A Voyage to Disaster Resilience in Small Islands

A Guide for Local Leaders

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Voyage to Disaster Resilience in Small Islands: A Guide for Local Leaders

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A Guide for Local Leaders

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ACRONYMS

ABC	Association of Barangay Captains
AIP	Annual Investment Program
APSEMO	Albay Public Safety and Emergency Management Office
ASCEND	Advancing Safer Communities and Environments against Disasters
BDCC	barangay disaster coordinating council
BDRC	Building Disaster-Resilient Communities
BDRRCT	Barangay Disaster Risk Reduction Coordinating Team
BDRSIP	Building Disaster-Resilient Small Island Communities Project
BFP	Bureau of Fire Protection
BHNC	barangay health and nutrition council
BHW	barangay health worker
BLGU	barangay local government unit
BNS	barangay nutrition scholar
CBNRM	community-based natural resource management
CCA	climate change adaptation
CCS	Coastal CORE Sorsogon
CDP	Comprehensive Development Plan
CIRCA	Centre for Initiatives and Research on Climate Adaptation
CLUP	Comprehensive Land Use Plan
CSO	civil society organization
CWS	communication and warning system
DCC	disaster coordinating council
DILG	Department of Interior and Local Government
DIPECHO	European Commission Disaster Preparedness Programme
DOLE	Department of Labor and Employment
DRR	disaster risk reduction
DRRM	disaster risk reduction and management

DRRMO	disaster risk reduction and management office
ECHO	European Commission Directorate General for Humanitarian Aid and Civil Protection
ELA	Executive-Legislative Agenda
EWS	early warning system
FFW	food for work
HFA	Hyogo Framework for Action
HLURB	Housing and Land Use Regulatory Board
HRD	Human Resource Development
IEC	information, education, communication
ISDR	International Strategy for Disaster Reduction
IYCF	Infant and Young Child Feeding
JMC	Joint Memorandum Circular
LCE	local chief executive
LDC	local development council
LDIP	Local Development and Investment Program
LFC	local finance committee
LGU	local government unit
LPDC	local planning and development coordinator
LPDO	local planning and development office
MaCEC	Marinduque Center for Environmental Concerns
MAFC	Municipal Agricultural and Fishery Council
MASIPAG	Magsasaka at Siyentista sa Pagpapaunlad ng Agrikultura
MDG	Millennium Development Goals
MFARMC	Municipal Fisheries and Aquatic Resources Management Council
MHO	municipal health office
MIMAROPA	Mindoro, Marinduque, Romblon, Palawan
MNAO	municipal nutrition action office
MOA	Memorandum of Agreement

MOU	Memorandum of Understanding
MPDO	municipal planning and development office
MTPPAN	Medium-Term Philippine Plan of Action for Nutrition
MWS	Marinduque Wildlife Sanctuary
NEDA	National Economic and Development Authority
NGO	nongovernment organization
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PCVA	participatory capacities and vulnerabilities assessment
PDIP	Provincial Development Investment Program
PDPFP	Provincial Development and Physical Framework Plan
PDRRMC	provincial disaster risk reduction and management council
PHIVOLCS	Philippine Institute of Volcanology and Seismology
PNP	Philippine National Police
POSO	public order and safety office
PPA	Programs, Plans and Activities
PPDO	provincial planning and development office
PRA	participatory rural appraisal
PWD	persons with disability
RA	Republic Act
RDC	regional development council
RDRRMC	regional disaster risk reduction and management council
RPS	rationalized planning system
SAC-Northern Quezon	Social Action Center Northern Quezon
SCMDA	Sectoral Committee on Macro-Development Administration
SK	Sanggunian Kabataan (Youth Council)
SWDO	social welfare and development office

FOREWORD

The Philippines continues to rank high among countries worldwide that are at risk to natural hazards. It has thus become increasingly important for development efforts to take seriously into account the new context of disaster risk and climate change in framing development paths now and in the future. Among the many challenges to organizations focusing on disaster risk reduction and climate change adaptation (DRR–CCA) is identifying those sectors and communities that will likely experience the harshest impact of hazards because of the nature of their exposure and the low level of capacities they currently have to cope with and overcome disasters. This was the motivation that led Christian Aid and its partners to investigate and develop strategies toward building resilience in small islands.

This Guidebook collects the lessons from nearly three years of work of Christian Aid and its partners in three small islands in the Philippines. While these sites are by no means a full representation of the situation of islands in the country, Christian Aid believes the experience in Jomalig, Quezon Province, Marinduque, and Rapu-Rapu, Albay Province, is relevant to many islands and the lessons and strategies are adaptable to various island contexts. With this work, Christian Aid and its partners hope to contribute to the continuing process of defining and sharpening strategies toward resilience.

As shown even in the three islands covered by the Building Disaster Resilience in Small Island Communities Project (BDRSIP) and Advancing Safer Communities and Environments Against Disasters (ASCEND) Project, which are the bases of this Guidebook, the conditions of islands differ. Jomalig is the smallest, the flattest and also the farthest from any mainland. It takes five hours under good weather to get there from the nearest mainland pier of Infanta, Quezon. Limited trade with the mainland does not yet allow daily scheduled boat trips to and from the island. Small boats ply the waters to Jomalig when there are enough cargo and passengers to make the trip profitable. But even with very little to start with, the island folk has managed a well-executed evacuation process in recent typhoons, sparing coastal dwellers from being wiped out by storm surges. The level of preparedness is markedly higher, and initiatives for longer-term resilience, such as developing vibrancy in low input food production, are underway. Aided by its hazard maps and risk assessments, the local government is now implementing a resettlement process for families living by the island's coast who are most at risk to storm surges.

Rapu-Rapu is only an hour and a half away by outrigger boat from the mainland capital of Legaspi City, Albay. But in between the island and the mainland are strong

currents from the Pacific Ocean, forcefully pushed inwards during typhoons. At the height of typhoons, crossing to Rapu-Rapu Island can be deadly, as waves tower over the small boats that navigate these routes. The longer such extreme weather lasts, the longer the island is isolated. Because most of Rapu-Rapu is mountainous and there are hardly any roads traversing it, villages facing the Pacific Ocean and located away from the mainland can remain unreachable for extended periods. In one of our visits to Rapu-Rapu, I asked a mother who had attended one of the village meetings what she thought the project had achieved in her island. Her answer was simple: she used to feel so afraid when the storms came. Now she feels much more confident that there is something she can do to keep herself and her family safe. And this confidence is shared by the rest of the villagers we have come to meet who proudly show us their community hazard maps and contingency plans and narrate to us how they prepared and responded during the last typhoon or the tsunami that hit Japan in early 2011.

Marinduque is large enough to have developed a vibrant island economy. It has relatively more resources to use for development and disaster risk reduction. But the island still is not spared from isolation during storms when boats are unable to make the three-hour trip from Lucena City in the mainland province of Quezon. To strengthen response systems within the island and ensure support from the mainland and other external agencies, Marinduque developed a communications system using a repeater and handheld and base radios available to trained government and community leaders following a well-developed and well-understood communications protocol. With this system, the island was able to save the lives of 12 fishermen stranded at sea during the Tropical Storm Nock-Ten in 2011.

It would be inaccurate to say that resilience is fully in place in these islands after BDRSIP and ASCEND. But Christian Aid and its partners believe that the important foundations for resilience are there, among others: islanders highly aware of disaster risks and how these can be reduced; local structures for DRR; access to the science of hazards used in contingency planning and local development planning that integrate DRR; early warning systems and physical structures for safety and mitigation; and support systems between island and mainland to address isolation. Resiliency will be strengthened as communities and duty bearers use these foundations in practicing, experiencing and improving on their strategies to prevent and cope with disasters.

We are already seeing this transformation happening. After setting up the DRR communications system in Marinduque and seeing the need for broader support to this strategy, the Marinduque Center for Environmental Concerns and the Marinduque Provincial Development Council convinced the Regional Development Council of MIMAROPA (comprising four provinces in Southern Luzon) to scale up the communications link across the region. Strategies are clearly maturing and gaining sophistication with practice and as people are experiencing their benefits.

Through this scaling up, more islands are linked up to support the systems they will need when extreme events happen.

The investment in strengthening DRR consciousness across communities and duty bearers is bearing fruit, such as when the local government of Rapu-Rapu, with its meager resources, prioritized the building of a warehouse to ensure that rice could be stockpiled safely especially during months when extreme weather is anticipated and the trips of boats to bring supplies from the mainland would be disrupted. These are but some of the many indications that DRR consciousness is truly taking root.

We acknowledge the dedicated community leaders and local government officials in the islands of Jomalig, Rapu-Rapu and Marinduque in the Philippines who have painstakingly sought to understand the nature of the hazards they are experiencing year after year, scanned the islands, identified their vulnerabilities and built their capacities with whatever resources they have command over.

We would also like to mention the following institutions and individuals for the strong support they gave to various project undertakings:

- the European Commission Directorate General for Humanitarian Aid and Civil Protection, which provided funding support in pursuit of our common goals of ending poverty and building resilience in vulnerable communities.
- Hon. Rodolfo Tena of Jomalig, Hon. Roberto Madla of Boac and Hon. Nora Oñate of Rapu-Rapu, as well as members of their councils and staff, who believed in the ultimate goal of the projects and lent their support to the project team and communities.
- the provincial governments of Albay, Marinduque and Quezon, which lent their staff and resources for various project activities.
- the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and the Philippine Institute of Volcanology and Seismology (PHIVOLCS), which shared their technical expertise in hazard mapping.
- the Philippine Red Cross (PRC), Kabalikat-Civicom, National Food Authority, Diocese of Boac, Prelature of Infanta, Philippine Coast Guard, Philippine Navy, and various private sector groups, which rendered technical assistance and guidance.
- Solidaridad para sa Makabuluhang Balita Inc. (SMBi), which provided technical support to the National Conference on DRR–CCA in Small Islands and the development of this publication.
- Ms. Donna Aran, who lent her editorial skills to this publication.

- Ms. Genevieve Lorenzo, who helped produce the map of the three islands.
- Mr. Cedric Daep of the Albay Public Safety and Emergency Management Office (APSEMO), who provided valuable inputs and constructive feedback that helped shape this Guidebook.
- Municipal government officials who participated in the National Conference on DRR–CCA in Small Islands and contributed to improving the pilot model for small islands.

Lastly, this undertaking would not have been successful without our partners, Social Action Center (SAC) Northern Quezon, Marinduque Council for Environmental Concerns (MaCEC), and Coastal CORE Sorsogon (CCS), who bravely and tirelessly accompanied their communities in each step of their voyage to disaster resilience.

DAPHNE VILLANUEVA
Country Manager
Christian Aid Philippines

1 INTRODUCTION

What disaster risks and hazards are small islands facing? How are these risks changing? Which communities are getting the brunt of disasters? Where are they located? How can they prepare for and cope with disasters? What can they do to adapt to the changing conditions? Who should be involved in data gathering, critical decision-making and action?

In this regime of increasing incidence of natural and human-induced disasters, aggravated by climate change and unsustainable human practices, a number of questions have emerged concerning sustainable development, disaster risk reduction (DRR) and climate change adaptation (CCA), also referred to here as DRR–CCA. These require the decisions of leaders, scientists, policymakers, scholars and communities from both humanitarian and development perspectives.

This Guidebook attempts to address these questions as it documents the experiences, strategies and learning that came out of the Building Disaster-Resilient Small Island Communities Project (BDRSIP) and Advancing Safer Communities and Environments against Disasters (ASCEND) Project in three small islands, namely, Rapu-Rapu, Albay; Marinduque; and Jomalig, Quezon (figure 1.1). Eventually, it illustrates the manifestations of the disaster risk–climate change nexus in small islands.

This volume hopes to provide useful examples of how disaster risks could be addressed in similar environments. It is a contribution to the numerous small voices that are now beginning to be heard in the global arena — as the world braces for more collective and innovative efforts to enhance the adaptive capacities, and resilience, of communities.

A partnership effort among Christian Aid, local nongovernment organizations (NGOs), provincial and municipal governments, and 48 barangays/villages in three small islands in the Philippines, the ASCEND Project is primarily meant to serve as a reference of local governments and community leaders in their own efforts to address the challenges of disasters and climate change in their own localities.

Why Focus on Small Islands?

The Philippines is an archipelago composed of over 7,100 islands, many of which are small. While most of these islands are rich in biodiversity, many have fragile ecosystems and very limited freshwater resources. They also face the continuing threat of isolation from the mainland, being located far from political and economic centers. When natural disasters hit the Philippines, small islands are usually the most severely affected by the immediate and long-term impacts. They are also the least served given their remoteness. This is compounded by poor transportation and communication net-

Fig. 1.1. Map of the three project sites and their location within the Philippines

works across the archipelago, the lack of measures for disaster preparedness and response, and unfavorable physical, social and political conditions.

Many of the small islands are considered as the first line of defense against hazards such as typhoons, tsunamis and storm surges. Corollary to this, small islands are the most threatened by the phenomenon of sea level rise, on top of their inherent vulnerabilities in relation to size, location and available resources.

To date, there is still no commonly accepted definition of a small island. There are elements, however, that can be used to define or classify small islands:

- Physical dimension (e.g., land area ranging from 1,000 to 10,000 square kilometers, elongated islands with a maximum width of 10 kilometers)
- Distance from the mainland
- Profile (e.g., high volcanic islands; low atoll islands)
- Substrate or origin (e.g., limestone, corals, bedrock, volcanic, mixed, unconsolidated consisting of sand, silt or mud)
- Population density

However, the working definition used in this Guidebook goes beyond these physical elements and considers the combination of all characteristics of small islands, including those that bring about their vulnerabilities necessitating DRR and CCA. Based on the experience of ASCEND communities, significant vulnerabilities include:

- resource limitations, usually resulting in food insecurity and chronic poverty
- dependence on the mainland
- lack of access and links to market institutions and technology
- political/social marginalization due to the existing governance structure
- lack of alternative sustainable livelihoods to complement farming and fishing
- direct exposure to climate-related hazards, especially typhoons and storm surges
- lack of risk assessment, early warning, and search and rescue capacity
- isolation, especially when disasters hit

How Did This Guidebook Come About?

This Guidebook is a product of a participatory, empirical and evidence-based learning process that resulted from the experience of the volcanic island of Rapu-Rapu in Albay, the island province of Marinduque and the coral atoll of Jomalig

in Quezon. Efforts to look into developing a pilot resilience model for small island communities began during the successful implementation of the Building Disaster-Resilient Communities (BDRC) Project by Christian Aid and its partners, which published case studies for addressing vulnerabilities in various community contexts nationwide. Partners then saw the need to look into the specific conditions of small islands and develop an approach that would be suitable for such contexts. Thus, the Building Disaster-Resilient Small Island Communities Project came about.

Local nongovernment organization (NGO) partners, with funding from the European Commission Directorate General for Humanitarian Aid and Civil Protection under its European Commission Disaster Preparedness Programme through Christian Aid, implemented BDRSIP in three different islands in 2008–2009. They are:

The European Commission Directorate General for Humanitarian Aid and Civil Protection (ECHO) is one of the world's largest providers of financing for humanitarian aid operations. Its mandate not only includes the funding of disaster relief but also the support of disaster preparedness activities, in particular at the local level. Through its disaster preparedness program (DIPECHO), it assists vulnerable people living in main disaster-prone regions of the world in reducing the impact of natural disasters on their lives and livelihoods.

- Coastal CORE Sorsogon (CCS) in Rapu-Rapu, Albay
- Marinduque Center for Environmental Concerns (MaCEC) in the province island of Marinduque
- Social Action Center (SAC) Northern Quezon in Jomalig, Quezon

To meet the aim of strengthening capacities and reducing risks in small island communities with high exposure and vulnerability to weather-related and geophysical hazards, BDRSIP worked toward:

1. improving the disaster preparedness and disaster response capacities of small island communities;
2. developing capacities of small island communities to manage periods of isolation after a disaster;
3. establishing and strengthening linkages with mainland local government units (LGUs), public and private service providers, and communities for disaster response; and
4. systematically assessing results, lessons and experiences from the work in small islands to create a DRR pilot model for small islands.

The outcomes of BDRSIP triggered a reflection on developing a pilot model for resilience in small islands. This was pursued further through the ASCEND Project in 2010–2011 (also funded by ECHO), which consolidated BDRSIP community initiatives, developed island-wide strategies and upscaled efforts to integrate DRR–CCA into

local development plans. The project also looked at strengthening linkages between and among the municipal governments in small islands and mainland service providers.

One major objective of ASCEND is to document and share learning. This serves not just external information needs but also, and more importantly, the development of a living testimony to the successes and challenges faced by partners and communities in grappling with the concept of "resilience" and what it entails on the ground.

In addition to the experiences and learning of the three project sites, this document features the proceedings and learning from the National Conference on DRR and CCA in Small Islands that ASCEND organized in October 2011.

Fast Facts: ASCEND Project Sites

Rapu-Rapu is a third-class municipality composed of 34 barangays in three islands (Rapu-Rapu, Batan and Guinanayan) off the eastern coast of Albay. It has a land area of 161 square kilometers and a population of 32,646. All three islands are volcanic in origin and are regularly exposed to hazards such as earthquakes, droughts, typhoons and floods.

Marinduque is an island-province bounded by Tayabas Bay and Quezon Province on the north, and Sibuyan Sea and Romblon Province on the south. Comprising 218 barangays in six municipalities, it has a land area of 959 square kilometers, and a population of 229,636. It is volcanic in origin and is vulnerable to hazards such as earthquakes, storm surges, typhoons, rain-induced flooding and landslides. It was the site of an infamous mine spill in the 1990s, the effects of which threaten communities to this day.

Jomalig is a sixth-class island-municipality composed of five barangays located on the far eastern end of Polilio Islands in Quezon. It has a land area of 51 square kilometers and a population of over 6,000. The island is a coral atoll and is regularly exposed to strong typhoons, as it sits right on the country's main typhoon pathway.

What Is This Guidebook About?

This Guidebook is seen as the coming together of all the implementation and learning efforts of BDRSIP and ASCEND over the past three years. It describes the pathways, strategies and tools used by LGUs and community-based organizations seeking to build resilience in the small islands. Specifically, it showcases (1) the development of pathways to small-island disaster resilience; (2) DRR and CCA strategies in a small island context and (3) lessons and ways forward.

This learning tool will be most useful to LGUs in their efforts to localize the provisions of the National Disaster Risk Reduction and Management (DRRM) Act as well as to integrate broader DRR–CCA concerns in local policies and programs. It is also expected to benefit community-based organizations, international and local humanitarian agencies, educators, scientific institutions, and other concerned groups that wish to engage in local disaster risk and smart climate governance in small islands.

Specifically, the strategies featured in this Guidebook will enable the reader to understand the following:

- Disaster risk and climate change contexts of small islands
- Various ways of addressing isolation and other vulnerabilities of small island communities
- Mainstreaming DRR and CCA

The partners and communities behind this Guidebook also wish to highlight the intangible factors that have held everything together in this continuing journey toward resilience — **the guiding principles:**

1. ***Inclusivity.*** The uncertainty of the changing environment and the complexity of the tasks at hand entail inclusive and genuine participation from different interest groups and stakeholders. Inclusivity provides a means to address the knowledge gap and to tap the capacities of the small islands' greatest resource — the people. Inclusivity challenges the educated to be open to context-based perspectives, the resource holders to be impartial and the political leaders to become nonpartisan.

2. ***Voicing.*** Genuine participation goes beyond listening to the most vulnerable but also enabling them to voice out their needs and aspirations. It transcends all stages of the DRR and CCA process.

3. ***Empowerment.*** Enabling voices of the most vulnerable requires providing a welcoming space and capacitating them to become active agents of change. We have to veer away from patronizing the weak and reinforcing the dole-out mentality of victims. Empowerment involves enhancing the knowledge, skills and resources of communities to enable them to cope and adapt appropriately on their own.

4. ***Multi-stakeholder partnerships.*** When the vulnerable are empowered, they are transformed from mere participants to active partners in multi-stakeholder platforms. While the law provides a space to involve a multitude of actors from government to civil society, the pursuit of active, transparent and accountable partnerships will make the collaboration relevant.

2 TOWARD DEVELOPING PATHWAYS TO DISASTER RESILIENCE IN SMALL ISLANDS

What Is Disaster Resilience?

Before starting the voyage, the destination must first be determined.

The goal of disaster resilience has been defined in many official and academic discussions. To avoid confusion while still encompassing the wide range of thought put into it, community resilience to disasters can be defined in operational and broad terms in the context before, during and after a disaster (Twigg 2007; figure 2.1). This involves the capacities to:

- absorb stress or destructive forces through resistance or adaptation;
- manage or maintain certain basic functions and structures during disastrous events; and
- recover or "bounce back better" after an event.

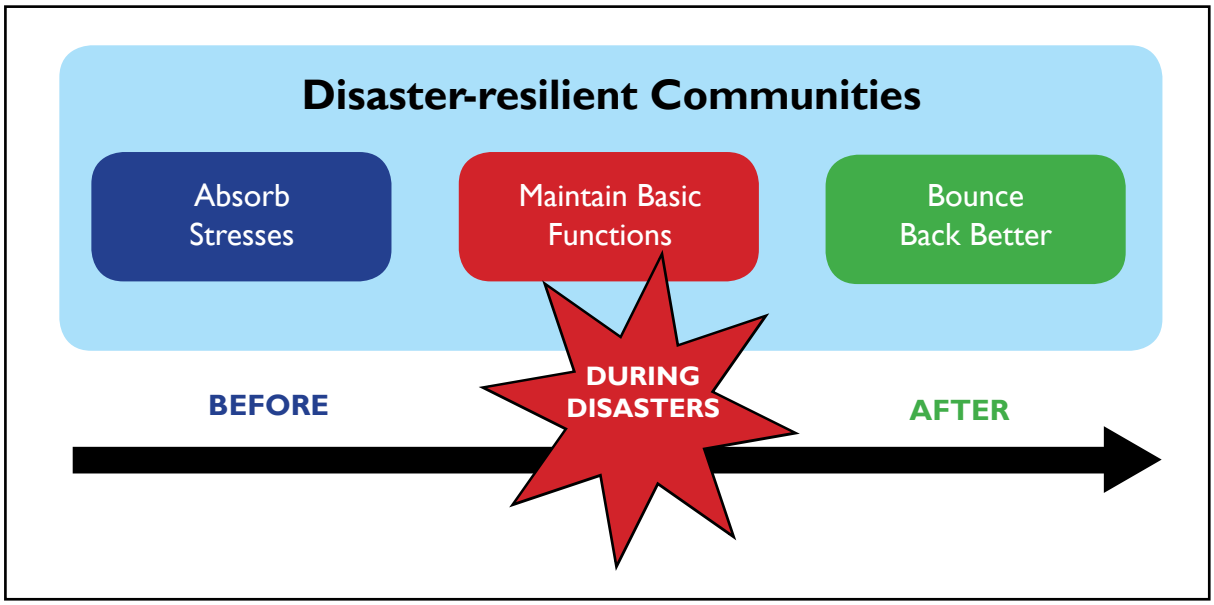

Fig. 2.1. Capacities of disaster-resilient communities

Key to resilience thinking is the anticipation and integration of the concepts of change and complexity in community development. Change ranges from the sudden to the incremental, from the extreme to the seasonal, and from the reversible to the irreversible. Change is inevitable and constant. As such, it implies that current analysis, goals and strategies (including those presented in this Guidebook) will eventually require recalibration, rethinking and reimagining.

Complexity, on the other hand, arises when causes and effects of events are not obvious. Causes may be multiple or invisible while effects may be long term or distant from the source. As such, complexity entails co-assessing, co-designing, co-implementing and co-learning among the different stakeholders.

Building disaster resilience therefore goes well beyond merely responding to the needs of communities after a disaster.

What Are Disaster Risks?

Before setting sail to the destination, one must know where one is coming from.

In this case, the assumption is that small islands have high disaster risks. It is essential to point out that hazards are not automatically disasters. Many of what we consider as hazards are natural phenomena that are essential to supporting life and maintaining the balance of the ecosystem.

Disasters happen only when people and resources are exposed to the hazard. A typhoon does not cause a disaster when its path does not cross the small island. The degree of the disaster is aggravated by the vulnerabilities of those exposed to it. So while both the rich and the poor are affected by floods, the rich can easily rebuild their homes and assets while the poor are pushed deeper into poverty.

Therefore, disaster risk is the convergence of hazards, exposure and vulnerability. Capacity is often considered in the analysis, since it directly reduces vulnerabilities. These concepts may have variations when considered in the perspective of DRR and CCA.

- **Hazard.** A hazard could be an event, object, person or action that has the potential for causing harm. In DRR, hazards take the form of climate- and weather-related events, geophysical events, human-induced and technological actions or ecological events. In CCA, these include gradual changes in climatic parameters such as sea level rise, rising mean temperature, changes in precipitation patterns, and extreme weather events with increased frequency and severity (Castillo 2007).

- **Exposure.** This refers to the population, assets, livelihoods and physical infrastructure that are in hazard's way. The recognition of exposure highlights the need for spatial planning in mainstreaming DRR and CCA. Exposure forces DRR and CCA strategists to locate where hazards will mostly strike, where the most vulnerable are located and where resources have to be put to reduce disaster risks.

- **Vulnerability.** In terms of DRR, vulnerability refers to the susceptibility of a community to the impact of hazards where conditions are determined by physical, social, economic and environmental factors of processes. In the

context of CCA, this pertains to the "susceptibility of [the] system to cope with the adverse effects of climate change, climate variability and extremes" (UN 2006). Vulnerability is determined by "the character, magnitude, rate of climate change and of the variation a system" is exposed to as well as its "sensitivity and its adaptive capacity" (ibid.).

- **Capacity.** In the context of DRR, capacity refers to coping capacity or the "means by which people or organizations use available resources and abilities to face adverse consequences that could lead to a disaster." In the context of CCA, capacity denotes adaptive capacity or the "ability of a system to adjust to climate change (including climate variability and extreme to moderate potential damages), to take advantage of opportunities or to cope with the consequences" (ibid.).

Each small island has its own combination of hazards, exposure, vulnerabilities and capacities that result in different disaster risks. Figure 2.2 illustrates a few of these wide-ranging elements.

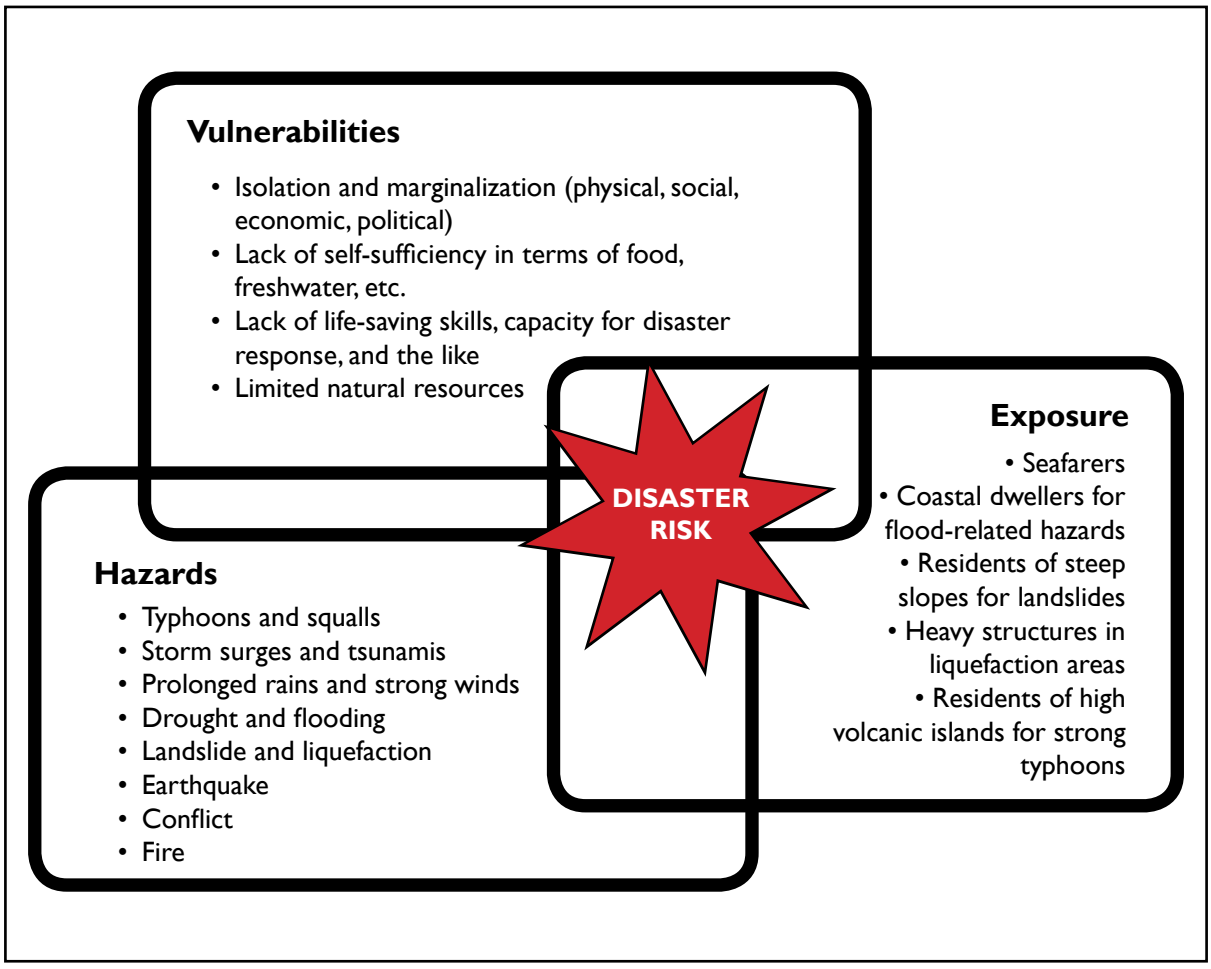

Fig. 2.2. Disaster risk in small islands

What Are the Pathways to Disaster Resilience?

Now that the points of destination and origin are defined, we are now ready to define the route toward disaster resilience. There are many routes to take and the path one chooses depends on the opportunities and challenges presented to the voyager.

As trailblazers, Coastal CORE Sorsogon (CCS), Marinduque Center for Environmental Concerns (MaCEC), Social Action Center (SAC) Northern Quezon and Christian Aid drew a map of their own journey. Figure 2.3 shows the pathways to disaster resilience of small islands that they took.

Fig. 2.3. Pathways to disaster resilience of small islands

The pathways consist of both (1) the different stopover islands or strategies taken and (2) the route or the sequence by which the islands were passed. While it is acknowledged that the voyage to disaster resilience is a long one, the lessons learned in Rapu-Rapu, Marinduque and Jomalig during the journey are priceless treasures worth sharing with other voyagers.

Strategies

The different strategies are discussed in the succeeding chapters. Chapter 3 tackles **Assessing Disaster Risks**, the results of which inform the development of further

strategies toward disaster resilience. The process of assessment sensitizes participants and fosters a culture of safety and vigilance.

Chapter 4 guides the **Development of Capacities** of small islands. It identifies critical capacities needed to reduce the vulnerabilities of the dwellers and provides readers with links to resources for further learning.

Chapter 5 acknowledges the need to **Manage Limited Resources** inherent in small islands.

Chapter 6 elaborates on various means by which small islands can **Address Isolation**. While self-sufficiency is a goal, it is recognized that quick and slow-onset disasters can push small islands beyond their carrying capacity. Creating and re-establishing physical, social, economic and political connections to the mainland is vital before, during and after a disaster.

Chapter 7 shows how DRR strategies can be institutionalized. **Mainstreaming** galvanizes DRR into the local governance system, policies and structures. This departs from project-based approaches toward a more systematic DRR approach, thus enhancing the resilience of small islands.

Sequence

The pathway to take for each island is context-specific, and the hazards, vulnerabilities and capacities of the respective communities are dependent on a multitude of factors. As such, the pathway presented here serves only as a guide and not a strict formula for disaster resilience. It is critical to understand not only how but also why each path was taken.

While many routes can be taken, the critical first step is Assessing Disaster Risks. While it alone does not bring about resilience, assessment leads the voyager to the most appropriate route to take. Often, the immediate offshoots of risk assessments include the development of contingency plans and early warning systems. Deeper outcomes include strategies that address underlying disaster risks and sustainable development issues. Risk assessment defines **why** a small island must undertake DRR and CCA, **what** to address (i.e., specific disaster risks), who to engage (i.e., vulnerable sectors, resource providers) and **when** to act (e.g., considering seasonality and trends of hazards and vulnerabilities).

Piloting of the different strategies may ensue based on the risk assessment. This acknowledges uncertainties that can challenge strategies. As opposed to modeling, piloting is learning-oriented and thus vigilant of ways to improve the strategy further. Lessons derived from piloting must be identified, processed and documented by the different stakeholders before moving to the modeling or expansion stage.

The different pilots must be seen as interdependent strategies. For example, establishing linkages with the mainland is not the only means to address the vulnerabilities associated with isolation. Managing limited resources and building capacities where these were previously nonexistent allow small islands to survive inevitable isolation.

While different DRR projects can improve the resilience of small islands, mainstreaming enhances sustainability and the expansion of the pathways. It provides for institutionalization that can help in hurdling mandate questions, budgetary constraints, and partisan politics.

Finally and most importantly, the destination of disaster resilience is elusive because it is surrounded by a sea of change. Change leads to uncertainty and unpredictability. This makes adaptability, not just adaptation, an imperative for small islands. The route to be taken therefore must be an iterative process — from assessment to piloting to mainstreaming and back again to assessment.

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Castillo, Charlotte. 2007. *Conceptual linkages of climate change adaptation and disaster risk management.* Quezon City: Manila Observatory.

Twigg, John. 2007. *Characteristics of a disaster-resilient community: A guidance note.* Prepared for the DFID Disaster Risk Reduction Interagency Coordination Group. Benfield UCL Hazard Research Centre.

United Nations Working Group on Climate Change and Disaster Risk Reduction of the Inter-Agency Task Force on Disaster Reduction. 2006. *On better terms: A glance at key climate change and disaster risk reduction concepts.* Geneva: United Nations.

3 ASSESSING DISASTER RISKS

Why Assess Disaster Risks?

Knowledge of disaster risks is the compass that will guide the voyage toward disaster resilience. Identifying and understanding the differences among disaster risks, hazards, exposure, vulnerabilities and capacities allow decision makers and affected communities to:

- craft multiple-hazard contingency plans and response measures;
- develop hazard-specific early warning systems (EWS); and
- determine and prioritize long-term development, DRR and CCA strategies.

Strategies for DRR and CCA are highly context-specific. A best practice in one island is not necessarily applicable to another. A flat atoll island is impacted by a tsunami differently from a high-profile volcanic island. The contingency plan for an earthquake is not the same as that for a flood. Island dwellers and mainland residents have varying capacity development needs and resources. DRR and CCA strategies must therefore be tailored to the island's specific disaster risks. The key to ensuring the appropriateness of strategies is assessing the disaster risks of specific island communities.

Aside from collecting data, risk assessment that is done in a participatory manner builds awareness and orients communities to action. Generating disaster risk information allows the residents to anticipate hazards, the extent of the damage and even their needs in the event of a disaster. People will be unable to respond effectively to issues confronting them if they believe the issue or problem is beyond their control. By understanding what issues they can control, populations exposed to hazards will see themselves less as victims and more as active players in reducing disaster risks.

Beyond the community, this information must be shared with mainstream local government units (LGUs), other government agencies and civil society organizations. During an extreme event, these outsiders can anticipate when the small island will be in need of a disaster response even when communication lines are shut down.

As such, aside from identifying what knowledge should be produced, it is critical to determine the following:

- Who should produce the knowledge?
- Who will apply the knowledge?
- How can the knowledge be shared?

All these make up the parts of the compass that will guide the voyage.

What Kind of Knowledge Is Needed?

Disaster risks could be identified by correlating information on the hazards, exposure, vulnerabilities and capacities of small island communities, taking into consideration the physical, environmental, social, economic and political characteristics of the island. Figure 3.1 shows some of the characteristics of small islands identified by the team in its work in the islands of Jomalig, Rapu-Rapu and Marinduque. These characteristics are further elaborated in annex 1.

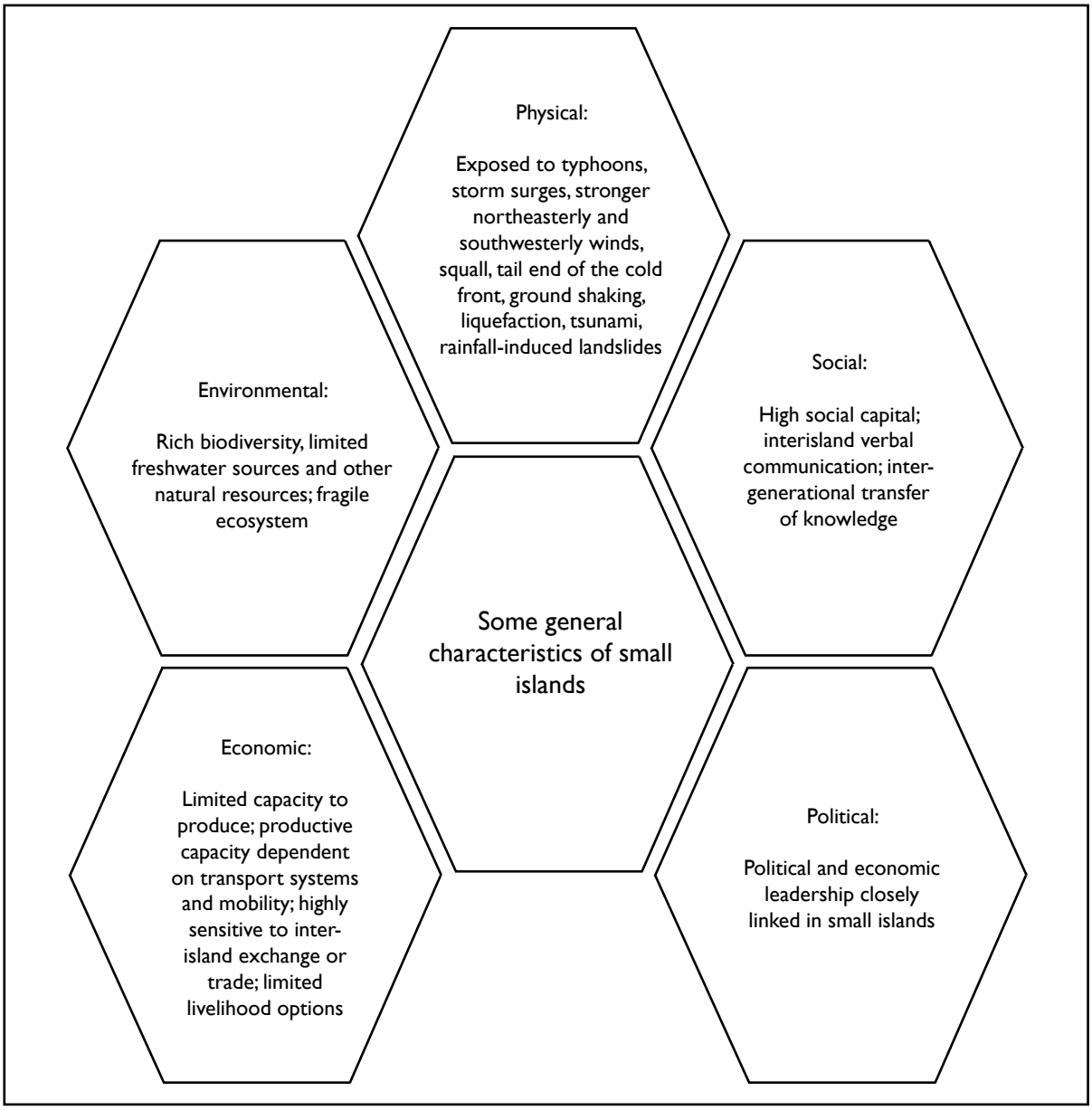


Fig. 3.1. General characteristics of small islands in the Philippines (based on BDRSIP and ASCEND experience)

Who Will Produce the Knowledge?

No one has a monopoly of knowledge. This is especially true in remote small islands and in a context of increasing change and complexity. Different sources of knowledge must be tapped to ensure comprehensiveness, complementation and validation of disaster risk information.

Two key sources of information on disaster risks are cited in this Guidebook: (1) small island communities; and (2) scientists and scientific institutions.

Why is community-based knowledge essential?

Community residents are not only users but also producers of knowledge. Island dwellers are primary sources of local and indigenous knowledge that is often invisible to outsiders. Allowing them to process this information for themselves affirms their capacity to become active change agents.

How do we draw out community-based knowledge of disaster risks?

Many participatory tools have been documented and adopted to draw community-based knowledge of disaster risks. It is important to note, however, that it is not the tools but the approach that makes the process participatory. The tools merely serve to facilitate generation of information from the community while the approaches of valuing the knowledge of island dwellers and generating collective action borne out of a common analysis make the process empowering.

Participatory approaches must allow the community residents, especially the most vulnerable, to be aware of their own thinking process:

1. Observe and Recall: What are the facts? Who were involved? What did they do? Where did it occur? How did it happen?
2. Analyze: Why did it happen? What are the trends? What are the strengths and weaknesses? What contributed to what happened?
3. Evaluate: How can this information be useful? How can I contribute to the solution?

The common mistake in using participatory tools is that communities are only asked to observe and recall information. If this happens, they become mere sources of information and may feel used and disempowered. Pushing them to analyze affirms that their wealth of ideas is valued and encouraging them to evaluate invites them to become an active player in their development process.

Various participatory tools may be used for gathering information on disaster risks, including climate-related hazards. The following are references on what these tools are and how they are used:

- Christian Aid Good Practice Guide: Participatory Vulnerability and Capacity Assessment (PVCA), by Christian Aid, June 2010.
- Integrating Disaster Risk Reduction and Adaptation into Rural Livelihood Programming: A Guide for Oxfam Staff and Partners in Southeast Asia, by Oxfam, 2010.
- Climate Vulnerability and Capacity Analysis Handbook: First Edition, by Angie Dazé, Kaia Ambrose and Charles Ehrhart, CARE International, May 2009.

The ASCEND Project used several participatory tools to assess disaster risks. Two of these, namely, participatory hazard and disaster time line and hazard assessment matrix, are featured in boxes 3.1 and 3.2 showing the processes involved and some results.

It should be noted that the strength of participatory tools is in gathering historical knowledge that is relevant to DRR. For CCA, which is dependent on future-oriented information, participatory tools may still be applied by including in the information to be gathered observed patterns of changing conditions related to the climate.

Specific information associated with the impact of global warming includes observations of changes in sea level, average temperature and rainfall conditions. Questions relating to these indicators are included in the participatory hazard and disaster time line and the hazard assessment matrix.

Other trends that may be noted are changes in biodiversity, production of crops and fisheries, and frequency and magnitude of typhoons. Though not all should be attributed to climate change, these changes should still be considered in development planning, especially if they point to increasing disaster risks in the future.

Box 3.1. Participatory hazard and disaster time line

This tool allows residents to recall experiences of disasters that have occurred in their island or locality. It gives people an insight into past hazards, changes in their nature, intensity and behavior, and enables them to evaluate the extent of risk and thus plan better for the future. Information is tracked in a subdivided time line covering the past 30 or more years. Residents are asked the following:

- What were the main disasters experienced in the community in each period?
- What was the extent of the damage? Who and what were affected? How long did the damage persist?
- How did the community, the local government or outsiders respond?
- What did the community or local government learn? How did practices and ways of working change after the disaster?

An example from Marinduque is presented below:

Box 3.1 (cont.)

DISASTER HISTORY TIME LINE – TANZA				
Year	Disaster	Damage	Response of government and communities	Learning from the experience
1979	Typhoon	• The Biglang Awa bridge was destroyed. • Animals drowned, and some residents perished.	• A new concrete bridge was constructed. • A livelihood project was implemented.	• Plant trees and bamboo along the sides of the river. • Avoid areas that are at risk to flooding.
1986	Typhoon Yoling	• Some residents and animals were killed. • Crops were destroyed. • Electrical and communication lines were damaged.	• The government provided relief goods to affected areas. • A study of calamities was conducted.	Always prepare for any calamity.
1993	Typhoon Monang	Maguila-guila Dam collapsed.	Residents were evacuated to higher areas.	• Always be ready and move immediately to the evacuation center. • Heed the warnings given. • Listen to the radio.
1995	Typhoon Rosing	Roads, river, electricity and communication facilities were destroyed.	Roads were repaired and electricity was restored.	Prepare for calamities.
1998	Typhoon Loleng	Crops were destroyed because of strong wind and rain.	Seedlings that could be easily grown and harvested were distributed.	People learned how to store food.
2004	Typhoon Reming	Heavy rains produced massive flooding that destroyed crops.	• A law was passed regarding proper waste disposal. • Seedlings were distributed.	Follow laws on proper waste disposal to avoid floods.
2006	Typhoon Milenyo	Forests and crops were destroyed.	Everyone participated in tree planting.	Do not cut trees.

Box 3.1 (cont.)

DISASTER HISTORY TIME LINE – TANZA				
Year	Disaster	Damage	Response of government and communities	Learning from the experience
2009	El Niño	• A lot of crops and animals died. • Many residents got sick.	• Medical missions were done. • Livelihood projects were provided. • People took care of livestock.	Always be prepared.

After the necessary information was gathered, the residents were asked to analyze the time line, guided by the following questions:

- What pattern or trend did you notice in the hazards, the damage, the response and the learning?
- What types of hazards can the communities cope with? To which hazards must the communities adapt?
- Are better ways of coping and adapting identified and learned after each disaster?

Box 3.2. Hazard assessment matrix

This is a tool for assessing and comparing the strength and the damage of hazards. It can also determine which hazards the community must be better prepared to handle, including what types of hazards are too severe for the small island dwellers to respond to on their own. Such knowledge can lead to the development of a hazard-specific early warning system, facilitate community cooperation on the contingency plans, and enhance community emergency response preparations.

The residents were asked the following observation questions:

- What are the specific hazards that have hit the community?
- How frequent have these hazards hit the community?
- What is the magnitude of the hazard? How strong was the hazard? How large was the area coverage of the damage? How long did the hazard persist?
- Where did the hazard occur?
- How severe was the damage brought by the hazard?

Box 3.2 (cont.)

Examples of hazard matrices produced by the tool are shown below.

Barangay Tanza	
Hazard	Drought
History	A severe drought happened in the country in 2009 and 2010.
Frequency	Beginning 2009, we felt a severe rise in temperature. Animals and crops died.
Speed and/or duration	The period of drought was long, killing animals and destroying crops. Rivers dried up.
Location	The whole barangay, not only the farmers, felt the impact of the drought because the food supply was limited.
Severity	That year brought fear among the residents, since a lot of them were getting sick. Crops were destroyed and animals were dying. A lot of residents experienced high blood pressure, uncontrolled bowel movement, heat stroke and heart attack because of the intense heat.

Barangay Balogo	
Hazard	Typhoon
History	Typhoon Reming (30 November 2006)
Frequency	Storm Signal No. 4
Speed	150 to 200 kilometers per hour
Location	Region IVB-Marinduque
Duration	1.5 hours
Severity	• Destroyed or damaged 40 percent of houses made of light and semiconcrete materials • Damaged 25 percent of high-value crops • Destroyed or damaged 15 percent of coconut plantations • Damaged six *banca* (small non-motorized boats), with one *banca* losing its net

Comparing the results of the different hazards, the residents were asked to analyze the following:

- Which hazards can the community cope with?
- Which hazards require greater attention from the community because coping and adapting mechanisms are still insufficient?
- For which hazards should the island dwellers seek external assistance?

What is participatory capacities and vulnerabilities assessment (PCVA)?

PCVA is not a single tool but a participatory exercise for analyzing capacities and vulnerabilities vis-à-vis existing hazards. Placing emphasis on the capacities and vulnerabilities of communities in determining disaster risks brings about a shift in disaster mitigation strategies, from being oriented toward infrastructure and preparedness toward a more systematic capacity development approach.

PCVA facilitates a comprehensive analysis of community livelihood assets and correlates the resulting information with hazards and political dynamics in a community. This unpacks resources that are used by communities to sustain livelihoods, namely:

- *Human Asset*. People resources as individuals, including skills, knowledge, ability and potential for labor, and good health, which together enable people to pursue different livelihood strategies.
- *Social Asset*. People resources as a group or community, including intangible social resources (e.g., networks, group memberships, relationships of trust, capacity for collective action) upon which people draw in pursuit of livelihood objectives.
- *Natural Asset*. Natural elements of the community's environment that provide livelihood resources (e.g., fishery and aquatic resources, forestry, land, water) and life support (e.g., mangroves as breakwater, forests to facilitate retention of fresh groundwater, clean air for good health).
- *Physical Asset*. Human-made elements of the community's environment that support livelihoods, including infrastructure and utilities (e.g., electricity, communication, water, transportation and road networks, community structures and facilities).
- *Financial Asset*. Financial resources that are available to the people in pursuit of their livelihoods (e.g., cash, savings and credit).

PCVA employs participatory rural appraisal (PRA) tools such as historical time line, asset pentagon, Venn diagram and community resource map. The information gathered using these tools is correlated with information from hazard maps, social census and other local information.

Aside from drawing out information, PCVA identifies which sectors and households are most vulnerable. They may include persons with disabilities (PWD), the elderly, pregnant women, indigenous people and persons with infectious diseases that may elicit discrimination. PCVA allows leaders and organizers to target these sectors for future engagement in DRR–CCA assessment, planning and implementation; to prioritize them in contingency planning and disaster response; and to ensure that they participate in capacity development strategies.

PCVA is a popular source of input for developing community-based DRR and CCA strategies. It has proven to be useful in the reality check phase (i.e., preparation of LGU profile) of local government planning and budgeting. The questions, tools, and information used in PCVA may be integrated easily into other types of analyses, such as livelihood analysis, thus providing a DRR and CCA lens to existing approaches. This is particularly relevant if local officials and planners want to ensure that their development projects are resilient to disaster or climate.

Among the basic tools used in PCVA is the asset pentagon. The process engages the residents in determining five community livelihood assets as well as their status. Figure 3.2 shows the asset pentagon created in a village of Rapu-Rapu.

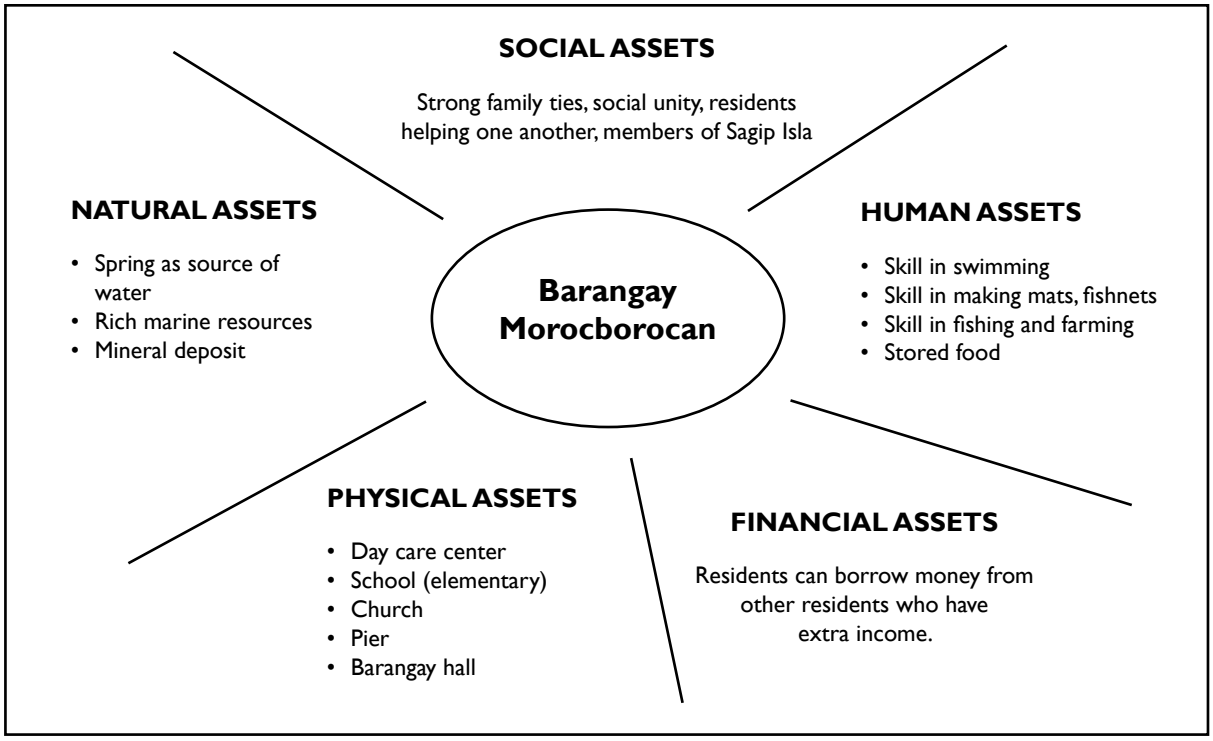


Fig. 3.2. Asset pentagon of Barangay Morocborocan, Rapu-Rapu, Albay

Based on the asset pentagon, residents are asked to analyze the results:

- Capacities
  - What are the capacities identified in each community asset?
  - What are the safe conditions?
  - What releases the pressures which make these assets safe?
  - What are the positive underlying causes of such capacities?
- Vulnerabilities
  - What are the vulnerabilities identified in each community asset?
  - What are the vulnerable conditions?

- What are the pressures which make these assets vulnerable?
- What are the underlying causes of such vulnerabilities?

From the output of the asset pentagon, residents can relate community vulnerabilities and capacities to hazards and political dynamics. These are then used to determine and prioritize disaster risks in the community.

Box 3.3 shows an example of how community-based knowledge is used to assess disaster risks. For further information on the tools, please refer to the PCVA toolkit which CCS (2009) has prepared in Filipino.

Box 3.3. Assessing disaster risks using community-based knowledge derived from barangay profiles and participatory methods in Rapu-Rapu Island

Many of the 34 barangays in the island did not have an updated barangay profile. Some did not have one at all. The barangay health workers and barangay councils thus conducted a census survey in their respective barangays to generate the needed information:

- Actual population of the barangay
- Sex and age disaggregation of the population
- Level of education of household members
- Health and nutrition status
- Major sources of income
- Access to basic social services, such as electricity, water and sanitation
- Type of housing materials used
- Presence and location of vulnerable sectors, such as PWD and the elderly, and other relevant information

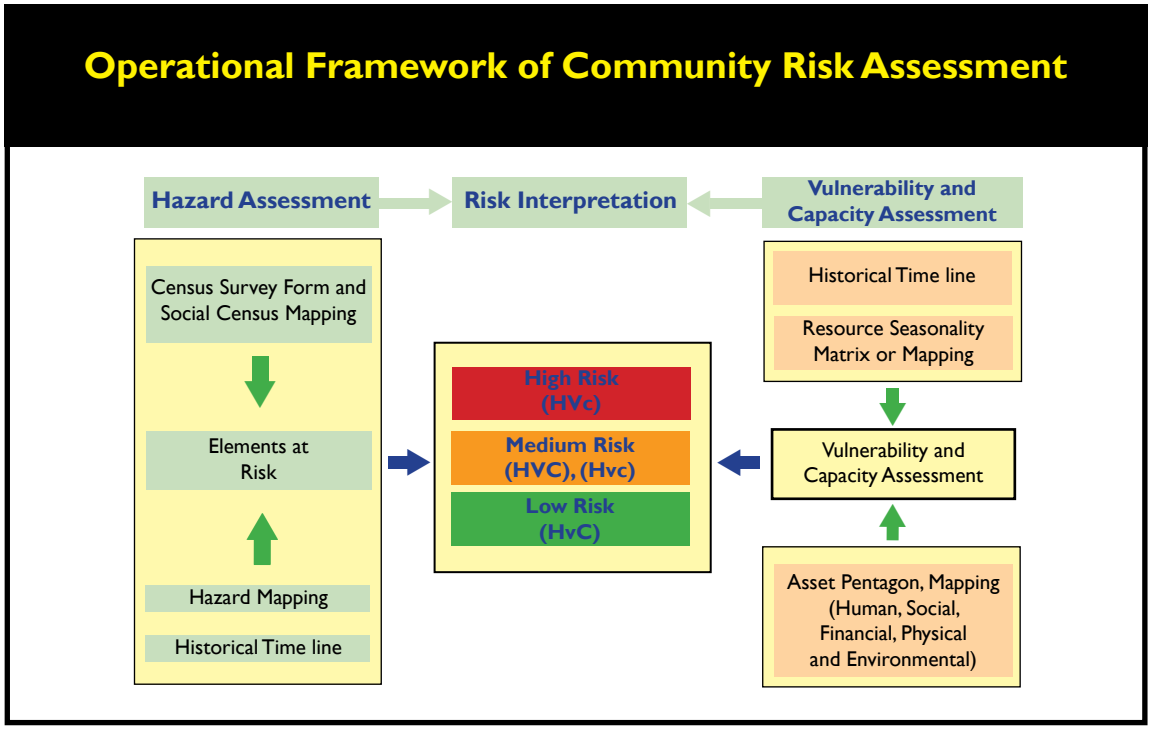
The information generated facilitated the participatory data-gathering processes. For a sample Census Form, please refer to Annex 2.

Volunteers and barangay council members were identified from the 34 barangays to attend the three-day Training of Trainors in PCVA and to roll out PCVA in their respective barangays. The participants were oriented on the six participatory tools to be used. They also learned from the NGO implementers practical ways of rolling out PCVA.

In interpreting risks, a community is considered high risk if multiple hazards are present in the area, its vulnerability is high and its capacity to cope with and prepare for disasters is low (HVc). A low-risk community is one where multiple hazards are present, vulnerability is low and capacity to cope is high (HvC). Communities belonging to the medium risk category experience multiple hazards and show indicators of either low or high vulnerability and capacity (Hvc or HVC).

The diagram below summarizes the risk assessment done in the community.

Box 3.3 (cont.)



The steps and techniques applied in the risk assessment in the community were as follows:

1. The volunteers, together with members of the community, transferred all the information provided in the census form to the spot map or resource map made by the community by pasting on it paper cutouts representing houses and other infrastructure present in the community. Written on the paper cutouts are symbols representing census data.
2. A historical time line was rolled out wherein the residents identified and narrated the hazards they had experienced. The time line included questions on the differences and other observations of the earth and sea surface temperature, strength and frequency of typhoons, and the characteristics of the shore or coastlines before and at present.
3. Using plastic sheets as overlay, the residents were asked to identify the different hazards that were probable to happen (from likely to certain) and their consequences or impact (from minor to critical).
4. The residents determined their community's asset pentagon. The assets identified were classified as capacities or vulnerabilities, depending on the residents' perception of their assets.
5. Patterns and trends in the sources of livelihood and income, diseases (mortality or morbidity), cultural activities and beliefs in the community were established using the seasonality matrix or map in a calendar form.
6. Using a Venn diagram, the residents mapped out the different stakeholders of the community, their functions, and the impact of their services as well as the degree of their relationships with the community.

Box 3.3 (cont.)

The data gathered from the social census mapping, hazard mapping and historical time line identified elements within the community that were at risk to various hazards. These included community infrastructure and specific households that were located in high-risk areas; the location of vulnerable sectors, such as the elderly, PWD, children and pregnant women; and farm areas prone to landslides. Data from other PCVA tools, meanwhile, provided a picture of specific community strengths and assets that could be tapped and harnessed to lessen the people's risk to disasters. Alternatively, these also identified vulnerabilities that could increase such risk. All this information, put together, rendered a complete picture of the community's disaster risk situation.

The PCVA outputs specifically consisted of the following:

- Community profile and degree of exposure based on the census survey, social census mapping and asset pentagon
- Different hazards and other observations related to climate change as identified through the historical time line
- Elements at risk and extent of different prioritized hazards as determined through the hazard map overlaid on the census map
- Analysis of community capacities and vulnerabilities based on the asset pentagon, historical time line, seasonality matrix or map and Venn diagram
- Overall community analysis and evaluation of disaster risks using the six different tools

These outputs were then used in identifying and formulating the following plans and other related documents:

- Barangay profile
- Community hazard map
- Community risk map
- Barangay contingency plan and household contingency plan
- Identified needs and prioritization in the barangay disaster risk reduction and management (DRRM) plan
- Identified needs and prioritization in the barangay development plan and budget
- Barangay damage needs assessment report
- Barangay emergency response plan, since baseline information on vulnerable groups is readily available, and the type and level of response during emergencies is identified and prioritized

To build awareness of the PCVA outputs and the resulting plans, the community risk map was displayed at the center of the barangay. Copies of the multi-hazard contingency plan were posted in every household. Other plans were readily available to and for the community.

Why is scientific knowledge needed?

Science produces knowledge using a logical and systematic process that can be repeated and tested by other people. That knowledge is verifiable, evidence-based and impartial. Such rigor in producing knowledge of disaster risks is necessary for leaders to make accountable and nonpartisan decisions.

Scientific knowledge builds on and links with knowledge generated by other scientists. This accumulated knowledge makes possible the identification of disaster risks that are not immediately evident (e.g., fault lines, landslide-prone areas, tsunami).

Science can recognize future-oriented changes brought about by seasonality and trends. Forecasted scenarios based on climate change models identify areas of significant sea level rise, temperature change and rainfall patterns that are useful for crafting CCA strategies. Simulations based on known earthquake generators are able to identify coastal areas prone to near-field tsunami. Steeply sloped land areas have been determined as landslide-prone areas. Such knowledge will be difficult to determine, however, if the residents have no experience of any historical event.

DRR–CCA plans of local governments that are science-based and validated by local communities can generate wide acceptance among their constituents. They are also more likely to be approved by higher levels of government.

Despite being highly technical in nature, scientific knowledge should not be exclusive to government officials. There is much benefit in sharing scientific knowledge with the communities. Ordinary residents have been observed to be struggling with the technical language but determined to understand the scientists. Eventually, communities are slowly speaking the language and applying the knowledge. For example, residents are now tracking the path of typhoons based on radio broadcasts to see if they need to make the necessary preparations. Common people may be seen joining conversations around climate change. More and more people are monitoring changes in the environment and relating these to disaster risks.

On the other hand, scientists also gain from engaging with communities. They have found more meaning and have grown more passionate about their work after seeing how it is used to save lives and livelihoods. Scientists are also encouraged to use popular language in sharing their knowledge so that more people can benefit from it.

A note of precaution though: the unavailability of scientific knowledge should not stop leaders from making critical decisions. The best available information must

be used, especially since the topic of concern involves disasters. In the project sites, partnerships have been made with mandated government institutions to generate hazard maps. While waiting for the long process of generating the maps, the LGUs produced DRR and contingency plans based primarily on community-based information and limited literature on the islands. These contingency plans proved useful when a typhoon struck one of the small islands despite the absence of official hazard maps.

Where can scientific knowledge be accessed?

The Building Disaster-Resilient Small Island Communities Project (BDRSIP) engaged mandated scientific institutions in the country, such as the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and the Philippine Institute of Volcanology and Seismology (PHIVOLCS), in assessing the hazards in the small islands and communicating these to the residents. Among the maps they prepared were:

- earthquake-induced landslide map;
- flood map;
- ground-shaking map;
- liquefaction map;
- storm surge map; and
- tsunami map.

Box 3.4 presents a sample field survey report of PAGASA scientists who visited the remote island of Jomalig in Northern Quezon.

While scientific knowledge is not necessarily exclusive to formally trained scientists and recognized research institutions, these individuals and institutions often take extra precaution to make sure that their findings are reliable. This facilitates accountable decision-making among local leaders.

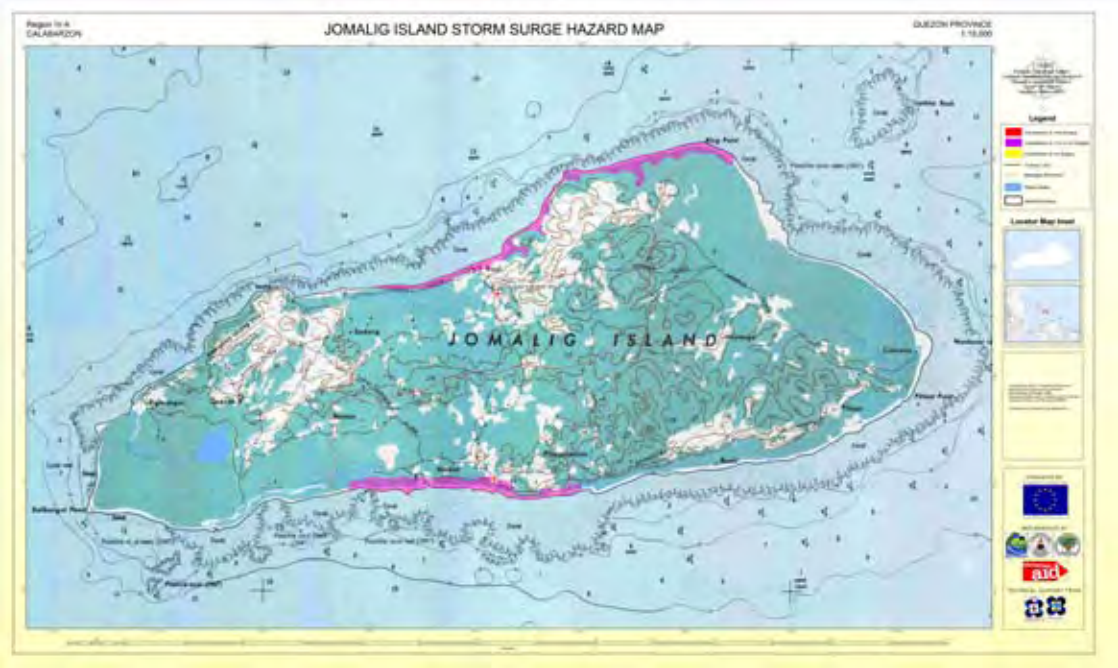
Some research institutions, like the Manila Observatory and its partners, can also produce integrated disaster risk maps, which correlate information on critical hazards, exposed populations and vulnerabilities based on satellite images, official statistics and available local information. Such maps guide local governments in identifying which barangays to prioritize and in mainstreaming DRR–CCA in local development plans. Prioritization and strategic planning are useful, especially when government resources in small islands are generally limited.

Box 3.4. Field survey report of PAGASA weather specialists on Jomalig, Northern Quezon

The municipality is affected by two phenomena: typhoons and the prevalence of the northeast monsoon. Since it is on the eastern part of the Philippines, it is vulnerable to strong winds and big waves of the Pacific Ocean.

Shoreline erosion is also prevalent in the area. Planting of mangroves in some areas should be encouraged to serve as wave barriers during the northeast monsoon season.

According to residents, there are times when water surges by one to three meters. The storm surge can cause floodwaters to rise to 0.5 meter and last two hours.



The above scientific map was validated by Barangay Talisoy's own community hazard map, which clearly located Sitio Muros, one of the high-risk areas exposed to typhoon-induced floods, storm surges and tsunami. After using the same scientific map to identify a safe relocation site, the residents sent a detailed proposal to the mayor requesting the municipal government to include in its 2012 Annual Investment Program the allocation of PhP 100,000 for the purchase of 3 hectares of land which will serve as relocation site for the 108 families of the *sitio*. The proposal was endorsed by the mayor and was subsequently approved by the municipal development council in September 2011.

How Can Disaster Risk Knowledge Be Shared?

Disaster risk knowledge is important to a wide range of stakeholders. Representatives of communities, government and civil society organizations (CSOs) need this in designing common strategies for DRR and CCA. Local officials use this as basis for drafting local DRR–CCA plans. Households in the affected communities

will not likely appreciate and comply with contingency plans if they do not have such knowledge. Knowledge holders must therefore be encouraged to share this with the concerned audience to enhance the disaster resilience of small islands.

The very act of conducting participatory data-gathering activities such as PCVA immediately raises community awareness of disaster risks. General assemblies are another venue for sharing information on disaster risks, EWS and contingency plans. This is reinforced by billboards showing disaster risk maps and contingency plans installed in high visibility areas of the community.

In the small island of Rapu-Rapu, community awareness raising was difficult. But this was not because the residents were uncooperative; the challenge pertained to the scheduling of training, as their participation was constrained by their livelihood and household chores. To widen the reach of DRR education in the community, about 153 representatives from the barangay LGU and community members or volunteers who participated in capacity building activities were tasked to share their DRR knowledge with fellow residents in their respective *purok* or *sitio*.

How Is Disaster Risk Knowledge Applied to Enhance Disaster Resilience?

Disasters bring out the worst and the best in people. It can cause fear and panic, which only worsens the impact of hazards. However, it can also bring out the leadership of people in responding to the situation and giving hope to others. The key difference between the two is not just knowledge of disaster risks but the ability to translate this knowledge into wisdom. Wisdom is developed from evaluating the disaster risks and producing an intervention strategy to address the risks.

At the very least, knowledge of disaster risks can directly lead to measures for enhancing the disaster preparedness of small island communities. Specifically, it can inform local governments and communities in the development of contingency plans and EWS.

If further processed, disaster risk knowledge can generate pathways that lead to DRR and CCA. The pathways developed for small islands that are discussed in the succeeding chapters are:

1. building capacities in small islands;
2. managing limited resources;
3. addressing isolation; and
4. mainstreaming DRR–CCA in local governance.

What Is Contingency Planning?

Contingency planning is an important part of ensuring the overall preparedness of a community to disasters. It involves analyzing specific events that may or may not likely pose an exceptional risk to communities and environments, and devising and establishing "arrangements in advance to enable timely, effective and appropriate responses to such events and situation" (UNISDR 2009). The key phrase here is "in advance," since contingency plans contain measures aimed at reducing and/or eliminating potential risks to the community.

Contingency plans define institutional roles and responsibilities (who does what and how), coordination mechanisms and other operational arrangements across sectors that are set off before, during and after emergencies. They are developed for different worst case scenarios per hazard. These plans are practiced through regular drills and simulations in order to build awareness, identify flaws and gaps in the plan, and revise the plan to ensure the safety of the population. Box 3.5 shows how one village in Rapu-Rapu Municipality developed a contingency plan using the results of the community-based PCVA and scientific hazard mapping.

A number of organizations, particularly practitioners of DRR, give training and provide reference materials on disaster risk management and contingency planning. Certain websites also serve as a databank of materials on contingency planning and DRR. These include:

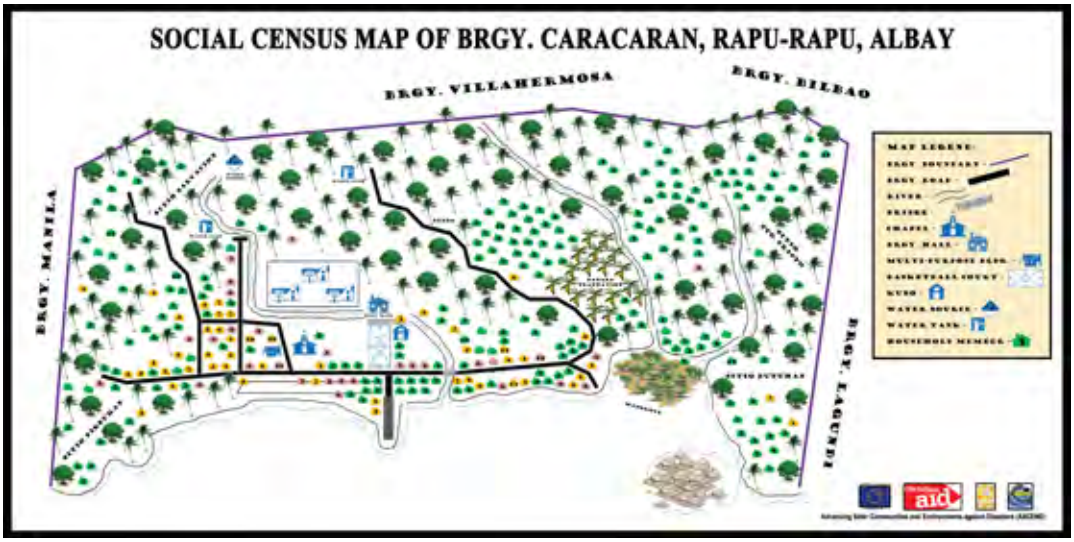
- Action Against Hunger (http://www.actionagainsthunger.org)
- Asian Disaster Preparedness Center (http://www.adpc.net)
- CARE (http://www.care.org)
- International Federation of Red Cross and Red Crescent Societies (http://www.ifrc.org)
- OXFAM (http://www.oxfam.org)
- PreventionWeb (http://www.preventionweb.net)

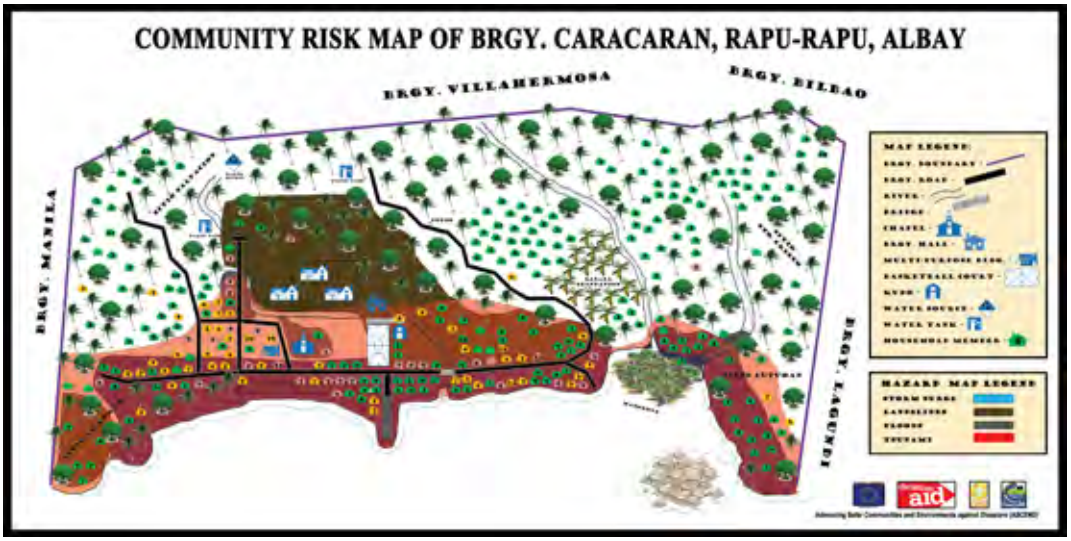
What Is an Early Warning System?

An EWS is a tool consisting of communication equipment and systems that empowers individuals and communities to prepare, respond and protect themselves, their properties and environments appropriately and timely during a disaster. It consists of different elements, from good knowledge of risks and prediction of potentially catastrophic events, and dissemination and acceptance of a warning system, to capabilities of the community for developing and carrying out the proper response to the warnings received (de Leon et al. 2006).

Box 3.5. From PCVA to contingency planning: The experience of Barangay Caracaran, municipality of Rapu-Rapu, province of Albay

Recognizing the limited available capacity for emergency response in Barangay Caracaran, the local officials, volunteer residents and local CSOs developed a contingency plan to enhance disaster preparedness in the community. The process started with disaster risk assessments using simple and popularized activities such as social census mapping, which then produced informative snapshots of the village. At a glance, the map revealed the availability and conditions of community assets, location of PWD, level of education, possible evacuation centers and the like. Information on each household was culled from the census done prior to PCVA. This identified households that needed to be prioritized during evacuations.





The planning process required openness, acceptance and humility from the community members as they scrutinized their strengths and weaknesses. It facilitated a collective activity of identifying the vulnerabilities and capacities of each household. The whole process was nonthreatening,

Box 3.5 (cont.)

enabling the participants to join freely in the discussions, especially those whose voices were often unheard. Being a nonpartisan activity aimed to protect people's lives, the exercise encouraged the involvement of local officials, volunteers and the most vulnerable households and sectors.

The different stakeholders developed a contingency plan, which was simplified and disseminated to all households. Posters of the contingency plan showed the early warning signals and the safe evacuation centers for residents per hazard. A simple and visible tool that all residents could understand and remember, the contingency plan indicated what food, documents and medicines to bring.

The contingency plan was activated when Tropical Storm (TS) Nock-Ten ("Juaning") and Typhoon Nesat ("Pedring") hit the country in July and September 2011, respectively. At the onslaught of TS Nock-Ten, early warning signals were given. Households moved to their assigned safe evacuation houses or host families. However, not all host families were informed about their role. This awareness gap was noted and remedied immediately by the committee on medical and rescue after the typhoon.

By the time Pedring arrived, the evacuation plan was followed and all families were secured. While a mistake was made in the warning signal given, the community adjusted to this and promptly evacuated as instructed in the contingency plan.

The successes and gaps in the contingency plan made the community aware that this would be a continuous learning process for them. Only through constant testing and practice could they improve not just the plan but also themselves.

The contingency plan organized what was once an uncoordinated preparedness and evacuation system during emergencies. The huge dependence of households on their local officials was lessened, as responsibilities were shared across the various emergency committees made up of local volunteers. Individual household members knew the safe evacuation routes and warning systems they needed to heed per hazard. Village officials were able to report quickly on the damages and needs to the municipal government using the established reporting and assessment system.

Generally, contingency planning aimed to help communities prepare and respond to emergency situations and disaster events by developing systematic, organized and coordinated courses of action. But in the process of crafting these systems, an enabling environment that valued the genuine participation of all community members, opening of oneself to scrutiny for the sake of learning and the act of listening to unheard voices was created.

Millions of people have died and properties damaged in the past decades owing to disasters caused by floods, storms and tsunami. While some of these deaths and damages could not be avoided because of the magnitude and frequency of the hazards, many of these losses could have been prevented or reduced with the proper precautionary systems in place. Proper execution of the EWS is hindered by the lack of awareness of hazards and the vulnerabilities of the people to these hazards, weak capacity to forecast potential disasters, low appreciation for preparedness, limited response capabilities of authorities and those at risk, failure to communicate warnings and preparedness information to those at risk, and non-participation of the affected communities in the development of the EWS (Basher 2006, UN 2006, Benfield Hazard Research Centre 2006).

A good risk assessment provides the basic information needed to develop an effective EWS at all levels. The EWS is generally crafted based on the hazards occurring in an area, their frequency, and the degree of local exposure and vulnerability of the community to each hazard (IDNDR Secretariat 1997).

An EWS changes depending on the patterns of hazards, vulnerabilities and capacities of the community. It considers the culture of the people, their traditional and/or indigenous warning practices, capacities, resources, and the kind of social and political relationships in the community. As such, the EWS has to adjust to the people's current conditions and not the other way around (Benfield Hazard Research Centre 2006). People therefore have to innovate, adapt and review their EWS continuously to make it suitable to their changing needs and effective in ensuring their security.

The responsibilities of devising, improving and sustaining an EWS are shared by actors from the communities up to the national and even the international level (IDNDR Secretariat 1997). In small islands, vulnerable households and local officials must have knowledge of the hazards to which their communities are susceptible as well as the attendant risks. Equally important to have is their ability to understand warning advisories, tap and harness their capacities, and act timely and coordinately when disaster strikes, in order to reduce or prevent loss or damage. Systems for monitoring hazards must also be localized in anticipation of the loss of communication with the mainland.

The role of the national government is vital, as local communities and governments rely on it to provide timely and accurate hazard warnings, particularly to the most vulnerable populations. It is also responsible for supporting local governments in their mandated task of protecting their constituents by ensuring they have the sufficient operational capabilities.

Establishing an EWS requires both hardware and software. Hardware includes hazard monitoring equipment, redundant communication equipment and warning devices while software consists of the warning system, protocol or release of warnings

and instructions to communities, IEC campaign on the EWS, and the like. The effectiveness and sustainability of the EWS, however, highly depend on the software, taking into account human capacities, needs, priorities, cultures and relationships. People must have sufficient knowledge of hazards and the related effects to which they are exposed; the capacity to understand the warning information and system; the ability to monitor, analyze and forecast disasters; and the trust and confidence in the established emergency warning system, among other human-related traits (Benfield Hazard Research Centre 2006).

These overlapping functions and roles call for the collaboration and participation of all actors, from the barangay to the national levels, in crafting and implementing the EWS, from hazard identification to community response. Weakness in any one of these levels will jeopardize the efficiency of the EWS, as its credibility and reliability will be questioned. Genuine participation of all actors is important in all stages of crafting the EWS. The decision to follow warning advisories depends on how much people trust the system to serve their purpose and needs, their ownership of the system and where it stands among their priorities (ibid.).

Box 3.6 shows how an EWS has proven useful to a barangay in Jomalig, Quezon.

Box 3.6. EWS of Barangay Gango

Previously, when typhoons struck the small island of Jomalig, there were no warnings or systems in place. The communities did not have direct communication with the municipality. Mobile phone signals were erratic or nonexistent. The communities could not receive official warning advisories, and village leaders had to act based on their individual assessments of the situation. Families were forced to stay in their houses despite the risks because it was too late to seek shelter in safer areas. Although the barangay captain was responsible for issuing early warning, he had no means of obtaining information from the municipal government.

When Typhoon Nesat (Pedring) hit the island in September 2011, the conditions in the barangay were different. The community had set up an EWS after going through a series of risk assessments and training in disaster risk reduction. The system contained simple and clear messages that were disseminated to all households. If they hear the bell ring once every five minutes, this means they should pack their belongings. If the bell rings twice every two minutes, they must start walking to their designated pickup or meeting point. A continuous ringing of the bell indicates that they should immediately proceed to their designated evacuation sites.

With a radio equipment, information on the agencies' functions and the proper lines of communication, the barangay captain was able to receive timely information from the Municipal Disaster Risk Reduction and Management Office (MDRRMO). When he received a warning advice from the MDRRMO to prepare the communities for evacuation, he called on his warning and communication team to activate the EWS across the village. A bell was rung at the town center, as described in the community's contingency plan. The people prepared their belongings to go to the pickup points and then proceeded to the evacuation sites. For subvillages located far from the center, the barangay captain relayed the advisory to the assigned leader using the radio equipment provided to them. To

Box 3.6 (cont.)

further make sure that each household would receive the warning, the barangay captain deployed his warning and communication team to visit each household and relay the message. Through the use of a redundant warning system, everyone was forewarned and had enough time to evacuate to their designated sites by the time the typhoon hit the province.

After the typhoon, information on the situation of the village was transmitted to the MDRRMO, which, in turn, shared the message with higher offices and support groups. In the village, where access to information was limited and information and communication technologies were sparse, having access to official warning advisories from higher levels of offices through the communication system set up in BDRSIP and ASCEND provided the communities with a sense of security and confidence that they could protect themselves.

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4 DEVELOPING INTERNAL CAPACITIES OF SMALL ISLANDS FOR DISASTER RESPONSE AND DRR

What Is Capacity Development?

While relevant literature, as well as its popularity and use, has grown over the decades, capacity development has often been summed up in the old adage, "Give a man fish and you will feed him for a day. Teach him how to fish and you will feed him for a lifetime."

Relating to the earlier discussion of the asset pentagon, capacity development goes beyond the provision of livelihood capital (i.e., financial, human, social, natural, physical) or the distribution of relief goods after an emergency or first aid after an accident, or even the training of people. It involves enabling and empowering people or communities to determine what they value and prioritize, identify the challenges they face in meeting their wants and needs, and create ways to access goods and services or remove the challenges on their own.

When implementing nongovernment organizations (NGOs) of Advancing Safer Communities and Environments against Disasters (ASCEND) were tasked to build an evacuation center in each of the small islands under the Building Disaster-Resilient Small Island Communities Project (or during the first phase of the project), it was clear that one evacuation center would not solve the emergency needs of an entire island. They painstakingly engaged the community and local government officials in identifying appropriate sites that would be least affected by hazards, designing the evacuation center, taking into consideration the limitations and needs of the elderly and persons with disabilities, and mapping out safe routes to the evacuation center, among other processes. Since space at evacuation centers was limited, community and local leaders identified appropriate alternative evacuation sites. They prepared potential host families to meet and coordinate the needs of the evacuees. By involving the stakeholders in these processes, they were able to learn by doing. This also became a major part of the small islands' disaster preparedness plan, also referred to as contingency plan.

The departure of humanitarian work from traditional disaster response toward disaster risk reduction is indeed a concrete application of the capacity development approach. While the former makes victims rely on the charity of outsiders and local officials, the latter transforms affected communities into active agents of change.

Teaching people, for example, how to fish in a non-facilitating environment may just lead to wasted potentials. They may have no nets to use or may not be allowed to fish in the lake. Worse, there may no longer be fish in the lake. Beyond enhancing people's knowledge, skills, attitude and values, capacity development provides the people with the right tools for applying their acquired capabilities or the means to access these, including:

- materials and equipment, such as first aid kits, life-saving equipment to supplement training, reading materials, simple hazard monitoring equipment to facilitate the EWS training, etc.;
- linkages to individuals and institutions that can be a source of additional support materials and services, such as training in life saving from the Red Cross, transport services from business companies and the like; and
- social structures that can facilitate collective action to manage limited resources, advocate for the protection and sustainable use of such resources and the right of the community to have access to it.

Capacity development also involves innovation. In Marinduque, one of the disaster preparedness strategies identified by woman members of a local neighborhood association is stockpiling of nutritious food to ensure availability of supply during times of isolation. Box 4.1 tells how they introduced *mikilunggay* in their barangay as an alternative to instant noodles, which are a staple of emergency relief packages.

Box 4.1. Introducing *mikilunggay* for stockpiling

During emergencies, instant noodles are common in the food relief packages of humanitarian organizations. Recognizing the convenience of instant noodles but seeing the need to improve their nutritional value, woman members of the neighborhood association in Barangay Pili, Boac, Marinduque, developed a noodle composed of leaves of *malunggay* (horse radish tree; *Moringaoleifera*) and root crops. The community proudly calls this healthy alternative to instant noodles "mikilunggay" (combination of Miki noodles and *malunggay*).

Malunggay or Moringa is an abundant resource anywhere in the island of Marinduque. Its extremely high nutritional value is being promoted in poverty-stricken and disaster-prone communities and among lactating mothers. It is a rich supplement to any kind of soup or meal.

Having had training in food stockpiling, woman members of the local neighborhood tried out different techniques and processes of preparing *mikilunggay*. The Marinduque Center for Environmental Concerns (MaCEC) provided the association with a noodle-making equipment.

Chita Marmol, a member of the association, sells packed *mikilunggay* in her local variety store for Php 5. She claims that it sells faster than commercial instant noodles.

Moreover, capacity is developed not only through the transfer of knowledge from "teacher" to "student" but also through the relationships established among the teacher, the learner, the co-learners and the environment. As such, human capital is developed by enhancing social capital. A good example of how developing social capital enhances disaster response capacities of a community is presented in box 4.2.

Box 4.2. Harnessing social capital for disaster risk reduction

The Barangay Disaster Risk Reduction and Management Committee (BDRRMC; formerly Barangay Disaster Coordinating Council, or BDCC) is the group locally mandated to be the caretaker of people's lives in times of disaster. However, BDRRMCs were mostly non-functional in many barangays in the province, primarily because of the low priority given to disaster risk reduction and the lack of resources for developing disaster response and DRR capacities.

Within this context, the Marinduque Center for Environmental Concerns (MaCEC), Coastal CORE Sorsogon (CCS) and Social Action Center (SAC) Northern Quezon created a pool of community volunteers called Barangay Disaster Risk Reduction Coordinating Team (BDRRCT) in Barangays Pili and Poras in Boac, Marinduque; Casuguran and Gango in Jomalig, Quezon; and Morocborocan and Mananao in Rapu-Rapu, Albay. In 2009, instructors from the Building Disaster-Resilient Communities (BDRC) Learning Circle and the local Philippine National Red Cross chapter trained them in DRR concepts, tools and strategies to support the BDRRMC and augment the number of disaster responders.

Recognizing the capacity of the BDRRCT to help respond to disasters, various local governments institutionalized the team by passing a resolution to integrate it into the BDRRMC. Some active members of the BDRRCT became members of committees under the BDRRMC structure, such as search and rescue committee, damage control committee and so forth. They were to be responsible for DRR strategies at the community level.

The presence of the BDRRCT, plus the community's improved DRR capacity due to the different training activities conducted, formulation of contingency plans, reactivation of the BDRRMC and provision of evacuation centers, has lessened the community's dependence on its leaders during disasters. "The heavy responsibility that I carry every time there is a typhoon or a disaster has lessened, since people already know what to do. I already have volunteers who can help me and so it will be easier for me to manage the situation," says one local leader.

Why Should DRR Capacities in Small Islands Be Developed?

It is often said that the community, specifically one's neighbor, is always the first responder during an emergency. In the case of island dwellers, the community is sometimes the only responder because their remote location and poor or underdeveloped transportation system makes it difficult for external help to reach them.

The same holds for opportunities to learn the basic skills and knowledge needed for DRR and CCA. Small island communities cannot rely on external experts to develop their internal capacities. External experts rarely practice in small islands because of

the latter's distance and relatively small population. Box 4.3 shows how developing capacities of island dwellers has enhanced disaster response in the community.

Experiences show that developing local capacities can contribute to reducing communities' vulnerabilities, and eventually disaster risks. Such efforts, however, must target a wide audience, including local government offices and agencies,

Box 4.3. Responding to emergencies during the TECF period: The Rapu-Rapu experience

When the tail end of the cold front (TECF) in the first quarter of 2011 dumped heavy rains, increased wave heights and caused wave surges, the livelihoods of fishing villages in Rapu-Rapu were heavily affected. It was apparent that the prolonged onslaught of the TECF would affect their food security. An emergency response was set in place in the form of food for work (FFW), a food security and livelihood strategy during emergencies involving food distribution in exchange for pre-agreed work as identified by communities and local government units (LGUs).

Community volunteers who had been trained in humanitarian principles and standards and emergency response, assessment, and planning and who had undergone simulation exercises in evacuation and relief were tapped for the first time to implement the FFW scheme. This experience enhanced their capabilities for the different aspects of relief work, from assessment to planning, including beneficiary selection/targeting, and actual food distribution.

The volunteers, composed of three to four residents from each of the 34 barangays, and the ASCEND team attended a workshop in January, which produced clear mechanisms and policies for selecting the beneficiaries and implementing the FFW scheme. The following set of criteria was adopted in selecting the most vulnerable families and beneficiaries:

1. Families whose livelihoods were severely affected by the continuous heavy rains
2. Highly vulnerable and poorest among the affected families
3. Households headed by women and/or widows with children, elderly or people with disabilities

The initial list of target beneficiaries was shared with the Municipal Social Welfare and Development Officer of Rapu-Rapu and to the local chief executive while the final list was presented and discussed at barangay meetings during which the process and criteria of selection were presented. The conflict-resolution skills of the volunteers were challenged as they tried to deal with complaints from residents who did not fit the criteria and were not part of the target beneficiaries.

The partnership among Coastal CORE Sorsogon, barangay councils, barangay volunteers and the beneficiaries was strengthened. Each stakeholder performed a critical role in the purchase, packaging and distribution of food packages; and in the identification, implementation and monitoring of the work assigned to beneficiaries.

As a new undertaking, FFW opened possibilities for barangay councils to pursue the scheme not only as a disaster response activity but even as a regular community outreach or development activity. It shifted the mindset of barangay officials toward more responsive ways of doing relief work that truly targeted the most vulnerable members of the community.

volunteers, civil society organizations (CSOs), the private sector and communities, especially the vulnerable sectors and households. This will allow for pre-positioning of local experts, helping ensure timely disaster response and the sustainability of DRR and CCA initiatives.

What Are the Essential Considerations in Capacity Development?

In designing capacity development strategies, the following elements must be considered: (1) context; (2) content; (3) target learners and (4) learning strategies. Capacity development efforts, to be effective and relevant, must be context-specific. Knowledge of the specific disaster risks to which the community is exposed guides the entire process of determining the content, selecting the target learners and designing the learning strategy.

Despite having run a pilot DRR project, ASCEND added more learning activities to its capacity development strategy during the second phase. For example, training in the initial phase focused on basic life-saving skills of BDRRCT members in the island communities. In the second phase, the training became more purposive in identifying training participants. For basic life-saving skills, the participants were usually members of the search, rescue and fire committees and medical/health committees of the BDRRMC, who are on the frontline during onset emergencies.

The list of capacities to develop is endless. The following are some of the essential contents of capacity development efforts initiated by the ASCEND partners:

- Disaster Response
  - Emergency response and assessment
  - Basic life-saving techniques, including water safety and rescue
  - Saving and stockpiling
  - Emergency camp management
  - Early warning systems
  - Contingency planning
- DRR–CCA
  - DRR–CCA concepts, frameworks and tools
  - Participatory capacities and vulnerabilities assessment
  - Mainstreaming DRR–CCA in local development planning and budgeting processes
  - Advocacy
  - Community organizing

- Natural resource management
- Sustainable livelihoods and social enterprises

A key target of capacity development is the identified vulnerable sectors in the community. Knowledge translates to power. In the context of DRR, it provides vulnerable communities with a better understanding of the challenges they are facing and the capability to act appropriately on these challenges. This then reduces the culture of victimization that often prevails in many disaster-affected communities.

A training plan used by implementing nongovernment organizations (NGOs) involved in the ASCEND Project is shown in annex 3. They further adjusted and tailored the training plan to the needs of the target participants. This is used as a guide in developing the modules further, depending on the level of participants (barangay, municipal, provincial).

Various learning strategies were employed to facilitate capacity development, including training and workshops, round-table discussions, "*lakbay-aral*" (study tours), mentoring and coaching. Meetings and consultations also served as venues for sharing good practices and lessons learned.

The following section provides examples of capacity development strategies employed by the different implementing partners of ASCEND.

How Do We Meet the Challenge of Capacitating a Wide Audience toward DRR-CCA?

In small islands, raising community awareness is not without challenges. While highly interested to know more about DRR and CCA, community members are constrained from attending training and other similar activities by their livelihood responsibilities and household chores. In other communities where disasters rarely occur, residents do not see the importance of capacity development to them, as they do not recognize the urgency of reducing risks.

To address these challenges, ASCEND implementing partners employed the following strategies to reach a wider audience:

- Informal gatherings, house-to-house visits and barangay activities were maximized to serve as venues or occasions for imparting to the residents the importance of participating in capacity development activities. Immediate and long-term benefits were shared with families and communities.
- Sharing cases of most recent disasters in other communities. This is done even in informal meetings to highlight the urgency of creating household and community preparedness plans.

- Adjusting the schedule of learning activities to fit the community schedule by referring to the seasonal calendar, a participatory research tool for determining key periods of the community's main livelihood activities. During peak seasons of fishing, for example, less capacity development activities are scheduled or training is held on a staggered basis.
- Conducting learning activities on-site or in the communities to the extent possible so that more residents could attend. When these activities significantly affect livelihood activities and the participants' opportunity to earn a day's income for the household's subsistence, the family members of participants are invited to partake in the food that the community members and the project contribute for the activity.
- Eliciting the commitment of DRR–CCA training participants to echo what they have learned to other members of their respective communities.
- Forming and developing a pool of trainers to support the local disaster risk reduction and management offices (DRRMOs), other government agencies and community leaders (both formal and informal) in conducting learning activities in other communities. This is an initiative of LGUs which are key DRR–CCA stakeholders and important partners of the ASCEND Project.

Where Can Small Island Communities Obtain Capacity Development Support?

Sources of capacity development support include the local DRRMOs, Department of Interior and Local Government (DILG) offices, local government institutions, and civil society organizations operating locally. ASCEND partners tapped local chapters of the Red Cross to conduct training in disaster response, life-saving skills and DRR in the project sites. The Philippine Coast Guard was instrumental in the water and safety training provided in Rapu-Rapu and Marinduque. Box 4.4 contains a brief description of the training conducted in Marinduque.

Box 4.4. Water safety and rescue training in Marinduque: The MaCEC experience

Key members of island communities, especially those who belong to the search, rescue and fire committees of the local DRRMCs, BDRRCTs and other local volunteers underwent training in water safety and rescue. This activity was considered necessary for coastal communities exposed to flooding, surges and tsunamis and for frequent seafarers.

In Marinduque, MaCEC implemented the training for the second batch of participants, in partnership with the Philippine Coast Guard, on 18–20 May 2011. The training included theoretical

Coast guard trainers supervise participants as they swim one mile off the shore.

Box 4.4 (cont.)

inputs, demonstrations and rigorous physical exercises to prepare the participants for the practicum. To become certified, the participants were required to swim one mile off the coast of the island.

Mr. Dante de Luna from the Provincial Planning and Development Office, who participated in the training, shared, "As a member of the Provincial Disaster Risk Reduction and Management Council, this training would be very useful because I saw how the needs of victims of emergencies could be helped. The patience and commitment of the trainers to ensuring that all participants were trained inspired me to strive hard and finish the practicum and become a real lifesaver. Even if the training was really tough, I am thankful to MaCEC and the program ASCEND for making sure the province is prepared. The training provided the opportunity to formulate preparedness plans."

5 MANAGING LIMITED RESOURCES

Why Should Small Islands Manage Limited Resources?

Any wise crew preparing for a long voyage makes sure it has adequate stock of all the things it needs and manages its supplies to last the entire journey, or until it reaches its final destination. Isolation thus does not necessarily spell doom for small islands. Small islands can survive on their resources, however limited, if they are able to use these sustainably. Reviewing the concept of disaster resilience, we see that the goal is to increase the capacity of small islands to absorb stress, maintain basic functions during disasters, and bounce back better. Effective management of small island resources is key to attaining this.

Sustainable management of natural resources, both land-based (e.g., agriculture, forests) and water-based (e.g., freshwater, nearshore fishery and aquatic resources) will allow livelihoods to thrive and significantly reduce vulnerabilities in a community. Moreover, it serves to maintain the environment's life-support functions, such as protection, energy and nutrient cycles. When the Indian Ocean Tsunami hit the coasts of several countries of South and Southeast Asia in 2004, hundreds of thousands of lives were lost but many coastal areas were spared owing to the presence of mangrove forests. This shows how efforts of communities to take care of their natural resources can help mitigate the effects of potential disasters.

During a disaster, when communication lines are down and no transportation can reach the affected area, isolated small islands will have to rely on their remaining resources to survive. Root crops have proven to be reliable natural food stockpile during emergencies. Nearshore fishery and aquatic resources have also jump-started livelihoods after disasters. Nearby marine protected areas that remain unscathed can serve as a reservoir of fishery resources that will "restock" the fishing grounds.

For land resources, bouncing back entails reseeding, replanting, rebuilding and replanning. A properly maintained seed bank or the age-old practice of tying a bag of seeds around the waist enables the farmers to have spare seeds that they can use to start the replanting process.

So while it is recognized that small islands may still need to link up with the mainland to replace or augment the destroyed or depleted resources, managing small island resources keeps this at a minimum and facilitates recovery.

Why Are Resources Limited in Small Islands?

While the small size and the remoteness of islands contribute to the high bio-diversity and endemicity of tropical small islands, there are factors that make their

ecosystem fragile and vulnerable to disasters. High biodiversity does not necessarily translate to abundant natural resources for commercial purposes. Especially for islands with a limited area, the opposite is often true.

With the population dependent on the available natural resources for food and livelihood, small islands are being pushed beyond their natural carrying capacity. As such, land-based resources (e.g., forestry, agriculture, livestock, minerals) and water-based resources (e.g., fisheries and other aquatic resources) can be considered as finite and limited.

Freshwater resources are mostly limited in small islands owing to their geology. Islands made out of extremely permeable rocks (i.e., volcanic origin, karstified limestone) have reduced available surface water. Those made out of impermeable rocks have insignificant storing capacity for groundwater resources. Extremely small islands rely on rainfall or external sources for their freshwater needs. Seawater intrusion of aquifers threatens small islands, especially as extraction rates increase due to a growing population and a booming tourism industry. Groundwater contamination, resulting from the unregulated use of fertilizers, pesticides and herbicides, is a common problem in small islands (Falkland and Custodio 1991).

Aside from overuse of natural resources, destruction of resources for commercial purposes has reduced and altered ecosystems. Such commercial activities range from small-scale blast fishing to medium-scale conversion of mangrove forests into fishponds, to large-scale mining activities. Mining activities have become controversial, particularly in small islands. While additional financial resources are infused into the small island community, the extraction of mineral resources and the consequent destruction and contamination of land and water resources increase the vulnerability of the entire community. The Marcopper mining disaster, which devastated the island of Marinduque in 1996, best exemplifies the risks involved.

Resources are also limited because of hazards, seasonality and trends. Powerful hazards shock natural resources and limit access to the standing stocks, thus threatening food security and livelihoods. Powerful winds, storm surges, high waves, swells, squalls and typhoons all mean no fishing for weeks for the fisherfolk, who rely on the sea for their daily nourishment.

The hazards are not limited to natural causes. The oil spill in Guimaras Strait and the sinking of a ship near Sibuyan Island inhibited the fishery activities of island dwellers. The stigma of the polluted waters affected the sale of fishery products from these islands several months after the disasters.

Seasonality translates to extended periods of time without access to specific resources. Fisherfolk are deprived of offshore resources and are confined to using

nearshore coastal resources. Typhoon season limits access to farm inputs sourced from the mainland, such as livestock feeds and chemicals.

Trends or patterns of change place undue stress on resources. Population growth increases the likelihood of unsustainable use of resources. Sea level rise threatens to inundate whole atoll islands. Ocean acidification can make life difficult for corals and shellfish resources.

Resources likewise become limited because of inequitable distribution. Even in the remotest of islands, like Jomalig, the majority of the underprivileged are deprived of land resources, which are owned by a wealthy few.

In summary, social, natural, economic and political factors affect the availability of resources in small islands. As such, a multifaceted approach is required to address the challenge of managing these resources.

How Do We Manage and Secure Limited Resources?

Overuse of resources is a difficult issue to address because the solution, that is, regulating resource use, is often perceived as an attack to the livelihoods of small fisherfolk and farmers. Management of natural resources is a misnomer, since it primarily involves the management of people in using resources. The resources being eyed in natural resource management are mostly common property resources or resources to which people have open or unregulated access. Using the logic of the Tragedy of the Commons, people will use resources beyond their needs if they know that other resource users will not regulate their use (Hardin 1968). This race to the bottom leads to the detriment of the whole island community.

The suggested forms of intervention have not proven to be successful. Strict government control is difficult because of government's own limitation of personnel and financial resources, especially in small islands. Privatization of resources has a negative impact when resources are inequitably distributed and when absentee owners fail to manage these.

The collective action theory suggests that the Tragedy of the Commons can be averted through the management of local resource users within a conducive policy environment (Olson 1965). This approach is more popularly known as community-based natural resource management. Capacity development of local resource users (please refer to discussion in Chapter 4) is necessary in terms of organizational development, technical resource management and policy advocacy.

The critical role of local government as a partner in community-based natural resource management involves the following:

- *Provision of policy space for local resource users*. Capacitated local organizations must be provided with the space to voice out their issues and needs, as well

as offer local initiatives to manage resources. The process of dialogue and partnership in resource management can be institutionalized, and the voices of communities can be legitimized through the passage of local ordinances. An exemplary example is when the provincial government passed a 50-year moratorium on mining in Marinduque in response to the call of local civil society organizations (CSOs) and thousands of residents.

- *Leadership in policy enforcement*. Though local resource users are needed to beef up local enforcement units, the local government unit (LGU) must take the lead in both enforcement of policies and protection of local resource managers.
- *Coordination with other local governments*. Natural resources, especially air and water-based resources, transcend political boundaries. As such, management policies need to be coordinated and harmonized.
- *Establishment of linkages*. Local resource users may need to link up with resource management specialists, technical service providers, and networks of local resource managers that are outside the small islands. This will address the gap in capacities (additional knowledge and skills) and technologies (both hardware and software).

Small island communities would not have thrived if they and their ancestors had not been practicing the management of limited resources. The more relevant area of focus would be on how these indigenous or traditional resource management practices respond to changes. As elaborated earlier, change could be in the environment, the technology employed by resource users, the number of resource users, the consumption pattern, intended use by the resource users and so forth.

It is necessary to distinguish whether the change is reversible or irreversible. Rapid changes (i.e., extreme events) are highly damaging but often reversible. A typhoon-induced flooding or a tsunami may cause much loss of lives and properties. However, the community can begin to "normalize" and take on the path to recovery within a matter of days or weeks. On the other hand, slow changes are often irreversible. Sea level rise or increasing consumption due to a growing population results in permanent change.

Reversible and irreversible change informs the needed reorientation of resource management practices in small islands. Is support needed to improve mechanisms for coping with highly damaging reversible change? Should community capacities to adapt to irreversible change be enhanced?

Coping mechanisms deal with reactive interventions aimed at survival and short-term solutions. Such temporary actions are stopgap measures critical for households to endure a crisis or disaster and carry on. The installation of a rainwater catchment at the evacuation center in Jomalig is a good example of strengthening the coping mechanisms of an island (see box 5.1).

On the other hand, adaptation strategies are more oriented toward longer-term solutions. Such strategies are more profound and difficult to actuate because they entail a change in mindset, lifestyle, livelihoods and even policies.

Both coping mechanisms and adaptation strategies require the anticipation of changes and information on risks. Note that the difference between coping mechanisms and adaptation is being defined not to heighten the debate on which strategy is more appropriate or whether an intervention is "coping" or "adapting." The difference is being shown in order to put forward a wide range of options for local leaders to consider, noting that a mixture of coping mechanisms and adaptation strategies is necessary for small island communities to survive and thrive.

Elaborated below are just some of the strategies employed by implementing partners of ASCEND and other communities:

- Installation of a rainwater catchment at the evacuation center in Jomalig Island (box 5.1)
- Promotion of organic farming by the Jomalig LGU to promote sustainable livelihood practices (box 5.2)
- Protection of mangrove forests in Jomalig (box 5.3)
- Promotion of combo-carbo diet (box 5.4)
- Introduction of food processing technologies to extend food shelf life during the lean season (box 5.5.)

Box 5.1. Rainwater catchment at the evacuation center in Jomalig Island

Many small islands obtain primary freshwater sources from rainfall or nearby islands for their consumption, food processing, irrigation and other industrial uses. Depending on the geological makeup of the small island, groundwater and surface water sources may not significantly contribute to the community's freshwater needs. High reliance on rainfall makes small islands vulnerable to climate change. As such, climate projections of rainfall and temperature change are vital to the lives and livelihoods in small islands. Rainfall pattern dictates the amount of inflow of freshwater while temperature increase defines the outflow of surface freshwater due to evaporation.

Such is the case in the atoll island of Jomalig, where the primary sources of freshwater are rainfall and surface water. Based on scenario A1B Year 2020 climate projections of the Manila Observatory, there is zero to minimal increase in rainfall but a slight increase in mean temperature in the region of the island (www.observatory.ph; accessed 1 October 2011). As such, freshwater supply, especially during emergencies, would be highly limited. To address this, rainwater catchment was installed at the evacuation center built in the island, with ECHO support. By stockpiling freshwater, the community has guaranteed supply of water for non-drinking purposes.

The installation of rainwater catchment also taught the residents the importance of stockpiling freshwater. Families, especially women, are encouraged to keep a supply of potable water that could last at least two weeks of isolation.

Box 5.2. Jomalig LGU initiative to promote organic farming as part of sustainable livelihood practices

Food security in the remote island of Jomalig is threatened seasonally, even without extreme events. When the cold northeasterly winds blow from October to February, sea travel to the mainland and fishing activities become highly unreliable. Agriculture activities dependent on chemical inputs are often at a standstill because of the isolation. Added to this, island dwellers have resorted to cutting down mangrove forests to produce charcoal for a living, aggravating their vulnerability to seasonal winds.

To address this dilemma, the Jomalig LGU promoted organic agriculture in the island, in partnership with Social Action Center (SAC) Northern Quezon and with funding support from Swiss banks. As a result, the farmers have been able to continue planting rice, corn, vegetables and other crops by producing their own organic inputs.

Farmers in the different barangays were organized to form associations which later were duly accredited by the local government as legitimate groups operating in the municipality. They attended training in sustainable agriculture, rice breeding, seed banking, preparation of organic fertilizer and alternative pest management conducted by SAC-Northern Quezon and MASIPAG (Magsasaka at Siyentista sa Pagpapaunlad ng Agrikultura.)

In Barangay Talisoy, a two-hectare trial farm for corn and a one-hectare trial farm for organic rice were set up. The farms were planted with at least 50 indigenous varieties to ascertain which seed varieties were productive under the conditions of the small island. A community technician who attended an intensive six-month training in sustainable agriculture looked after the farms.

Kapanalig farm in Barangay Bukal

The farmer groups were instrumental in proving that corn could be grown in the island. In Barangay Bukal, they were able to produce this crop in a 4-hectare farm plot. At the height of El Niño in 2010, farmers planted corn in July and were able to harvest in September. Before the end of the same year, amidst northeasterly winds, the farmers planted corn with watermelon. This again produced timely harvests. Such experiences inspired the farmers to continue with their initiative.

Box 5.3. Protecting mangrove forests in Jomalig

Mangrove forests are often undervalued resources. Their commercial use to communities is limited to timber for housing and raw materials for charcoal making. Often, mangrove forests are converted to fishponds because of their pristine location suitable for aquaculture.

In 2008, residents of Barangay Talisoy in Jomalig planted 10,000 propagules as part of the mangrove rehabilitation project in the Bigwangan mangrove found within the barangay. Supported by the Prelature of Infanta, this initiative was the result of the community's growing recognition of the contributions of mangrove forests to supporting life and livelihoods, namely:

- future commercial value as a key nursery ground for fisheries and aquatic products;
- protection function as a natural breakwater for strong waves, storm surges, and tsunami;

Box 5.3 (cont.)

- cleansing function as a natural filter of solid wastes from land that can affect coral reefs; and
- emergency food source during rough weather, when fisherfolk could only glean for food instead of going to the sea.

PCVA activities further renewed the interest in mangrove conservation. The results of the risk assessment revealed the people's dependence on mangroves as a major food source when northeasterly wind blew. Risk assessment also showed that island dwellers cut down trees to make charcoal when other resources were inaccessible. This prompted two barangays to initiate efforts to protect their existing mangrove forests.

A massive mangrove tree in Sadong mangrove, Barangay Casuguran, requiring seven people to fully embrace its circumference

In Barangays Casuguran and Apad, the mangrove conservation projects of the communities were included and allocated a budget in the 2012 Annual Investment Program of the municipality of Jomalig.

To address food shortage during the lean season, the LGU, a local fishing organization and SAC-Northern Quezon partnered to embark on an aquasilviculture project. The project proposed the culture of midyad, *lapu-lapu* (red grouper) and mudcrab within the mangrove forest. By making the mangrove forest commercially viable, the fisherfolk are encouraged to conserve it. In addition, increased activity in the forest allows the fisherfolk to keep a watchful eye on people who intend to cut mangrove trees for charcoal. Such "social fencing" strategies have been successful in protecting key natural resources in other areas.

The project has sparked interest as a strategy for poverty reduction. The LGU is negotiating with SAC-Northern Quezon and the Department of Labor and Employment (DOLE) to replicate the aquasilviculture project in all five barangays in the small island.

Box 5.4. Combo-carbo

Rice, the Filipinos' food staple, is a water-intensive crop. Considering the limited freshwater resources and a growing population, the local government of Boac in Marinduque saw the need to introduce an alternative staple food.

In July 2010, the LGU articulated possible strategies to reduce the malnutrition of children, ensure food sufficiency in the locality, and innovate locally based available food stock in times of extreme emergencies. The municipal mayor challenged the Municipal Nutrition Office (MNO) and barangay nutrition volunteers to look for innovative ways of combining different types of carbohydrate-based food stock as an alternative food source.

After a series of experiments, the MNO and barangay nutrition volunteers, in consultation with the Foods Department of the Marinduque State College, created the mixture of rice and *camote* (sweet potato) as a delicious and nutritious food supplement. Their initial output was the rice-*camote*

Box 5.4 (cont.)

mix, which further evolved into several variations of rice and available root crop mixtures, such as cassava. The mayor called this combination of carbohydrates "combo-carbo."

A demonstration of the combo-carbo prepared by the barangay nutrition volunteers

Combo-carbo requires a half kilo of iron-fortified rice and a half kilo of any root crop that can feed a family of 5 in a day. The combination may cost an average of PhP 30 per day. The mixture is relatively easy to prepare, making it ideal to feed a large number of people during emergencies.

The successful promotion of combo-carbo will lower the rice requirement by 30–50 percent. This will significantly reduce the pressure to produce rice and increase the demand for root crops, thus adding more income to the local farmers. Furthermore, the root crops are often organically grown so the combo-carbo is a safe food product that does not use chemical inputs imported from the mainland.

Recognizing the benefits of this alternative food source, the Sangguniang Bayan (Municipal Council) of Boac enacted a resolution adopting and promoting combo-carbo as a stockpiling mechanism of the Municipal Disaster Risk Reduction and Management Council (MDRRMC). Part of the resolution is the plan to distribute *camote* planting materials and other root crops as an agricultural diversification strategy. The municipal government also allocated funds in its 2012 Annual Investment Program for popularizing combo-carbo. It even uses combo-carbo in its own programs (e.g., supplemental feeding for malnourished children, feeding of day care children) and regular functions (e.g., council meetings).

Box 5.5. Extending food shelf life to address food scarcity during lean seasons and emergencies

The introduction of DRR and CCA in small island communities highlights the values of saving and stockpiling. To ensure food supply, which becomes limited especially during lean seasons and emergencies, a common strategy has been to extend the shelf life of food harvested during peak seasons through food processing.

Fisherfolk in Barangay Pili removing fish from the gill nets

Though food processing may be a common livelihood activity, it is not widely practiced especially in small islands. The lack of food processing facilities and poor application of food technologies result in food wastage. For example, estimates of fish wastage range from 40 to 60 percent of total fish catch nationwide. These figures are expected to rise in small islands, where ice is not a common commodity. Thus, promoting food processing is a challenge to DRR practitioners in small islands.

Fish drying in Marinduque

In Marinduque, woman members of the Fish Drying Neighborhood Association developed a particular way of drying fish. Knowledge of this

Box 5.5 (cont.)

technique was obtained from a learning activity conducted by the University of the Visayas on food preservation, which a representative of the association attended. This was further enhanced by tapping the Provincial Nutrition Office to introduce various food preservation technologies for food stockpiling.

Drying fish under the heat of the sun using improvised bamboo drying frames

One important thing to remember in fish drying is to use only the freshest fish. Fish entrails must also be removed carefully. Once cleaned, the fish are soaked in iodized salt, garlic, spices and organic coconut vinegar before they are dried under the sun. The resulting dried fish may be preserved for at least six months.

Within two years of operation, fish drying has become a lucrative supplementary income for the women. Dried fish is a scaled-up product of their organization, together with bottled fish and Mikilunggay.

In addition, the municipal government of Boac has made it a practice to stockpile dried fish. This stockpile is regularly replenished, with unconsumed dried fish sold to the market for modest profits. The LGU also allocated a livelihood fund for the fish drying initiative in its 2011 Annual Investment Program as part of its DRR efforts.

Fish bottling in Marinduque

Bottling fish is another stockpiling technique the Fish Drying Neighborhood Association has undertaken. Since the product has a longer preservation time, it is in demand and generates higher profits. However, the process entails more time and bigger investments in bottles, ingredients and other add-ons.

Preparing fish and ingredients for bottled sardines

Bottled sardines are sold in local variety stores at lower prices compared to canned sardines. The local government supports the marketing of this and other local products by conducting food exhibits for local tourists during the famous Moriones Lenten Festival.

Household vegetable-drying in Jomalig

For atoll islands with very limited arable land, growing fruits and vegetables is a challenge. Because the women and men of Jomalig recognize the value of fruits and vegetables to their diet and health, they sought the help of their networks to learn how to preserve vegetables. They attended the food-processing training conducted by the University of the Philippines at the Visayas School of Technology and worked with the food technology specialist to further simplify the technology and use available island resources. In Barangays Casuguran and Gango, the men and women experimented on different local crops such as *rimas* (breadfruit), banana, cassava, *kangos* and *nami*.

Vegetables are sliced into very thin strips and dried under the sun on a drying net. Once dehydrated, they are gathered and stored in dry and airtight containers. The entire process takes about three months. Some of the dehydrated vegetables are turned into flour or chips; others are rehydrated by soaking them in water for one to two weeks before cooking.

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6 ADDRESSING ISOLATION AND REMOTENESS IN SMALL ISLANDS

In 2006 Typhoon Reming (international name: Durian) devastated the southern part of Luzon, wreaking the greatest damage to the Bicol Region and the provinces of Marinduque and Mindoro. At that time, media attention was on Bicol, which suffered the biggest number of casualties. But Marinduque was totally isolated from the mainland for one week, with no electricity and 100 percent of its food crops destroyed. Food scarcity affected thousands of island residents, especially the poor families. Food became available only after several days.

The situation of Marinduque in 2006 highlights the island's vulnerability to isolation, which can cut off residents from lifelines for a prolonged period.

Why Is There a Need to Address Isolation?

Isolation is not necessarily a vulnerability. In many cases, in fact, it has been key to the development of resilience in small islands. New species evolve to fill every conceivable niche in the ecosystem. People are compelled to innovate products and ways of working to address their limited local and external resources. Cultures are preserved and new capacities take shape due to isolation.

However, isolation of small islands needs to be addressed if it becomes a hindrance to disaster resilience. The case of Marinduque mentioned above is a clear example of a community's struggle to sustain basic functions. Food supply was destroyed, communication was down, electricity supply was cut and transportation was not viable. The communities required external support to survive. The worst part of the story is that this incident is not unique to Marinduque and has become even the norm in small islands.

Absorption of stress and recovery can also be hampered. The inclusion of small islands in higher levels of government development planning (e.g., national, regional, provincial) can be de-prioritized because of logistical difficulties and the high costs of carrying out the plans. Remote islands may experience difficulty in accessing support resources and attracting external support institutions to facilitate the recovery process.

However, small islands are also interconnected with other islands and the mainland in other aspects. The island ecosystem, for instance, interacts with the ecosystem of other islands and the mainland. Migratory animals (e.g., pelagic fish,

birds) use island ecosystems as a refuge in their travel, thus affecting commercial and life-support functions in the island. Small islands also often serve as the first line of defense against climate- and sea-based hazards, providing protection and possibly information that can enhance the resilience of other islands and the mainland. Various forms of human relationship (cultural, social, political, economic) likewise reinforce links among islands. Such inherent interconnectedness nurtures linkages between and among islands and the mainland.

Why Do Small Islands Become Isolated?

Isolation or the separation of islands as a vulnerability can be attributed to numerous factors. Obviously, the physical dimension is one. The distance and water impair the quick and smooth flow of resources and energy among land masses. Hazards can aggravate such physical separation, as what happened in Marinduque during Typhoon Reming.

Underdeveloped communication systems can also disrupt the flow of knowledge or information. While the rest of the world is already being linked to one another with the current advances in technology, small islands remain unreached by the processes of globalization. Isolation limits their exposure to learning and thus their awareness of what is going on around them. In the context of accelerating change due to global warming, technological advancement and exponential population growth, a key to thriving in the modern world is learning and knowledge development. As such, knowledge isolation adds to the skewed development between islands and the mainland.

Marginalization further contributes to the skewed development. Unless small islands are commercially resource-rich (e.g., source of minerals, white sand beaches for tourism), they are often not prioritized in development planning. Infrastructure and other investments are not as elaborate compared to those for more populous communities. The lack of economy of scale, the costs of linking (transportation, communication) and separation (unwillingness of experts to be assigned to remote areas or to be relocated away from the mainland) rationalize such marginalization.

Another factor in separation that increases vulnerability may be termed as "drain." There is the usual brain drain, where professionals, the educated and even a significant number of the labor force are lured toward opportunities provided by the mainland. Small islands also experience leadership and management drain when elected officials or property owners reside primarily in the mainland. This arrangement deprives communities of the needed leadership direction and use rights often bestowed upon owners, thus affecting the development process. Capital drain occurs when resources derived from the island (e.g., financial, natural and energy resources) are utilized in the mainland.

It is important to note that the indicators and causes of isolation identified above are also present or experienced in remote communities in the mainland. Rough terrain instead of rough seas constitutes the physical barrier. As such, the lessons here can be very well applied in such remote and marginalized communities.

How Do We Address Isolation?

There are several strategies to address vulnerabilities caused by isolation. In the islands of Rapu-Rapu, Marinduque and Jomalig, partnership building is a primary one.

Partnerships contribute to (1) enhanced community independence through the community-based management of natural resources and the building of internal capacities and (2) improved connectivity with other islands and the mainland. Strategies associated with the former have been discussed in previous chapters. This chapter focuses primarily on the latter.

How Can Partnership Building Facilitate Connectivity between Islands?

Partnerships can be forged among different stakeholders and interest groups in the small islands and the mainland. Local government units (LGUs), churches, the private sector and civil society organizations (CSOs), especially grassroots organizations, can build on or strengthen their existing partnerships and networks. The following are examples of how partnerships facilitate connectivity, classified according to the capacities for disaster resilience:

1. Reduce vulnerabilities (absorbing stress before a disaster). Examples are:
    - Cooperation agreement between mainland LGU and small island municipal LGU to link and develop economic industries, such as tourism, shipping, agriculture and fisheries production (box 6.1)
    - Solidarity work among small islands to facilitate sharing of knowledge of risks, goals, and DRR and CCA innovations and strategies; and exchange of resources (box 6.2).
2. Assist in disaster coordination and appropriate response (maintaining basic functions during disasters) and facilitate the recovery process (bouncing back better after a disaster). Examples are:
    - Partnership between the small island municipal LGU and the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and the Philippine Institute of Volcanology and Seismology (PHIVOLCS) in the preparation of hazard and risk maps that will help inform disaster response, contingency planning and other DRR work

- Municipal LGU–CSO partnership in constructing redundant communication systems to ensure the continuous flow of information for the early warning system (EWS) and facilitate emergency response coordination (annex 4)
- Partnership between a CSO and the private sector in ensuring the availability of services for land (annex 5), sea (annex 6) and air (annex 7) travel during emergencies
- Partnership between the church and the barangay government in providing and sourcing humanitarian response during emergencies (annex 8)
- Partnership between the mainland municipal LGU and small island municipal LGUs in coordinating emergency response activities (annex 9)
- NFA–LGU partnership in ensuring food security during emergencies and the typhoon season (annex 10)
- Partnership between the small island municipal LGU and the Philippine National Red Cross in building capacities of competent volunteers within small island communities that can be mobilized for emergencies and disasters
- Partnership between the small island municipal LGU and pertinent government agencies, such as the Department of Public Works and Highways and Department of Trade and Industry, in securing appropriate and timely support to the island in times of emergencies

Box 6.1. Building partnerships with the mainland to enhance island DRR and CCA capacities*

In the small island of Jomalig, travel, climatic and oceanic conditions affect the livelihood and way of life of the residents. The economic sector heavily relies on fishing and farming. For the fisherfolk, good weather promises good catch while bad weather likely results in poor catch. Farming is rainfed, with cropping performed only once a year. During *amihanin* (northeasterly winds), currents are too strong and thus prevent small fishers from paddling. Transportation also becomes uncertain, disrupting the supplies of goods. During *habagatin* (southwesterly winds), farmers experience drought.

Even on normal days, there are no regular means of transportation within or to and from the island. Electricity runs only for eight hours in two of the five barangays. Local capitalists monopolize the fishing industry, exercising control over the cargo and fishing vessels, food and ice supply during lean months.

The municipality addresses isolation by linking with mainland institutions in enhancing island capacity, increasing self-sufficiency and building connectivity. Island capacity is enhanced through activities like social capacity development, mangrove protection, reforestation and DRR. Efforts to increase self-sufficiency include promoting tourism. Building connectivity focuses on ensuring communication and transportation to and from other islands and the mainland.

Box 6.1 (cont.)

Linkages with other LGUs include those with the provincial disaster risk reduction and management office (PDRRMO) and environment and natural resources office (ENRO). Jointly with the PDRRMO, Jomalig seeks to build life-saving skills, share information for contingency planning and increase capacity for an early warning system by establishing automated weather stations. With the ENRO, it implements mangrove reforestation efforts to increase natural protection. Jomalig also links with the municipality of Infanta's CM Recto District Hospital, the nearest medical facility, for health and medical services for Jomalig residents, and with the municipal disaster risk reduction and management office (MDRRMO) on its project on renewable energy and climate change. Lastly, Jomalig is finalizing a sisterhood agreement with Lucena City that aims to strengthen ties for economic development and disaster preparedness, among other concerns.

Linkages of the Jomalig LGU with mainland institutions

Institution	Objectives of linkages	Output
Prelature of Infanta and Social Action Center (linking with Christian Aid)	To link with other institutions and access the resources of Prelature and ASCEND	MOU established through formal and informal links
Kabalikat-Civicom – Infanta Chapter	To ensure communication linkages	MOU established
Pharmacies	To reserve medicines for Jomalig	Informal agreement with several pharmacies established
National Food Authority	To stabilize rice supply, especially during *amihan*	MOA under PD 1566 established
Philippine Navy	To ensure transportation linkages	Institutional mandate for the Philippine Navy to provide transport services to disaster-affected areas such as small islands

The changes attributed to the municipal LGU's partnerships with the mainland include ensured connectivity through communication and transportation lines; ensured access to food and medicine; disaster response capacity building; establishment of an automated weather station; earning and economic opportunities.

In establishing partnerships with mainland groups and institutions, some of the key lessons learned by the municipality are, first, set politics aside. Though there are only five barangays, political partisanship can sometimes be pronounced that it becomes a hindrance to development. Second is the importance of cooperation. The community has become open to the idea of working together and developing friendships outside the island for the good of the municipality. It has also strengthened its conviction that it is not alone in time of need.

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* Based on the presentation of Elmer Gariguez, Municipal Budget Officer of Jomalig, Quezon, at the National Conference on DRR and CCA in Small Islands, Metro Manila, 4–6 October 2011.

Box 6.2. Advocacy of LGUs to address gaps in the DRRM Act and to access national government support for small islands

On 4–6 October 2011, 80 participants representing DRR–CCA practitioners, CSOs, national government agencies and LGUs from 3 provinces and 20 municipalities gathered in Metro Manila to take part in the National Conference on Disaster Risk Reduction and Climate Change Adaptation in Small Islands. This activity was organized to showcase the small island DRR–CCA framework that was borne out of three years of Christian Aid and its partners doing DRR–CCA in three small islands, namely, Jomalig in Quezon Province, Rapu-Rapu in Albay Province and Marinduque Province. Different speakers from these small islands discussed various aspects of the framework, which highlighted critical pathways to small island disaster resilience. The topics included understanding risks, contingency planning, mainstreaming DRR–CCA in local development planning, and addressing isolation and resource constraints. After each presentation, the corresponding national government representatives shared their thoughts on the relevant topic, e.g., Office of Civil Defense for contingency planning or Department of Agriculture for addressing food resource constraints.

To test the relevance of the framework, conference participants were asked the following questions:

- What are the other issues on risk assessment in small islands that need to be addressed?
- What are the other issues on early warning systems in small islands that need to be addressed?
- What are the other issues on DRR and CCA mainstreaming in small islands that need to be addressed?
- In what other ways are small islands isolated? When is the isolation of small islands a cause of vulnerability to various kinds of hazards? How can these be addressed?
- What other pathways to resilience, in your opinion, should be part of the small island pilot model for building disaster resilience?

An immediate outcome of the conference was a policy agenda document summarizing the discussions and suggestions that came out of the workshops. This articulated the vulnerabilities of small islands to disasters and the need for national government agencies, donor institutions, CSOs, and the private sector to give immediate attention to their plight. In particular, it urged the Department of Interior and Local Government (DILG) to address the following gaps in the implementation of the DRRM Act:

- Guidelines for the operationalization of the local DRRM office
- Guidelines for the utilization of the 5 percent local DRRM fund
- Localized accreditation of CSOs for LGU training and capacity building
- Guidelines for the harmonization of the DRRM and CCA plans
- Creation of a special concerns committee for small islands and a special projects unit to focus on capacity building in small islands
- Organization of an alliance of small island municipalities to represent small island concerns

Box 6.2 (cont.)

After being given a copy of the conference statement, the DILG Secretary immediately shared his views and thoughts:

- Perhaps it is better for LGUs to define small islands based on their common needs and issues instead of adopting the UNESCO study's definition of a small island, that is, it does not exceed 10,000 square kilometers.
- LGUs should confine "small islands" to municipalities or towns instead of provinces. The demand for services occurs more frequently within municipalities or towns, and implementing projects at the municipal level makes it clear who is accountable, and so it becomes easier for DILG to develop the corresponding programs.
- The proposal to impose the immediate creation of municipal disaster risk reduction and management offices (MDRRMOs) needs to be considered carefully. LGUs must work with their respective Sanggunian (Municipal or Provincial Councils) and come up with a position they feel is necessary. However, exceeding the LGU budget limit of 55 percent for personnel services in order to establish the MDRRMOs is not allowed by law.
- DILG is preparing a circular to clarify the use of the DRRM fund.
- DILG encourages nongovernment organizations (NGOs) to seek accreditation from DILG. It initially targeted all LGUs to have an NGO partner by 2013. This is being done in the provinces and cities, but is more difficult in the municipalities.
- The need for guidelines for the harmonization of DRR and CCA plans is a valid concern, but it has to be identified what this specifically entails.
- DILG is willing to create a unit within it that will handle the issues of small island municipalities on the premise that such unit will arrive at a common definition of "small islands." LGUs must organize an alliance based on common vulnerabilities and hazards rather than common geographical characteristics. DILG will support small island LGUs, as it has been active in rendering affirmative action for LGUs needing more attention.

After the conference, the document was further polished and circulated among LGUs and CSO networks for wider awareness and adoption (annex 11).

Although the island remains physically isolated from the mainland during periods of emergencies, the partnerships built between them can reduce the island's social, political and economic isolation. Where these afford the people continued access to basic services, we can expect increased resilience and reduced vulnerabilities of the communities to disaster. Moreover, better recognition and appreciation of small islands, as facilitated by such partnerships, attracts economic investments and activities; promotes better integration to local, regional and national development plans and appropriate resource allocation; and inspires leaders, scientists, CSOs and other interest groups to work together toward DRR, CCA and the sustainable development of small islands.

Should Partnerships Be Always Formal?

Formal partnerships are often sought to ensure accountability from institutions in performing their designated roles. These clarify goals and expectations, define roles and responsibilities, and determine the limitations of the partnerships. Binding agreements also allow for more predictable action among the parties involved. As cited previously, annexes 4 to 10 provide examples of different forms of formal partnerships forged during the BDRSIP and ASCEND Project involving small islands.

Informal partnerships have also proven to be as effective, especially when downward accountabilities or nongovernment and informal institutions are involved. Downward accountabilities pertain to responsibilities of "higher" level institutions (e.g., broader mandate, primary resource provider) to "lower" level institutions. These may include responsibilities of national or provincial governments to municipal governments, donors to civil society, civil society to grassroots organizations, and so forth. Such informal relationships are borne out of the recognized interconnectedness of people and institutions and activated by their deeply rooted values.

Some of the accountabilities are already part of the mandates of institutions and no longer require formal agreements. Informal relationship-building processes serve as affirmations of such mandates and provide space for innovation on improving the delivery of resources and services.

For example, no formal agreement is made with the Philippine Coast Guard for rescue operations during emergencies, since this may give other communities the impression that it is favoring small island communities. But in the engagement process, the risks and potential needs of small islands during specific hazards are made known to the coast guards, who then become all the more vigilant when such hazards strike the vicinity of the small island.

The process of partnership building, whether formal or informal, enhances the sensitivity of outsiders to the disaster risks, potential needs and rights of the small island. This empowers small islands to assert their presence as a living community linked to humanity, and not just a mineral commodity or an exotic tourist spot.

Partnerships must be recognized, however, as evolving relationships that need to be sustained. Their shape has to conform to the changing needs and capacities of the people. The parties must therefore involve the communities in reviewing changes in their disaster risks, goals, strategies and the partnership itself to determine whether they need to redefine their DRR–CCA framework, refine the partnership or bring other players into their voyage.

Why Are Redundant Communication Systems Important?

Vulnerabilities of small islands are aggravated when communication systems fail during emergencies. Early warning systems (EWS) become useless if the warnings

are not communicated timely to the responsible people. Despite partnerships with neighboring islands to ensure assistance in times of disasters, action will be late if no information is released on the location, extent of damage and needs of the people. Such lack of information and coordination can jeopardize rescue and relief operations.

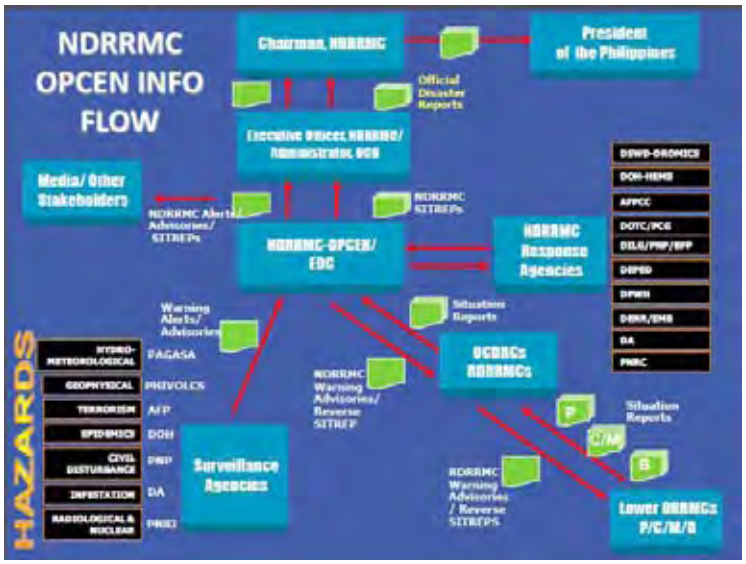


Fig. 6.1. Information flow of the NDRRMC Operations Center

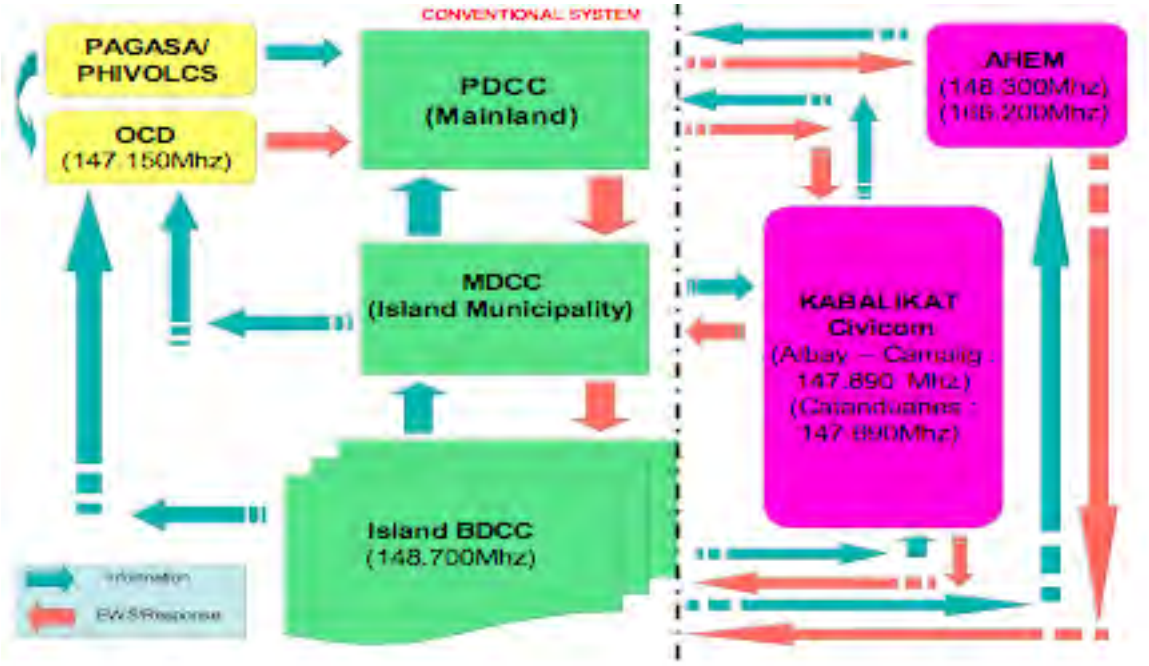
Section 6(e) of Republic Act (RA) 10121, or the Philippine Disaster Risk Reduction and Management (DRRM) Act of 2010, provides for the establishment of "a national early warning and emergency alert system to provide accurate and timely advice to national or local emergency response organizations and to the general public through diverse mass media to include digital and analog broadcast, cable, satellite television and radio, wireless communications, and landline communications." In line with this mandate, the National Disaster Risk Reduction and Management Council (NDRRMC) follows an information flow for its operations (figure 6.1). However, the dependency of technology and modern communication systems on electricity does not strongly guarantee that intra-island and interisland communication links will function in all emergency cases.

Redundant communication systems are therefore seen as vital to the survival of small island populations in case of prolonged exposure to natural hazards or disaster emergencies (box 6.3). Information received within the 24-hour period after a disaster hits the community is crucial in ensuring quick and appropriate response and support from the government and other organizations.

Proof of the usefulness of a redundant system is illustrated in the case of Infanta, Quezon. When Typhoon Santi was expected to batter the town in late 2009, all stakeholders were on their toes preparing and waiting for damage reports. By 6:00 a.m., news broke out that the intensity was not as strong as expected and damage was minimal. While everybody was heaving a sigh of relief, damage reports suddenly started coming in from Jomalig, which was more than 45 nautical miles away. Several houses, facilities and crops in Jomalig were damaged. No casualties were reported, however, since island dwellers were able to monitor the path of the typhoon and follow predesigned contingency plans. Within a few days, partner organizations were able to send out much needed sacks of rice and clothing to the affected households.

Box 6.3. Redundant communication systems in Rapu-Rapu Island

In Rapu-Rapu, Coastal CORE Sorsogon (CCS), in coordination with the Albay Provincial Disaster Risk Reduction and Management Council-Albay Public Safety and Environmental Management Office (PDRRMC-APSEMO), set up a communication system for DRR (see illustration below). The information starts with the sending of an authorized forecast or information from PAGASA and PHIVOLCS to the PDRRMC and other media outlets. The PDRRMC will then issue an official warning bulletin to the MDRRMC, which will monitor the situation using radio and television and send information to the BDRRMC. The committee on early warning and communication of the BDRRMC, together with the assigned volunteer in each village, will disseminate the information or warning to the residents using the traditional *bandilyo* (megaphone) and *budyong* (shell horn).



This communication system also ensures that information from the barangay is relayed to the provincial government through the PDRRMC just as information from pertinent government agencies, such as PAGASA and PHIVOLCS, is relayed from the provincial government to the municipal government and then to the community. In this case, two systems are working side by side and complementing each other: the EWS of the community and the conventional communication system of the government.

CCS brought in other players to help develop the software side of the system: the people. Together with the Philippine National Police (PNP), it taught the LGUs and communities the basics of radio operation and explored other possible links with the Sorsogon police for DRR intervention.

For the communication hardware, Kabalikat-Civicom, a local communications group, provided the island community with a standby frequency of 148.700 MHz. BDRSIP, on the other hand, supplied five units of handheld radio and one radio base.

The radio bases were set up in areas accessible to the people. Communication protocols were established and became part of the contingency plans of the communities.

Such quick and appropriate response would not have happened without several key elements of a redundant communication system. First, redundancy was introduced with the use of analog two-way radio communication systems. Communication with the mainland was boosted with the installation of a repeater station in Infanta. The repeater station was built also as a backup to ensure that radio signal could cover blind spots within the Sierra Madre mountain range. Though the reach of the cellular phone technology has broadened immensely in recent years, its reliability during extreme weather conditions and short battery life make it prone to failure during disasters.

Second, an EWS has been developed in the community, as mentioned in chapter 3. Prior community knowledge of the warnings is crucial in activating contingency plans. Equally important is the use of codes in relaying raw information to avoid causing undue panic to eavesdroppers in the two-way radio. Misinterpretation of information being sent through the open communication system can do more harm than good during disaster situations. Only mandated and accountable officials must issue evacuation orders and other appropriate instructions to the community.

Having an EWS in the community ensures on-time communication of accurate information on its needs prior to, during and after emergencies to the municipal government and other support groups. Similarly, the residents are warned of impending hazards through reliable information relayed to them by the municipal and provincial governments, which, in turn, receive the information from mandated government agencies such as PAGASA and PHIVOLCS. In cases where this official communication system becomes nonfunctional, an alternative, redundant communication system set up by civic organizations with the community becomes very useful.

Third, pertinent information on damage and needs assessments is relayed to the appropriate partners. Communicators must be knowledgeable in the types of information required by partners in the mainland for the latter to deliver, on time, appropriate goods and services to the small islands, especially those with limited resources. Such sharing of information helps in prioritizing disaster response to small islands and securing relief goods and services.

Sustaining and ensuring the efficiency and effectiveness of communication systems demands discipline and commitment from the players involved. People also have to devote time to participate in regular system checkups and commit to maintaining the integrity of the system. This entails regularly testing not just the equipment but the whole system. Again, this requires partnerships among communities, CSOs and LGUs, especially in efforts for them to be continuously trained in and updated on changes in the system (box 6.4).

Box 6.4. Bridging the gap in the physical connectivity of small islands: Marinduque's radio communications system from the BDRRMC to the NDRRMC

The Office of Civil Defense (OCD) in Region IV-B found in its latest inventory that the LGUs of the island did not have a two-way radio communications system. While a radio communications group, Kabalikat-Civicom, existed, it had limited connectivity to all areas of the island province because of the absence of a repeater system.

LGU and Kabalikat-Civicom during a workshop on coming up with a communications protocol (Photo by Myke R. Magalang)

In March 2011, the Marinduque Center for Environmental Concerns (MaCEC) brought to the attention of the RDC Sectoral Committee on Macro-Development Administration the importance of a radio communications system in inter-connecting the island provinces of MIMAROPA. This is meant to address the gap in their physical connectivity, provide communications and warning systems during disaster events, allow for exchange of information, and facilitate official transactions among the LGUs. The committee members unanimously endorsed the proposal and forwarded it to the RDC for final approval at the Full Council Meeting. On 7 April 2011 the RDC issued its approval through RDC Resolution No. 035-189-2011. In addition, it established a Technical Working Group Sectoral Committee on Macro-Development Administration "that shall be responsible for the design, and shall oversee the installation and implementation of the system."

With a go-signal from the RDC, MaCEC presented the proposed radio communications system for the province of Marinduque to the Provincial Development Council. The council readily recognized the importance of the communications system in generating and disseminating timely and reliable warning information. This would enable individuals, communities and organizations threatened by a hazard to prepare adequately and act appropriately, thereby reducing the possibility of harm or loss. The council also acknowledged that this would help LGUs significantly in ensuring functional systems for efficient communication, especially during extreme weather events, enhancing coordination and collaboration, sharing relevant information, and monitoring development projects. On 12 July 2011 the council adopted PDC Resolution No. 05-2011, authorizing the installation and management of an inter-LGU/agency radio communications network in the province of Marinduque.

With support from the provincial and municipal LGUs and the nine barangays of the province, as well as technical assistance from Kabalikat-Civicom, MaCEC organized a series of basic and technical training workshops for the municipal and provincial LGUs' public information officers, the chairpersons of the communications and warning committees of the local DRRMCs, police representatives, Bureau of Fire Protection (BFP) representatives, and other community volunteers.

"I have been working as public information officer of the municipality of Boac for a very long time already, but it is only now that I understand the technical aspects of a radio communications system and the basic procedure for operating a hand-held radio. Before, I was hesitant to use it because I feared that I might be using it not in the right way and I did not even know the protocols. During this training workshop and simulation, I realized the importance of radio communications in providing information and warning to the public, saving lives of people, and directing disaster-related operations." (Ms. Genoveva G. Loto, Public Information Officer, Municipality of Boac)

Box 6.4 (cont.)

The LGU and other agency representatives also adopted certain protocols that would guide each of their units in operating their communications system. What follows is a sample protocol system adopted by the municipality of Boac.

The operations of the radio communication and warning system (CWS) of the DRRMC shall be based on the following general protocols:

- Facilitate the flow of information from the municipal government and its MDRRMC, with the BDRRMCs of the territorial jurisdiction of Boac, to the Marinduque PDRRMC, Regional OCD/RDRRMC and eventually the NDRRMC and all other entities seeking information, free of charge during normal times and during the three-phase mode of a disaster (before, during and after).
- Act as a conduit of DRRMCs for disseminating important information to the general public, especially an early warning communication system, and as an information-gathering entity in their respective areas of operation.
- Serve as a channel of all information of public interest and significant value, aside from disaster-related information, subject to the specific protocols as adopted.
- Exercise utmost caution and consideration in handling highly sensitive and confidential information.
- Consult first the B/M/P/RDRRMC or competent authorities prior to releasing any kind of information through the system.
- Ensure direct exchange of information and unrestricted and uncensored communication flow, subject to the specific protocols
- Have volunteers responsible for ensuring the authenticity of information relayed and willing to share their communication resources and capabilities with other volunteers
- Exercise a sense of propriety and responsibility
- Revert to the CWS mode and follow the incident command system when disaster and calamities occur.

Specific protocols and information management are shown in the following tables, according to the phase of a disaster.

- During Normal Times

Nature of information	To be verified by	To be approved by	To be relayed to
Notices of meetings of various local councils convened by the municipal mayor before official communications are served	Information officer	Office of the Mayor or the private secretary	Barangays and members of the local councils for advance information and preparations

Box 6.4 (cont.)

Nature of information	To be verified by	To be approved by	To be relayed to
Notices of meetings of government-based institutions such as MAFCs, MFARMCs, BNS, BHWs and DRRMCs	Concerned heads of the different institutions or the information officer	Office of the Mayor or the private secretary	Barangays and members of the institutions concerned for their advance information
Official transactions and related business of the district councilor and Liga ng mga Barangay (League of Barangays); information that needs to be immediately related to the Mayors' League, Sangguniang Kabataan (SK; Youth Council) and so forth	Concerned heads of the different leagues or councils, or the information officer	Office of the Mayor or the private secretary	Barangays, SK of each barangay and other LGUs for their information and appropriate action
Official information that needs to be immediately relayed to the provincial government or the RDC	Information officer or head of the concerned department of the municipal LGU	Office of the Mayor or the private secretary	Provincial government, RDC or other regional agencies for their information and appropriate action
Information received from barangays needing action from the Office of the Mayor or other concerned offices of the municipal LGU	Information officer	Office of the Mayor or the private secretary	To be relayed to the concerned agency of the municipal government, PNP, BFP and so forth

Note: The Information Office shall create a communications routing slip to facilitate verification, authorization and transmittal of information through the radio communications system.

- Before a Disaster

Nature of information	To be verified by	To be approved by	To be relayed to
Updates on the preparations of various MDRRMC teams for the impending hazard	Monitoring and communications and warning teams of the MDRRMC	MDRRMO or MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC
Updates on the declaration of pre-emptive or forced evacuation	Evacuation team of the MDRRMC	MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC

Box 6.4 (cont.)

Nature of information	To be verified by	To be approved by	To be relayed to
Updates on hazard advisories issued by the MDRRMC	MDRRMO	MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC
Real-time updates on the situation of communities due to the impending hazard	Monitoring team of the MDRRMC or the MDRRMO	MDRRMO or MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC
Updates on the situation of coastal areas and fishing activities and scheduled trips of sea vessels and airlines	Monitoring team of the MDRRMC	MDRRMO or MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC; coast guards; shipping companies; airline companies
Information instructing all MDRRMC members and teams to convene at the Disaster Operations Center to be relayed via radio, text messaging or telephone	MDRRMO	MDRRMO or MDRRMC head	All members and teams of the MDRRMC
CWS mode in place for real-time monitoring and issuances of advisories	Communications and warning team of the MDRRMC; MDRRMO	MDRRMO or MDRRMC head	All members and teams of the MDRRMC; BDRRMCs of Boac, PDRRMC, OCD-RDRRMC
Real-time updates on the extent of damages to houses and infrastructures, livelihoods, transport and other lifelines	Communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC
Real-time updates on the situation of evacuation centers and evacuees, additional need for supplies, medicines and so forth	Communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC

Box 6.4 (cont.)

- During a Disaster

Nature of information	To be verified by	To be approved by	To be relayed to
Real-time updates on the status of various lifelines of the LGU	Communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC
Real-time updates on the need for search and rescue volunteers, equipment, tools and gears for complementation by higher DRRMCs	Communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	PDRRMC; OCD-RDRRMC; NDRRMC
Real-time updates on casualties, if any, and other relevant information related to the direct effects of the hazard on the communities	Communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	BDRRMCs of Boac; PDRRMC; OCD-RDRRMC; NDRRMC

- Post-Disaster Event

Nature of information	To be verified by	To be approved by	To be relayed to
Status of evacuation centers, number of evacuees and projected period of post-disaster evacuation	Damage assessment, communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	PDRRMC; OCD-RDRRMC; NDRRMC
Consolidated damage information report on the extent of impact of the hazard: houses damaged, agricultural crops and products affected; roads, bridges and infrastructure destroyed; casualties and deaths; and status of lifelines in the municipality	Damage assessment, communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	PDRRMC; OCD-RDRRMC; NDRRMC

Box 6.4 (cont.)

Nature of information	To be verified by	To be approved by	To be relayed to
Initial information on the recovery and rehabilitation needs of the municipality	Damage assessment, communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	PDRRMC; OCD-RDRRMC; NDRRMC
Status of the state of calamity declaration, or its lifting, and other needs of the municipality	Damage assessment, communications and warning, monitoring and other teams of the MDRRMC	MDRRMO or MDRRMC head	PDRRMC; OCD-RDRRMC; NDRRMC
Reversion of the communications system to normal time and recognition of support and assistance	Information officer	Office of the Mayor or the private secretary	Barangays, communications network and others concerned

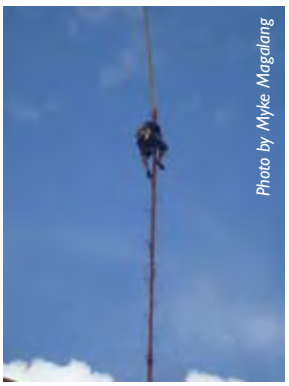


Photo by Myke Magalang

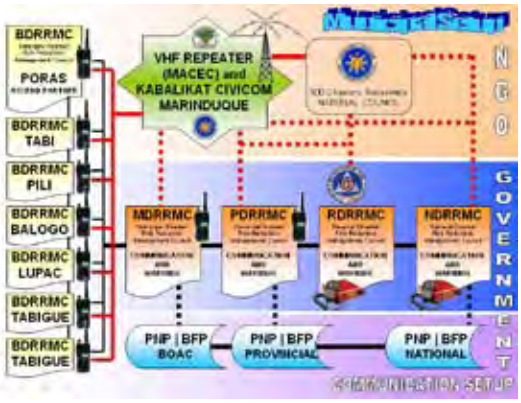
After preparing all the prerequisites for installing a pilot radio communications system, all the necessary hardware and equipment were procured under ASCEND for the seven barangays of Boac, six municipalities of the province and the provincial government itself. A repeater system was installed to enable connectivity to all municipalities. Kabalikat-Civicom provided technical assistance in installing the radio equipment in the LGUs as well as the antenna of the radio communications system in each barangay and municipality and in the province. A radio repeater antenna was installed on the roof of the diocesan pastoral center, the highest point of the poblacion of Boac. The radio systems for Barangays Poras and Pili installed under BDRSIP are now also connected to the new and enlarged communications network.

The radio communications system in Marinduque is an interconnection of all systems installed in the BDRRMCs to the MDRRMCs, and so forth, up to the NDRRMC. The repeater system put up by ASCEND and operated by Kabalikat-Civicom ensures continuous communication link between and among the local DRRMCs and LGUs in the island. The MDRRMCs and PDRRMCs also have communication links with the local, regional and national PNP and BFP offices. Kabalikat-Civicom has its own connection with RDRRMCs and NDRRMCs (left illustration below).

In the event that connection between BDRRMCs and M/PDRRMCs fails for some reason, BDRRMCs still have connectivity with Kabalikat-Civicom and can therefore access or forward relevant data and disaster information to the RDRRMC and the NDRRMC, and vice versa. This

Box 6.4 (cont.)

was proven during the simulation conducted to test the flow of information to and from the BDRRMCs (right illustration below).



Scaling up the system to the regional level, specifically the communications and warning team that will be managed by the Office of Civil Defense (OCD), allows for the connection of the island provinces of MIMAROPA. Since the OCD is stationed in Batangas, there is now assurance that these islands will have connection to the mainland in case of isolation due to extreme weather events that prevent air and water travel and the transport of basic goods and other commodities (illustration to the right).

To ensure the maintenance, sustainability and functionality of the radio communications system, a Memorandum of Understanding among the concerned parties was undertaken to spell out the specific roles of each party. Salient portions of the Memorandum are found in annex 4.

7 MAINSTREAMING DRR–CCA IN LOCAL DEVELOPMENT PLANNING AND BUDGETING PROCESSES

What Is Mainstreaming?

Mainstreaming basically means integration into the current thought of the majority. It is a departure from short-term, temporary or troubleshooting approaches, such as events, projects, ad hoc committees and task forces. Mainstreaming DRR–CCA therefore implies incorporating it into a community's or an institution's:

1. analysis of context or current reality;
2. expression of vision or desired goals;
3. review of existing formulation and implementation of strategies to attain the desired goals or address current issues, which include:
    a. formal and informal policies,
    b. programmatic planning and budgeting,
    c. processes and practices,
    d. capacity development of people and structures, and
    e. external linkages and internal relationships; and
4. evaluation of analysis, strategies and vision (figure 7.1).

In local government units (LGUs), mainstreaming DRR–CCA involves programmatic integration into local development planning and budgeting processes. Local development planning and budgeting processes serve as the primary framework and means of LGUs for implementing strategies for their constituents. While assigning key officials to focus on DRR–CCA can promote mainstreaming, the desired end goal of mainstreaming is to make all strategies sensitive to risks and changes as well as to support the people in becoming responsive to these.

The mainstreaming experience of MaCEC that is discussed in the succeeding section best illustrates how mainstreaming is not just inserting projects into government plans but integrating DRR–CCA thinking into the way local government works. MaCEC covered the different areas of mainstreaming:

- Context analysis (e.g., performing a reality check of local plans, popularizing the use of participatory capacities and vulnerabilities assessment [PCVA] results among DRR–CCA champions)

- Visioning (e.g., lobbying for inclusion of the DRR–CCA agenda in the five-year Provincial Development and Physical Framework Plan [PDPFP] and not just the annual plans of LGUs)
- Strategies
  - Plans and budgets (e.g., integration of PCVA-based recommendations into various plans of the LGU)
  - People and structures (e.g., developing the capacities of local DRR–CCA leaders and champions in legislative bodies)
  - Linkages and relationships (e.g., accreditation process, establishment of good rapport with the local government)
  - Policies (e.g., lobbying for the passage of ordinances on DRR–CCA)
  - Processes and practices (e.g., manifesting to different government agencies that the plans are relevant and legitimate because these were developed in a highly participatory process among different stakeholders)

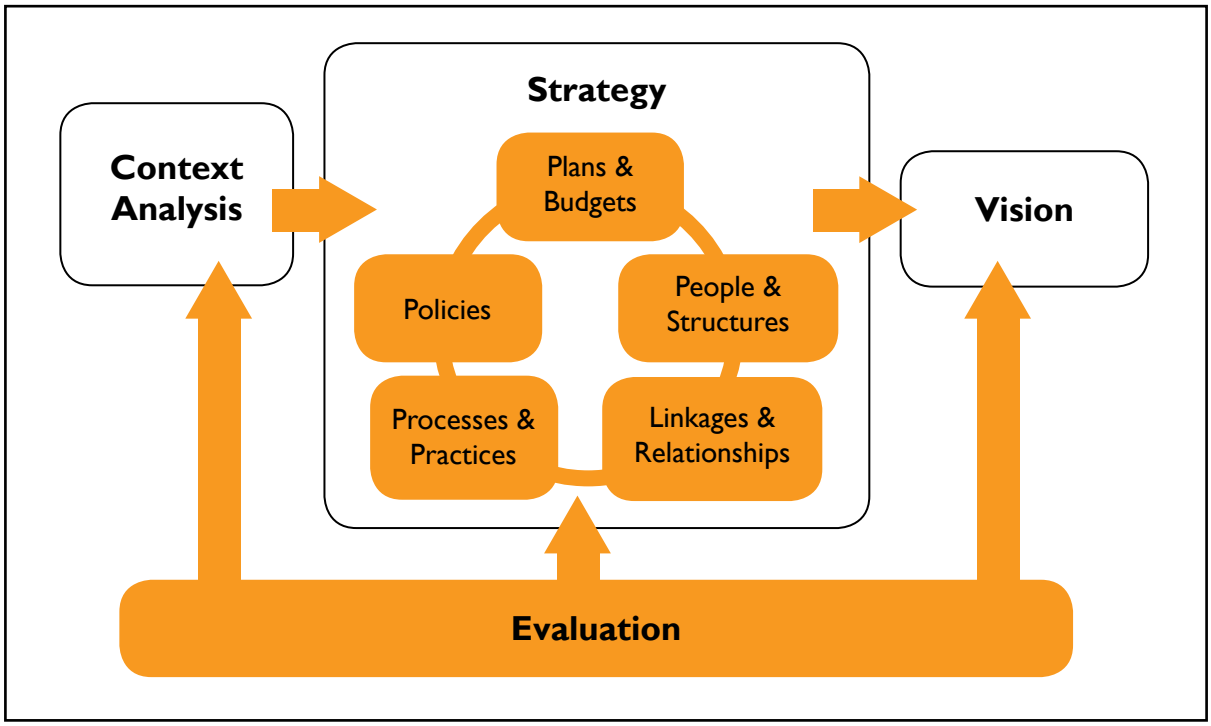


Fig. 7.1. Areas of mainstreaming

Mainstreaming DRR–CCA in local development planning and budgeting processes is the primary focus of this chapter. It is hoped that a discussion of the process may initiate other forms of mainstreaming in local government and guide other institutions in their own process of mainstreaming.

Why Mainstream DRR–CCA in Local Development Planning and Budgeting?

Of course, the coercive answer is that mainstreaming DRR–CCA in local development planning and budgeting is mandated by law. But beyond and behind that reason, mainstreaming is a compelling path to resilience because it:

- institutionalizes the DRR–CCA strategies developed (some of which have been discussed in previous chapters) to make them more sustainable and relatively nonpartisan;
- optimizes limited human and financial resources of small island governments;
- promotes better development or recovery by programmatically addressing the root causes of risks and anticipating changes;
- prevents or minimizes the adverse effects of disasters and other changes which would otherwise wipe out decades of development gains in small islands; and
- promotes the culture of safety to a wider population.

DRR and CCA must be recognized as inherent components of sustainable development and not as a separate strategy. They overlap immensely with strategies for poverty reduction, environmental protection, gender responsiveness, humanitarian action and sustainable livelihoods. As such, mainstreaming DRR and CCA requires multiple disciplines and needs to be embedded in existing strategies.

As a signatory to international agreements related to DRR and climate change (box 7.1), the Philippine government has committed to mainstreaming DRR–CCA in governance. This commitment is institutionalized in Republic Act (RA) 10121, or the Disaster Risk Reduction and Management (DRRM) Act of 2010, which states in Section 2 (g) that government will "mainstream disaster risk reduction and climate change in development processes such as policy formulation, socioeconomic development planning, budgeting, and governance, particularly in the areas of environment, agriculture, water, energy, health, education, poverty reduction, land-use and urban planning, and public infrastructure and housing, among others."

The DRRM Act mandates government to create DRRM plans that will ultimately reduce the vulnerabilities of communities and strengthen their capacities to absorb stress, maintain basic functions during a disaster, and bounce back better after the disaster. The law provides structures for generating, implementing and evaluating DRR–CCA plans. Local DRRM councils have been formed to "ensure the integration of disaster risk reduction and climate change adaptation into local development plans, programs and budgets as a strategy in sustainable development and poverty

reduction" (Section 11 (b) 2). They are composed of local government officials and representatives from civil society organizations (CSOs) and the private sector. For implementation, local DRRM offices have been established as well. At the barangay level, policymaking and implementation functions continue to be integrated into the barangay disaster risk reduction and management committee (BDRRMC).

These structures are often discounted, however, as a mere rehash of the local disaster coordinating councils. But a deeper look into their mandate, functions, responsibilities and relationships would reveal how the law has transformed from being shortsighted and reactive to emergencies into becoming more integrated, localized, proactive, and oriented toward long-term sustainable development. A critical element of these structures is the participation of different interest groups. Being a multi-stakeholder platform allows it to pool knowledge, capacities and resources for DRR–CCA.

Box 7.1 List of DRR–CCA international agreements to which the Philippine government is a signatory

International Agreements

- Hyogo Framework for Action, World Conference on Disaster Reduction (2005)
- United Nations Conference on Environment and Development (1992)
- Millennium Development Goals, United Nations Millennium Summit (2000)
- Kyoto Protocol (1997) and Bali Roadmap (2007), United Nations Framework Convention on Climate Change

Philippine Laws

- Local Government Code of 1991 (RA 7160)
- Climate Change Act of 2009 (RA 9729)
- DRRM Act of 2010 (RA 10121)

Philippine Policies

- Joint Memorandum Circular 2007-1: Guidelines on the Harmonization of Local Planning, Investment Programming, Revenue Administration, Budgeting and Expenditure Management
- Philippine Agenda 21 on Sustainable Development (1996)
- Strategic National Action Plan on DRR and the National Disaster Risk Reduction and Management Framework (2011)

What Are the Challenges in Mainstreaming DRR–CCA?

The existence of the relevant law does not guarantee effective DRR–CCA mainstreaming. Practical challenges to LGUs are lack of resources (financial and personnel)

and capacity (knowledge of and competence in DRR–CCA). While LGUs have the potential to generate revenue from different sources, most of the small island LGUs rely heavily on the internal revenue allotment that comes from the national budget. They have already allocated the budget lines for their different expenses, including even the unspent 5 percent calamity fund. As such, reformulating the calamity fund into a DRRM fund poses a dilemma.

Lack of competence in DRR–CCA, on the other hand, can be attributed to the multiple disciplines associated with DRR and CCA. While previous knowledge and skills centered only on emergency response, competence in DRR–CCA cover economic, political, sociocultural and environmental aspects.

But even in relatively resource-rich urban centers, most of the plans, budgets and personnel related to disasters are focused on emergency response and preparedness. The paradigm shift to DRR–CCA has not yet been fully implemented. This manifests challenges that are deeper than the practical limitation of resources and capacity, as follows:

- *Multisectoral participation*. The challenge is not just getting different stakeholders to participate in the process but also ensuring that the most vulnerable and marginalized are able to contribute significantly to the process. This requires initial capacity development of the most vulnerable and marginalized sectors, as discussed in chapter 4, before they can participate in multi-stakeholder platforms. Participation without capacity development results in mere compliance with the law and does not necessarily lead to risk reduction among the vulnerable sectors.
- *Uncertainty.* The underlying nature of DRR and CCA is uncertainty that stems from complexity and change. Complexity can be brought about by the interaction of several factors, such as simultaneous hazards, unpredictable human reactions and capacities, uncertain climate forecasts, and unrevealed hazards and vulnerabilities. The certainty of the changing environment and capacities of communities, on the other hand, provides both opportunities and threats. Changes in the environment can motivate people to innovate; however, it can also make them fatalistic. As such, the challenge in institutionalizing DRR–CCA strategies lies in the need for policies and people to be adaptive as more knowledge is revealed and more learning is applied. Policies must be flexible enough to accommodate new knowledge as it evolves and space must be provided for amending policies accordingly.
- *Intangible benefits and redundancy.* While DRR–CCA provides tangible benefits to vulnerable sectors, the primary goal of reduced losses is highly intangible and often unappreciated. Decision makers willing to take a gamble on disaster risks, especially when resources are limited, can easily make this goal the least of their priorities.

Many of the resilience-building strategies introduce redundancy to ensure that basic functions are maintained during emergencies. These include stockpiling, creating seed banks, procuring backup equipment, establishing communications systems, and providing insurance and reserve personnel. Considering the austerity measures being taken by local governments, taxpayers may perceive these as a waste of money during periods when there are no disasters. This is the main reason DRR–CCA is often unappreciated by LGUs that are seldom struck by disasters. Unfortunately, these are the same LGUs that are caught unprepared and suffer the most losses when disaster does strike.

What Are the Essential Activities Prior to DRR–CCA Mainstreaming?

1. ***Identifying and capacitating local DRR–CCA leaders and champions***

Who can be effective leaders in mainstreaming DRR–CCA in the community? Local DRR–CCA leaders may be found among health workers, day care workers, church and youth leaders or volunteers of the BDRRMCs. They need not be identified with the political party in power. They may be informal leaders known in the community to be sincere, hardworking and service-oriented individuals who can relate well with others and are motivated to learn and share new ideas. They may be representatives from the most vulnerable sectors, such as persons with disabilities and the elderly, who can contribute significantly to making the mainstreaming process inclusive and responsive to their needs.

Community volunteers and local government officials who have the potential to lead the DRR–CCA mainstreaming process must be trained and capacitated. Equipped with DRR–CCA tools for analyses, frameworks, approaches and strategies, they should be able to facilitate the process of translating DRR–CCA goals into sectoral operational approaches and strategies, concrete interventions, plans and budgets. In Jomalig, these individuals are the local DRR–CCA leaders who saw through the whole mainstreaming process and awareness raising of their communities on DRR–CCA (box 7.2).

Capacity development must also be extended to elected and appointed officials and staff members who occupy important seats in the LGU planning structures or are part of core technical working groups (figure 7.2). From among the training participants, a core of local champions will be given the responsibility to steer the mainstreaming process within the LGU. Local champions refer to people in power, including local chief executives and legislators who can push for the acceptance and adoption of DRR–CCA strategies through discussions and debates among their peers. Again, they need not be department heads or party mates of the local chief executive. Rank and file workers can also play a pivotal role if given adequate

Box 7.2. Enhancing DRR and CCA knowledge in small islands: Jomalig experience

The municipal government of Jomalig, Quezon, and its five barangays attended capacity development sessions conducted by an accredited CSO. The attendees were among those selected by the municipal government and barangays based on their availability and capacity to take on the responsibility of leading the process of mainstreaming DRR–CCA. At least 80 participants received training on a range of topics, including basic DRR concepts, application of disaster risk assessment tools and rationalized planning system of LGUs. They consisted of municipal and barangay government officials, former barangay disaster risk reduction coordinating team (BDRCCT) volunteers, parish workers, representatives of people's organizations, the elderly, persons with disabilities, youth, fisherfolk and farmers.

After each training activity, a barangay core group, together with the accredited CSO staff and volunteer municipal staff/officials, conducted echo sessions in their respective communities. As a result, the number of people knowledgeable in DRR and the mainstreaming process more than doubled. The echo sessions had been effective in preparing residents for participating in succeeding DRR–CCA mainstreaming activities.

recognition and support. They can help ease the heavy workload of department heads or the municipal planning and development officer.

In the experience of small island municipalities, pursuing a common DRR–CCA agenda is a unifying factor among different competing political blocs. Hence, it is important to maintain a nonpartisan stance.

2. *Accrediting civil society organizations*

Since the passage of the Local Government Code of 1991 (RA 7160), local governments have been empowered with decentralized authority to determine their development goals, plan and execute their programs, and allot funds for the delivery of basic social services. In addition, the Code paved the way for greater citizen participation through local development councils (LDCs), institutionalizing the representation of nongovernment organizations (NGOs) and people's organizations (POs). CSOs accredited by the appropriate government agencies may take part in local special bodies and assist in crafting barangay and municipal DRRM and sectoral plans.

LDCs exercise important functions, like the formulation of long-term, medium-term and annual socioeconomic development plans and policies, annual public investment programs, and incentives to promote private capital inflows. Local DRR–CCA leaders must therefore coordinate closely with LDCs to ensure that the DRR–CCA plans fit well with the rest of the development plans and are endorsed by the LDCs.

To allow substantial citizen participation in the mainstreaming process, LGUs must be able to assist community or sectoral organizations requiring accreditation with barangay, municipal and provincial development councils. They must tran-

scend partisan politics and create an enabling environment for the sustained and meaningful participation of different stakeholders. Such a process allows for the sharing of information and capacities and reduces the challenges associated with multi-stakeholder participation and uncertainty (box 7.3).

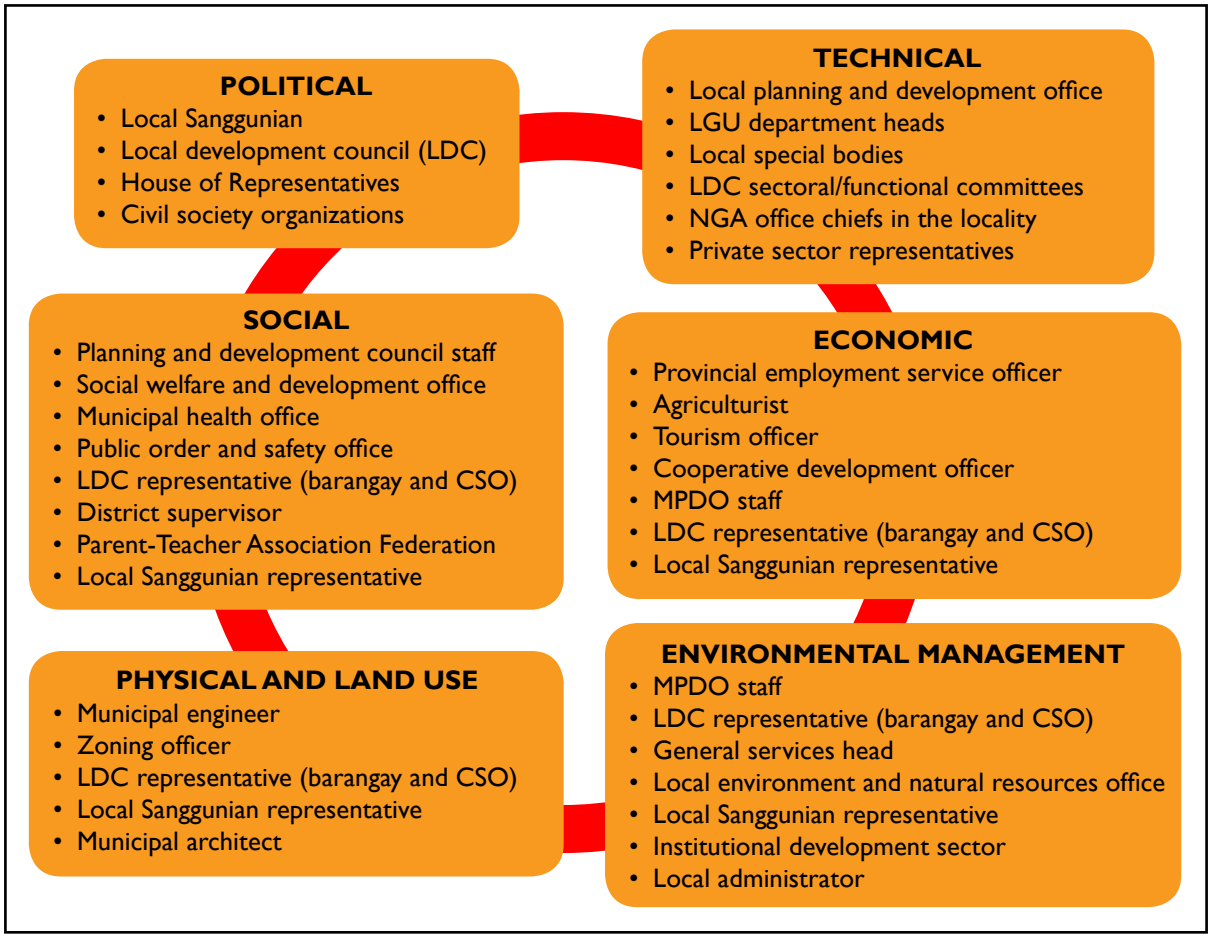


Fig. 7.2. Components of the local planning structure

3. *Translating disaster risk assessments and community needs into development plans*

As discussed in chapter 3, community-based and scientific knowledge is critical in determining disaster risks. Participatory tools in the PCVA are used to surface community needs. Aside from assessments, the residents are involved in processing the findings, which will then be translated into action plans that can be mainstreamed in existing and proposed plans of the different sectors. Box 7.3 shows how the barangays and the municipality of Rapu-Rapu, with guidance from Coastal CORE Sorsogon (CCS), used the PCVA results to inform their development plans.

It is important that local development plans take into account the disaster risk assessment findings, particularly the PCVA results, to make sure they are grounded in the communities' risks and needs. Formulating community-centered DRR–CCA

plans also facilitates collective action and engagement from local communities, especially the most vulnerable to disasters. Such collective action encourages the residents to develop and implement contingency, evacuation and DRRM plans, and disseminate community risk/hazard maps.

4. ***Engaging in the local development planning and budgeting processes***

Engaging in the LGU mainstreaming processes requires local DRR–CCA leaders and accredited CSOs to be familiar with the different local government plans, the relationship of these plans with one another, and the time frame of planning and budgeting processes.

LGUs are mandated to formulate at least 27 plans. To avoid overlaps, the National Economic and Development Authority (NEDA) and the Department of Interior and Local Government (DILG) implemented the rationalized planning system (RPS) with the issuance of Joint Memorandum Circular (JMC) No. 1 of 2007. Through

Box 7.3. Translating PCVA findings into development plans

As mentioned in chapter 3, the local leaders and residents of the 34 barangays of Rapu-Rapu took part in the PCVA and data-gathering activities such as the social census, which covered more than 8,000 households. The findings from the PCVA and the survey were used as bases for producing barangay risk and social census maps that, in turn, helped the residents identify and refine their development priorities, activities and strategies.

In Barangay Caracaran, the PCVA results provided input to the barangay council in deciding what barangay activities to prioritize and how much budget to allocate for disaster mitigation and CCA measures. As part of the mangrove reforestation initiative of the barangay council, a total of 150,000 "bakawan" propagules were planted with support from the Department of Environment and Natural Resources (DENR). This project was intended as a mitigation measure against storm surges. The Sangguniang Kabataan (Youth Council), for its part, mobilized the youth in the communities to plant 100 mahogany trees in areas susceptible to landslides. The barangay council also carried out a feeding program with support from the Department of Social Welfare and Development (DSWD), benefiting 51 malnourished children identified during the social census mapping. The same mapping activity further listed 15 indigent families as recommended by the barangay council who later became recipients of the 4Ps program (Pantawid Pamilyang Pilipino Program) of DSWD. Other activities funded and initiated by the barangay council as flood mitigation measures included coastal and river cleanup and canal de-clogging

Using data from the risk map and information from the PCVA, the local DRR–CCA champions were able to include DRR and CCA in the different sectoral plans and fund allocation for 2012. Each local champion who sat in the different sectoral committees of the municipal development council prioritized the issues and needs identified by the barangays. They were able to determine strategic areas for DRR intervention in the island, such as evacuation centers and warehouses for stockpiling, and define more clearly the strategic directions they would pursue for DRR, for example:

Box 7.3 (cont.)

- *Economic development sector.* The asset pentagon and seasonality matrix indicated that the lack of income sources or livelihood opportunities in the area further increased the vulnerabilities of the communities to various hazards. Thus, programs on food security, livelihood support, on-site research on DRR and CCA, agriculture, fishery and livelihood skills training were included in the 2012 Annual Investment Program (AIP) with a total budget allocation of 5.8 million pesos.
- *Social development sector.* The asset pentagon and Venn diagram showed the need for the different barangays to develop the capacity of their community health volunteers. Thus, a total budget of one million pesos was allocated for the capacity building of barangay health workers and barangay nutrition scholars under the municipal health office.
- *Infrastructure sector.* Through the social census and hazard mapping, the population at risk to specific hazards was identified. Barangays Poblacion, Villahermosa and Batan turned out to have a greater number of residents exposed to tsunamis, typhoons and storm surges compared to other barangays. The historical time line also reflected the need of Barangay Poblacion for a sufficient evacuation center. Likewise, Barangays Batan and Villahermosa indicated in their contingency plan the need to construct a warehouse for stockpiling of goods, including the goods of adjacent barangays. Batan and Villahermosa were the two major convergence points in Batan Island and were accessible from adjacent barangays through a road network. In response to this, the municipal engineer's office included in the 2012 AIP the construction of two warehouses in the two barangays, as well as an evacuation center in Barangay Poblacion, and the retrofitting of other structures in other barangays that were prone to typhoons and other hazards, with a total budget allocation of 35 million pesos.

the RPS, all plans are integrated into just one plan and budget. Since its integrative approach aligns well with the multiple disciplines of DRR and CCA, the RPS has become the main mechanism for mainstreaming DRR–CCA. The circular serves as an indispensable guide for harmonizing and synchronizing local development planning and budgeting processes.

Table 7.1 lists the planning documents necessary in the mainstreaming process while figure 7.3 illustrates how the different planning documents feed into each other.

The period from January to June is the window of opportunity to influence the planning process, since this is the time information from the PCVA has to come in. The critical engagement period is from June to October 15, when the annual budgets are finally submitted to the LDCs for endorsement and approval by the local legislative council (table 7.2).

Local DRR–CCA leaders and CSOs should note, however, that such plans and budgets are intended for the following year and not the current year. Mainstreaming DRR–CCA in this forward-looking process of the local government emphasizes

Table 7.1. Planning documents necessary in the mainstreaming process

Type of document	Key officials or bodies involved in document production
Annual Budget	Treasurers, local finance committee (LFC), local chief executive (LCE)
Programs, Plans and Activities (PPA) of the LGUs	LDCs, LCE, local planning and development coordinator (LPDC)
Annual Investment Program (AIP)	LDC, LPDC, local budget officers, local legislative council
Local Development and Investment Program[a]	LDC, LPDC, local budget officers, local legislative council, LFC
Comprehensive Development Plan (CDP) and Provincial Development and Physical Framework Plan (PDPFP)[b]	LCE, LDC, LPDC, local budget officers, local legislative council, LFC

[a] This links plans with budgets in a long-term framework (3–6 years) and prioritizes PPAs.
[b] This includes the vision, sectoral goals, development strategies and programs of the province, as well as the corresponding PPAs that serve as input to the provincial investment programming and subsequent budgeting and plan implementation

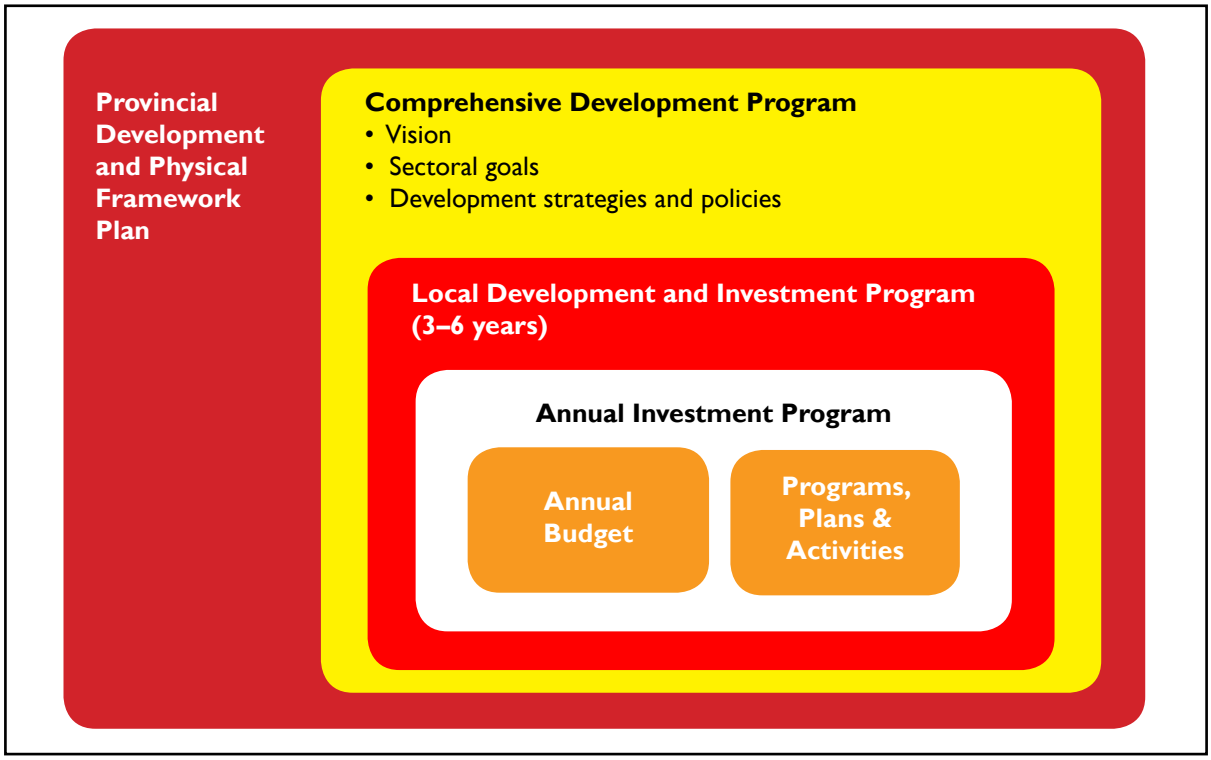


Fig. 7.3. Relationship of the different local plans and programs

how mainstreaming departs from short-term or quick reaction interventions that are traditionally associated with disaster-related strategies. Moreover, leaders and representatives involved in the DRR–CCA mainstreaming process must be aware of

Table 7.2. Annual planning and budgeting calendar of LGUs

Activities	Jan	Feb	Mar	Apr	May	Jun
Data gathering and updating of databases						
Analysis of data and updating of AIP						
AIP preparation and approval						
PDPFP/CDP preparation and approval						
LDIP preparation and approval						
Issuance of budget call						
Submission to LCE/PB of SIE						
Budget proposals						
Technical budget hearing						
Consolidation of budget						
Annual budget submission						
Approval of local budget						

	Jul	Aug	Sep	Oct	Nov	Dec
Data gathering and updating of databases						
Analysis of data and updating of AIP						
AIP preparation and approval		1st wk				
PDPFP/CDP preparation and approval	1st wk					
LDIP preparation and approval						
Issuance of budget call	31					
Submission to LCE/PB of SIE	1st wk					
Budget proposals	1-15 LCE		1-15 PB			
Technical budget hearing	1-15					
Consolidation of budget						
Annual budget submission			16-30			
Approval of local budget				15		

the challenges associated with intangible benefits and redundancy, which may water down or cause the de-prioritization of the proposed DRR–CCA strategies.

In essence, mainstreaming enables existing local planning systems to understand and integrate DRR–CCA within their operations and functions, such as environmental protection, land use planning, and economic and social services. Since the success of such mainstreaming is highly dependent on the cooperation of local government officials, CSOs, together with community representatives, must agree with key decision-makers of LGUs on the terms of their partnership, including but not limited

to purpose, responsibilities, expectations, resource commitments and timetable of activities. A good example of such collaboration between provincial and local LGUs is illustrated in box 7.4, which shows how the provincial government influenced local DRR–CCA mainstreaming at the municipal level.

Box 7.4. Influencing local DRR–CCA mainstreaming at the municipal level

Provincial development planning can influence similar processes at the municipality and barangay levels, especially if the provincial government has already mainstreamed DRR–CCA. Such is the case of Albay, which pioneered the creation of structures addressing DRR and climate change, namely, the Albay Public Safety and Emergency Management Office (APSEMO) and the Centre for Initiatives and Research on Climate Adaptation (CIRCA). The provincial government provided significant inputs and a conducive enabling environment for DRR–CCA.

Provincial government policies, through the APSEMO and the PDRRMC, have established:

- working relationships between the local DRRMCs and warning agencies like PAGASA and PHIVOLCS;
- early warning and clear evacuation protocol, including community-based evacuation procedure, to achieve the goal of zero casualty; and
- communication protocol with lower-level LGUs.

The municipal government of Rapu-Rapu has engaged the APSEMO and CIRCA in developing its contingency and CCA plans. For CCA, CIRCA is facilitating the application of the Albay Anticipatory Adaptation Matrix (A3M) in all municipalities of the province.

The following section presents a case study of how the Marinduque Center for Environmental Concerns (MaCEC) actively engaged the six municipal governments and the provincial government of Marinduque in mainstreaming DRR–CCA.

Engaging the Provincial Government of Marinduque in Mainstreaming DRR–CCA in Critical Planning, Budgeting and Policymaking Processes: MaCEC's Story

In 2008–2009, MaCEC pioneered the integration of DRR and CCA projects into barangay development plans. At that the time, the old law on disaster response (Presidential Decree No. 1566) was still being enforced. Inspired by the NEDA mechanism of integrating DRR at the subnational level, MaCEC provided technical assistance to 184 of 218 barangays in the province of Marinduque (84.4 percent). With the learning gained from this process, MaCEC took on the challenge of mainstreaming DRR–CCA in the local development plans of the six municipalities and later on of the province itself.

After the local elections of 2010, when a new set of local leaders was sworn into office, MaCEC sought accreditation from the concerned legislative bodies of the

barangay, municipal, provincial and regional governments (figure 7.4). This facilitated the engagement of MaCEC in the decision-making processes of LDCs with vested voting power in the deliberations of each council. It may be noted here that MaCEC maintains chapters in various barangays that are composed of residents who elect the representatives or leaders at the barangay, municipal and district levels.

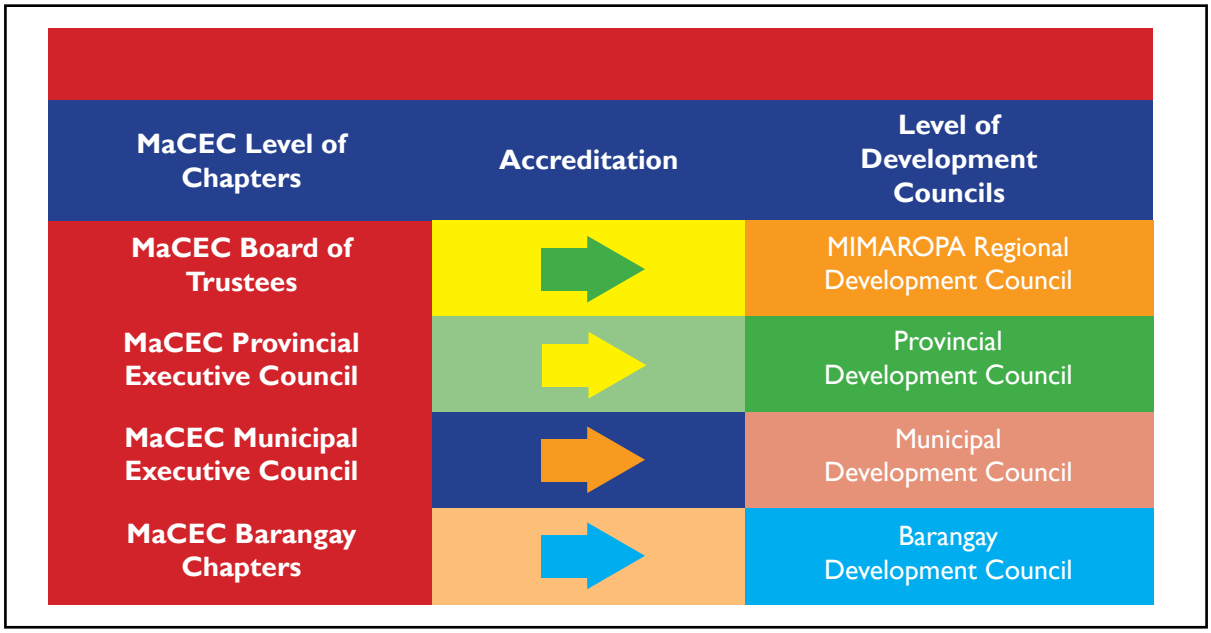


Fig. 7.4. MaCEC's involvement in the various levels of the LDCs

Through this setup, MaCEC can sort the various agenda of the different communities and identify the appropriate level of government to address these. In so doing, the mainstreaming process is not limited to barangay development plans and budgets. Resilience is brought into the mainstreaming process by reaching out to different levels of government for handling certain agenda, and redundancy is achieved by introducing the agenda in different political spaces.

The MaCEC Municipal Executive Council serves as its core group that lobbied for the mainstreaming of CCA and DRR in key sectors of the municipal development plan, particularly the AIP, while the Provincial Executive Council and Board of Trustees took care of lobbying work in the provincial and regional development councils.

Development of the PDPFP

The MaCEC Provincial Executive Council lobbied for inclusion or consideration of its advocacy concerns, including environmental justice, disaster risk reduction, climate change adaptation and sustainable development, in the different planning processes, budgeting workshops, and policy formulation processes of the provincial government. A critical area of mainstreaming is the formulation of the Provincial

Development and Physical Framework Plan (PDPFP). The PDPFP is strategic because it harmonizes spatial and sectoral factors; incorporates medium- and long-term concerns; and facilitates the coordination of the planning and budgeting processes of the component cities and municipalities. By virtue of an administrative order issued by the governor, MaCEC was designated as member of the provincial technical working group charged with preparing the PDPFP (figure 7.5). Such involvement therefore provided a CSO with the opportunity to critique the draft PDPFP and introduce its policy recommendations. Annex 12 shows the advocacy agenda introduced by MaCEC into the PDPFP.

Mass mobilization is one of the methods MaCEC employs in bringing to the attention of the provincial government legitimate concerns of the people. (Photo from MaCEC photo archives)

The broad membership of the MaCEC barangay chapters actively participated in consultation processes of the technical working group. Such extensive involvement of the island residents facilitated the eventual passage of the PDPFP and its acceptance by the different mayors. MaCEC also supported the review of the plan by the Housing and Land Use Regulatory Board (HLURB), citing that the PDPFP consciously considered the integration, mainstreaming and harmonization of policy frameworks, principles and indicators of DRR, CCA and climate change mitigation as enshrined in salient provisions of RA 9729 and RA 10121.

Formulation of the provincial and municipal annual investment plans for 2012

The preparatory phase of the engagement involved meeting with the executive committee of the LDC to review the synchronized planning and budgeting activities

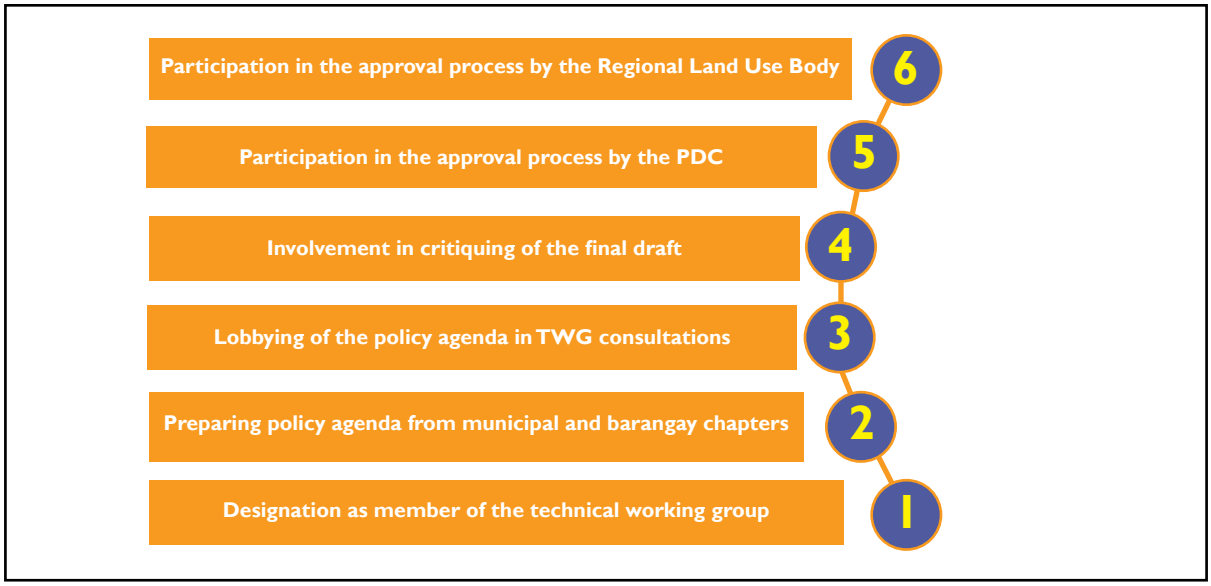


Fig. 7.5. MaCEC's process of engagement in the development of Marinduque's PDPFP

of the LGU against the mandates of JMC 01-2007. It also called for the creation of an interagency planning and budgeting committee that would facilitate the integration processes in all phases.

Being an accredited NGO, MaCEC enjoys good rapport with government officials and employees, making it easier for the organization to influence the LGU planning and budgeting processes. Given its stature and experience in development work in the island, MaCEC has been able to lobby for the inclusion of its officers in planning and budgeting integration.

To prepare for the other phases, MaCEC held consultations with its barangay and municipal executive councils to guide the assessment of government's delivery of basic services; determine major disaster and climate change concerns; and pinpoint environmental threats and other development issues in each community. The results of these consultations were synthesized and consolidated per municipality. These later became part of the development agenda of the Municipal MaCEC Chapter. A sample output is provided in Annex 13.

During the review phase, MaCEC looked into the LGU's accomplishments and failures; threats and opportunities encountered during the previous year in PPA implementation; other plans vis-à-vis the CDP, LDIP, AIP and Executive-Legislative Agenda (ELA); and the performance of each unit or department of the LGU.

In Boac, MaCEC reviewed and updated the LGU PCVA to include new and emerging issues and concerns and the climate change anticipatory assessment. It likewise assessed the financial and revenue status of the LGU, including income projections for the ensuing year, to determine the level of expenditures accompanying the proposed plans and priorities of the AIP.

Aside from being a major player in the local development planning process, MaCEC acted as a third party in internal assessment and evaluation processes for multi-stakeholder planning.

MaCEC introduced participatory tools for assessment to the municipal officials. The outputs of such processes (example shown in table 7.3) were eventually translated into plans (example shown in table 7.4) to be presented to the multi-stakeholder forum for adoption.

The analysis phase delved into the results of the assessments and evaluation of the LGU, the updated PCVA and climate change matrix, environmental scanning process, updated databases and financial projections, in order to identify LGU and community concerns that needed to be prioritized in the multi-stakeholder forum.

Through MaCEC's advocacy efforts, the LGU developed a greater appreciation for DRR and CCA concerns as well as their impact on key areas such as coastal and marine, health and nutrition, agriculture and fishery, and water and waterways. It

Table 7.3. Output document of the review process undertaken by the Boac Municipal Nutrition Office

Elements at risk or key problem areas	Vulnerable condition	Pressure areas	Underlying causes
High rate of malnutrition among preschoolers and school children	Malnourished children prone to diseases and other ill effects of malnutrition	Low target setting of programs/activities for parents and children	Nutrition being not a priority project of barangays
Mothers/families with malnourished children	Insufficient knowledge of health, food and nutrition among mothers	Mothers' non-attendance/ lack of interest in attending nutrition education/ cooking demonstrations	Negative attitudes of parents
• Insufficient knowledge among frontline workers (barangay nutrition scholars) due to frequent turnover • Absence or replacement of workers • Questionable qualifications of appointed workers	• Frontline workers being mostly not functional • Low performance of workers	• Poor supervision of workers at the barangay level • Limited time of MNAOs for coaching and mentoring workers • Late submission of BNS reports	• Negative attitudes of some BHNCs • No sanctions from local chief executive or DILG for non-performance of BHNCs and workers
Overlapping functions among the MNAO staff	• Overlapping functions hindering the effective accomplishment of activities • Problems in accomplishments and submission of reports to higher-level office	Prioritization of reports and late compliance with other requirements due to the numerous reports required by other offices	Nutrition office having only two staff members supervising 61 nutrition councils and 61 nutrition volunteers
Performance of the LGU in the implementation of the nutrition program	Administrative concerns affecting performance	Lack of monitoring and evaluation of administrative concerns at the barangay level	• Busy schedule of the municipal nutrition council members • Problem in time frame of intervening activities

also became more cognizant of issues related to gender, persons with disabilities, rights claiming, children's rights and sustainable development.

For the planning–budgeting integration phase, preparations involved an orientation on key international, national and regional development frameworks (as listed in box 7.1) for LGU officials and staff. During the actual integration workshop, the participants deliberated on the identified issues, concerns and vulnerabilities

Table 7.4. Sample integration matrix

Vulnerabilities	PPA	Performance indicators	Capability building needs	Legislative or administrative policies needed	Supplies, materials and resources needed
Child malnutrition (susceptibility to diseases and other disorders)	Rehabilitation of malnourished children				
	Physical/medical checkup or deworming	All identified severely malnourished children are checked up or dewormed.	Orientation and training in nutrition laws and policies for MNAO and staff, BHNCs, BNS, mothers and families vis-à-vis DRR in nutrition and other concerns	Order or memo from LCE/DILG on the functionality of BHNCs, imposing sanctions on non-performing BHNCs (in relation to the NNC MTPPAN Program)	Deworming tablets or medicines (MHO)
	Milk/egg supplementation for severely wasted or indigent preschoolers	Severely underweight and underweight preschool children are given milk/egg, food supplements or multivitamins.			Milk and egg (MNO)
	Food supplementation (hot meal)				c/o barangay or school concerned
	Provision of multivitamins				Multivitamins (MHO, MNO and NGO)
	Nutrition education for school children				Attendance sheets, Busog Lusog CDs, LCD projector

Note: The output documents corresponding to the data categories are LDIP and AIP for PPA; Performance Plan for performance indicators; HRD Plan or capability building needs; Executive-Legislative Agenda for legislative or administrative policies needed; and Annual Procurement Plan for supplies, materials and resources needed.

and their corresponding PPAs. The proposed PPAs of each unit of the LGU were prioritized based on an agreed set of criteria and in line with sectoral concerns prescribed by DILG. A sample output is contained in table 7.4 above.

Post integration, key units of the LGU attended to important processes, including the formulation of internal administrative plans to make operational all of the PPAs identified in the Annual Investment Program. They translated the data derived from the integration matrix (sample shown in table 7.5) into specific plans based on prescribed LGU planning and budgeting templates. These plans included the following:

1. AIP with budgets and the 20 percent development plan, to be formulated by various units of the LGU and the LDC secretariat.
2. Human Resource Development (HRD) plan as prescribed by the Civil Service Commission and to be monitored by the Commission on Audit. This plan defines the skills and training needed by LGU personnel to capacitate them for DRR–CCA. Moreover, the performance indicators in the PPAs are translated into specific measurable, observable, verifiable and reportable performance standards for each personnel.
3. The proposed 2012 ELA as prescribed by DILG Memorandum Circular No. 2004-64. This plan/agenda, which is to be developed by the Sanggunian Secretariat, identifies the policies that will guide the implementation of the priority PPAs.

Table 7.5. Sample integrated plan and budget

Program, project and activity	Implementing office	Schedule of implementation	Amount
Nutrition programs as an MDG support program • Physical/medical checkup • Milk and egg supplementation • Provision of hot meals and multivitamins • Nutrition education for school children • Massive nutrition education, multimedia campaign and IYCF/ Pabasa sa Nutrisyon • Nutrition Month celebration • Enhancement of knowledge and skills of municipal nutrition action officers and staff, barangay nutrition health councils (BNHC), barangay nutrition scholars, mothers and families vis à-vis DRR–CCA	Municipal Nutrition Office	January to December 2012	PhP 150,000

4. The proposed 2012 Agency Annual Procurement Plan as a basic requirement for accounting and auditing procedures. The LGU will be unable to make major purchases of supplies and materials if these items are not included in this plan.

Participants in the Boac LGU planning-budgeting integration workshop held last 24–25 August facilitated by MaCEC under ASCEND

For MaCEC, these internal and administrative plans are essential to its work on governance participation, as they form the basis for monitoring PPA implementation. These administrative plans are often overlooked, however, causing delays in critical DRR–CCA programs.

In the municipal LGU of Boac, DRR and CCA were mainstreamed not only in the development plans and budgets but also in administrative governance. This ensures the sustainability of the processes of integrating DRR, CCA, the concerns of the vulnerable sectors, and other development problems and issues.

During the adoption phase, the local chief executive signs the AIP and 20 percent development plan for adoption; ensures the preparation of the HRD Plan, ELA, Annual Procurement Plan, updated plantilla of positions and the Annual Performance Productivity Plan, and updated CDP and LDIP; and consolidates the Budget of Expenditures and Sources of Financing (BESF), Local Expenditure Program (LEP) and AIP as the administration's executive budget.

In the legislation and authorization phase, the Sangguniang Bayan (Municipal Council) further scrutinizes the submitted budget. Where there is transparency in the processes employed with different stakeholders, the Sanggunian will raise only minimal matters and so final approval of the budget is facilitated.

In the implementation, monitoring and accountability phase, MaCEC ensures the sustainability of the mainstreaming processes and monitors the performance of LGUs, mostly through its continuous participation in the LDC, local special bodies and other governance mechanisms.

Policy advocacy on DRR–CCA and environmental concerns

Other than plans and budgets, local policies in support of DRR–CCA plans can facilitate the mainstreaming process. MaCEC has lobbied several policies in the provincial and municipal legislative bodies to promote internally the advocacy for DRR–CCA. It invited identified local champions from the municipalities and the province to different learning events on DRR and CCA. Annex 14 shows a sample of the administrative and legislative enactments made by the provincial government of Marinduque as a result of this advocacy by MaCEC.

People's mobilization to exert pressure on government was one form of advocacy work MaCEC employed to deny the renewal of a mining permit. This picture shows the people's sentiments about risk-inducing extractives during a mobilization on 12 October 2011 in front of the provincial capitol. (Photo from MaCEC photo archives)

8 REFLECTING ON THE JOURNEY

The true traveler knows that reaching the destination is not the end of the voyage. A traveler lives for the voyage itself. There are new destinations to dream about, places to go where we have roots and friends to go home to. There are times when we have to return, to stay put and to move forward. As such, reflecting on the pathway is a means to "re-view" what took place in our journey and take stock of what we have learned in order to prepare us for the next one.

Considering the unpredictability of the weather, the climate, the land, the sea, the craft and the people, it is foresight, and not forecast, that we need to achieve in order to be ready for the next steps. Foresight is developed from a process of:

- reviewing strengths and weaknesses by assessing one's experience in undertaking an initiative or activity;
- reflecting on insights from one's inner values and past lessons; and
- recalibrating these assessments and insights based on the felt and perceived changes in one's self, the community and the environment.

Such a process is reflective of the very development of the Small Island Resilience Pathway presented in this Guidebook. Annex 15 narrates the story behind the making of the Pathway.

What Have We Done?

Table 8.1 summarizes the different pathways employed, including some of the relevant interventions, tools, approaches, technologies and eventual outputs.

Table 8.1. Summary of the different Pathways

Interventions	Approaches, tools or technologies used	Outputs
Pathway: Assessing disaster risks		
• Hazard assessment • Capacity and vulnerability assessment • Community risk assessment	• Community hazard mapping • Social census survey • Community resource mapping • Participatory capacities and vulnerabilities assessment • Scientific hazard mapping • Scientific integrated risk mapping	• Updated barangay profile • Community hazard map • Community risk map • Household, barangay and municipal contingency plans • Early warning systems • Identification of needs and prioritization in the barangay and municipal DRRM plan

Table 8.1 (cont.)

Interventions	Approaches, tools or technologies used	Outputs
Pathway: Assessing disaster risks		
• Hazard assessment • Capacity and vulnerability assessment • Community risk assessment	• Hazard assessment matrix • Hazard-Disaster time line • Venn diagram • Asset pentagon • Seasonality matrix	• Identification of multiple evacuation routes and possible safe evacuation areas • Barangay damage needs assessment report • Barangay emergency response plan
Pathway: Developing capacities		
• For disaster response - Emergency response and assessment - Basic life-saving techniques - Water safety and rescue techniques - Saving and stockpiling - Emergency camp management • For DRR–CCA - Mainstreaming DRR–CCA in local development planning and budgeting processes • Policy advocacy, community organizing, natural resource management, and sustainable livelihoods and social enterprises	• Use of various learning strategies, such as training, workshops, round-table discussions, study tours, mentoring/coaching, sharing of good practices and lessons learned, house visits and informal gatherings • Provision of reading materials • Provision of equipment, such as first aid kits, life-saving devices and hazard monitoring equipment • Linkaging with individuals and institutions for support services and resources • Creation of social structures to facilitate collective action	• Expanding choices of items to be stockpiled • Engaging in alternative livelihoods • Responding to emergencies • Forming and developing a women's group or pools of BDRRCT volunteers, trainers, rescuers, quick response teams and first aid providers • Having access to early warning devices, emergency equipment and other life-saving devices, such as first aid kits, spine board with cervical collar and blood pressure apparatus, raincoats, flashlights, ropes, whistles, and emergency vehicles
Pathway: Managing limited resources		
• Community-based natural resource management (CBNRM) • Promotion of coping mechanisms and adaptation strategies • Assessment of traditional practices or indigenous knowledge of resource management	• Rainwater catchment at an evacuation center • Organic farming by an LGU • Mangrove forest protection • Combining carbohydrate-based food stocks • Food processing technologies, such as fish drying, fish bottling and vegetable drying • Identification of LGU responsibilities in CBNRM	• Access to freshwater for non-drinking purposes • Sustainable livelihood and farming practices • Secured natural assets • Diversified food sources and uses • Extension of food shelf life during the lean season

Table 8.1 (cont.)

Interventions	Approaches, tools or technologies used	Outputs
Pathway: Addressing isolation and remoteness		
Partnership building toward the improvement of connectivity with other islands and the mainland	• Memorandum of agreement, sisterhood agreement, and other forms of informal and formal agreements • Reliable handheld and base radios, antennae, repeater, backup power supply, and other equipment needed to establish the physical infrastructure of communication systems and early warning systems	• Preparation of hazard and risk maps to inform disaster response, contingency planning and other DRR work • Setting up of redundant communication systems to ensure continuous flow of information for EWS and emergency response coordination • Availability of transportation services for land, sea and air travel during emergencies • Provision of humanitarian response during emergencies • Availability of rice, basic commodities and medicines during emergencies and the typhoon season • Capacity building of competent volunteers within small island communities that may be mobilized for emergencies and disasters
Pathway: Mainstreaming DRR–CCA		
• Capacitating local DRR–CCA leaders and champions • Accrediting civil society organizations • Translating disaster risk assessment and community needs into development plans • Engaging in local development planning processes and with key international, national and regional development frameworks	• Lobbying and advocacy work through mass mobilizations, media and awareness campaign, signature campaign, submission of position papers and policy statement, participation in policy discourses, and preparation or formulation of development agenda • Community consultations • Direct and active representation in decision-making bodies • Rapport building with stakeholders	• Proposed PPA infused with DRR–CCA measures and integrated in the Annual Investment Program • Implementing structures for DRR–CCA, such as DRRMCs and DRRMOs, created; DRR–CCA mainstreamed in legislative bodies • Ordinances, resolutions, administrative orders, and executive orders enacted and approved

Table 8.1 (cont.)

Interventions	Approaches, tools or technologies used	Outputs
	• Analysis and review of LGUs' development thrusts, achievements, performance and limitations • Organizing youth summits, conferences and public forums	

The jump-off point is *assessing disaster risks*. A better understanding of the risks of small islands allows local leaders to plan how to handle effectively the challenges imposed by disasters and climate change. This then reduces the sense of helplessness that often prevails in many disaster-affected communities. It also serves as a critical eye-opener for small island leaders, households and communities who are important players in the process of developing disaster resilience. Their participation, as well as the involvement of external scientists, civil society organizations (CSOs) and local government units (LGUs), fills knowledge gaps, brings about a more comprehensive analysis of risks in the area, and establishes the need for collaboration and a synthesis of possible action and capacities.

Disaster risk assessment generates basic community information that may be presented in different forms (e.g., updated barangay profiles, community hazard maps, vulnerability maps) to the different stakeholders. Such information may be converted into knowledge that can initiate the creation of early warning systems, contingency plans, disaster response capacity development plans, and DRR projects and plans; feed into mainstreaming efforts; and revise or improve the existing DRR–CCA or development plans, policies or programs.

Developing internal capacities involves opportunities for small island communities to access critical resources and harness human capacities. By enhancing human capital that is already strategically positioned in the small island itself, communities are able to respond to disasters timely and to determine the appropriate DRR–CCA strategies they will use.

The sustainable management of natural and physical capital allows small island communities to optimize locally available but limited resources. Effectively *managing limited resources* ultimately reduces the vulnerabilities of small islands to disasters, maintains nature's life support functions and ensures the creation of resilient livelihoods. Key to this strategy is a clear understanding of why small islands have limited resources and why such resources should be managed.

Addressing isolation and remoteness in small islands is a necessary pathway when it increases an island's vulnerability. It is important to note that isolation goes beyond the physical context and also denotes marginalization from facilities, services, information and processes important to community life. During periods of disasters, when communities struggle to have access to essential lifelines, such as electricity and communication, external support becomes indispensable. Formal and informal partnership building with mainland institutions thus becomes a key intervention.

Mainstreaming DRR–CCA in governance allows small island communities to translate short-term interventions into programmatic long-term development. DRR–CCA is integrated into the thinking processes (analysis, strategies and visioning), human structures, and public rules and actions. Partnerships among local stakeholders (e.g., LGUs, CSO, communities) are crystallized. As such, the mainstreaming process becomes the foundation for generating a culture of safety and resilience in small island communities.

The strategies above are interrelated and iterative in nature. While the process is tedious, it is imperative for survival and sustainable development.

What Have We Learned?

In traversing the Small Island Resilience Pathway, lessons were learned on how to improve the adaptive capacity of the DRR–CCA practitioner and small island communities. These included incorporating abstract concepts and seemingly ironic strategies to enhance disaster resilience and internalizing change, complexity and uncertainty.

Continuous learning and innovation became an underlying strategy to address the uncertainties and unknowns that the project teams had encountered. Uncertainties emerged because of complexities arising from the absence of a clear, immediate and substantial explanation of certain phenomena. Examples of these included vague causes of an event owing to the combination of various hazards and vulnerabilities (e.g., landslide caused by normal rainfall and mild earthquakes) and sudden effects that had inexplicable causes (e.g., *subasko* or sudden squalls that threatened seafarers). Uncertainties were also brought about by continuous and accelerating changes in the physical environment (e.g., extreme weather events that required frequent updating of expensive hazard maps) and shifting strategies, interests and intentions of various players.

Such uncertainties require institutions and proponents to enhance their adaptive capacity and skills in scenario building, introduce redundancy in streamlined processes, and value transitions and piloting. While these could be daunting and could force institutions to maintain a fatalistic attitude, uncertainties should instead

motivate institutions and people to innovate, do contingency plans, and nurture a culture of learning among themselves and the communities they serve.

Annex 16 elaborates these lessons learned.

What Do We Look Forward to?

The improved effectiveness of concerned institutions, operations, capacities and systems owing to DDR–CCA interventions has helped ensure the disaster preparedness and resilience of small island communities. It has been proven that zero casualty is possible as experienced in Jomalig during Typhoon Santi and in Rapu-Rapu during Typhoon Juaning.

Despite these gains, however, more has to be done if disaster and climate risks in small islands are to be significantly reduced. Among the immediate concerns the communities and implementers of BDRSIP and ASCEND have identified are:

- Conducting far–shore assessments to ascertain the risk of small island dwellings at sea and their common navigational paths
- Strengthening interisland network of LGUs for resilience
- Enhancing food and water security in the islands
- Sustaining livelihoods by stimulating the development of the local economy
- Strategically incorporating island concerns in the DRR and CCA analysis that feeds into the planning and budgeting processes of LGUs

Other suggestions of small island LGUs, as put forward during the National Conference on DRR–CCA in Small Islands, included:

- Immediate localization and implementation of Republic Acts 10121 and 9729
- Capacity building and institutionalization of mandated DRR and CCA structures in small islands
- Greater understanding of and access to scientific and participatory tools for DRR and CCA
- Installation of an automated weather station in small islands for localized weather and climate data and forecast applications
- Strengthening of the interisland transportation and communication system
- Capacity enhancement of the community for DRR–CCA through organizing, training and partnerships
- Alliance building among small island LGUs

We look forward to asking more questions and finding answers to them. This Guidebook was built around questions raised by LGUs, small island communities and DRR–CCA practitioners. While the experiences of the three small islands have provided answers, the key to deep continuous learning is asking appropriate questions on DRR, CCA and sustainable development.

Burning questions cause restless nights and unsettled dreams. Hanging questions stretch our imagination not for aesthetic creativity but for practical innovation. Unanswered questions bring about an irresistible yearning to pack our bags and set forth in another journey.

Hopefully, as we take another journey, more LGUs, CSOs and communities, particularly those based in small islands, will be encouraged to pursue their own voyages to disaster resilience. Undoubtedly, their journeys will enrich the Small Island Resilience Pathway with their own experiences of DRR and CCA interventions, lessons learned, challenges hurdled and difficult questions answered.

ANNEXES

ANNEX 1

Characteristics, Hazards, Exposure, Vulnerabilities and Capacities of Small Islands in the Philippines as Identified under BDRSIP and ASCEND

Characteristics	Hazard	Exposure	Vulnerability	Capacity
Physical				
Atolls	Typhoons	• Population in coastal areas • Seafarers	• Physical isolation during powerful hazards • Absence of evacuation centers • Food insecurity	• Planting root crops • Shell gathering • Controlling consumption
	Storm surges	• Population in coastal areas • Seafarers	Houses made of very light materials	Traditional knowledge of settlement protection
	Stronger northeasterly ("*amihan*") and southwesterly ("*habagat*") monsoon winds	• Population in coastal areas • Seafarers	• Lack of alternative sustainable livelihoods for fishing and farming communities • Poor early warning systems	• Traditional knowledge of early warning and edible foods in the wild • Navigational skills informed by indigenous practices • Boat design incorporating life-saving object • Preparedness (e.g., knife and containers of water and gasoline in boats) • Traditional knowledge of flotation devices
	Squall	• Population in coastal areas • Seafarers	Lack of water safety training and search and rescue skills, vessels and equipment	Same as above
	Tail end of the cold front (TECF)	Population near rivers and in downstream communities	Same as above	Same as above
	Flooding	Population near rivers and in downstream communities	Same as above	Same as above

Characteristics	Hazard	Exposure	Vulnerability	Capacity
Physical				
Atolls	Tsunami	Population in coastal areas	Lack of knowledge of natural early warnings for tsunami and of safe routes to higher grounds	Physical capacity to run
	Ground shaking	Island population	• Poor risk assessment capacities • Substandard infrastructure	
	Liquefaction	Population in liquefaction areas	Heavy infrastructure	
	Rainfall-induced landslide	Upland and lowland communities with steep slopes	Absence of search and rescue equipment	
Raised limestone islands	Drought	Island population	• Agricultural practices not informed by climate forecasts • Loss of upland rice varieties that are less water-intensive • Vegetables being imported to the island • Grassland prone to bushfire	• Planting root crops • Food sharing among neighbors • Fetching water from neighboring island • Controlling water consumption
	Destruction and degradation of natural resource base due to extractive industries	Upland communities specifically, but also impacts lowland communities	Lack of understanding of potential risks from the extraction of natural resources in small islands	• Strong social accountability • People's movements in some islands • Mining company willing to invest in DRR
Social				
			• Weak interisland linkages; weakening within-island social networks • Outmigration of able island residents	Close family ties; efficient intra-island verbal communication practice; inter-generational transfer of knowledge

Characteristics	Hazard	Exposure	Vulnerability	Capacity
Social				
			• Lack of communication equipment in fishing vessels	
Economic				
			• Control of economic resources by traders and political leaders • Idle land owned by those living outside the island • Absentee landlords • Lack of livelihood diversity • Credit facilities controlled by traders • A form of feudal relationship between trader and fishers • Economic dependency on the traders	• Availability of local credit lines • Work options in the mainland
Political and institutional				
			• Absentee political leaders • Non-resident government workers assigned to the island • Limited LGU skills and equipment for search and rescue • No provision for public transport facilities • Weak knowledge of integrating DRR and CCA in government plans and budgets	• LGU willingness to invest in DRR and CCA • Political leaders still respected and obeyed by island residents

ANNEX 2

Sample Census Form

Barangay _____ Purok _____

Household Number _____

Name _____

Gender _____ Age _____

Civil Status: ☐ Single ☐ Married ☐ Widow ☐ Separated

No. of children: Male _____ Female _____

Age of people living in the house:

Age group	Male	Female	Household members with disability		
			Male	Female	Type of disability
0–5					
6–12					
13–21					
22–59					
60 & above					

No. of people living in the house: _____

No. of families living in the house: _____

Main source of livelihood: _____

House material: ☐ Concrete ☐ Semiconcrete ☐ Wood and other materials

I. Livelihood

☐ Fishing ☐ Businessman ☐ Seamstress

☐ Farming ☐ Midwife ☐ Miner

☐ OFW ☐ Handicraft ☐ No work

Professional skilled worker _____

Unskilled worker _____

Others _____

II. Education

☐ Vocational ☐ College ☐ High school ☐ Elementary _____

Day Care

☐ Kinder ☐ Prep ☐ Others (specify) _____

III. Facilities

☐ With toilet ☐ With potable water ☐ With electricity

IV. House

☐ Owns the house and land ☐ Rents the house and land

☐ Owns the house ☐ Others _____

V. Ownership

☐ Land ☐ None Size_____ With crops _____

☐ Fishing boat ☐ None How many_____

Use: ☐ Fishing ☐ Passenger boat ☐ Private

☐ Livestock ☐ None What animals: _____

Appliances: _____

Generator: ☐ With generator ☐ Without generator

Boarding house: ☐ With boarding house ☐ No boarding house

VI. Health and nutrition

No. of pregnant women: _____ No. of months: _____

No. of breast-feeding women: _____ No. of months/years: _____

No. of malnourished children: _____

No. of PWD: _____

_____ _____

Name below signature
Barangay Volunteer

Name below signature
Respondent

_____ _____

Name below signature
Community Facilitator

Name below signature
Punong Barangay

ANNEX 3
Training Plan for Small Islands

Type of training	Target group	Training system	Person/group responsible	Training duration	Outline of training content
DRR and CCA	Core group at the municipal and barangay levels made up of LGU officials and various sector representatives	Experiential learning, lecture, workshop	• For DRR and CCA training and PCVA training, the BDRC Learning Circle • For orientation on the local development planning process, DILG representative • For advocacy training, the Consortium for the Advancement of People's Participation through Sustainable Integrated Area Development (CAPP-SIAD)	3 days	I. DRR and CCA concepts and frameworks a. Definition of terms b. DRR, Hyogo Framework for Action, CCA, UNFCCC c. The DRR-CCA Nexus II. Risk assessment tools a. PDRA (Participatory Disaster Risk Assessment) b. PCVA as an alternative tool for examining LGU profiles III. Enhancing capacities of LGUs through knowledge management: Linkages for DRR and CCA IV. Reducing vulnerabilities to disaster- and climate-related hazards through: a. environmental management; b. sustainable livelihoods; c. social protection; d. physical infrastructure; and e. policy reform and planning processes. V. DRR and CCA governance in the Philippines: Mechanisms and gaps a. DRRM Law in the Philippines and the new DRRM system b. Climate change law, Climate Change Commission c. Actions for and issues on mitigation, adaptation, technology transfer and financing

Type of training	Target group	Training system	Person/group responsible	Training duration	Outline of training content
Integrating DRR and CCA in planning and development processes	Core group at the municipal and barangay levels made up of LGU officials and various sector representatives	Experiential learning, lecture, workshop	• DILG representative • BDRC Learning Circle	1 day	Reducing vulnerabilities to disaster- and climate-related hazards through policy reform: Integrating DRR and CCA through the Rationalized Planning System a. JMC No. 1, 2007 b. Local planning structure c. Participatory planning d. Understanding the CDP, LDIP, AIP and other related processes e. Sectoral interests and sectoral agenda on DRR and CCA f. Relationship between the executive and legislative agenda and the other LGU plans
Emergency response, assessment and planning	Core group at the municipal and barangay levels made up of LGU officials and various sector representatives	Experiential learning, lecture, workshop	• Christian Aid CARRAT • Other DRR practitioners	2 days	I. Understanding humanitarian action and intervention a. The need for humanitarian action and intervention in different contexts: Focus on disaster response – Relief b. Understanding disasters and the need for disaster response II. Principles of humanitarian action III. Philippine disaster risks and accessing hazard and risk data IV. Phases and actors in disaster response – Relief V. The Philippine Disaster Management System and evolving national, subnational and local mechanisms for disaster response a. Organizing the rapid response and assessment team b. Coordination mechanisms at various levels

Type of training	Target group	Training system	Person/group responsible	Training duration	Outline of training content
					VI. Organizing working teams for disaster response: Relief operations a. HAP and SPHERE standard b. Procurement, storage management and packing of goods c. Allocation, logistics, distribution d. Administration of convoys and the importance of humanitarian negotiations e. Natural disasters and conflict situations in small island contexts f. Addressing gender, health, water management and sanitation concerns and other difficult circumstances in small island contexts VII. Simulation exercise VIII. Planning for disasters
PCVA	Core group at the municipal and barangay levels made up of LGU and various sector representatives	Experiential learning, lecture, workshop	BDRC Learning Circle	1 day	PCVA as part of the PDRA (Participatory Disaster Risk Assessment) I. Hazard assessment a. Identification of past, present and future hazards b. Understanding the nature and behavior of hazards II. Disaster impact assessment a. Most vulnerable groups b. Elements at risk c. Priority unmet needs III. Vulnerabilities and capacities analysis a. Dimensions: Human, social, economic, political, environmental b. Vulnerability assessment c. Capacity assessment

Type of training	Target group	Training system	Person/group responsible	Training duration	Outline of training content
					IV. Examining dynamic pressures a. Organizations and actors b. Policies and practices V. Understanding underlying causes
Advocacy	Core group at the municipal and barangay levels made up of LGU officials and various sector representatives	Experiential learning, lecture, workshop	• Local advocacy and communications officers • Representatives of CAPP-SIAD	2 days	Getting ideas into action: The power of advocacy for policy reform a. Understanding advocacy b. Tools – stakeholder analysis – needs assessment – issue/problem identification c. Crafting the advocacy message – issue or problem – scale or extent of the issue or problem – effect or impact of the problem – identifying the policy issue/problem d. Advocacy objective e. Criteria for selecting an advocacy objective f. Identifying the policy audience – policy mapping g. Developing sectoral policy messages – key elements of the policy message h. Delivering the message: Making effective presentations i. Understanding the decision-making process: Policy process map j. Alternative policy advocacy processes: Advocacy map k. Building alliances l. Resource generation for advocacy

Type of training	Target group	Training system	Person/group responsible	Training duration	Outline of training content
Basic life saving	Core group at the municipal and barangay levels made up of LGU officials and various sector representatives	Experiential learning, lecture, workshop	Philippine National Red Cross	3 days	I. First Aid: How to recognize and care for victims of illness, sudden injuries and common ailments II. CPR: How to recognize and care for breathing and cardiac emergencies for adults, children and infants III. Prevention of disease transmission in the community and workplace

Source: ASCEND Single Form

ANNEX 4

MOU between MaCEC and Different Parties on the Radio Communications System

I – MaCEC HEREBY COMMITS ITSELF TO AND STATES:

1. **THAT MaCEC,** in coordination with its principals, shall purchase the radio communications equipment and accessories in accordance with the specifications, mode of purchase, and guidelines of DIPECHO as stipulated in the approved partnership agreement between MaCEC and Christian Aid;

2. **THAT** for and in consideration of the terms and conditions of the DIPECHO project entitled Advancing Safer Communities and Environments against Disasters (ASCEND), MaCEC, by these presents shall hereby donate, give, transfer, and convey unto the Province, the MLGUs and BLGUs and their assigns, the above-mentioned communications equipment and accessories, free of charge;

3. **THAT** upon the transfer of ownership of said radio communications equipment and accessories, all rights and obligations concerning the equipment and accessories are transferred to the Province, the MLGUs and BLGUs. The said set of equipment shall solely be used by the Province, the MLGUs and BLGUs for humanitarian purposes in the Philippines particularly in the island of Marinduque, and for other related official business as stipulated in an inter-agency protocol that will be drafted for the purpose and agreed upon by the Province, the MLGUs and BLGUs;

4. **THAT** the said radio communications equipment and accessories shall be included in the Province's, the MLGUs' and BLGUs' asset inventory subject to existing laws, rules and regulations on property management;

5. **THAT** MaCEC shall be entitled to monitor the compliance of the Province, the MLGUs and BLGUs with the herein mentioned terms and conditions. In case the Province, the MLGUs and BLGUs fail to comply, MaCEC will request that the radio communications equipment and accessories be surrendered back as required by MaCEC's agreement with its principals and thereafter be transferred to other deserving BLGUs' or partner nongovernment organizations or people's organizations in the province;

II – THE DIOCESE HEREBY COMMITS ITSELF AND STATES:

1. **THAT** it shall provide a space in the Diocesan Pastoral Center to host the repeater antennae that would provide interlinking of the communications

system/network among the local government units and agencies without charges, on a long-term basis, serving thereof as the Diocese's counterpart on humanitarian response mechanisms of the Provincial Disaster Risk Reduction and Management Council;

2. **THAT** it shall allow MaCEC and Kabalikat-Civicom to jointly manage the central radio communication system within the compound of the Diocesan Pastoral Center to serve as its humanitarian contribution not only during disasters and extreme emergencies, but also to facilitate the flow of important communications among and between LGUs and agencies, and the island province with the service providers in the mainland;

III – THE PROVINCE HEREBY COMMITS ITSELF AND STATES:

1. **THAT** it shall be responsible in providing the necessary resources for the construction of tower mast that will be used in installing radio antenna, the repair and maintenance of the same to ensure its functionality before, during and after disaster events, to serve as its counterpart for the radio communications network;

2. **THAT** it shall provide and assign a personnel who shall regularly manage the radio communications equipment and system and preferably lead the Communications and Warning Committee of the Provincial Disaster Risk Reduction and Management Council, and allow the said personnel's attendance to trainings, seminars, workshops and simulation drills to capacitate knowledge and skills for the effective and efficient operation of the radio communications system;

3. **THAT** it shall provide space within the provincial capitol compound which shall solely be allocated for use in radio operation in normal times, and before, during and after disaster events. It shall serve as the province's central radio communications nerve or focal area, in coordination with Kabalikat and MaCEC's central radio repeater system;

4. **THAT** it may allocate financial resources from its 20% Development Fund to add additional hand-held radio units and antennae for highly vulnerable and disaster-prone barangays in the province, and other financial resources from its provincial disaster risk reduction and management fund for use in trainings, seminars and drills related to communications and warning;

5. **THAT** in the event a regional (MIMAROPA) radio communications network is established, it shall ensure that the radio-communications network of the province is effectively connected in the regional network;

IV – THE MLGUs HEREBY COMMIT THEMSELVES AND STATE:

1. **THAT** it shall be responsible in providing the necessary resources for the construction of tower mast that will be used in installing radio antenna, the repair and maintenance of the same to ensure its functionality before, during and after disaster events, to serve as its counterpart for the radio communications network;

2. **THAT** it shall provide and assign a personnel who shall regularly manage the radio communications equipment and system and preferably lead the Communications and Warning Committee of the Municipal Disaster Risk Reduction and Management Council, and allow the said personnel's attendance to trainings, seminars, workshops and simulation drills to capacitate knowledge and skills for the effective and efficient operation of the radio communications system;

3. **THAT** it shall provide space within the municipal building, which shall solely be allocated for use in radio operation in normal times, and before, during and after disaster events. It shall serve as the municipality's radio communications nerve or focal area, in coordination with Kabalikat and MaCEC's central radio repeater system;

4. **THAT** it may allocate financial resources from its 20% Development Fund to add additional hand-held radio units and antennae for highly vulnerable and disaster-prone barangays in the municipality, and other financial resources from its municipal disaster risk reduction and management fund for use in trainings, seminars and drills related to communications and warning;

IV – THE BLGUs HEREBY COMMIT THEMSELVES AND STATE:

1. **THAT** it shall be responsible in providing the necessary resources for the construction of tower mast that will be used in installing radio antenna, the repair and maintenance of the same to ensure its functionality before, during and after disaster events, to serve as its counterpart for the radio communications network;

2. **THAT** it shall provide and assign a volunteer who shall regularly manage the radio communications equipment and system and preferably lead the

Communications and Warning Committee of the Barangay Disaster Risk Reduction and Management Committee, and allow the said volunteer's attendance to trainings, seminars, workshops and simulation drills to capacitate knowledge and skills for the effective and efficient operation of the radio communications system;

3. **THAT** it shall provide space within the barangay hall/building which shall solely be allocated for use in radio operation in normal times, and before, during and after disaster events. It shall serve as the province's central radio communications nerve or focal area, in coordination with Kabalikat and MaCEC's central radio repeater system;

4. **THAT** it may allocate financial resources from its 20% Development Fund to add additional hand-held radio units and antennae for highly vulnerable and disaster-prone sitios in the barangay, or from its barangay disaster risk reduction and management fund for use in trainings, seminars and drills related to communications and warning;

V – KABALIKAT-CIVICOM HEREBY COMMITS ITSELF AND STATES:

1. **THAT** it shall provide technical assistance in training all radio communications operators of the Province, the MLGUs and BLGUs to enable them to functionally operate their respective communications system in accordance with standards and protocol;

2. **THAT** it shall maintain and manage the central radio base and repeater system of the provincial radio network to link with the Regional Communications and Warning Group of the Office of Civil Defense in Region IV-B and its own national radio network;

3. **THAT** it shall provide and designate technical volunteers in the operation, maintenance and management of the respective municipal radio base stations especially during emergency and disaster situations;

4. THAT it shall directly coordinate and collaborate with the officials and functionaries, assigned personnel and communications and warning subcommittees of the BDRRMCs, MDRRMCs, PDRRMC, OCD-RDRRMC IV-B and MaCEC for the daily operation and special operations of the communications network;

5. THAT it shall provide technical assistance in the repairs and maintenance of the radio communications equipment and accessories and advise con-

cerned users of the BLGUs, MLGUs and the Province in proper maintenance and use of the radio equipment and accessories.

At the height of Typhoon Juaning in July 2011, the communications network proved to be functional when it provided real time information as the flood level in Boac River was monitored through the flood gauge installed on a bridge by PAGASA. The flood information was relayed to the MDRRMC, the PDRRMC and the RDRRMC.

A flood gauge installed by PAGASA in Kabilang-Ilog Bridge in Boac, Marinduque, to monitor the flood level in Boac, River (Photo by Myke Magalang)

The communications system assisted the OCD-RDRRMC in monitoring and directing the rescue efforts of 12 fisherfolk from Dalahican, Lucena City whose fishing boat capsized in the seas of Mogpog, Marinduque due to big waves and turbulent waters brought by Typhoon Juaning.

It is hoped that the communications system will be sustained and expanded because of the promises of local chief executives to provide additional radio communications equipment to the rest of the barangays in the province through their respective DRRM Fund or 20 percent development fund.

ANNEX 5
MOU between Barangays Pili and Poras and JAC Liner

MEMORANDUM OF UNDERSTANDING & COMMITMENT FOR THE INSTITUTIONALIZATION AND SUSTAINABILITY OF THE BUILDING DISASTER RESILIENT SMALL ISLAND COMMUNITIES PROJECT (BDRSIP) AT BARANGAYS PORAS AND PILI IN BOAC, MARINDUQUE, PHILIPPINES AND IN ADDRESSING THE PROBLEM OF ISOLATION DURING MAJOR DISASTER EVENTS:

JAC LINER, INC.
Marinduque Booking Office
Boac, Marinduque

In response to and in recognition of the initiatives and appeals of Barangays Poras and Pili, this municipality, and in consideration of this Company's highest commitment to its corporate social responsibility, we hereby commits to the following:

1. That it affirms its corporate social responsibility to provide humanitarian assistance to people in most vulnerable communities in the event of extreme needs and emergencies, particularly in Barangays Poras and Pili, which is part of the operational jurisdiction of our Company;

2. That in the event of isolation of said communities during disasters and extreme effects of climate change, it shall develop linkages and collaborative initiatives with its mainland offices to afford the affected communities their emergency response needs, provide communications services, or provide priority space in its buses to transport humanitarian aid packages and relief goods from Aid Agencies in the national and international levels;

3. That it shall provide its own assistance as part of its corporate social responsibility, subject to the approval of its governing authorities.

For the JAC LINER, Inc.:

ALFONSO J. MAGALANG
Area Manager
Marinduque Booking Office

For Barangays Poras and Pili:

HERACLEO M. MARMOL
Punong Barangay
Barangay Poras

DOMINADOR M. MANSIA
Punong Barangay
Barangay Pili

ANNEX 6
MOU between Barangays Pili and Poras and Montenegro Shipping Lines

MEMORANDUM OF UNDERSTANDING & COMMITMENT FOR THE INSTITUTIONALIZATION AND SUSTAINABILITY OF THE BUILDING DISASTER RESILIENT SMALL ISLAND COMMUNITIES PROJECT (BDRSIP) AT BARANGAYS PORAS AND PILI IN BOAC, MARINDUQUE, PHILIPPINES AND IN ADDRESSING THE PROBLEM OF ISOLATION DURING MAJOR DISASTER EVENTS:

MONTENEGRO SHIPPING LINES, INC.
Marinduque Port Management Office
Boac, Marinduque

In response to and in recognition of the initiatives and appeals of Barangays Poras and Pili, this municipality, and in consideration of this Company's highest commitment to its corporate social responsibility, we hereby commits to the following:

1. That it affirms its corporate social responsibility to provide humanitarian assistance to people in most vulnerable communities in the event of extreme needs and emergencies, particularly in Barangays Poras and Pili, which is part of the operational jurisdiction of our Company;

2. That in the event of isolation of said communities during disasters and extreme effects of climate change, it shall develop linkages and collaborative initiatives with its mainland offices to afford the affected communities their emergency response needs, provide communications services, or provide priority space in its vessels to transport humanitarian aid packages and relief goods from Aid Agencies in the national and international levels;

3. That it shall provide its own assistance as part of its corporate social responsibility, subject to the approval of its governing authorities.

For the Montenegro Shipping Lines, Inc.:

ALFONSO J. MAGALANG
Port Manager
Marinduque Port Management Office

For Barangays Poras and Pili:

HERACLEO M. MARMOL
Punong Barangay
Barangay Poras

DOMINADOR M. MANSIA
Punong Barangay
Barangay Pili

ANNEX 7

MOU between Barangays Pili and Poras and Zest Airways

MEMORANDUM OF UNDERSTANDING & COMMITMENT FOR THE INSTITUTIONALIZATION AND SUSTAINABILITY OF THE BUILDING DISASTER RESILIENT SMALL ISLAND COMMUNITIES PROJECT (BDRSIP) AT BARANGAYS PORAS AND PILI IN BOAC, MARINDUQUE, PHILIPPINES AND IN ADDRESSING THE PROBLEM OF ISOLATION DURING MAJOR DISASTER EVENTS:

ZEST AIRWAYS, INC.
Marinduque Provincial Station
(Ticketing Office)
Boac, Marinduque

In response to and in recognition of the initiatives and appeals of Barangays Poras and Pili, this municipality, and in consideration of this Company's highest commitment to its corporate social responsibility, we hereby commits to the following:

1. That it affirms its corporate social responsibility to provide humanitarian assistance to people in most vulnerable communities in the event of extreme needs and emergencies, particularly in Barangays Poras and Pili, which is part of the operational jurisdiction of our Company;

2. That in the event of isolation of said communities during disasters and extreme effects of climate change, it shall develop linkages and collaborative initiatives with its mainland offices to afford the affected communities their emergency response needs, provide communications services, or provide priority space in its airplane to transport humanitarian aid packages and relief goods from Aid Agencies in the national and international levels;

3. That it shall provide its own assistance as part of its corporate social responsibility, subject to the approval of its governing authorities.

For the Zest Airways, Inc.:

ALLAN H. NEPOMUCENO
Marinduque Provincial Station
and Ticketing Office
Boac, Marinduque

For Barangays Poras and Pili:

HERACLEO M. MARMOL
Punong Barangay
Barangay Poras

DOMINADOR M. MANSIA
Punong Barangay
Barangay Pili

ANNEX 8
MOU between the Church and Barangays Pili and Poras

MEMORANDUM OF UNDERSTANDING & COMMITMENT FOR THE INSTITUTIONALIZATION AND SUSTAINABILITY OF THE BUILDING DISASTER RESILIENT SMALL ISLAND COMMUNITIES PROJECT (BDRSIP) AT BARANGAYS PORAS AND PILI IN BOAC, MARINDUQUE, PHILIPPINES AND IN ADDRESSING THE PROBLEM OF ISOLATION DURING MAJOR DISASTER EVENTS:

THE DIOCESE OF BOAC
Cathedral Compound
Boac, Marinduque

In response to and in recognition of the initiatives and appeals of Barangays Poras and Pili, this municipality, the Diocese of Boac, mandated by its moral authority to implement the action decrees of the First Diocesan Synod and mindful of its commitment to the principles of social justice and the common good, do hereby affirms its commitments, viz:

1. That it affirms its social and moral obligations to provide humanitarian assistance to people in most vulnerable communities in the event of extreme needs and emergencies particularly in Barangays Poras and Pili under the ecclesiastical jurisdiction of the Parish of the Sacred Heart of Jesus, through its existing projects and programs;

2. That in the event of isolation of said communities during disasters and extreme effects of climate change, it shall develop linkages and collaborative initiatives with its ecclesiastical counterparts in the mainland to afford the affected communities their emergency response needs, provide communications services, serve as spokesperson to access humanitarian assistance from Catholic Aid Agencies in the national and international levels;

3. That the local Church shall assist, in whatever necessary needs may be required of it, in sustaining the gains of the Building Disaster Resilient Small Island Communities Project in Barangays Poras and Pili; in providing technical support and necessary resources for the operationalization of the Inter-Barangay Learning Center for Disaster Risk Reduction and Climate Change Adaptation, and for the maintenance of the Riverside District Health, Nutrition and Evacuation Center, through its organizations and other apostolate;

4. That the local Church through the concerned parish shall afford the communities regular spiritual and moral guidance as integral part of disaster risk reduction and climate change adaptation initiatives, to imbibe in the hearts and minds of the people that such are part of the faith imperative, in accordance with the spirit of "bayanihan" articulated through the models of building Christian communities.

For the Diocese of Boac:

REV. FR. IAN RETARDO
Parish Priest
Sacred Heart Parish

MOST REV. REYNALDO G. EVANGELISTA, D.D.
Bishop of Boac
Cathedral Compound, Boac, Marinduque

For Barangays Poras and Pili:

HERACLEO M. MARMOL
Punong Barangay
Barangay Poras

DOMINADOR M. MANSIA
Punong Barangay
Barangay Pili

ANNEX 9

MOU between the Mainland and Small Island LGUs

Republika ng Pilipinas
Lalawigan ng Quezon
Bayan ng Jomalig
****

TANGGAPAN NG SANGGUNIANG BAYAN

SIPI MULA SA KATITIKAN NG PANGKARANIWANG PULONG NG SANGGUNIANG BAYAN NG JOMALIG, QUEZON NA GINANAP SA SILID- PULUNGAN NG GUSALING BAHAY PAMAHALAAN NOONG IKA-16 NG PEBRERO, 2009.

MGA DUMALO:

Kgg. Ruben T. Belda, Sr.	Pang. Punumbayan/Tagapangulo
Kgg. Fidel T. Lauce	Konsehal
Kgg. Arturo D. Tapado, Jr.	Konsehal
Kgg. Gerardo A. Almadrones	Konsehal
Kgg. Rodrigo C. Tejada	Konsehal
Kgg. Lilibeth M. Li	Konsehal
Kgg. Yolando R. Tapado	Konsehal
Kgg. Rudy B. Tapar	Konsehal
Kgg. Isagani C. Balino	Konsehal/PPLB Pres.
Kgg. Roland A. Silverio	Konsehal/PPSK Pres.

DI-DUMALO:

Kgg. Pedro L. Patal	Konsehal

RESOLUSYON BLG. 03-2009
(serye ng 2009)

" ISANG RESOLUSYON NA ITINUTULOY ANG KAHILINGAN NG PAMBAYANG PEDERASYON NG LIGA NG MGA PUNONG BARANGAY NG BAYAN NG JOMALIG, QUEZON SA LOKAL NA PAMAHALAAN NG INFANTA, QUEZON NA MAGING KATUWANG AT KAAGAPAY NG BAYAN NG JOMALIG SA ORAS NG KALAMIDAD"

SAPAGKAT, iniharap sa kapulungan ang Resolusyon Blg. 2009-001 ng Pambayang Pederasyon ng Liga ng mga Punong Barangay upang pagpasiyahan;

SAPAGKAT, isinasaad sa resolusyon ito ang kahilingan sa Lokal na Pamahalaan ng Infanta, Quezon na ito ay maging katuwang ng Bayan ng Jomalig sa panahon ng kalamidad dahil ito ang pinakamalapit na bayang malapit sa mainlad;

SAPAGKAT, ang Bayan ng Jomalig ay nangangailangan ng isang lokal na pamahalaan na makakatuwang o kaagapay sa oras ng kalamidad;

SAPAGKAT, ang Pamahalaang Lokal ng Infanta, Quezon ang isa sa maaring maging katuwang o kaagapay ng Bayan ng Jomalig sa mga kalamidad, tulad ng pagbibigay ng impormasyon, mga babala at iba pang tulong pinansyal na makakayanan nitong ipagkaloob sa bayang ito, kung kaya't;

DAHIL DITO'Y IMINUNGKAHI ni Konehal Lilibeth M. Li, pinangalawahan at buong pagkakaisang sinangayunan ng lahat sa kapulungan na;

IPINASIYA, tulad ng dito'y pinagpapasiyahan na ituloy/indorso ang kahilingan ng Pambayang Pederasyon ng Liga ng mga Punong Barangay ng bayan ng Jomalig, Quezon sa Lokal na Pamahalaan ng Infanta, Quezon na maging katuwang at kaagapay ng bayang ito sa oras ng kalamidad.

IPINASIYA PA na ipadala ang sipi ng resolusyonng ito sa Punumbayan, Kgg. Filipina Grace America at mga Kgg. na Sanggunians Bayan ng Infanta, Quezon para sa lubos nitong kabatiran, reperensya at kaukulang pagsasaalang-alang.

PINAGTIBAY: Pebrero 16, 2009

PINATUTUNAYAN KONG WASTO ang nasasaad sa resolusyong ito.

MARY ANN S. PIOPONCCO
Kalihim ng Sangguniang Bayan

PINATOTOHANAN:

RUBEN T. BELDA, SR.
Pang. Punumbayan/Tagapangulo

ANNEX 10

Rice Loan MOA between NFA and LGU

RICE LOAN MEMORANDUM OF AGREEMENT

This Agreement made and entered into this 2nd day of December, 2010 at Infanta, Quezon, Philippines by and between:

The **NATIONAL FOOD AUTHORITY (NFA),** an agency of the government created pursuant to PD No. 04 as amended by PD No. 1485 and PD No. 1770 with principal place of business at Philippine Sugar Center, North Ave. Diliman, Quezon City represented herein by its **Provincial Manager Apolinario J. Buerano,** hereinafter referred to as **NFA.**

AND

The **MUNICIPAL GOVERNMENT of JOMALIG** a local government unit with principal place of business at the Municipal Hall, Jomalig Quezon represented herein by its **Municipal Mayor Rodelo T. Tena** referred to as **LOCAL GOVERNMENT UNIT (LGU).**

WITNESSETH :

WHEREAS, NFA is the government agency charged with, among others, ensuring the nation with adequate supply and distribution of grains;

WHEREAS, under the Local Government Code, Local Government Units have been vested the authority to discharge the functions and responsibilities of national agencies and offices devolved to them ;

WHEREAS, the Local Government Units are authorized to set aside five percent (5%) and twenty percent (20%) of their estimated revenue from regular sources as annual lump sum appropriation for Calamity Fund and Special Development Fund respectively.

WHEREAS, the Local Government Units have been tasked with providing basic social services at all times particularly in times of calamities;

WHEREAS, in order to provide basic social services to the populace, the Local Government Unit has requested NFA to allow them to purchase rice on credit for the following purposes; (1) for relief operation whenever a state of calamity is declared in their locality. and (2) for stockpiling in preparation of eventualities/emergencies that may occur at any given time.

WHEREAS, in order to restore, rehabilitate, reconstruct the damage caused by the disaster to the affected families and infrastructures, the Local Government Unit has requested NFA to allow them to purchase rice on credit for its rehabilitation project/program.

WHEREAS, the NFA cognizant of the needs of the people in times of emergency/calamity, has agreed to the request of the Local Government Unit for a rice loan.

APOLINARIO J. BUERANO
Provincial Manager

RODELO T. TENA
Municipal Mayor

Signed in the presence of:

CESAR S. GONDA

II.

OBLIGATIONS OF THE LOCAL GOVERNMENT UNIT

1. Whenever the LGU's desires to purchase rice on credit from NFA whether for relief operations, for buffer stocking, or for its rehabilitation project/ program the documents enumerated under Par. 1, Section B shall be submitted to the concerned NFA Provincial Office.

2. The concerned Sangguniang Bayan shall approve/pass a resolution authorizing the LGU through its Municipal Mayor to purchase rice on credit from the NFA and appropriating a certain portion of their Calamity Fund, Special Development Fund, Emergency Fund or any other fund covering such obligation;

3. The LGU's undertakes to fully withdraw the authorized quantity of stocks within (15) fifteen working days reckoned from the date of receipt of the Authority to Issue (AI) from NFA Provincial Office. The balance of stocks which remains unwithdrawn after the prescribed 15 day withdrawal period shall be deemed canceled.

4. The LGU's undertakes to pay the NFA for the rice stocks issued including delivery fees if any, within (15) working days from the date of receipt of the NFA billing. Unpaid bills after 15 days shall have an interest charge of one percent per month or a fraction there of based on the value of rice granted on credit and the number of days consumed within the month up to a maximum of 6 months. If the LGU's still fail to settle their bills after the six months period, a penalty equivalent to two percent (2%) of the unpaid amount shall be imposed on top of the one percent (1%) interest charged until the loan has been fully paid.

III. SPECIAL PROVISIONS

1. The maximum quantity of rice loan that an LGU can avail of within the period covered by this Agreement shall not exceed 5,000 bags for the Provincial Government, 2,000 bags for the City Government, and 1,000 bags for Municipal Government, or the rice equivalent of their respective funds appropriated for the Rice Loan Program based on the Certification of the Provincial / City / Municipal Treasurer which ever is lower. Rice loans intended for buffer stocking shall not exceed ten percent (10%) of the maximum loanable quantity or 500 bags for Provincial Government, 200 bags for City Government and 100 bags for Municipal Government, or the rice equivalent of the (10%) of their respective appropriated fund, whichever is lower.

2. The price of rice shall be based on the NFA Consumers Price as indicated in the latest Selling Price Bulletin (SPB).

3. The quantity and quality of rice to be sold under this Agreement shall be based on the formal request and the RIV/PO of the LGU. However, NFA, reserves the right to allocate the quantity/quality of rice to be granted in the concerned area depending upon NFA's stock inventory.

APOLINARIO J. BUERANO
Provincial Manager

RODELO T. TENA
Municipal Mayor

Signed in the presence of:

CESAR S. GONDA
Prov'l Opns. Officer

ELIZABETH A. EYATIU

4. Rice purchase on credit under this Agreement shall be not be used for any purpose other than as intended. NFA reserves the right to inspect the LGU's warehouses and/or distribution/relief operations centers to determine compliance with this Agreement

5. The NFA shall not be under obligation to issue rice if the LGU has an outstanding account In the event another calamity/disaster occurs, additional credit may be granted subject to the following conditions;

   a. It shall not exceed the remaining available funds appropriated for the rice loan program after the outstanding loan has been deducted. The remaining available fund shall be certified by the Municipal Treasurer. and

   b. It shall not exceed the maximum quantity of rice loan the LGU is allowed to avail.

6. The weight/quantity/quality of stocks as received and acknowledged by the LGU's authorized representative on NFA official documents shall be final and binding and shall be the basis for billing and reconciliation;

7. NFA shall not issue subsequent Authority to Issue (AI) unless all stocks covered by previously issued AI have been fully served/withdrawn;

IV. OTHER CONDITIONS :

1. Should NFA constrained to resort to court action to enforce or safeguard its rights and interest under this Agreement, the LGU shall be liable to NFA for attorney's fees in an amount equivalent to twenty percent (20%) of total claims, exclusive of interest, damages, and expenses of litigation.

2. The terms and conditions of this Agreement may be changed, modified or additional stipulation may be added upon mutual agreement in writing by the parties. Any supplementary agreement shall form an integral part of this Agreement and shall describe and specifically refer to the particular provision of this Agreement which is being changed, modified or superseded.

3. It is clearly understood that failure of NFA to demand compliance with any of the terms and conditions of this Agreement or any act of liberality shall not be construed or considered as a waiver on the part of the NFA of the enforcement of this Agreement nor shall it relieve the LGU of its obligations provided hereunder.

APOLINARIO J. BUERANO
Provincial Manager

RODELO T. TENA
Municipal Mayor

Signed in the presence of:

CESAR S. GONDA
Prov'l Opns. Officer

ELIZABETH A. EYATIU

ACKNOWLEDGEMENT

REPUBLIC OF THE PHILIPPINES
_____)

BEFORE ME, a Notary Public for and in _____, Philippines, personally appeared this _____ day of _____, 2010 :

NAME	RES. CERT.	DATE/PLACE OF ISSUE
RODELO T. TENA	_____	_____
APOLINARIO J. BUERANO	22821366	Feb.18, 2010 - Infanta Quezon

known to me to be the same persons who executed the foregoing instrument which is a Memorandum of Agreement and they acknowledge to me that the same is their own, free and voluntary act and deed as well as that of the institutions they present. The foregoing instrument consist of six (6) pages including this page on which this Agreement is written, and each and every page of which has been signed by the aforesaid parties, their witnesses, and sealed my notarial seal.

IN WITNESS THEREOF, I have hereto set my hand and seal on the date and place above written.

Doc. No. _____
Book No. _____
Page No. _____
Series of 2010

APOLINARIO J. BUERANO
Provincial Manager

RODELO T. TENA
Municipal Mayor

Signed in the presence of:

CESAR S. GONDA
Prov'l Opns. Officer

ELIZABETH A. EYATD

ANNEX 11
A Call to Action for Small Islands in the Philippines

The Philippine Archipelago is endowed with thousands of small islands with less than 10000 square kilometers of land, limited natural resources, fragile ecosystems, and populated by communities heavily dependent on resources that nature has to give and are highly exposed to natural (weather and climate-related, geophysical hazards) and human-induced hazards.

We, the Local Government Units, Civil Society Organizations, Humanitarian Institutions from Luzon, Visayas and Mindanao, participating in the National Conference on Disaster Risk Reduction and Climate Change Adaptation in Small Islands call on the National Government Agencies, Donor Institutions, Civil Society Organizations, Private Sector Institutions to give immediate attention to the plight of small islands in the Philippines for the following reasons:

- Small islands of the Philippines are most exposed to extreme climate and weather events, geophysical hazards and are also exposed to human-induced hazards due to irresponsible extraction and unregulated use of its very limited natural resources;
- Small islands are home to many of the poorest and vulnerable households in the country with close to half of its population living below poverty line.
- Many small islands in the Philippines have remained not only physically and geographically isolated over the many years but have been cast into isolation economically, politically and socially by governments who have not given attention to their concerns.
- With its natural resources small islands have contributed to national economy significantly yet their very natural resource base has been sacrificed.
- Given their high level of exposure to extreme climate and weather, geophysical and human-induced hazards, the vulnerability of its population, the limited capacities of the Local Government Units to address the challenges of the overwhelming climate and other disaster-related threats, the survivability of small islands and its communities is threatened.
- The very basic rights to life, property, development, environment of the women, men, children, youth, elderly, and persons with disabilities living in the islands are now being put at risk because of inaction to the challenge of natural and human-induced hazards in the now fast changing climate.

We believe that it is the essential duty, the moral obligation of the State, the Government and its People, to protect the rights of the small island communities and to ensure their survival amid the hazards they face. We now call for immediate attention to the following concerns of small islands:

Small Islands Are at Risk to Disasters

- Many small island communities are unaware of their level of exposure to the natural hazards and their inherent vulnerabilities and capacities to address the challenge that are before them.
- Small island populations are exposed to on land and at sea hazards.
- Localized weather and climate data, climate forecast, hazard data are not available for small islands.
- The warning systems for big islands are not appropriate in small island contexts. For instance, a tropical depression or monsoon winds for big islands already mean powerful winds and waves that are life-threatening small island communities.
- Many small islands still do not have inter and intra-island public transport facilities, road networks, communication systems, health facilities, food management systems that are vital lifelines in small island contexts particularly when they are threatened with very powerful hazards (i.e., case of Jomalig island in Northern Quezon) and prolonged exposure to these hazards (i.e., two months of daily rainfall in Siargao island or periods of *amihan* and *habagat* in the eastern seaboard of the Philippines).
- Livelihoods in small islands are severely affected by natural hazards.
- For instance, powerful winds, storm surges, high waves, swells, squalls, typhoons all mean no fishing for small island fishing households.
- Dependency on marine resources, heavy importation of food needs (i.e., vegetables and cereals) from other islands, freshwater limitations will threaten small island capacities to survive in the face of natural calamities and disasters in its coastal waters (i.e., case of Sibuyan Island and the Princess of the Stars disaster during Typhoon Frank).
- The level of resource extraction, utilization and destruction in small islands threatens its limited resource base.
- Small island ecosystems are sensitive to external influences. Programs applied to big island ecosystems may not be applicable to small islands and may even

threaten their natural resources. Indigenous and inherent capacities in small islands for vulnerability reduction and adaptation are not often given due credit by government agencies and other institutions.

- Local government units in small islands are not yet prepared to face current and future climate-related and other disaster hazards, address their constituencies' vulnerability or increase their capacities to the hazards.

Urgency for Affirmative Action to Reduce Risks in Small Islands

1. Enable small islands to understand their risks and respond to them appropriately
    - Make hazard/risk maps available to small islands
    - Prioritize small islands in the installation of automatic weather stations
    - Establish an alternative early warning system that takes into account small island realities
    - Make near-shore and far-shore risk assessments (scientific and participatory approaches) an imperative for small islands
2. Reduce isolation
    - Inter and intra-island communication systems must be installed
    - Immediate construction or retrofitting of ports in small islands
    - Provision of public transport facilities especially for small islands
    - Allocate for resources that will make local government lifelines (i.e., roads, health centers or hospitals, food and water supply, power supply) more resilient especially in times of powerful hazards
3. Enhance capacities for disaster risk reduction and climate change adaptation
    - Clear guidelines for the use of the Local Disaster Risk Reduction and Management Fund (LDRRMF) from concerned agencies
    - Institutionalization of the Disaster Risk Reduction and Management Office
    - Prioritize small islands in the capacity building on mainstreaming of disaster risk reduction and climate change adaptation and entrepreneurship development programs
4. Reduce small island vulnerabilities and address their resource limitations
    - Provide for additional and alternative climate-resilient livelihoods and sources of income

- Ensure equity in the distribution of national resources by increasing the Internal Revenue Allotment (IRA) for small islands by (1) including municipal waters (and not only land area) in the criteria for IRA and/or (2) establishing a separate category of IRA for small islands
- Designate safe zones in small islands where public infrastructure, housing, evacuation centers can be built and for lands redistributed for agrarian reform
- Small islands with fragile ecosystems, protected areas and marine sanctuaries and limited water resources should be designated as no go zones for mineral and other forms of natural resource extraction
- Give priority to and accelerate the transfer of technology on renewable energy in small islands
- Require Environmental Compliance Certificate (ECC) for all forms of energy development, whether small-scale or large-scale, in small islands

Urgent Calls to Action for the Concerned National Government Agencies

1. (Section 12, RA 10121) Provision of the guidelines on the operationalization of the Local Disaster Risk Reduction and Management Officer through a Joint Circular by the Civil Service Commission (CSC), Department of Budget and Management (DBM), Office of Civil Defense (OCD), and Department of Interior and Local Government (DILG) to clarify:
   - Whether LDRRMO is a mandatory or optional Office
   - What are the nature and classification of positions in the LDRRMO
   - Whether financial resources for the positions can be sourced from the 5% LDRRM Fund since the LGU has already exceeded the Personal Services limitations
   - Whether the financial requirements for the creation of LDRRMO are exempt from the PS limitations
2. (Section 21 of RA 10121) Specific Guidelines for the utilization of the 5% LDRRM Fund through a Joint Circular by the DBM, OCD, Commission on Audit (COA), National Economic and Development Authority (NEDA), and (DILG) to address issues surrounding:
   - Harmonization of LDRRM Fund with Joint Circular No. 01-2007
   - Assignment of specific Account Codes in harmony with the New Government Accounting System (NGAS)
   - Clarify Inclusive and Exclusive objects or items for expenditures to avoid disallowances

3. (Sections 13 & 14 of RA 10121) Issue Guidelines to Localize accreditation of CSOs for training and capacity building of local government units on DRR & CCA through a Joint Circular by the Local Government Academy of the DILG, CSC, OCD to address concerns on

    - Lack of capacity among small island LGUs on DRR/CCA which can be addressed through trainings and capability-building in the locality to avoid high rates of expenses when travelling outside the islands
    - Section 14 of RA 10121 mandates all LGU employees to undergo training
    - Lack of DILG personnel to train all local government units in the country but there are credible and highly capable CSOs and NGOs in the local LGUs who can assist the government in conducting DRR/CCA-related trainings and capability-building activities

4. Issuance of Guidelines for the harmonization of the Disaster Risk Reduction and Management and Climate Change Action Plans (Joint Circular by the National Economic and Development Authority [NEDA], DILG, Climate Change Commission [CCC], OCD, DBM, and HLURB) with the Rationalized Planning System

5. Creation of a Special Concerns Committee for Small Islands and a Special Projects Unit in the DILG and other Administrative Offices of the National Government to focus on priority concerns and capacity building for small islands.

6. Organize a Strategic Alliance of Small Island LGUs (SAIL) to represent Small Island Concerns on various concerns.

Richmonde Hotel Eastwood
October 6, 2011

ANNEX 12

MaCEC Redirected Campaign and Advocacy Agenda to be Incorporated in the Provincial Development and Physical Framework Plan (PDPFP)

Issues and concerns	Lobbying agenda and proposed policies	Adopted proposals and measures in the final draft of the PDPFP
Disasters and initial impacts of climate change aggravating poverty in already vulnerable areas of the province, which, in turn, lead to the isolation of the island, affecting agricultural production	Each chapter of MaCEC to continue lobbying for sustainable (rural) development principles in all aspects of governance at all levels of LGUs, including the concerns of vulnerable sectors vis-à-vis the Millennium Development Goals, with DRR–CCA as integral parts of plans, budgets and policies, not as stand-alone strategies	DRR and CCA, gender and human rights, sustainable development, poverty reduction and the Millennium Development Goals shall serve as cross-cutting references of the sectoral coverage. ***(PDPFP 1.2.1(c))*** Translate the vision into implementable strategies toward the attainment of goals, objectives, and targets anchored in the principles of sustainable development, poverty reduction, food sufficiency, disaster resiliency, and community-based climate adaptation of the province. ***(PDPFP 1.3.3)*** The Vision, the Millennium Development Goals, the Strategic National Action Plan on Disaster Risk Reduction per RA 10121, the National Climate Change Action Plan per RA 9729, the MIMAROPA Regional Development Plan, the Community-Based Monitoring System (CBMS), and the development agenda of Governor Carmencita O. Reyes, as well as her three-pronged thrust of *private enterprise, self-reliance and social justice*, will serve as the Provincial Land Use Committee's (PLUC's) guiding tools and frameworks in the formulation of the Provincial Development and Investment Plan (PDIP), particularly in the priority ranking of development programs, projects and activities ***(PDPFP Chapter 2: Development Vision)***
Continuing threats of mining operations due to existing mining applications and illegal small-scale mining activities in far-flung and mountainous areas	Lobby for the strengthening of the mining moratorium to include small-scale mining, continuous opposition to mining applications, and declaration of no-go-zones in the island through legal, judicial and legislative venues	To date, the Sangguniang Panlalawigan of Marinduque, all local chief executives of the province and the six municipalities are unanimous in adopting, as a provincial policy, the declaration of a moratorium on large- and small-scale mining of metallic minerals, the future declaration of "no-go-zones," and the preservation of mineral deposits for the benefit of the next generation of Marinduqueños. ***(PDPFP 3.3.1.c – Main Geological Features)***

Issues and concerns	Lobbying agenda and proposed policies	Adopted proposals and measures in the final draft of the PDPFP
Unstable power supply, which aggravates the vulnerability and isolation of the island as experienced during Typhoon Reming in 2006	Oppose any power hike in the island through legal interventions; continuously propose and lobby for renewable sources of energy available in the island	With the current condition of power supply inefficiency and inadequacy, tapping other sources of power supply is of utmost importance. Hydropower, geothermal, biomass and the long overdue study of connecting to Luzon grid via a submarine cable and the power generators of the abandoned Marcopper Mining Co. are among the possibilities that may be considered by the government, both local and national. ***(PDPFP 3.7.7.b Power)***
Integrity of creation need not be sacrificed in the name of development; unique biodiversity and rich natural heritage of the island need not be plundered.	Continuous and consistent advocacy for environmental justice by invoking existing environmental laws which can be articulated through the lenses of DRR–CCA	The island Province of Marinduque is the 3rd most denuded and was recently ranked as the 7th hazard-prone province in the country, making it more vulnerable to natural hazards. In the last years, natural disasters and calamities triggered by natural hazards and a mine waste spill have caused widespread destruction, deaths, injuries and damages to property and infrastructures. Such calamities have once again highlighted the importance of disaster mitigation and management. ***(PDPFP 3.10 Disaster Risk Assessment and Management)*** Based on the studies, the risk and hazard problems in the province may be attributed not only to the heavy rainfall, soil condition and topographical setup in affected areas but to human activities as well. The indiscriminate dumping and burning of garbage along the coast, rivers and creeks, increase in the number of informal settlers, and incidence of illegal activities within the protected and critical areas, illegal structures along waterways, and improper construction or non-development of the drainage system make the people highly exposed to risk and further aggravate their vulnerabilities to hazard, bringing about greater negative impact when disasters happen. ***(PDPFP 3.10.g. par. 6 Vulnerabilities)***
Communities at risk do not have the capacities to undertake systematic risk assessment that will	Higher-level LGUs should provide technical capabilities and assistance to BLGUs and communities because disasters happen in	The need to assess the implications of disaster risks brought about by natural hazards and the adverse effects posed by climate change has to be addressed through a systematic development and application of policies, adaptation strategies, and practices to minimize the vulnerabilities of

Issues and concerns	Lobbying agenda and proposed policies	Adopted proposals and measures in the final draft of the PDPFP
serve as basis for contingency planning	communities and not at the higher level of abstract LGUs (i.e., municipalities and provinces).	the community and to make them more resilient, and to prevent or mitigate the adverse impact of hazards and climate change within the context of sustainable development. ***(PDPFP 3.10 par. 5 Disaster Risk Assessment and Management)***
Mining is a risk-inducing industry; the continuing threats of heavy metal contamination will pose continuous hazards to mining-impacted communities. Abandoned dams also pose great threats.	Policies of LGUs should consider or emphasize the need to address this menace and actual threats to the health of individuals (women, children and men); and to put to good use the abandoned structures.	Silted and mine waste contamination of Mogpog River due to large mines overburden deposited at the upstream mountain slopes and damaged Maguilaguila Dam, and the contamination of and embedded mine tailing at Boac River from the defective Boi and Makulapnit Dams provide high risks and continuing threats of losses or damages to life and property. ***(PDPFP 3.10.c Mine Waste Contamination)***
Disasters and initial impacts of climate change aggravating poverty in already vulnerable areas of the province, which, in turn, lead to the isolation of the island, affecting agricultural production	Each chapter of MaCEC to continue lobbying for sustainable (rural) development principles in all aspects of governance at all levels of LGUs by including the concerns of vulnerable sectors vis-à-vis the Millennium Development Goals, with DRR–CCA as integral parts of plans, budgets and policies, not as stand-alone strategies	**Isolation of the island during extreme weather events** The susceptibility of the island province to hydro-meteorological hazards also isolates it from the mainland due to the cessation of scheduled trips of air and water crafts. This impacts the supply of basic goods and services. Priority attention should be given to this concern by ensuring food sufficiency of the general population of the province. Pre-disaster setups and mechanisms of interconnectivity with Marinduque and the mainland shall be established to ensure that emergency services will flow and be made available to the province during extreme weather events. Evacuation centers in key low-lying areas are necessary as risk reduction and preparedness measures, especially for the vulnerable and special sectors. Safe areas for relocation, resettlement and evacuation should be identified for future development and shall form part of the physical plan of the province and the CLUPs of the municipalities. ***(PDPFP Chapter 4 No. 12 Development Issues, Goals and Objectives)***

Issues and concerns	Lobbying agenda and proposed policies	Adopted proposals and measures in the final draft of the PDPFP
Minimal resources of communities, government and agencies in the island due to the absence of dovetailing of priority development initiatives	Lobby for the institutionalization of convergence setups among CSOs, among government agencies, between and among LGUs, and between and among CSOs, LGUs and other government agencies	**Lack of convergence among key government agencies** There seems to be a lack of convergence among key government agencies which also affects productivity and efforts to address poverty. The technologies developed and marketing strategies applied must be supportive of the produce and products of the agriculture sector. It is highly important to develop systems and processes to ensure that planning and program implementations adopt the convergence approach not only to save on resources but also to ensure that government services are coherently developed, interrelated and convergent to address common problems and concerns. There is also a need to ensure that household and small-scale industries are dependent on locally available resources and products to ensure the sustainability of the industry without sacrificing the benefits for future generations. ***(PDPFP Chapter 4 No. 12 Development Issues, Goals and Objectives)***
Continuing threats of mining operations due to existing mining applications and illegal small-scale mining activities in far-flung and mountainous areas	Lobby for the strengthening of the mining moratorium to include small-scale mining, continuous opposition to mining applications, and declaration of no-go-zones in the island through legal, judicial and legislative venues	All extractive activities must not in any way affect or hamper the productivity of adjoining activities. All land use activities will be undertaken in full harmony with the environment. Relative to this, the province must declare, as its policy, a temporary moratorium on all forms of mining of metallic minerals as disaster risk reduction and carbon-reducing strategies and to ensure the sustainable supply of minerals for future generations. In relation to this, a provincial legislated policy to determine permanent "no-go-zones" on mining in the island, in accordance with its carrying capacity, shall be studied and enacted. ***(PDPFP: Development Policy and Policy Recommendations No. 4)***
Integrity of creation need not be sacrificed in the name of development; unique biodiversity and rich natural heritage of	Continuous and consistent advocacy for environmental justice by invoking existing environmental laws which can be articulated through the lenses of DRR–CCA	Adoption of community reforestation to attract the participation and support of the communities in the affected areas shall be vigorously pursued as a climate adaptation strategy for small islands. ***(PDPFP: Development Policy and Policy Recommendations No. 6)***

Issues and concerns	Lobbying agenda and proposed policies	Adopted proposals and measures in the final draft of the PDPFP
the island need not be plundered.		Adoption of a program on massive reforestation of coastal areas that will entail the rehabilitation of mangroves, shorelines and coral reefs in coastal areas to minimize impacts of hydro-meteorological hazards shall be prioritized. The Verde Island Passage Framework Plan must serve as the official document of the province and be disseminated to all agencies and LGUs. ***(PDPFP: Development Policy and Policy Recommendations No. 7)*** Formulation of Marinduque Environmental Code, incorporating thereat the guidelines for its regulations, penalties and fines for violations thereof. ***(PDPFP: Development Policy and Policy Recommendations No. 10)***
Effects of climate change will greatly impact small islands and coastal communities, especially in the areas of coastal resources, health, agriculture, water, etc.	Anticipation of the effects of climate change should be priority concerns in the development agenda, budget and investment programming, and concrete community-based adaptation strategies.	Effects of the sea level rise on coastal barangays due to the creeping effects of climate change shall be prioritized and studied in order to identify alternative settlement sites. Low-lying and high flood-prone and vulnerable areas shall also be identified through appropriate risk analysis to identify safe evacuation, relocation or resettlement sites. ***(PDPFP: Settlement Framework Policy Recommendations No. 12)*** Sea level rise wrought by climate change which has started to cause intrusion of salt waters in some agricultural farms should be considered as a top priority to diversify farming. ***(PDPFP: Production Framework Issues and Concerns No. 5)*** Local impacts of climate change, especially on changing cropping patterns, shall be pursued to determine the viability and adaptability of crops to the production and propagation of climate- and disaster-resilient crops. ***(PDPFP: Production Framework Policy Recommendations No. 9)*** Provisions of RA 9729 (Climate Change Law) and RA 10121 (Disaster Risk Reduction and Management Law) shall be used as guiding policies in planning for agricultural development and diversification to minimize impacts of disasters and climate change on agricultural productivity and food sufficiency of the island. ***(PDPFP: Production Framework Policy Options No. 6)***

Issues and concerns	Lobbying agenda and proposed policies	Adopted proposals and measures in the final draft of the PDPFP
Integrity of creation need not be sacrificed in the name of development; unique biodiversity and rich natural heritage of the island need not be plundered.	Continuous and consistent advocacy for environmental justice by invoking existing environmental laws which can be articulated through the lenses of DRR–CCA	Strict implementation of various environmental laws and clarification of roles of different stakeholders in environment and sustainable development in the province, such as Philippine Mining Act of 1995 (RA 7942); People's Small-Scale Mining Act of 1991 (RA 7076); Philippine Clean Water Act of 2004 (RA 9275); Philippine Integrated Protected Areas System Act of 1992 (RA 7586); Wildlife Resource Conservation & Protection Act (RA 9147, 2001); Philippine Clean Air Act of 1999 (RA 8749); Ecological Solid Waste Management Act of 2000 (RA 9003); and National Caves and Cave Resources Management and Protection Act (RA 9072). Strong participation of all national government agencies/ entities, NGOs, people's organizations, private sectors and the community is vital to ensure the sustainable development of environment and natural resources. ***(PDPFP: Development Policy and Policy Recommendations No. 11)***
Mining is a risk-inducing industry; the continuing threats of heavy metal contamination will pose continuous hazards to mining-impacted communities; abandoned dams also pose great threats.	Policies of LGUs should consider or emphasize the need to address this menace and actual threats to the health of individuals (women, children and men) and to put to good use the abandoned structures.	The former mining site in the municipality (Sta. Cruz) is also a great potential for a Mining Risk Management University in a tropical setting in the whole of Asia and the Pacific. This will contribute significantly to research and studies to further the lessons and learning on disaster risks and climate change adaptation in the context of the mining industry. The large dam of Makulapnit may also be tapped as a source of potable water for almost all of the municipalities of the province. ***(PDPFP Executive Summary – Settlement Plan)***
Disasters and initial impacts of climate change aggravating poverty in already vulnerable areas of the province, which, in turn, lead to isolation of the island, affecting agricultural production	Each chapter of MaCEC to continue lobbying for sustainable (rural) development principles in all aspects of governance at all levels of LGUs, including the concerns of vulnerable sectors vis-à-vis the Millennium Development Goals, with DRR–CCA as integral parts of plans, budgets and policies, not as stand-alone strategies	The land use plan will also determine the susceptibility of communities and areas to hazards and impacts of climate change, their physical and natural vulnerabilities, and safe areas for relocation and resettlement. ***(PDPFP Executive Summary – The Land Use Plan)*** The Disaster Risk Reduction–Climate Change Adaptation (DRR–CCA) indicators will be major references for any physical development that will be introduced, e.g., school buildings, housing, hospitals or health units, road construction. ***(PDPFP Executive Summary – The Infrastructure Plan)***

ANNEX 13

Proposed PPA Agenda of MaCEC for Lobbying and Integration in the Provincial Planning and Budgeting Processes of the Municipality of Boac for the 2012 Annual Investment Program

Vulnerabilities, needs, threats	MaCEC-proposed PPAs	AIP sector and proposed amount	As approved in the Boac AIP 2012 with corresponding appropriation
• Susceptibility to typhoon-induced floods and/or collapse of mine pit • Threats of heavy metal contamination • Erosion along river embankment	Planting of bamboo along riverbanks for long-term adaptation and mitigation	Economic services sector; PhP 100,000	PPA III.1.c. Water, Air and Land Protection Program – Boac River Bamboo Planting for Soil Protection and Long-term Mitigation (Ilaya District Side) – PhP 500,000 for the entire sector
High instances of dental/oral health-related diseases among preschool children	Oral/dental health vulnerability reduction for children (oral/ dental health activities and services)	Social services sector; PhP 150,000	PPA I.3.1 (6). Oral/Dental Health Vulnerability Reduction for Children (part of health programs with an appropriation of PhP 300,000)
Continuous exposure of communities (Tabigue/Lupac and Riverside) to toxins/ dioxins attributed to garbage deposited along Boac River	Immediate transfer of garbage disposal area of Boac (from Boac riverbed to new site)	Economic services sector; PhP 500,000	PPA III-2. Solid Waste Management Program Operationalization of Controlled Dumpsite – Restoration/ Clearing of Current Dumpsite before Transferring to the New Site – PhP 800,000
Continuous threat to biodiversities and wildlife in the Marinduque Wildlife Sanctuary (MWS) in Boac area due to poachers, intruders and encroachers	Planting of endemic plant species along the perimeter line of the MWS at Boac area	Economic services sector; PhP 500,000	PPA III.1.a. Water, Air and Land Protection Program – Protection and Rehabilitation of Marinduque Wildlife Sanctuary Program/Endemic Tree Plantation (Boac Area) – PhP 500,000 for the entire sector
Continuous proliferation of the use of plastic, which aggravates garbage problems and induces climate change	Enactment of legislative measures to regulate the use of plastic	General services sector for integration in ELA	PPA II.7. Codification of Municipal Ordinances – Environmental Code, DRR/CCA Code, [Regulation] of Use of Plastic – PhP 150,000

ANNEX 14

Administrative and Legislative Enactments by the Provincial Government of Marinduque and Its Instrumentalities

Enactment	Salient features and significance
Administrative Order No. 002-2011 (1 February 2011)	• Provincial land use committee reactivated • Technical working group designated to review Comprehensive Land Use Plans • Preparation of the PDPFP • MaCEC designated as member
Administrative Order No. 003-2011 (1 February 2011)	• PDIP committee and a PDIP finance subcommittee organized to aid the province in its development planning and investment programming • MaCEC designated as member by virtue of its membership in the executive committee of the provincial development council
Administrative Order No. 005-2011 (12 April 2011)	• Organized the DRR core team of the province of Marinduque to ensure the formulation of a DRR–CCA-enhanced PDPFP • MaCEC designated as NGO representative
PDC Resolution No. 05-2011 (12 July 2011)	Authorized the installation of inter-LGU/agency radio communications network under the ASCEND Project
Provincial Multi-Stakeholders' Conference Resolution No. 01-2011 (11 June 2011)	• Vehement and unequivocal opposition from the people of Marinduque to the application for mineral production sharing agreement of consolidated Mines, Inc., in Mogpog, and to the exploration permit applications of First Estate Mining Resources Corporation in Sta. Cruz, Torrijos and Buenavista • Reaffirmation of the declaration of 50-year mining moratorium in the province
SP Resolution No. 35-2010 (26 July 2010)	• Reiteration of the declaration of a 50-year large-scale mining moratorium in the province of Marinduque, arguing that mining poses additional hazards, dangers and threats to the lives of people • Recognition of MaCEC support to the initiative and the organization's firm and resolute stand
SP Resolution No. 335-2011 (21 June 2011)	Amendment of the 50-year large-scale mining moratorium by also including a moratorium on small-scale mining operations, excluding quarrying, and practically declaring the whole island as a no-go-zone on hazard-inducing mineral extraction
PDRRMC Memorandum No. 2011-79 (23 May 2011)	A typhoon advisory for preparedness in relation to the threats of Typhoon "Chedeng," mentioning that the initiative is in consonance with the partnership under ASCEND to provide systems and mechanisms for reducing disaster risks and prevent the loss of lives as well as damages to properties and livelihoods
LCE Administrative Order No. 252 (3 December 2010)	• Organizing and institutionalizing the PDRRMC of Marinduque • MaCEC designated as one of the 22 regular members and 13 honorary members

Enactment	Salient features and significance
LCE Memorandum No. 192-2010 (1 September 2010)	Enjoining the mayors, Sangguniang Bayan members and boards of NGOs to attend the first ever executive–legislative–NGO unity session on disaster risk reduction, climate change adaptation and sustainable development in small islands, in order to maximize the launching of the ASCEND Project and orient the LGU functionaries on the salient provisions of RA 10121 and RA 9729, inter alia
PDC Resolution No. 2011-03 (18 October 2011)	Endorsed and supported the "Call to Action for Small Islands in the Philippines" drafted and released during the National Conference on DRR and CCA in Small Islands for the learning event and knowledge sharing on the pilot model of community resiliency in small islands produced under BDRSIP and ASCEND (the first LGU official endorsement of the "Richmonde Declaration" produced by this Action)
PDC Resolution No. 2011-04 (18 October 2011)	• Established a DRR–CCA Learning Center for Small Islands as part of the course offering of the Marinduque State College to allow all LGU personnel to undergo basic orientation and training in DRR–CCA per the mandate of Section 14 of RA 10121; and to economize training in DRR–CCA and make it community-based and site-specific • Allocated PhP 2,000,000 from the realignment of the AIP unused budgets for year 2009 per the proposal and lobbying of MaCEC representative to the PDC • TWG composed of ENRO-PPDO, Marinduque State College, DILG and MaCEC • A pioneering initiative among small island provinces in the country achieved through the advocacy work under this Action

ANNEX 15
Making the Pathway

The quest for disaster resilience in small islands has never been a straightforward path. The Pathway developed had changed from the moment it was dreamt of almost three years ago up to the final handover to the printer for presswork. And still, the writers, the different local government units (LGUs) and nongovernment organizations (NGOs) involved, and the local small island leaders themselves know that disaster resilience remains elusive.

There is a prevailing reluctance in calling the developed Pathway a model, knowing very well that complexities and uncertainties continue to be its own hazard. The models of resilience we know, from the collective action of the Ifugaos in the Mountain Province to the thriving communities of small islands, are measured in terms of decades and not in 18-month project cycles.

In their attempt to grasp the essence of Small Island Resilience work, implementers of the two small island projects, BDRSIP and ASCEND, saw how their initial understanding of the resilience had evolved through the years (figure A1). The following narration of the development of the Pathway is intended to illustrate how the learning process and the continuously changing environment had shaped it.

The first Pathway encapsulates what sets working in small islands apart in the field of DRR and CCA. Small islands are rendered vulnerable owing to their isolation, remoteness and resource limitations. Their exposure to disaster risks is further heightened by a poor understanding of risks to natural hazards among their highly vulnerable populations and by weak DRR and CCA governance.

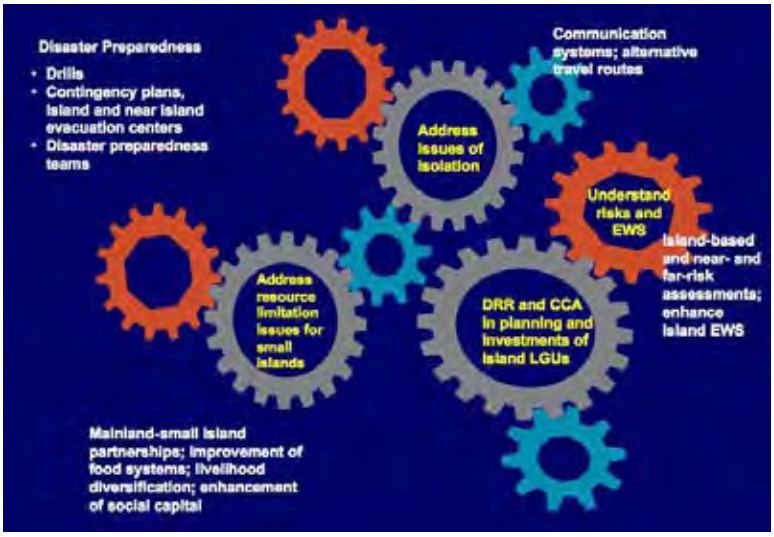


Fig. A1. First illustration of the Small Island Resilience Pathway

As a result, approaches and strategies were developed for each area of concern needing primary attention as illustrated by the interlocking gears. The big gears denote the four main strategies toward resilience while the small ones represent the different components of each strategy. The concept of gears was used to show how the different strategies and components were **interconnected**.

But as new insights were gained, new lessons learned and new strategies pursued, the concept of the Pathway itself had to adapt. Change, which is inevitable, implies flexibility in thought and action and must lead to better ways of understanding and doing things.

The primary change in the second graphical representation of the Small Island Resilience Pathway is the use of a more organic symbol (e.g., people, islands, bamboos, ecosystems) instead of mechanical gears (figure A2). The image of even a well-oiled machine is contrary to resilience as conceived by practitioners. A failure in one gear means a breakdown of the entire machine. In engineering terms, entropy is inevitable and the final outcome is chaos and disorder. An "organic" representation is deemed more resilient. In biological and ecological terms, evolution is inevitable and leads to better adaptation. It recognizes that a missing strategy can be compensated by another. Similar to persons with disabilities, a missing limb may be a challenge, but it does not mean they are relegated as victims that need "fixing." An overdevelopment of one sense or other body parts allows them to live life to the fullest. As such, the change in symbols manifests that the Pathway is **evolving**.

Fig. A2. Symbol presented at the National Conference on DRR and CCA in Small Islands

The latest symbol of the Small Island Resilience Pathway (figure A3) reflects the inputs and feedback from LGU and CSO representatives who participated in the National Conference on Disaster Risk Reduction and Climate Change Adaptation in Small Islands held in October 2011. Two of the most significant feedback on the second symbol are (1) it did not give due recognition to the importance of enhancing social capital and (2) it emphasized isolation instead of addressing it.

The third symbol incorporates two-directional bridges. This means people can go back and forth among the different strategies. They can pass over certain strategies and come back to these later on — the context specificity

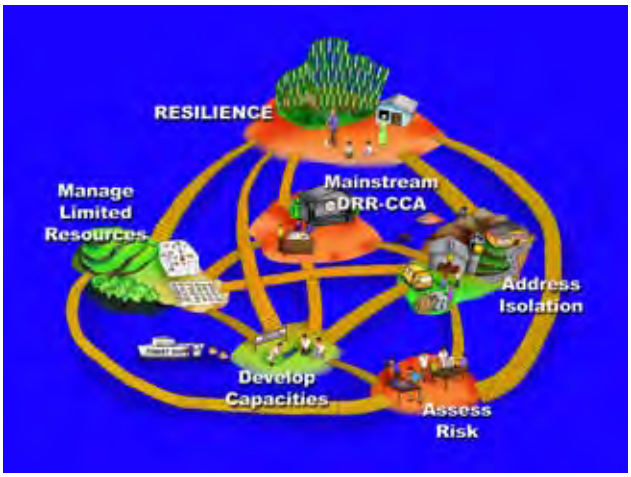


Fig. A3. Enhanced symbol after the National Conference on DRR and CCA in Small Islands

of each island. Such characteristics show that the pathways are not instructional but are facilitative and guiding. This iterative symbol emphasizes **learning**.

This latest symbol also recognizes capacity development, which is the underlying strategy implemented by the different implementers of BDRSIP and ASCEND. Capacity development is assumed to be the foundation of all strategies such that people no longer think it needs mentioning. Change emphasizes the capacity of **people** to make a difference in resilience and sustainable development. This is an often forgotten attribute, especially when people are blamed as the root cause of global warming, overuse and destruction of natural resources, and ecological imbalance. Viewing people as agents of change implies a paradigm transition from doom to hope, from disaster to resilience.

ANNEX 16
Enhancing Adaptive Capacity: From Lessons to Learning

Adaptive capacity is a key ingredient in DRR and CCA that remains an elusive concept to define. There is difficulty in grasping what it is, much more in developing strategies to enhance it. As recognized by partners involved in ASCEND, adaptive capacity goes way beyond being flexible and coping with changes.

Adaptive capacity has been broadly referred to as the ability to manage and create sustainable change. As such, enhancing adaptive capacity entails a deliberate, wholistic and proactive approach that will instill individual values and provoke paradigm shifts.

Uncertainty

> *The most difficult requirement of becoming knowledgeable is that you must give up certainty. – Robert Brault*

When the concepts of disaster risk reduction and climate change adaptation were introduced, there were a lot of unknowns and un-remembered. These ranged from what caused a typhoon to when the LGU started the budgeting process. DRR capacity development in the small islands involved:

- Numerous training in new skills and knowledge
  - Basic DRR and CCA
  - Conducting participatory capacities and vulnerabilities assessment
  - Contingency planning
  - Emergency response and assessment
  - Basic life-saving skills on land and water
  - Local government budgeting and planning
  - Disaster risk reduction and management and climate change laws
  - Advocacy and communication
  - Emergency drills
- Provision of resources (e.g., funds, personnel, equipment, infrastructure)
- Programming (e.g., DRR-CCA program development; synchronization of interventions with community and local government schedules, phasing of interventions)
- Linkaging of different stakeholders (e.g., scientists, government officials, private sector, other NGOs, church, media, community volunteers)

The learning curve, especially during the pilot project, was definitely steep for the proponents and target island dwellers. There were familiar phenomena explained and new ways of working defined which excited individuals and institutions.

But as more unknowns were uncovered, the more the DRR practitioners realized that very little was really known. It became clear that there was a difference between the unknown and the uncertain. This was not due to limited education on rocket-science matters or a difference in discipline of expertise. The main sources of uncertainty were complexity and change.

Adult learning has best been described as learning by doing. Learning happens because the relationship between the effect and its cause is obvious. Quick-onset disasters (e.g., earthquakes) generate much sympathy and action because the catastrophic effect of the felt extreme event is immediately seen.

Complexity arises when the cause and its effect are far apart. How much sympathy do farmers affected by drought get? How long have been the debates in correlating greenhouse gas emissions to global warming?

This complexity was illustrated during the feedbacking session with PAGASA and PHIVOLCS:

- Spatial disconnect between cause and effect (e.g., Barangays Pili and Poras might not be prone to landslides but might become deposition areas of landslides occurring upstream)
- Temporal disconnect between cause and effect (e.g., far-field tsunami generated by earthquakes hours before and a thousand kilometers away)
- Blurring of causes because of the combination of various hazards and vulnerabilities (e.g., landslide caused by a combination of normal rainfall and mild earthquakes)
- Effects with invisible causes (e.g., tsunami caused by underground volcanic eruptions)
- Sudden effects with still inexplicable causes (e.g., *subasko* or sudden squalls that threaten seafarers)

Aside from complexity, continuous and accelerating change limits our understanding of the context. The strengthening of *amihan* (northeasterly winds) and *habagat* (southwesterly winds), occurrence of more frequent typhoons and extreme events over the years, and new land use patterns have substantially changed the small island topography and landscape, necessitating the frequent updating of expensive and heavily researched hazard maps. A geometrically growing population can also have a sudden impact on the carrying capacity of a fragile small island ecosystem.

Such uncertainty is not limited to the analysis of the context. Uncertainty exists and persists in the strategies that are employed, in the goals of different interested bodies, and in the changes that result from interventions in different and similar contexts.

As such, the first requirement in enhancing adaptive capacity is the humility to accept uncertainty amidst our superior intelligence. While uncertainty can lead to inaction and fatalistic notions, it can also inspire innovation.

When MaCEC started to explore mainstreaming DRR and CCA in the barangay development planning and budgeting processes, the path was never straightforward. The guidelines provided by the National Economic and Development Authority (NEDA) produced the spark for the mainstreaming process. However, the tools available were designed for subnational systems and were not suitable for the resource-challenged barangays. Joint Memorandum Circular No. 1 provided a path for interagency collaboration and integration of plans, but it was still too new to be appreciated and taken seriously by the different stakeholders. The use of the calamity fund for DRR was innovative, but it needed a legal mandate to rationalize its institutionalization.

Such uncertainties pushed MaCEC to conduct policy research, repackage familiar tools and templates, develop simple DRR and CCA frameworks which people could relate to, and implement the retooling in a timely and unobtrusive manner. MaCEC's project outcome was the mainstreaming of DRR and CCA in more than 80 percent of the barangays of the island province of Marinduque in a matter of months. The remarkable feat of MaCEC, however, is that it has stretched the imagination of DRR practitioners in the field of DRR governance all over the country.

Institutionalizing Adaptability

The reality of a continuously and rapidly changing world stipulates the institutionalization of adaptability (not just adaptation). This may seem ironic, since institutionalization connotes stable or permanent structures, policies and programs while adaptability demands subtle adjustments to radical transformations of systems.

Change entails not just the flexibility of systems but also the integration of the concept of change, from analysis to design. This perspective argues that brilliant and sustainable solutions certainly have expiration dates. Change will thus have to be recognized as part of the context, the intervention and the outcomes.

From Elegant Log Frames to Commando-type Tactic Sessions

There is no doubt that logical frameworks were useful in providing logical plans of action and straightening accountability pathways. Clear input resources and

activities guided proponents toward the intended outputs and outcomes. However, the project's nature (i.e., DRR and CCA) and context (i.e., vulnerability to isolation, limited resource pool) compelled proponents to factor in potential drastic changes that would challenge the assumptions and risks identified in the log frame.

There was a need to shift the linear planning process to accommodate:

- different context scenarios (e.g., typhoon slams and isolated islands; change in elected officials, resulting in uncooperative LGUs)
- different modes of intervention (e.g., shift from DRR to disaster response)
- different resulting outcomes (e.g., one community following emergency procedures while the other community does not)

As such, scenario building and contingency planning needed to complement the log frames. Different plans had to be made for different scenarios, a skill honed in the past by community organizers during "tactic sessions" with grassroots leaders.

Partners related how contingency planning was never really emphasized at the start of the project. Individual staff members had to sift through available contingency planning templates of other projects in order to apply it to their small islands project.

On the other side of the coin, a diversity of responses and solutions to similar problems had to be made available to communities and institutions. What worked in Rapu-Rapu and Marinduque might not work in Jomalig. Patience had to be displayed as Plan A, Plan B . . . to Plan X were tried out and tested in the small island reality.

Redundancy amidst efficiency

A huge part of resilience building is the infusion of redundancy into the system. Proponents, however, have to balance efficiency with redundancy. Efficient use of resources could mean streamlining functions whenever possible and limiting interventions within the parameters of an approved project. DRR in small islands, however, would incorporate redundant or additional measures, such as:

- stockpiling of food in the islands and arranging for a food reserve in the mainland;
- investing in a two-way radio system, just in case cell phone signals are poor or gone or batteries cannot be recharged;
- sending two or more participants, from different interest groups if possible, to training, in anticipation of a staff's resignation;
- arranging for different modes of transportation in the event of isolation;

- coordinating with different government agencies and LGUs with similar or overlapping functions; and
- training a large pool of local volunteers and facilitators and quick response teams in the community in basic life-saving.

Valuing transitions

Changes and endings are often viewed with despise in program management. Social change actors are expected to institutionalize reforms to ensure sustainability of reforms amidst changing elected officials or ending projects.

However, rethinking such changes and endings, one could view them as transition points. It should be put into context that resilience building and the adaptive capacity of communities and institutions are often measured in terms of decades and not in 18-month cycles.

So while terminal reports were submitted to funding agencies and strict attribution policies were followed, partners still recognized that the adaptive capacity building process started beyond the project start date. Often, the landmark "project" would be the global Christian Aid project, Building Disaster-Resilient Communities (BDRC). Although the starting location might be the mainland of Quezon or a distant municipality in Sorsogon, the learning on DRR and CCA applied by MaCEC, CCS, and SAC-Northern Quezon was drawn from these projects. The concept of BDRSIP was borne out of the learning on BDRC. As such, BDRSIP is both a source of learning and a product of a learning process itself.

Project endings and changes in leadership may then be regarded as opportunities for taking stock of and recalibrating strategies. Overall, these different projects may be seen as stepping stones toward enhancing adaptive capacities of the target small islands.

Piloting before modeling

While piloting and modeling are often used interchangeably, the significant difference between them is that pilot projects are designed to test out innovative strategies or new sites while modeling is subjecting a tried and tested strategy to further scrutiny until it is assessed as replicable. Although extensive thought was given to the design of the pilot, there was recognition that it was a trial project. Deliberate documentation of the lessons and learning was necessary so that these could be applied in the modeling or expansion of the project.

At the end of BDRSIP, learning was distilled to define what made DRR in small islands unique by identifying commonalities in each project site. New hazards were uncovered from normal conditions (e.g., threat posed by northeasterly winds to long-

distance transportation). However, it was realized that island-wide resilience was still wanting, since capacity development was limited to two barangays per island.

The program development of ASCEND involved a subsequent expansion from just two pilot communities to the entire island. This was clearly built on the foundations laid out by the previous project. And while ASCEND is already the second phase of the project, partners still consider it as a pilot. The search for lessons focused more on identifying differences in DRR strategies among distant small islands (Jomalig), within a group of small islands (Rapu-Rapu) and among large "small" islands (Marinduque).

Learning

> *Learning is not about gaining knowledge but expanding the ability to produce the things we want. — Peter Senge*

Experience is the best teacher. In DRR parlance, communities that have experienced major disasters are considered as the low-lying fruits for DRR mainstreaming. Receptivity of local government and communities to DRR is at its best soon after a major disaster or in areas that are regularly struck by disasters. But in a rapidly changing world, the most vulnerable are those who are complacent because of the absence of previous disasters. How can we learn things that we have not yet experienced?

With dynamic complexities, learning cannot be limited to knowledge taught in training or read in books. Sooner or later, people will realize there is more to DRR than what is written in a primer. The unwritten challenge to project proponents is to nurture a culture of learning among themselves and the communities they serve.

Various stakeholders as knowledge managers

In the course of the project, the different stakeholders (e.g., DRR practitioners, government officials, island dwellers) realized that they were not only recipients of knowledge but also producers, sharers and implementers of knowledge. This is best exemplified by their experience in training volunteers.

Some of the most highly appreciated training activities were on basic life-saving and community hazard mapping. However, owing to budget constraints, training could accommodate only a few volunteers per barangay. To address this limitation, a key learning strategy implemented was requiring the volunteer participants to provide one re-echo training in their respective communities in order to disseminate the knowledge to more people. By entrusting to them the role of teachers, they developed their self-esteem. This also facilitated learning, as they were forced to listen attentively, eagerly asking questions to coast guard instructors, and do further studies on their lessons.

In their communities, the volunteers conducted more than one echo training and even shared lessons informally with relatives and neighbors. Despite the small budget, the training reached more people through these volunteers. It was apparent to the proponents that the volunteers recognized the value of training in promoting the culture of safety in their community and they had developed a sense of social responsibility.

In hindsight, this culture of knowledge sharing could have been inspired by the commitment of NGOs themselves. In an effort to ensure that all residents received basic DRR knowledge, implementing partner NGOs mobilized their staff to conduct house-to-house training. These were unplanned activities or activities that were not part of the original target but were nonetheless carried out, reinforcing the culture that social development work is not a job but a vocation.

A Community of Practice (CoP)

A Community of Practice is a group of people who share a concern or a passion for something they do and who learn how to do it better as they interact regularly (Wenger 2006). The CoP for ASCEND proponents started with the interactions made by BDRC proponents.

What needs to be learned? For the proponents, the domain sharpened from "DRR" to "DRR in small islands." There was sharing among them on several aspects of DRR in small islands:

- Context: What is a small island? What are the hazards and vulnerabilities unique to small islands? How are disaster risks aggravated by small island conditions? What is the indigenous knowledge available in small islands? What are the coping mechanisms of island dwellers? How different are these from those of high-risk communities in the mainland? How receptive are island dwellers to outsiders? What is the culture of island dwellers? How fragile is the island ecosystem?
- Goals: What should islands be resilient to? What resilience should be broken to ensure sustainable development?
- Strategies: What strategies need to be prioritized? How can capacities be developed in the islands? Where do the islands link to? What are the changes made by the strategies being implemented? How do you promote learning in an isolated context?

There were many questions to be answered. The proponents knew they needed to collaborate, interact and share their different experiences.

It was initially thought that the Project Management Team (PMT) was the CoP, since it was this group that was constantly interacting. However, PMT meetings were very short and the agenda was very long and dealt only with management matters.

The creation of the PMT, nonetheless, facilitated the formation of the CoP. Christian Aid could have easily interacted bilaterally with each partner, especially since each partner was literally in an island of its own. By establishing the PMT, however, it sent the signal to the three proponents that the project was a shared practice. The three proponents learned not just from their management inputs but from their common practice as shared during formal and informal interactions of the PMT members.

Networking for learning

The CoP is a network of like-minded individuals and institutions. Learning is facilitated by the solidarity of the group, a quality that may further extend to empowerment and collective action.

Another powerful form of networking is that among different interest groups. Learning is powerful in such networks because of the varying knowledge and sometimes opposing perspectives on realities and theories of action. Aside from sharing resources, they are able to bridge knowledge gaps through dialogue.

The engagement between the proponents and government scientists exemplifies this "bridging" network. Their exchange provided the communities with the needed science to guide their DRR analysis and planning. The scientists also supplied them with duly accredited materials that could facilitate further engagement with other government units and agencies.

This engagement with scientists became evident in the DRR modules produced by the proponents. While the DRR modules of other practitioners emphasized preparedness, those for the small islands included the science of DRR. Non-scientists had to teach these patiently to ensure understanding by the common villager.

Initially, the modules were not well appreciated and there were complaints of information overload and use of unnecessary jargon. Eventually, however, the villagers began to understand better the weather information being relayed through the radio. They came to appreciate the rationale and the nuances behind contingency plans. They became better prepared for advanced training in DRR and life-saving skills and more open to talking with experts.

In terms of community targeting, the proponents had to go beyond their natural-sector-based allies (e.g., people's organizations, Basic Christian Communities, local chapters) to work with inclusive formations composed of volunteers, local officials and the most vulnerable sectors. This was a sharp contrast to working with people's organizations, which requires establishing exclusive rules for membership to ensure

solidarity, management control and collective action. Working inclusively, as the proponents noted, allowed community members, with their own different interests and perspectives, to interact with one another. It provided further grounding for local officials, increased the self-confidence of the most marginalized, and enhanced a sense of social responsibility.

A Tentative Conclusion to a Never-Ending Process

> *The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires. — William Arthur Ward*

It is difficult to provide step-by-step instructions on how to enhance adaptive capacity. This simply goes to show that not all capacity building can be done through training. Adaptive capacity is a life-long learning process that:

- Involves accepting uncertainty — the personal and institutional humility to recognize that we cannot and will not know all.
- Demands institutionalizing change — a paradigm shift telling us that sustainable development, as we know it, still needs to be improved.
- Nurtures the culture of learning — the patience to recognize that behind the precious seconds needed to save lives during a disaster are decades of work on resilience building.

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When natural disasters hit the Philippines, small islands are usually the most severely affected and face the continuing threat of isolation from the mainland.

The combination of all characteristics of small islands, including their exposure to multiple hazards and inherent vulnerabilities, necessitates disaster risk reduction and climate change adaptation (DRR–CCA) interventions.

This Guidebook is an attempt to document the experiences of three small island communities in their voyage to disaster resilience. It will be most useful to local government units (LGUs) that wish to localize the provisions of the National Disaster Risk Reduction and Management (DRRM) Act, as well as to integrate broader DRR–CCA concerns in local policies and programs.

Front Cover: The symbol illustrates the importance of partnerships among different stakeholders working toward the disaster resilience of small island communities.