They are given food for work as provided for in the budget.

In mobilising the volunteers, the BDAT organises them in such a way that there are workers available on a regular basis. This is done by assigning one day per area like Area 1 every Monday, Area 2 every Tuesday, etc.

A BDAT member takes care of mobilising the volunteers in his/her area of responsibility, and takes care of monitoring them by checking the attendance, the quality of work and the food for work they get. Each BDAT member records this in his/her journal or notebook.

5. Project inauguration and turnover

After the completion of the project, a ceremonial inauguration is done to celebrate the successful project implementation. This is also the time to turn over the project to the community for their management and maintenance.

What is the role of the LGU during the project implementation?

One of the legacies of the ICDPM is the development of the LGU's capacity to undertake a community-based disaster management programme. Given, the LGU staff are expected to be trained in implementing CBDM projects.

Similar to the PNRC Staff, the LGU personnel provide technical assistance to the community in the implementation of the disaster mitigation project. The general roles of the LGU are the following:

- Release of the budget in accordance to the established government procedure.
- Procurement and monitoring of the materials
- Technical supervision of the project implementation
- Co-ordination with the BDAT especially in the human resource mobilisation

How do you monitor and evaluate the ICDPM?

Monitoring and evaluation are integral components of project development. Monitoring is the systematic and continuous process of determining the status of project implementation through data gathering, analysis and formulation of alternative courses of action to ensure better project implementation. The steps to be undertaken are:

- Based on the project plan, determine the items that have to be monitored while the disaster mitigation project is being implemented.
- Determine who will be the main responsible in doing the monitoring the specific item. While the BDAT, the BC, the LGU and the PNRC are all involved in the monitoring process, there has to be a lead role.
- Determine how and when the monitoring will be done.

A sample scheme for monitoring the implementation of the disaster mitigation project is shown in Table 9.

Table 9. Sample Monitoring Scheme

tems to be Monitored	Persons Responsible	Methodology	Frequency
3udget release and expenses	LGU Project Manager	Consultation with the Budget officer	As per schedule in the plan
Naterial procurement	BDAT Committee on materials	Inspection of the delivery	Every time there is delivery
Schedule of Work	LGU Project Manager	Actual inspection of work completed	Daily
Vorkers and volunteers	BDAT	Recording of attendance, task and work completed	Daily

COMPLETION OF THE PROJECT?

Evaluation is the systematic study of how the project was undertaken, from the beginning to the completion and possible impact. The basic items to be determined in the ICPDM include the following:

Project Inputs

- Quantity or amount of inputs in terms of funds, materials, equipment, human labor and the like.
- Sources of inputs
- Quality of inputs

Processes

- Activities done from the beginning to the end
- Effective strategies
- Problems met and resolutions
- Schedules
- Participation of the various sectors

Outputs

- Achievement of the objective
- Variation from the expected outputs
- Benefits derived from the project
- Problems arising from the project
- Lessons from the project



THROUGH PARTICIPATORY METHOD, the ICDPM team composed of the PNRC, the LGU, the BDAT and the barangay officials can draw out mechanisms for them to evaluate the project collectively.

What are some of the success indicators for ICDPM?

Based on experience, there are basic changes taking place at the various levels which can be used as indicators for the success of the ICDPM.

Community Level

- Effects of hazards in the community are mitigated meaning less losses when disaster comes (maybe a long-term effect)
- BDAT continues to do their function and membership is increasing
- Community residents are involved in the community activities
- Barangay officials and the Barangay Council is supportive of the BDAT by continually integrating the Disaster Action Plan in the Barangay Development Plan
- Budget is allocated by the BC for CBDM related projects and activities
- Community leaders are able to tap resources for their community projects
- Community able to manage disaster situation in the community such as search and rescue,



THROUGH PARTICIPATORY METHOD, THE ICDPM TEAM COMPOSED OF THE PNRC, THE LGU, THE BDAT AND THE BARANGAY **OFFICIALS** CAN DRAW OUT **MECHANISMS** FOR THEM TO **EVALUATE** THE PROJECT COLLECTIVELY.

- relief distribution, evacuation and assisting in the provision of medical and psycho-social services.
- Able to document disaster situation and response in the community
- Positive attitude of the people towards the PNRC

LGU Level

- Task Force is organized for Disaster Management
- More active Municipal Disaster Coordinating Council
- Disaster action plans integrated in the Municipal Development and Land Use Plans
- Hazards maps are incorporated in the municipal maps
- Budget are allocated for disaster mitigation projects
- LGU are capable of giving training on CBDM in non-ICDPM areas.
- LGU is able to tap external resources for disaster mitigation projects
- LGU's development projects are disaster sensitive
- LGU personnel can manage emergency situation or disaster events in terms of search and rescue operations, relief provisions, evacuation, provision of medical and socio-psycho-services.
- Able to document disaster situation and response

PNRC Chapter

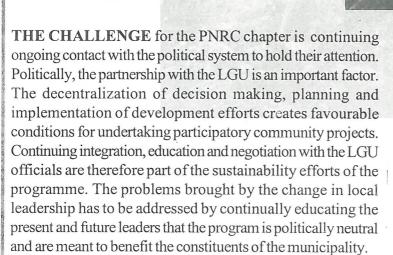
- The chapter has a team for CBDM
- Capable of giving training on CBDM
- Staff is able to do community organizing activities in the community
- Has very good relation with the LGU
- Able to tap resources for CBDM
- Able to allocate materials and equipment for CBDM
- Able to document disaster events and response



Sustaining the ICDPM

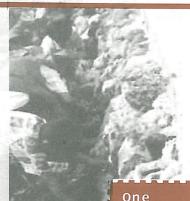
What can the PNRC chapter do to encourage the LGU to undertake the ICPDM?

AT THE MUNICIPAL LEVEL, the mayors have helped establish some of the other priority projects identified by the communities in the Disaster Action Plan even though there was no cash support from the Red Cross programme. The commitment shown by the community volunteers has been convincing to the politicians to support popular projects.





One of the most crucial factors that can determine the sustainability of ICDPM is the social dimension, particularly the willingness of the community people to commit to work voluntarily for the programme. This requires the provision of enough support to the existing Barangay Disaster Action Teams. They need follow-up training and to recruit new members. Without maintenance of the BDATs, the local drive will disappear.

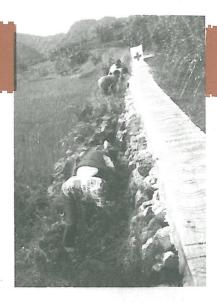


challenge. facing the PNRC is the sustainability of the ICPDM as approach in CBDM. Institutionalizing it in the system of the PNRC. the LGU and the community is seen as the main strategy for sustainability.

What management approach is appropriate for ICDPM?

There is power in decentralisation. Delegating responsibility to the local implementers has proven effective.

Based on the overall programme plan, local project planning and budgeting are delegated to the local ICDPM staff and Chapter Administrators in each province. This means that the project team in the field has the full responsibility to manage the whole operation in the province. It makes the operation in the field easier, and avoids a bureaucratic step at the headquarters.



Process and output monitoring will be conducted by the DMS-HQ. If monitoring and performance indicate problems, designated technical staff may meet with concerned chapter and representatives from the community and local government units to pinpoint areas of performance improvement, and suggest administrative requirements to meet the plans and budgets of the local ICDPM projects.

This system can create a sense of ownership in each province's team and helps strengthen the management capacity of the local staff.

How to institutionalize the ICDPM in the local chapters?

Increased hazard preparedness should preferably become a standard approach by local PNRC chapters in all or most of the Philippines to ensure sustainability. This scheme would be "revolutionary" in the sense that the disaster management approach currently being undertaken by the local chapters would move from emergency-focused services to that of community-based approach to disaster mitigation and preparedness. This would mean diversifying the services to include hazard mapping, community development, training, advocacy and infrastructure development as disaster mitigation projects. Such an expansion of the disaster management services has implications to the capability building of the local Red Cross staff.

The programme experience shows that the participating chapters had improved capacity in doing disaster management services, not only during emergency situations, but for prevention, mitigation and preparedness as well. New skills were apparently enhanced among the staff, particularly in the field of community development and infrastructural project planning and implementation. More than these are the institutional capacity built up through the formulation of systems and procedures, linkages and community partnership.

The institutionalization of the ICDPM also entails the following:

- The PNRC must have a fairly strong *local* organisation at regional and province level, and have some traditions for working with local communities.
- The chapter should have previous experience with various aspects of disaster management. The community-based programme should be rooted in the same unit to *supplement and diversify* the services instead of establishing a new unit,
- Hazard preparedness has to be linked closely with general development and primary health care programmes. Along the same lines, disaster preparedness and community-based health projects can be implemented jointly.
- Capacity building of implementation team must not be underestimated. A community-based disaster management programme requires staff skilled in community work, and a thorough understanding of the causes, signs and effects of various types of natural hazards, especially hazard mapping which necessitate a comprehensive week-long course in the various techniques applicable to different situations.
- At the community and municipal level, collaboration with administration and political system should be initiated from the onset. The LGU can provide human power by detailing some of their staff in the chapter to do health or CBDM functions.
- The ICDPM, more or less depends, on the possibility of organising volunteers to contribute to action teams and construction work.
- The ICDPM is best suited for reducing the impact of small scale local hazards, but elements of the approach can be adapted to alleviate effects of more large-scale disasters as well. Community-based disaster preparedness is only a *supplement* to not a substitute for regional and national disaster response.

Not to be disregarded is the culture of the people and the communities where the CBDM will be undertaken. Institutionalisation is best done if the innovation has a social or cultural mandate which establishes the change in a more permanent manner. Sensitivity to the belief and local knowledge will ensure sustainability, not just technically, but socio-culturally as well.

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Annex II. Glossary and abbreviations

Barangay The smallest unit (~village) in the government hierarchy of The Philippines local

government system

BDAP Barangay Disaster Action Plan: The plan developed in the local community to

prepare relevant hazard preparedness - including mitigation measures and

awareness raising, etc.

BDRT Barangay Disaster Action/Response Team: the local volunteers trained during the

ICDPP in disaster management; active in hazard mapping, BDAP preparation,

and local capacity building

BDC Barangay Development Council

BDCC Barangay Disaster Coordinating Council: The official local body for coordinating

disaster response.

Capacity building

Improving the ability and capacity of communities, families and individuals to

become less vulnerable and enjoy fuller and more productive lives (*)

CBDP Community Based Disaster Preparedness: The core of ICDPP – the concept of

organizing the community to prepare, plan for and mitigate against natural disaster events. Opposed to province level disaster response systems normally

in place (in The Philippines and many other countries)

CMMP Community Mitigation Measures Project: The act of improving the local safety level

in relation to natural hazards; means can be physical structures (dikes.

evacuation centres, slope reforestation etc.) reducing expected hazard impacts, health-related projects such as improving water supply systems to prevent contamination during flood events; or non-physical like detailed evacuation plans or land use planning to avoid placing significant facilities (schools, houses,

health clinic, church etc.) in hazard-prone areas.

DANIDA Danish International Development Assistance

DENR Department of Environment and Natural Resources (Government of the

Philippines - responsible, among other things, for public reforestation projects in

coastal (mangrove) or mountainous areas.

Disaster A situation in which a threat exposes the vulnerability of individuals and

communities to a degree that their lives are directly threatened or sufficient harm has been done to economic social structures to undermine their ability to survive *

DMS Disaster Management Services. A department within Philippines National Red

Cross responsible for disaster relief operations, disaster preparedness training,

hazards statistics etc.

DRC Danish Red Cross

DP Disaster Preparedness: Activities that contribute to the pre-planned, timely and

effective response of individuals to withstand or reduce the impact and deal with

the consequences of a (future) disaster *

DPP Disaster Preparedness Project

Disaster response

Coordinated activities aimed at meeting the needs of people who are affected by

a disaster *