100% DAPAT HANDA Para Matatag

Ang Karanasan ng Rosario sa DRR

MUST BE 100% READY to be Resilient

The Rosario Experience in DRR

ENGLISH VERSION

Must be 100% Ready
to be Resilient

The Rosario Experience in DRR

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Contents of learning and experiences

A foreword from UMCOR

The building of a resilient community goes through a long process and does not happen overnight. The collective action of people who do not solely depend on interventions of external institutions is the most important factor in this process.

Related to having a resilient community is the people's capacity to prepare for and respond to the challenges brought on by disasters. For a long time, we believed in the old notion that disasters cannot be prevented, that people have no control over a coming disaster, and that the people could only accept the crippling consequences of a disaster. Aside from this, many thought that a disaster is the Creator's way of disciplining or punishing people. But history and experience have shown us that a community has the capacity to reduce or avoid the risks of disasters if the community is united and if they act together.

The authors of this book tell of the experiences of a people united and working together to address the issues in disaster risk reduction. Inside are lessons learned by the people of Rosario, a town in the province of Cavite and their experiences in Community Managed Disaster Risk Reduction or CMDRR. The authors aim to contribute to the practical application of the guiding principles of CMDRR in the barangay and municipal levels. May the experiences of the people of Rosario serve as an inspiration to other CMDRR projects.

The project initiated by IIRR in Rosario was effective because of the participation and cooperation of both the communities and the institution. But most importantly, these experiences proved that people in a community have the significant capacity to prevent, mitigate and prepare for hazards, and for community development.

UMCOR is grateful to IIRR for their successful implementation of CMDRR in Rosario, Cavite. Most of all, we are grateful for the opportunity to relate and interact with the people of Rosario and learn from their experiences. UMCOR will bring these lessons and will continue to share these with more people who are with us together in building resilient communities.

Ciony Ayo-Eduarte
Director, UMCOR Philippines

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- And to the people of Rosario, Cavite for sharing their vibrant experiences.

Introduction

The implementation of IIRR programs in disaster risk reduction in communities in Rosario, Cavite is coursed through two projects. The first project called Modeling Climate-Smart and Resilient Communities, supported by the United Methodist Committee on Relief (UMCOR), has been conducted in nine (9) barangays in the past two years. Based on the initial results of the risk assessment, three barangays have the most urgent need to intensify their preparedness because of their high level of disaster risk. The preparedness needs for these three barangays are addressed via the second project called Instituting Community Preparedness in Three Coastal Villages in Cavite funded by the Philippines-Australia Community Assistance Program (PACAP).

The writing and documentation of positive experiences is one of the expected results of the project supported by UMCOR. In the past two years, there have been many experiences and lessons that can be told and shared to serve as a model and lessons for other barangays with DRR programs for the community.

The making of the book

This book was made through a process called the writeshop, a method of participatory writing, editing and developing articles. It is ideal to conduct a writeshop in identifying and documenting new information, good practices and even challenges in carrying development projects. IIRR pioneered the writeshop process in the 1980s and from its experience, writing, editing and publishing are faster through the writeshop process. Within a number of days, the draft articles are collectively reviewed by technical experts and project coordinators and directors. The participation of individuals from stakeholders, experts, community and staff of IIRR is a valuable opportunity to develop documentation and improve the articles.

The process

A pre-writeshop was held on March 15, 2013 where representatives from the nine barangays of Rosario, Cavite discussed and agreed on the purpose of the book, the message they want to convey, and the target readers of the book. The purpose of the book is to document the significant results of the barangay projects, particularly the changes that have happened as the projects were implemented, and to share this with other barangays, barangay officials and donors. The list of topics and stories were drafted and writers from the pilot barangays were assigned.

On May 21, 2013, the writers from the nine barangays brought their written articles to the writeshop in IIRR Silang. For three days, they revised, commented, and reviewed each other's articles until a third draft was reached. During the writeshop, they decided to follow the Four Minimums of IIRR's Community Managed Disaster Risk Reduction (CMDRR) framework in categorizing the articles in the book. It was also realized that in the implementation of projects, it is important to look at the disaster risk reduction program in a holistic way and not on a per project basis. Hence, it was agreed to combine in a single book the stories of their experiences from both the UMCOR and PACAP projects.

The target readers of the book

This book is useful to local government officials in the Philippines, to those who are implementing DRR projects and programs in the barangays, to officials and individuals who have duties and responsibilities in the barangays, and to donors with programs in DRR.

Outline of the book

IIRR followed the outline of the Four Minimums in designing and implementing CMDRR as mentioned above. IIRR believes that for DRR to be truly "community-managed", program interventions must have the following:

- Assessment
- Planning
- Implementation
- Monitoring, Evaluation and Learning

This also serves as the book outline with an additional category on Sustainability to show the efforts made, to continue what has been started, and to build on them.

Language

Because the authors are from the community and the target readers are from Rosario, Cavite and other Filipino communities, this book was originally written in Tagalog. It is translated to English to reach more readers outside the country and to share the experiences and lessons of DRR in the Philippines.

The projects and the experiences

The articles in this book are derived from the experiences of the community, barangay officials, the local government unit (LGU) of Rosario and IIRR in implementing projects that advocate for disaster risk reduction and climate change adaptation (DRR-CCA) in vulnerable communities in the municipality of Rosario in Cavite. The articles tell the stories and experiences from the following projects:

Modeling climate-smart and resilient communities in the Philippines

This two-year project is supported by the United Methodist Committee on Relief (UMCOR) and implemented by IIRR. The project aims to build resilient barangays or communities which have the capacity to withstand a hazard event and quickly recover from the impacts of a disaster. The project is carried out in nine barangays in Rosario. The featured strategies of the said project are the following:

- Building capacities of the LGU in the municipal and barangay levels
- Integration of DRR and CCA in the planning process of the LGUs
- Availability of technical support in risk reduction measures
- Designing and modeling DRR-CCA in livelihood activities, natural resource management and health system, and
- Documentation of experiences and creation of new knowledge

Instituting community preparedness in three coastal villages in Rosario

The book also includes articles on experiences in the implementation of the project Instituting Community Preparedness in Three Coastal Villages in Rosario which is supported by the Philippine-Australia Community Assistance Program (PACAP). The project aims to build the capacity of the

community in responding to the risk of storm surge. It has two components:

- The first component includes increasing community preparedness by drawing up a contingency plan which has the following elements: early warning system, formation of community emergency response team and raising awareness on the effects of climate change in communities particularly those by the coast.
- The second component includes participatory action research to determine the most suitable planting varieties along the coastline which can serve as natural protection from strong waves caused by storm surges. Results from the research will be utilized in succeeding bio-shield projects.

List of acronyms

4Ps	Pantawid Pamilyang Pilipino Program
ACDV	Accredited Community Disaster Volunteer
BDRRMC	Barangay Disaster Risk Reduction and Management Committee
BDRRMP	Barangay Disaster Risk Reduction and Management Plan
BHW	Barangay Health Worker
CCA	Climate Change Adaptation
CEPZ	Cavite Export Processing Zone
CERT	Community Emergency Response Team
CMDRR	Community Managed Disaster Risk Reduction
CSO	Civil Society Organization
DILG	Department of the Interior and Local Government
DRR	Disaster Risk Reduction
EWS	Early Warning System
FEWS	Flood Early Warning System
IEC	Information and Education Campaign
IIRR	International Institute of Rural Reconstruction
IRA	Internal Revenue Allotment
JSDF-LVUC	Japan Social Development Fund - Livelihood Projects for Vulnerable Urban Poor Communities
Kalahi-CIDSS	Kapit Bisig Laban sa Kahirapan – Comprehensive Integrated Delivery of Social Services
LDRRMF	Local Disaster Risk Reduction and Management Fund
LGU	Local Government Unit
MCSRC	Modeling Climate-Smart and Resilient Communities
MDRRMC	Municipal Disaster Risk Reduction and Management Council
MEO	Municipal Engineering Office
MHO	Municipal Health Office
MLGOO	Municipal Local Government Operations Officer

MOA	Memorandum of Agreement
MOMSLI	Mamamayang Okay Makisama sa Lahat Inc. or citizens willing, involved and collaborating with everyone
MPDO	Municipal Planning and Development Office
MDRRMP	Municipal Disaster Risk Reduction and Management Plan
MSWDO	Municipal Social Welfare and Development Office
NGO	Non-Government Organization
NRM	Natural Resource Management
OD	Organizational Development
PACAP	Philippine-Australia Community Assistance Program
PDRA	Participatory Disaster Risk Assessment
PIT	Project Implementation Team
PMT	Project Management Team
PPA	Programs, Projects, Activities
PSF	People's Survival Fund
RA	Republic Act
SK	Sangguniang Kabataan or Youth Council
UMCOR	United Methodist Committee on Relief
WASH	Water, Sanitation and Hygiene Promotion

Definition of selected terms

Capacity. The collective strength, characteristics and resources within the community, society or organization that can be used to achieve common goals.

Disaster Risk. The loss of life, severe health effect, destruction of livelihoods, and damage to property and services that could happen to a community or society over a specified period of time

Disaster Risk Management. The systematic process of using administrative directives, organizations and operational skills and capacities to implement strategies, policies and improved coping capacities to lessen the adverse impact of hazards and the possibility of disaster.

Disaster Risk Reduction. The concept and practice of reducing disaster risk through systematic efforts to analyze and manage the casual factors of disasters, including through reducing exposures to hazards, lessening vulnerability of people and property, wise management of land and environment, and improving preparedness for adverse events.

Hazard. A harmful phenomenon, substance, event, activity or condition that may cause damage to people, property and the environment, loss of life, livelihoods and services, social and economic disruption, and injury or other health impacts. Examples are earthquakes, storms, and fires.

Mitigation. The lessening or limitation of harmful impacts of hazards and related disasters.

Preparedness. Readiness; The knowledge and capacities developed by communities and individuals, government and concerned organizations to effectively anticipate, respond to and recover from the impacts of likely, eminent, or current hazard events or conditions.

Prevention. Preventing or avoiding the impact of the hazards and related disasters, for example, construction of dams or embankments that eliminate flood risks, having policies prohibiting settlements in hazardous locations, designing buildings that can withstand strong earthquakes.

Risk Assessment. A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment.

Survivability. Ability to manage to stay alive or continue to exist, especially during hazard events.

Vulnerability. The degree to which an area, people, physical structures or economic assets are exposed to loss, injury or damage caused by the impact of a hazard.

Vulnerability Assessment. A methodology to determine the extent of vulnerability of the elements exposed to hazards or the possibility of a disaster.

The municipality of Rosario and its coastal barangays

Rosario, the Municipality

Rosario, also known as Salinas, is a first class urban municipality in the province of Cavite. The famous smoked fish called “salinas” and the Cavite Export Processing Zone can be found here. There are 92,253 people in Rosario according to the 2010 Census. Having a land area of only 5.6 square kilometers, the town is considered to have the highest population density in the province. Rosario is bordered by the towns of Noveleta in the southeast and Tanza in the north and the famous Manila Bay in the west-northwest. The town has both access to land and water transportation.

Due to its low elevation, Rosario is said to be the "catch basin" and "discharge point" of several watersheds located in Tagaytay including the cities of Imus and Bacoor and also the municipalities of Kawit and Noveleta.

Rosario is a coastal municipality and is known for fishing. It is presently divided into 20 barangays, nine of which are by the sea.

Barangay Bagbag I

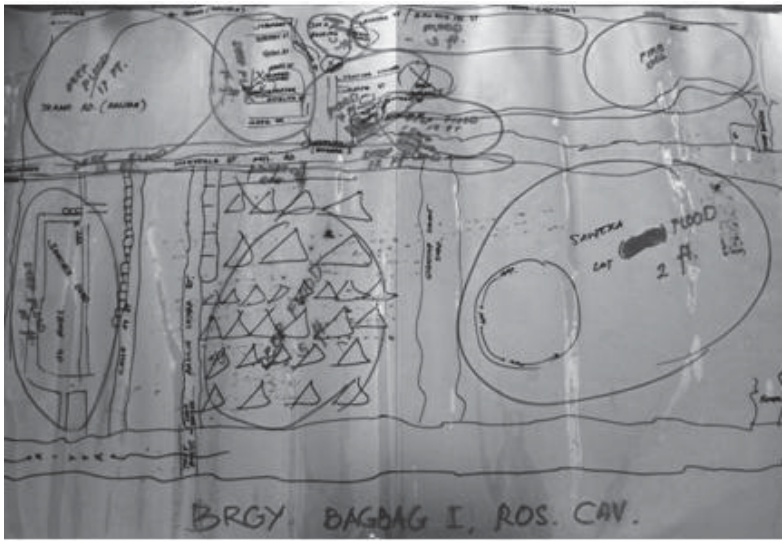
Barangay Bagbag I is 3.4 kilometers away from the town proper and has a land area of 24.79 hectares. It has a population of 7,299 composed of 3,613 males and 3,686 females.

Bagbag I is one of the areas in Rosario that is often flooded. The causes of flooding in the barangay are clogged drainage system due to trash, high tide from the river, constricted waterways that flows to the sea, river siltation, narrow canals, and storms and heavy rains. Continuous rainfall lasting from 3-24 hours causes flooding reaching 3-18 feet.

Nearly 405 families have high levels of risk to flooding with height of 15-18 feet in the areas of Tramo Road (Left), Sanchez Subdivision and along the streets of Josephine, Cherry, Gigi, Geny, Estelita and Greg.

Almost 230 families are affected by moderate flooding with height of 4-12 feet along the streets of Sunday, Baselisa, Bagbag Elementary School, Basilio Leyba, Teotimo Village and Josefa.

The areas with low-level of flooding reaching 2-3 feet include the streets of Marsella, ABS Housing, Lacatan/Banana Island St, and the households in Rolse & Tulay Busise, and Santera Lot.



Hazard Map of Barangay Bagbag I

Barangay Bagbag II

Bagbag II is one of the barangays that was severely affected by floods in 2008 because of the heavy rains and the overflowing of the Malimango River. There are approximately 7,275 people in Bagbag II including 2,732 males and 4,543 females.

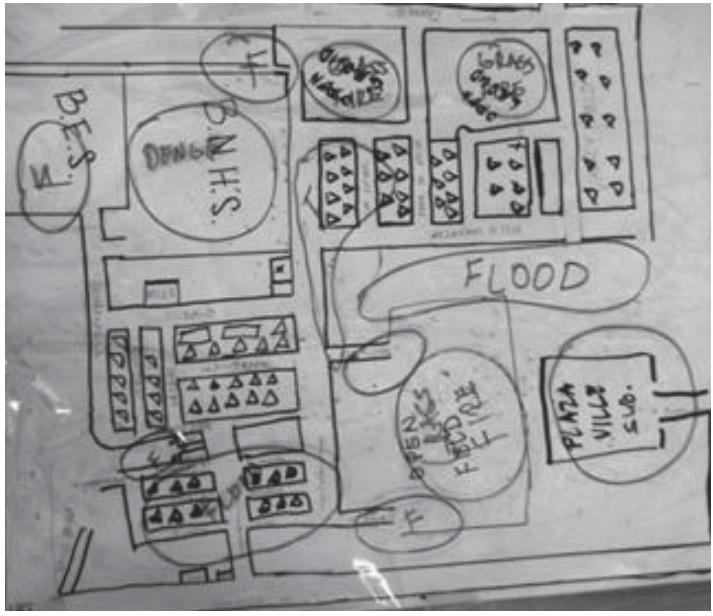
The causes of flooding in the barangay include the following: clogging and narrowing of the waterways, piles of garbage clogging the drainage and the

construction of structures along the waterways. In 2000 (typhoon Rosing), Bagbag II experienced the rampage of mud-colored water from the mountains. Also in the same year, the barangay had two flooding incidence that lasted up to a week. Rapid rise in flood waters, lasting overnight, was experienced due to non-stop rain and high tide in 2006 (typhoon Milenyo) and 2009 (typhoon Ondoy).

There are almost 205 households in Bagbag II with high level of exposure to flooding of up to 15 feet. These areas are the roads near BNHS Tramo, Evangelista Street corner Villa Conception Street, Evangelista Street corner Pavilion Street, Ontorium Street corner Gumamela Street, Santan Street, Sampaguita Street, Dona Aurora Street, Ilang-ilang Street, and Camia Street, including the areas of the basketball court and barangay hall.

Approximately 95 households have moderate level of exposure to flooding in Camia Street and its interior, Plaza Ville Subdivision, Villa Subdivision corner Evangelista Street, and Sunflower Street.

Valley Field has low level of exposure to flooding.



Hazard Map of Barangay Bagbag II

Barangay Ligtong II

Ligtong II is one of the barangays in Rosario that is frequently flooded during high tide. Flooding is caused by siltation of rivers, improper garbage disposal, lack of drainage system, and building of structures that prevent the flow of water in the canal. In 2000 and 2006 (typhoon Milenyo) the barangay experienced flashfloods that subsided within the day while in 2010, flooding lasted overnight.

High tide is the main cause of flooding in Barangay Ligtong II. A total of 1,450 households are located in areas with high level of flooding. These include Marsella Street, Capt. J. Luna Street, Callejon Uno Street, Rodriguez Subdivision, Sunrise View Park and San Isidro Village with a total of 1,450 households. An estimated 100 households are in areas with moderate level of flooding.

Hazard Map of Barangay Ligtong II

Barangay Ligtong III

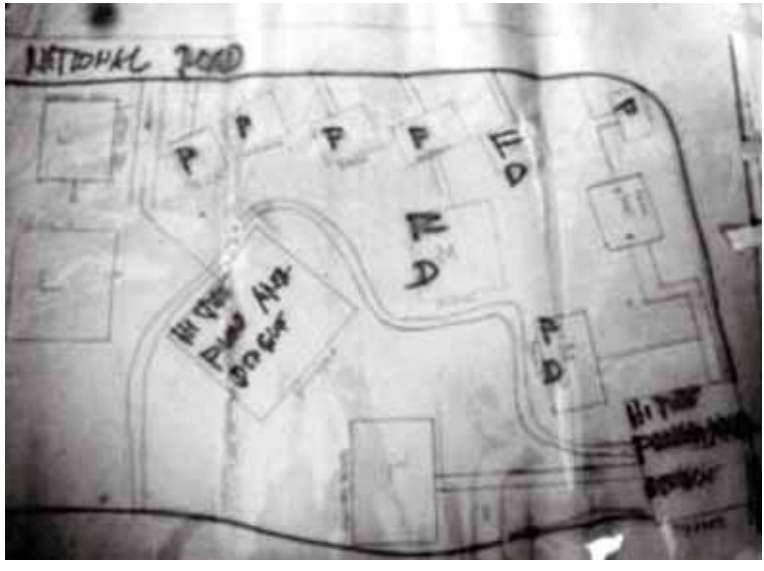
Ligtong III is located in a low-lying area in Rosario and is surrounded by rivers that flow to the Malimango River. The population is approximately 8,570 (5,142 males and 3,428 females) consisting of 1,772 families. Life is

hard in Ligtong III as most residents are unable to finish school or are unemployed. Many Ligtong III residents earn their livelihood by selling smoked fish, making rags and putting up small stores. Currently, there are 398 beneficiaries of 4Ps in Ligtong III.

The causes of flooding are clogged drains, siltation and narrowing of the river, lack of discipline and careless disposal of waste into the canal and river. Back in year 2000, Ligtong III experienced twice having floods that subsided after a day.

It is estimated that 110 households have high exposure to flood with water level reaching 5-6 feet. In the areas of Pinagpala and Pilipinas, flood water level reaches 10-18 feet.

More than 1,500 households have moderate level of flooding with height of 4-5 feet. The highest water level of 7-8 feet was reported in the areas of Callejon, Hongkong, Korea, Australia, Garizon, Masuerte, Brunei and the covered court. There is low level of flooding of 1-3 feet in the areas of Gawad Kalinga, Tramo and Marsella, which includes 440 households surrounding the barangay hall.



Hazard Map of Barangay Ligtong III

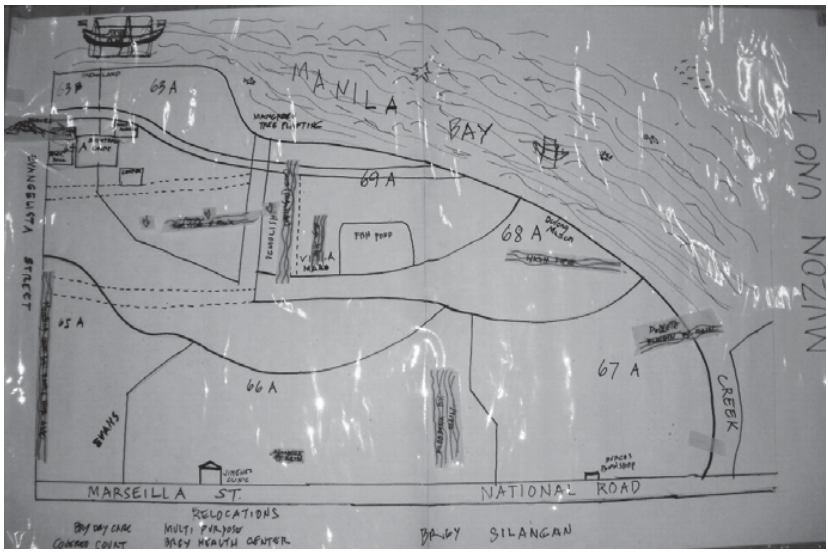
Barangay Muzon I

Located in the coastal part of Manila Bay, Muzon I has a land area of 11.9 hectares. The population of Barangay Muzon I is 3,439 with 1,599 males and 1,840 females. Fishing, smoking fish, factory work, selling and operating pedicabs (three-wheeled non-motorized vehicle for transportation) are some of the main sources of income in the barangay.

The main hazard faced daily by Muzon I residents is the foul-smelling air coming from the Materials Recovery Facility (MRF) located 200-300 meters away. Residents attribute certain sickness like asthma, skin disease and diarrhea to this foul-smelling air.

Barangay Muzon I is "below sea level" and this is the main cause for flooding in the area. Flooding is also caused by the shallow canals which become clogged with trash. Floods usually occur in the months of June-August.

Storm surges are experienced in the barangay with strong ocean waves crashing and dumping garbage on the shore. A storm surge usually occurs and can continue for three days if there is a storm during the months of June to August.



Hazard Map of Barangay Muzon I

In Barangay Muzon I, the areas of 68A and 69A are flooded due to high tide. Around 75 families are affected. There is also flooding in the areas of 63A, 63B and 65A due to the combination of high tide and heavy rain where approximately 120 families are affected. The areas in 67A and 66A, where 165 families are affected, are also flooded due to rains.

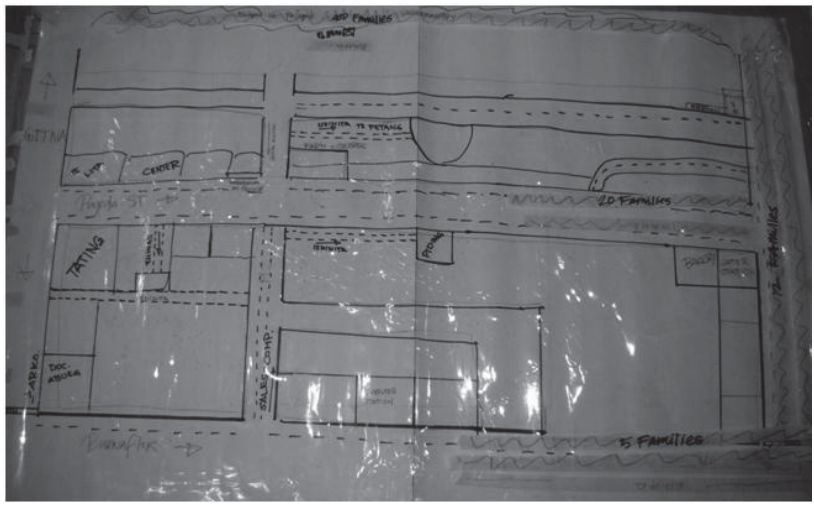
Barangay Muzon II

Barangay Muzon II has a land area of 4.57 hectares and has a population of 2,526 composed of 1,449 males and 1,077 females.

The flooding in Barangay Muzon II is caused by high tide, flood waters from the town proper, and canals clogged with trash. The barangay experiences flooding 2-3 times a year during the months of May to December.

As with Muzon I, Barangay Muzon II is also threatened by storm surges when there are typhoons. A storm surge usually lasts for three days; the force of a storm surge depends on the strength of the typhoon.

From the experiences of Barangays Muzon I and Muzon II, storm surges cause damage to boats and houses. Nearly 400 families in Dreamland are exposed to risk during high tide.



Hazard Map of Barangay Muzon II

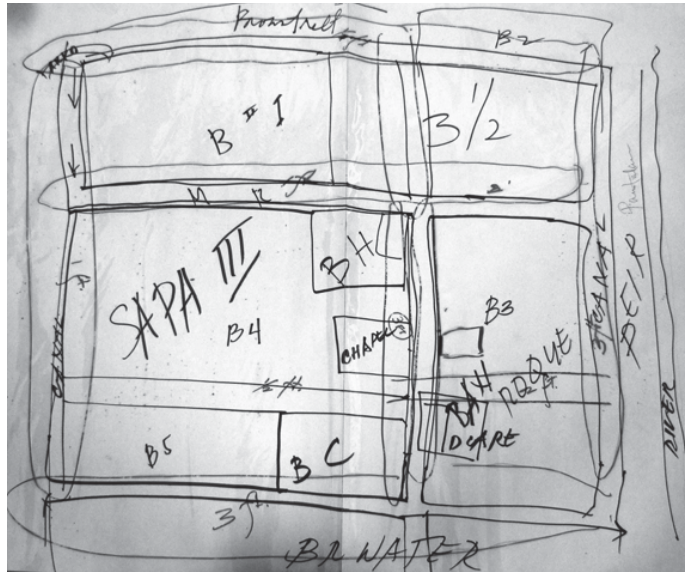
Barangay Sapa III

Barangay Sapa III is a coastal barangay with a land area of more than four hectares. The total population is 4,490 with 2,550 males and 2,390 females. It is dubbed as the "most densely populated barangay." Because Sapa III has lower elevation than the other surrounding barangays, it is often flooded with water reaching to more than waist high. Whenever there is flooding, many houses and properties such as boats used for livelihood are destroyed.

Since Sapa III is "below sea level", it is also affected by high tide. Moreover, unfinished sea walls and canals clogged with garbage cause frequent flooding in the barangay. It also appears to be the catch basin of water coming from the town proper.

The barangay experiences floods up to 24 times a year from May to December. Flooding usually lasts from 1-2 hours if caused by heavy rain while flooding lasts longer, 2-3 hours, if caused by high tide.

There are 40 families living near the breakwater, 600 families on the riverbanks and seashore and four families in the harbor who are highly vulnerable to floods.

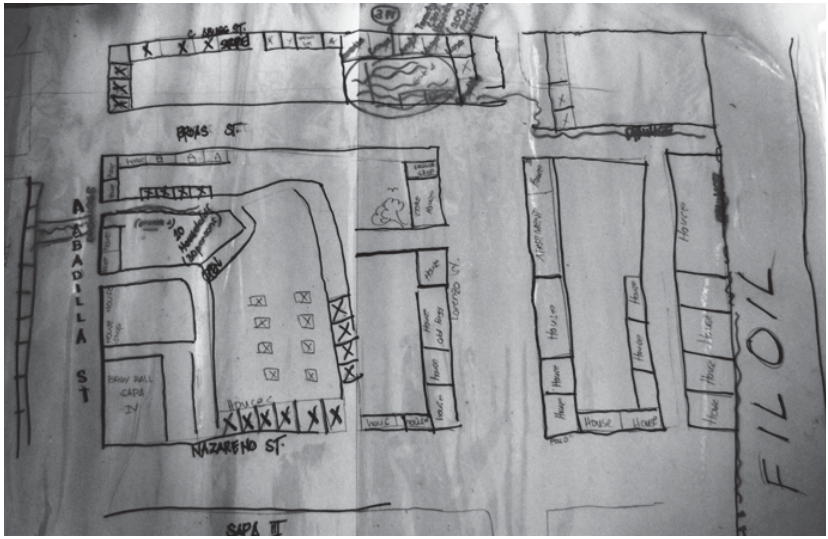


Hazard Map of Barangay Sapa III

Barangay Sapa IV

Flooding in Barangay Sapa IV is commonly caused by storms and high tide, and because the barangay lies in the lower part of Rosario. In addition, there is also the clogged drainage of Fil-Oil. In 1995, floods affected the barangay three times. From 2000 to date, Sapa IV has experienced flooding seven times. The incidence of flooding is connected to the storms in the months of June to December. Floods usually last up to two weeks and much longer, up to five months, if the canals are not cleaned.

It is estimated that 30 households are directly affected by the flooding in the barangay.

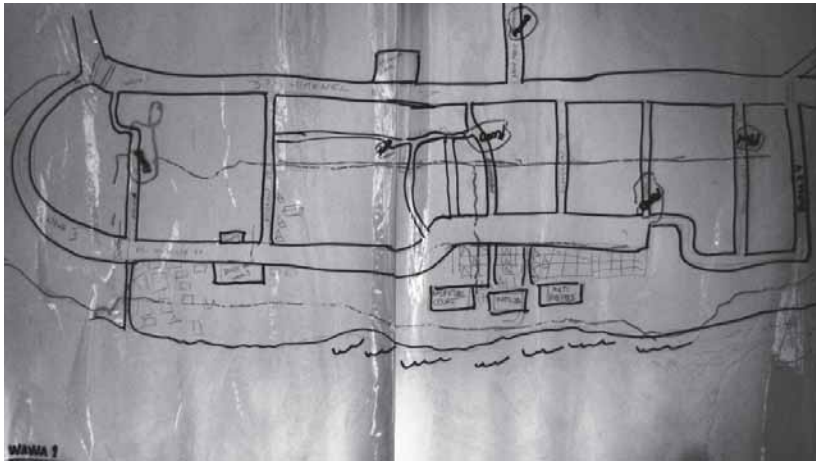


Hazard Map of Barangay Sapa IV

Barangay Wawa I

The common causes of flooding in Wawa I are its low elevation and waste-clogged drainage. Also, some houses were constructed over canals which affected the flow of water.

Between 1990 and 2009, floods that lasted up to two days occurred 3-4 times during the months of June and December. There are around 24 households with high level of exposure to flooding with height of 1-4 feet while over six households have low level of exposure to flooding with height of 1-2 feet.



Hazard Map of Barangay Wawa I

Chapter 1
Assessment

The articles in this section pertain to the different levels of assessment in CMDRR:

- Assessment of hazard to recognize the hazards experienced in a community
- Assessment of vulnerability to determine the level and scope of hazardous situations of people, things, property, structures, etc.
- Assessment of capacity to identify the strengths and weaknesses of a community in effective disaster prevention, mitigation and preparedness.

These assessments are the basic steps to evaluate the level of disaster risk in a community.

Ignoring risks

Rogel P. Paje
Barangay Muzon I

What happened on September 28, 2008 was like a nightmare for many of us residents in Rosario. Flood reached to a height of 18 feet. Houses were submerged; belongings were washed away and destroyed. Pets and livestock died. Only mud and trash were left in our houses and streets after the floodwaters receded.

Rosario is one of the towns in Cavite that is often in danger of flooding during the rainy season. This is why IIRR and the local government of Rosario initiated a project called Modeling Climate-Smart and Resilient Communities supported by UMCOR. A consultation was held where IIRR, the Municipal Administrator and MDRRM Officer identified nine barangays to serve as pilot barangays for the project. An orientation about the project soon followed which was attended by the barangay captains (village heads) and councilors of nine pilot barangays.

Risk assessment

After the orientation, we conducted a hazard assessment - a very important step in assessing risks. We were able to determine the threats or hazards in our barangay. We made a vulnerability and hazard map from where we collectively identified the areas that are in danger of severe flooding, the depth of flooding in each area, and the number of households that will be affected by the floods.

Monsoon and storm surge

From our risk assessment we were able to determine that most of the floods happen in the main streets of Muzon I, particularly in Marsella and Giongco

whenever the rain falls continuously for more than an hour. Also, whenever there is a storm surge, flooding is sure to occur in other areas such as Cluster A (also called Poblete), Cluster D (Demolish and Villamaro), Cluster B (Looban) and Cluster E (Maliksi). The entire barangay of Muzon I has already experienced being submerged because of the combined effects of the southwest monsoon and storm surge. When this happens, floodwaters can reach as high as 4 feet.

Why floods happen

Based on our assessments, we established the following causes of flooding in Muzon I:

Narrow and shallow canals

Pipes block the drain outlet and obstruct the smooth flow of water in the canal. In addition to this, creeks have become silted. During high tide, the flow of the water in the canal stops because of incoming seawater.

Garbage

We also realized that some of the barangay residents lack discipline in disposing their waste. Trash thrown in inappropriate containers, dug by dogs and by other people for junk. All this garbage goes to only one place – the canals, which is sure to cause flooding.

Low elevation of Muzon I

The rainwater coming from the town of Gen. Trias, which is located on higher elevation, runs down the roads and canals of Rosario specifically the town proper then to Muzon I. The rainwater from nearby barangays Silangan I and Silangan II likewise flows to Muzon I.

Effects of Flooding

Floods pose great risks to the residents of Muzon I especially to children, women, the elderly and persons with disabilities. It can cause major damage to property and livelihood of barangay residents. Businesses are affected because going to work in factories and offices (ex. Cavite Export Processing Zone) when there is flooding is difficult for both employers and employees.

Response of Muzon I

We implemented some activities to respond to the risks of floods in the barangay such as:

- Campaign on proper garbage disposal. Through our barangay captain, a cart was constructed to collect garbage from every household. A garbage collection schedule was also set.
- Raising awareness of children aged 7-14 to protect their surroundings, for example mural painting contest about caring for nature.
- Repair of the canal. We now regularly dredge the canal. Our barangay captain has also requested the local government of Rosario to widen and dredge the canal in Giongco Street where water flows out to the sea.

It is not easy to change and correct bad habits of some of our barangay neighbors. With extreme flooding happening in Metro Manila, Visayas and Mindanao, there are more lessons to be learned from these experiences; one of which is the proper disposal of garbage to prevent or reduce flooding.

The advocacy and reminding people about the effects of flood to life, livelihood and property, and the need for proper garbage disposal must be continued. We have a saying: “A reminder is an effective medicine for someone who forgets.” We should always remember that however small something is, when piled up, it becomes bigger. It is the same when tiny candy wrappers are dumped together clogging the canals; the water stops flowing. And the result? Flooding.

The spot map of Barangay Muzon I, Rosario, Cavite.

Risk assessment in the town of Rosario, Cavite

Wilson John Barbon
IIRR

According to the Local Government Code, one of the responsibilities of the local government is to have a program in Disaster Risk Reduction and Management (DRRM). In Rosario, it is the focus of the local government. In cooperation with IIRR, the local government decided to have careful and comprehensive risk assessments in all 20 barangays under its jurisdiction. Out of the 20, IIRR supported 9 barangays conducting risk assessment. As the local government realized the significance of this activity, it provided funds to also conduct risk assessments in the remaining 11 barangays. Completing the risk assessments in the 20 barangays is vital because it is an important part of the risk assessment at the municipal level which in turn serves as the basis of the MDRRM plan for the entire town of Rosario.

Risk Assessment Workshop

In support of the newly established MDRRM office in Rosario, IIRR organized a workshop to carry out the municipal level risk assessment. The workshop was attended by the MDRRM officer and some staff members of the Rosario local government, selected barangay officials and IIRR staff who facilitated the workshop.

The risk assessment is divided into three parts:

1. Hazard Assessment. It is where hazards endangering the town of Rosario are evaluated. Based on the assessment, the biggest hazard is flooding which puts many barangays in extreme danger. The combination of heavy rainfall and high tide is the main cause of flooding.The assessment also showed there would be more extreme flooding in the coming years due to climate change.

2. Vulnerability Assessment. A vulnerability assessment of the four community sectors that are at risk was made. The four sectors are:

- Physical sector such as roads, canals, buildings, etc.
- Social sector such as education and health
- Economic sector such as business, market and factory
- Environmental sector such as river, sea and coastal areas

Elements that are at risk were identified according to the four sectors based on their location and level of exposure to flooding. Table 1 contains some results of the vulnerability assessment of the four sectors.

3. Capacity Assessment. It is the assessment of the capacity of the people of Rosario to confront and address the needs of the community during flooding. The capacities are defined into four aspects:

- Prevention - capability to avoid such flooding such as cleaning the canal
- Mitigation - capability to minimize the intensity of flooding, an example would be placement of riprap on the riverbanks
- Survivability - the ability to survive the flood such as improving the nutrition and immunity of women and children
- Preparedness - readiness to respond whenever a flood occurs, like having rescue equipment for drowning and an early warning system

The risk assessment for Rosario was completed in one day. It was documented along with the maps showing the flood-prone areas and the number of people to be affected. The risk assessment for the 20 barangays in Rosario was quick and efficient. However, there is still a limitation; some barangay officials were not able to participate. To compensate for this limitation and to also ensure that the results are accurate and amenable, the MDRMMO distributed copies of the assessment results to the different local government agencies for their comments and additional inputs. The risk assessment is the basis in developing the MDRRM Five-Year Plan of the local government of Rosario with a budget to be appropriated from the DRRM Trust Fund of the municipality.

Table 1. Vulnerability Assessment of Rosario, Cavite.

Elements at Risk per Sector	How is it affected by disaster and climate change?	Vulnerability level based on its location
PHYSICAL SECTOR		
Municipal Hall	Building structure can be damaged by floodwater and delivery of government services will be delayed.	Medium
Roads	Floods damage roads	High
School building	Building can be damaged because of floodwater	Medium
SOCIAL SECTOR		
Women	Can get sick due to unclean water	High
Children	Can get sick due to unclean water especially when children are undernourished	High
Men	Can get sick due to unclean water	High
ECONOMIC SECTOR		
Market building	Building can be damaged and livelihood of many people will be disrupted	Medium
EPZA	Buildings in EPZA can be damaged	Medium
Smoked fish production areas	Decrease in production as there is no sun for drying and when there are rains, areas can get flooded	High
ENVIRONMENT SECTOR		
Coral reefs along coastline	The reefs can be destroyed because of strong currents and the flowing of freshwater into the sea due to heavy rain.	High
Remaining mangrove areas	The reefs can be destroyed because of strong currents and the flowing of freshwater into the sea caused by heavy rain.	High
Malimango River	Riverbanks can be destroyed due to the big volume of floodwater from higher grounds.	High

Participatory risk assessment in the barangay

The important steps in disaster risk assessment

Gonzalo S. Servano, Jr.
IIRR

Communities, even if they belong to the same town, have varied characteristics, traits and statuses in life just like their geophysical form (ex. lowland, upland, coastal, etc.). The hazards and levels of risk they face are different, and more importantly, the levels of capacity or ability to address these risks are also different.

Given the varying characteristics of a community, it is essential for community residents to participate in the analysis of their problems, in conducting risk assessment and in finding solutions that are appropriate to their abilities and circumstances. It is in this regard the method called PLA or Participatory Learning and Action was developed.

In using PLA, more value is placed on the participation of community members in analyzing and finding solutions to the problems. The views of each sector in the community such as youth, women, men, elderly, fisher folks and farmers are important in the PLA process.

The role that an "outsider," an NGO staff for instance, plays is to be the facilitator of the PLA process. As facilitator, s/he should be able to encourage the participation of community members in examining issues. To do this, a facilitator should use creativity like making colorful maps and using available materials from the surroundings such as soil, sand, rice grains, corn kernels, stones, leaves and other things that would reflect life in the community.

In the project supported by UMCOR in the town of Rosario, PLA played a major role in the risk assessment of the barangays. The PRA tools used in the assessment are the following:

Mapping exercise

The materials that may be used for this exercise are large board paper, kraft paper or manila paper. Also needed are pencil, eraser, markers in different colors and ruler. Should the map be illustrated on the ground, it has to be copied or photographed for documentation.

- ***Barangay Spot Map.*** This is the first step in risk assessment. The area covered by the barangay and the street names are identified in this map. The map shows the important buildings and structures located in the barangay like the barangay hall, health center, day care center and basketball court. Facilities in the barangay may also be included such as pumps, wells and irrigation. The complete barangay profile can also be placed on the map with total population, the number of women, men and children and other necessary information.

- ***Hazard Mapping.*** This is the second step in assessing risks after making the spot map. In this process a clear sheet of plastic is laid on top of the spot map. After which the areas often hit by hazards are

The Councilors of Barangay Wawa I while making their barangay hazard map.

identified. For example, if flood is the hazard, the area that is flood-prone is encircled on the clear plastic sheet. If the hazard is landslide, the area that is a landslide-prone is encircled with a different color of marker on the plastic sheet. The different types of hazard in a barangay can be seen in the hazard map.

Hazard ranking

In hazard ranking, community members grade or score the hazards they experience according to the following criteria:

- Frequency of hazard occurrence
- Severity of the effects of the hazard
- Extent or scope of the affected population
- Duration of the hazard

Diagram 1. Sample of Hazard Ranking

Criteria	Hazards	
	Storm Surge	Rain-induced Flood
Frequency	1	4
Scope	2	1
Severity	3	2
Duration	1	3
Total Score	7	10

Then, the scores of each hazard will be added; the hazard with highest score will be known as the major hazard in the community.

Storytelling

This is done so residents of the barangay can share their experiences and know more about hazards in the community. Assessing the characteristics of a hazard is called hazard characterization, one of the steps in doing risk assessment. The following are identified in hazard characterization:

- Force or intensity
- Warning signs and signals
- Forewarning
- Speed of onset
- Frequency
- Duration

The more the characteristics of a hazard are understood, the easier it is to identify steps to take in preventing and mitigating its force. Hazard characterization serves as a guide in designing warning systems and contingency plan.

Mapping

The map shows the various levels of possible hazard effects in a particular area in the barangay. For example, the flooding map can show the depth and extent of flooding in the affected areas. Different colors can be used to mark the high, medium and the low levels of risk to flooding. The vulnerability assessment can be made more comprehensive with the inclusion of the number of families, women, persons with disability and children who may be affected by the hazard.

Transect Walk

This is investigating while walking in an area of the community. The use of transect walk in risk assessment is to know the actual physical condition of a particular area in the community and how people or things in that location are vulnerable. During the walk, some barangay residents may be asked to relay and describe the risks they experience in that community.

Hazard risk mapping in Barangay Wawa 1, Rosario, Cavite.

Transect walk is investigating while walking in an area of the community.

Capacity Assessment

This is where the strengths and weaknesses of a community in responding to hazards are examined. It is divided into two aspects: the capacity of a community to address hazards and the capacity of a community to address risk.

1. **Capacity to address hazards.** This is where the capacities and gaps of a community in disaster prevention and in mitigation of hazard effects are determined.
2. **Capacity to address risk.** This is where individual survivability and community readiness are assessed. Aside from this, organizations that can help the barangay during disasters can also be identified using the Venn diagram. The Venn diagram is also useful for organizations to determine when they can best help the community.

The capacity assessment can also be accomplished through mapping and storytelling.

Capacity Mapping

Two sheets of clear plastic are needed. On the first plastic sheet, the existing capacity of a community in hazard prevention and mitigation is marked. On the second plastic sheet, the required capacity of the community to reduce the effects of or prevent a hazard is marked. Through this process the community can assess what they have and what they need to attain or develop further.

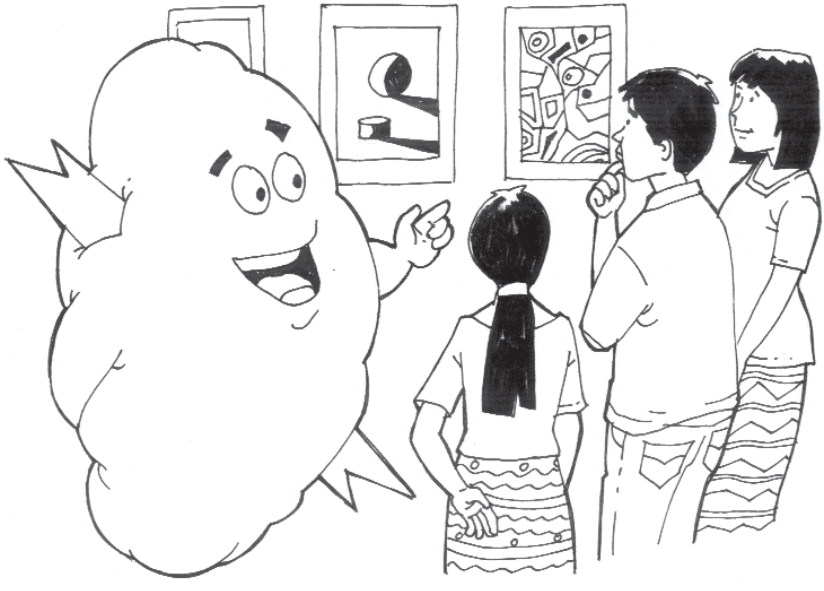
Storytelling

A way to begin storytelling is to ask residents to relay particular events and situations in the community when they were able to prevent and mitigate hazards. Residents can also be asked other capacities they think should be developed to reduce risk in the community.

After accomplishing the hazard, vulnerability and capacity assessment, the levels of disaster risk have to be evaluated: the intensity or force of the hazard based on the number of persons, livelihoods and properties affected over the capacity of the community to prepare, prevent and mitigate the effects of a hazard. If many are affected due to the low capacity of the community, the disaster risk is high. And even if the hazard is intense and many are affected, if the community is prepared and ready to confront and prevent a disaster, then the risk of the disaster is said to be low.

Chapter 2
Planning

The components and process of DRRM planning are discussed in this section. The results of the assessment and review help guide in identifying actions or objects to prevent, mitigate and prepare for disasters that might happen in the community. The plans form the part of the Barangay Disaster Risk Reduction and Management Plan (BDRRM Plan) and the Municipal Disaster Risk Reduction and Management Plan (MDRRM Plan) which aim to reduce the level of risk in communities. Also included here are the contingency plan, early warning system, preparedness plan and activities that will address the weaknesses and strengthen the capacity of the community.



Barangay DRRM Planning: A step to disaster preparedness

Jessie E. Sarabucin
Barangay Sapa III

The only thing barangay officials can do in the past to prepare for flooding was to monitor reports from PAGASA (Philippine Atmospheric, Geophysical and Astronomic Services Administration) and to warn people through a megaphone. They help residents evacuate to the barangay hall and to other safer grounds. They also look after their needs like food, medicines and others. Oftentimes the barangay has limited provisions and cannot supply for all the needs of those affected by flooding.

The practices of Barangay Sapa III residents during disasters began to change when IIRR and UMCOR implemented a program on DRR-CCA in our barangay. Through the program, the barangay officials had the opportunity to learn about proper preparation for future disasters.

BDRRM Plan

Through careful study of assessments, Barangay Sapa III was able to make the Five-Year Barangay Disaster Risk Reduction Management Plan (BDRRM Plan). The plan has four parts:

1. Prevention – avoiding hazards
2. Mitigation – reducing or lessening the force and effects of hazards
3. Individual survivability – ability of each individual to withstand the effects of a hazard
4. Community readiness – preparedness of the barangay to keep the community safe when there are hazard events

First, we did a risk assessment. We formed a small group composed of barangay officials, barangay security force, women's group, youth sector and fisher folk representatives who led the discussion on hazards faced by the barangay, particularly flooding. The group also identified the people who

might be affected and the severity of its effects. We then determined activities that will prepare us for a hazard event and respond to it, and the weaknesses in our capabilities to fully implement the planned actions. From the assessment, we listed down possible solutions that will address the weaknesses. These were then included to make up the BDRRM Plan.

Here are the significant components of the BDRRM Plan of Barangay Sapa III:

1. **Prevention.** Repair of damaged breakwater to prevent the impact of strong waves on the houses, structures and other properties during rainy season
2. **Mitigation**
   - Repair and cleaning of canals for improved water drainage
   - Instilling discipline on proper garbage disposal to prevent clogged canals
3. **Survivability.** Population profiling or collecting data on the number of women, men, children, elderly, pregnant women and persons with disability who are the priority for early warning and evacuation. Data on businesses and livelihoods that are considered high risk are also included.
4. **Community readiness.** The group decided to have another transport vehicle for use during disasters. Materials like blankets, mats and pillows need to be prepared and ready for use of evacuees in the evacuation center.

The BDRRM Plan is connected to the making of the Annual Plan which is the basis for the use of the DRRM Trust Fund for community readiness. The Annual Plan also serves as a guide in monitoring the implementation of the Five-Year BDRRM Plan.

Determination to explain and to study

Making the plans was not easy in the beginning because of the disinterest of some barangay councilors in doing the tasks. It was not also easy to explain to people about the project; many of them were only active at the start. We had to be persistent to get the attention and interest of the barangay residents. Because of our training with IIRR, we learned how we can convince people to participate in our activities. Through the Barangay Assembly and information dissemination using IEC materials, we were able to explain properly to people the goals and activities of the project.

Ligtong II Barangay Captain Leo Ibaiz and other barangay officials discuss the vision and mission of their BDRRM Plan.

With the help of IIRR representatives who were determined to help us learn, we now have concrete plans to prepare our barangay for disasters. We properly disseminated information that will make our barangay more resilient. Having the Community Emergency Response Team (CERT) ensures our readiness while the formation of Accredited Community Disaster Volunteers (ACDV) paved the way to more participation from our barangay residents. In the ACDV, the duty of volunteers is well-defined as being the partner of the barangay officials. The Memorandum of Agreement regarding the equipment given by IIRR like the manually operated siren and other early warning equipment assures their safekeeping.

Because of our new learning and the Five-Year BDRRM Plan, we are confident that we and the future barangay officials can continue what the project has started even after it ends.

MDRRM Planning: Towards building a resilient community

Wilson John Barbon
IIRR

Disaster Risk Reduction and Climate Change Adaptation (DRR-CCA) is the primary program of our national government; the law and implementing agencies of this program have been created. The NDRRM Law or Republic Act 10121 emphasizes disaster prevention and preparedness instead of emergency relief which has been the usual practice. In addition to the signing of the DRR law, the law on climate change adaptation and mitigation has also been signed. Simultaneous with these laws is the creation of mechanisms like the People's Survival Fund (PSF) which can be a funding source for local governments towards proper implementation of programs in DRR and CCA.

Although there have been changes and progress in policy-making and programming at the national government level, implementation is in the hands of the community. The local government plays a major part in DRR and CCA; creating and managing plans, programs, projects and budget are among its major tasks. Having a well-made plan helps in obtaining additional resources to implement DRR and CCA programs and projects.

The basis for the Five-Year MDRRM Plan: high disaster risk and effects of climate change

There is high risk of flooding in the town of Rosario that is predicted to intensify because of the rise in sea level which in turn is caused by climate change. This is the result of the participatory disaster risk assessment (PDRA) done by the officials and concerned agencies of the Rosario local government. This was also the strong basis for the partnership of IIRR and the local government to draft the Five-Year MDRRM Plan for Rosario.

Having the Five-Year MDRRM Plan is important not only because it is mandated by law or because it is a local government policy. It is important because this plan is the basis for and guides the use of funds allocated for DRR and CCA. This plan is also useful for obtaining resources from other funds or agencies like PSF, municipal local government fund, provincial local government fund, congress and other NGOs.

The process in making the MDRRM Plan

Formation of the core group

To make the Five-Year MDRRM Plan, a group was formed composed of officials and staff of the municipality and barangays. It is led by Mr. Manuel Pueblo, the MDRRM Officer of Rosario. Included in this group are staff members from the Municipal Environment and Natural Resources Office (MENRO), selected barangay officials and community leaders in Rosario. The first draft of the plan was completed through a workshop facilitated by IIRR.

Review of risk assessment

In the said workshop, the group determined that heavy rainfall and rise in sea level are the causes of flooding in Rosario. Flooding is made worse by narrow canals and silted river which have become a serious problem due to trash clogging the drainage and restricting the flow of water.

Identification of programs, projects and activities or PPA

After clarifying the results of risk assessment, the group began to draft programs, projects and activities (PPA) for the Five-Year MDRRM Plan. The results of the hazard assessment serve as the basis to know what type of infrastructure projects are needed to prevent and reduce flooding in the municipality. Knowing the PPA is the first step in making the Five-Year MDRRM Plan.

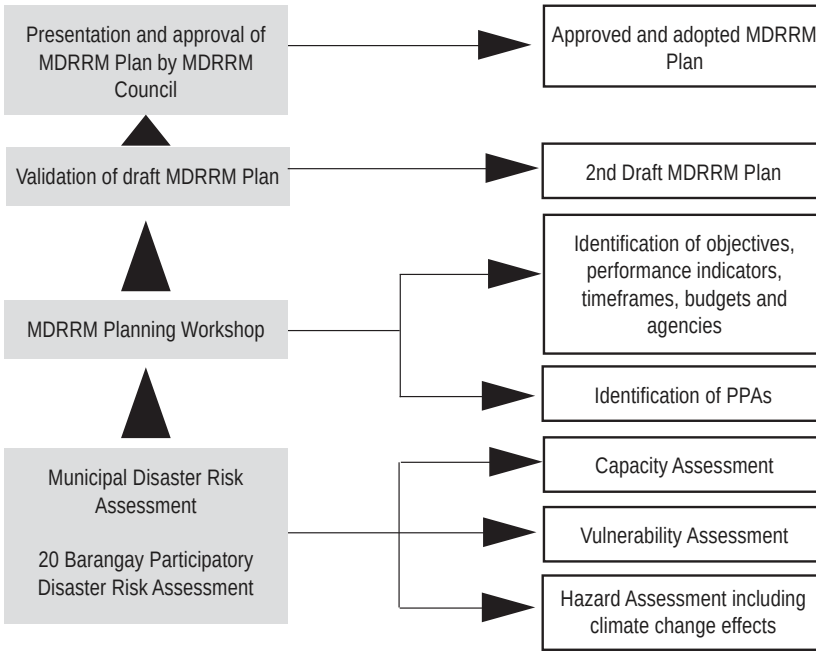
After listing the PPA, specific goals, performance indicators, timeframe, budget and designated agencies that will implement the projects and activities were identified.

A plan on how to strengthen the MDRRMO was also made. Some of the identified PPA to strengthen the MDRRMO were: the purchase of search and rescue equipment, vehicle and ambulance and the launching of training programs on DRR, CCA, disaster preparedness and disaster management.

Review and approval of the MDRRM Plan

To encourage each department of the municipal government to contribute to the plan, the draft Five-Year MDRRM Plan was circulated among all agencies. With the circulation of the draft, the Municipal Planning and Development Office (MPDO), Municipal Local Government Operations Officer (MLGOO), Municipal Engineering Office (MEO), Municipal Health Office (MHO) and the Municipal Social Welfare Development Office (MSWDO) had the chance to study and provide their inputs to the plan. Diagram 2 shows the process in making the MDRRM Plan.

Diagram 2. The process in making the MDRRM Plan.



After collecting the comments, views and suggestions of each department, the MDRRM Officer of Rosario called a meeting for the MDRRM Council to review and approve the Five-Year MDRRM Plan. The meeting was attended by all department heads of the municipal government.

Contingency Planning

After the approval of the Five-Year MDRRM Plan, a contingency plan on flooding was made. The contingency plan states the system and process of

actions of different agencies in case of massive flooding. The contingency plan is important because it provides for effective and systematic measures to avoid damage and loss due to flooding.

The parts of the MDRRM Plan

The Five-Year MDRRM Plan is divided into five parts:

First Part. Dialog on the basis and process of planning

Second Part. Description of disaster risk in Rosario. The results of the accomplished disaster risk assessment, causes of flooding, flood-prone areas and who will be affected by flooding and the capabilities of the people and government agencies of Rosario are written here.

Third Part. The crafting of the five-year plan for DRRM. The PPAs, goals, performance indicators, timeframe, budget and implementing agencies are written here. The Five-Year MDRRM Plan has four aspects: hazard prevention and mitigation, disaster preparedness, individual survivability and institutional strengthening of the MDRRM office. Table 2 shows the four aspects of Rosario MDRRM Plan.

Table 2. MDRRM Plan of Rosario.

Hazard prevention and mitigation	1. Canal widening 2. River dredging 3. Elimination of illegal structures on waterways
Individual survivability	1. Safety inspection of buildings 2. IEC on disaster preparedness 3. Increase vaccination program for people at risk
Disaster preparedness	1. Setting-up of Flood Early Warning System 2. Flood contingency planning 3. Training for BHWs on first aid
Insititutional strengthening of MDRRM Office	1. Establishment of MDRRM Office 2. Hiring of new staff 3. Purchase of office and emergency equipment

Fourth Part. The structure for implementing plans. This includes the roles and responsibilities of implementing agencies and the monitoring, evaluation and learning system that will assess and identify the changes produced by the program and project.

Fifth Part. This explains the structure and responsibilities of the MDRRM Office which executes the Five-Year MDRRM Plan. This part also includes the different departments of the said office and their duties.

The cooperation between IIRR and the local government of Rosario will continue especially with projects under the PSF. IIRR is one with the town of Rosario in achieving its goal to be a peaceful community that is ready for any disaster.

Barangay council members from pilot barangays work together in doing community risk assessment.

The Contingency Plan: Key to disaster readiness

Rogel P. Paje
Barangay Muzon I

The contingency plan is composed of prepared plans for effective response to hazards in our barangay. Having this plan became more important for the town of Rosario because of its high level of risk to the hazard of flood. Through the support of UMCOR and PACAP and guidance of IIRR, we were able to have a workshop to collectively create the contingency plan. The contingency plan aims to prevent deaths and minimize damage to property during a disaster.

To test the effectiveness of our contingency plan, we carried out a simulation and community drill. We carefully observed and identified the parts of the plan that needed to be revised to adapt to the needs of the community.

The committees in the Contingency Plan

The committees in the implementation of the contingency plan and their duties are the following:

1. Community Emergency Response Team or CERT. This group is trained by Red Cross and IIRR in different methods of giving first aid and bandaging techniques, water rescue and survival, etc. CERT members administer first aid to victims of hazards and accidents. They are what we call, the "frontliners".

Members of CERT in Barangay Muzon II simulate administering first aid to someone who might have a spinal injury.

2. Evacuation Committee. This group is responsible for warning and assisting the affected families that need to be evacuated.

3. Early Warning Committee. This group warns barangay residents through the use of a siren or bell, depending on the level of flood.

4. Transportation and Communication Committee. This group leads the coordination of different committees and ensuring the availability of a vehicle to transport those who need to be evacuated or those needing hospital treatment.

5. Crowd Control Committee. This group is composed of members of the barangay security force that maintains peace and order in the evacuation center and looks after the safety of the evacuees.

6. WASH, Food and Relief Committee. This group manages the relief goods and ensures availability of potable water and food for the affected families.

In the structure of the contingency plan, the barangay captain leads and gives instructions to those under his/her jurisdiction. The barangay secretary helps the barangay captain in documenting all the actions taken of each committee and writes the report after a hazard event. The treasurer administers the financial aspect of the contingency plan.

Each committee is composed of volunteers who belong to the ACDV or Accredited Community Disaster Volunteers. Members of the ACDV are selected residents of the community who voluntarily participate in the activities concerning DRR.

Early warning system

The contingency plan also contains the Flood Early Warning System (FEWS) or the means that give early warning to the community to avoid the risks of a disaster. A workshop was held to set and agree on the warnings and equipment to be used, expected actions on every level of warning and the steps in evacuation. The following are the equipment for FEWS:

Rain Gauge. It is used for measuring the amount of rainfall over a certain period of time and serves as basis for raising warning levels.

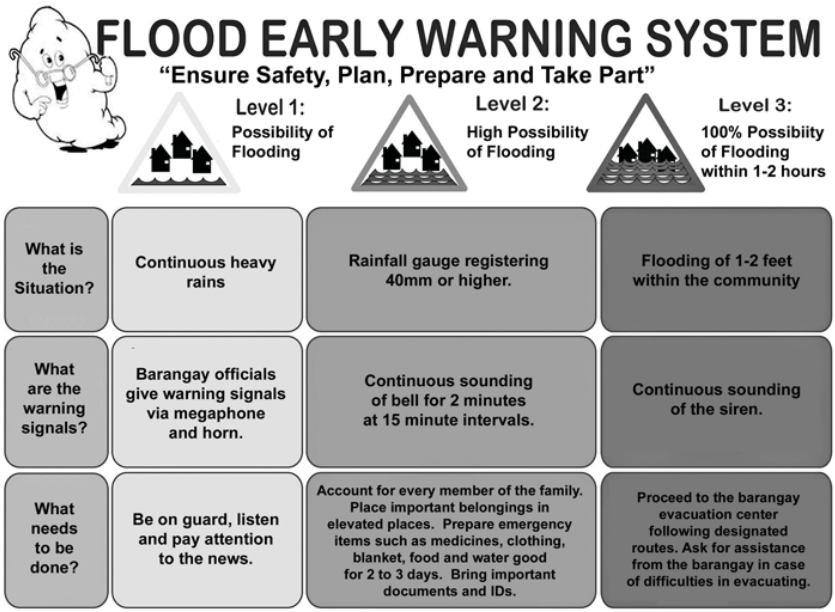
Tide Monitor. It is used for observing the level of seawater during high and low tides.

Megaphone. It is used to warn the barangay residents. The sound from the megaphone is also used to signal Warning Level 1.

Bell. This instrument is an empty oxygen tank cut in half and is used to signal Warning Level 2.

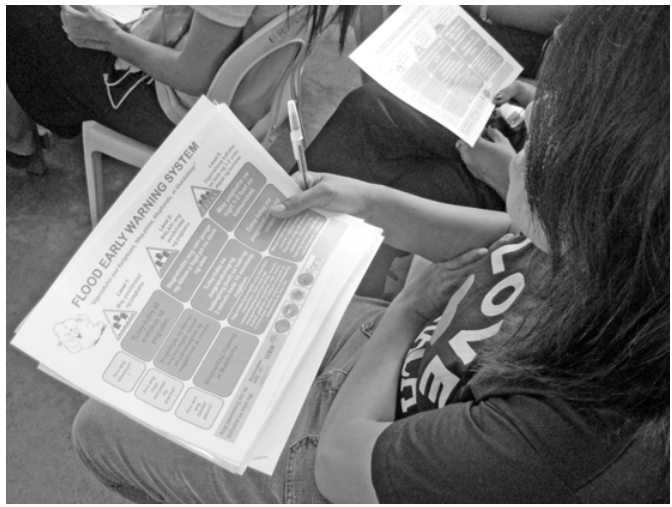
Manually operated siren. This signals Warning Level 3. (See Diagram 2 for the definitions of the different flood levels.)

Upon receiving the EWS equipment on April 29, 2013 in Muzon I, the barangay captain, councilors and ACDV members immediately held a meeting to learn how to use the siren and install the bells. As of this writing, the rain gauge is scheduled to be installed on the Muzon I barangay hall rooftop. The dissemination of information on the steps to be taken during evacuation, use of designated routes during evacuation and the sound used for EWS is next. It has also been agreed during the workshop that EWS equipment should only be operated by batteries or manually and not by electricity so that the equipment will still function even during power outages.



On April 30, 2013, we performed a simulation and community drill for the second time. We tested the understanding of residents on the EWS and our readiness and knowledge of proper evacuation procedures. This was conducted with the cooperation of the barangay council and the barangay residents.

The contingency plan is a big help for us in the barangay council because it serves as our guide in implementing the correct process in warning, evacuation and addressing the needs of those affected by the disaster. Before, the barangay council and residents know nothing about early warning system and contingency plans but little by little we learned more about preparedness. We should do more simulation, community drill and information dissemination to familiarize the community with the right process in preparedness and readiness.



Barangay residents learn the Flood Early Warning System (FEWS), an important component of the barangay contingency plan.

Chapter 3
Implementation of plans

What happens next after planning? Were the plans implemented? What were the good experiences in implementation and what needs improvement? This section contains the stories on carrying out plans in the barangays. It describes experiences in implementing DRR measures and the connection of DRR to protection of natural resources, health and livelihood. Also in the stories are the activities for strengthening the capacity of the community and the sourcing of funds to realize the plans.

Financial assistance: Aid to disaster readiness

Bryan C. Aban
Barangay Muzon II

It is the aim of IIRR and UMCOR to strengthen the capacity of the local government unit (LGU) in the field of DRR-CCA, and one way to accomplish this is to address the inadequacies that limit the full implementation of BDRRM and Annual Plans of the barangay. Nine barangays were chosen to serve as pilot area for the project: Bagbag I, Bagbag II, Muzon I, Muzon II, Ligtong II, Ligtong III, Sapa III, Sapa IV and Wawa I.

These nine barangays each received financial support worth PhP20,000, basing on their strengths and weaknesses, in implementing the projects under their Five-Year BDRRM Plan and Annual Plan. According to IIRR, the financial support is meant to initiate the implementation of the DRRM plan by supporting important components that cannot be covered by their DRRM Trust Fund.

> The financial support from UMCOR and IIRR is a big help to us. We were able to purchase equipment for disaster readiness like the manually operated siren, handheld radios and megaphone that we use in sending out early warning. Other barangays bought medical kits and medicines.

Every rainy season and during typhoon or flooding, many children and the elderly become sick with colds, cough, fever and other illnesses. If people had to stay long in the evacuation centers without enough medicines or necessary materials, diseases can spread easily. This is why having a medical kit such as the nebulizer and glucometer in our barangay is helpful because we are able to attend to the medical needs of the people especially during a disaster. Through this, the survivability of those affected by the flooding is increased. Our barangay residents were pleased to know that a medical kit is available for their use whenever they need it. Our health center is not open

Barangay Councilor Bryan Aban tries sounding the manually operated siren which signals Flood Warning Level 3.

The barangay captains of Muzon I and Muzon II with the barangay councilor of Sapa III and IIRR staff members after signing the Memorandum of Agreement for safekeeping of the EWS equipment.

24 hours a day but because of the equipment supported by UMCOR, the barangay can provide for the medical needs of the residents anytime.

The manually operated siren, handheld radio and megaphone from PACAP help us warn and provide vital information more efficiently and promptly to the barangay residents. Decisions and actions to be taken by families affected by flooding rely on this information. This is why it is crucial to disseminate complete and correct information to residents.

The safekeeping of the equipment poses a challenge to the barangay officials. To address this, we passed a barangay resolution stating how the equipment will be maintained and safeguarded so that these will still be functional and useful to the barangay even after the project with IIRR, UMCOR and PACAP ends.

Smiling canals

Tess Quintao
Barangay Bagbag II

The development of a society brings with it the proliferation of buildings, resorts, hotels, apartments and houses in a community. But why does development seem to bring flooding too? This is not surprising as one can see the nonstop construction and building of concrete roads which also have covered many canals and left them useless.

In fact, development and flooding have no direct connection. But because the contractors of these infrastructures seem to lack concern for the environment, the canals eventually become clogged with trash. If you will observe the canals, it seems that they could not breathe because of too much blockage. And because canals rarely get attention, residents of Bagbag II could have not thought that these dead canals would become their problem.

Canal cleaning to lessen flooding in Barangay Bagbag II

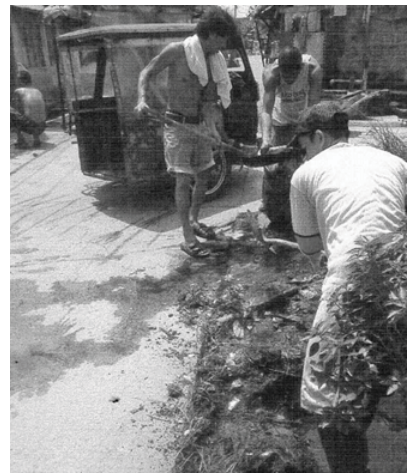
It was in 2000 when Typhoon Rosing caused devastation. Heavy rainfall led to rising floodwaters. In the same year, two more typhoons occurred and caused flooding again. It took almost a day for the flood to subside leaving piles of trash and thick mud discharged by the clogged canals. For every typhoon we experienced like Typhoons Milenyo and Ondoy, Barangay Bagbag II and neighboring barangays were submerged in floodwater. And oftentimes, what remains are tons of garbage and sludge that would take almost a

month to be collected and removed. It is obvious that one of the reasons for this is the indifference and laziness of people who lack the knowledge in ways to prevent or lessen flood.

The challenges in repairing the canals

The following are the challenges in canal repair:

Indifference. Some barangay residents ignore the problem of flooding even as the LGU has conducted research on the relation of garbage, clogged canals and flooding. Barangay residents seem to have left the task of finding solutions to the government. They do not seem to mind that even when there are no typhoons, minimal rainfall can flood the streets because water could not flow through the canals filled with garbage and mud.



Canal cleaning to lessen flooding in Barangay Bagbag II

Lack of funds. Although there is funding from the LDRRM fund, it is not enough to cover the repairs and to clean, widen and deepen the canals.

This is why the program implemented in the barangay with the support of IIRR and UMCOR is very appropriate. The problem in cleaning and repairing the drainage was given attention. They first conducted a training on how people can lessen the impact of flooding. I was among those who realized that anyone can contribute in preparing for disasters, planning, orderly evacuation and many others.

Aside from the risk assessments, IIRR also extended financial support through which we were able to accomplish projects not covered by the 5% LDRRM fund. In Bagbag II the funding from IIRR and UMCOR was used in reviving the dead canals, dredging and covering them. We were able to keep the canals clean and make the canals "smile again" because of the unobstructed flow of water even when it rains heavily.

Participation of barangay residents

The project of IIRR and UMCOR also paved the way in finding a solution to the garbage problem in the barangay. After the repairs of the canals, the barangay council started activities to foster the benefits from the project. The barangay council launched the "I clean my front yard" activity which was a success because of the active involvement of residents, as many also learned about waste segregation.

School officials and students also helped through a recycling project. This project reuses the plastic wrappers of snack foods. Wrappers are cut into tiny pieces to serve as stuffing for throw pillows. Plastic bottles were turned into flower vases while plastic straws and paper scraps were crafted into flowers, bags and even curtains. Even the parents of school children participated in this project.

As long as the canals are smiling, the residents of Bagbag II also will. And despite the increasing number of buildings and people, our barangay council will do its best to keep the community healthy and clean and the residents smiling.

Seed of hope

Rogel P. Paje
Barangay Muzon I

A storm surge is the sudden rise in sea water whenever there is bad weather or a typhoon. It is one of the hazards threatening residents in the 11 coastal barangays of Rosario. We do know that we need mangroves or trees to lessen the impact of storm surge on coastal residents like us. The fisher folks of Muzon themselves led the planting of mangrove trees.

But during the visit to Barangay Ligtong II of IIRR Senior Advisor Dr. Julian Gonsalves with Ms. Emily Oro, IIRR Philippine Program Country Director on September 2012, we realized that the trees planted by the fisher folks died because the species were not suitable to the habitat. Mr. Rene Vidallo, IIRR Program Specialist for Natural Resource Management, visited Barangay

Members of MOMSLI lead the tree planting activity with the Accredited Community Disaster Volunteers

Muzon I next and conducted anecdotal interviews to know the types of indigenous trees and plants in the area. The barangay officials and other NGOs were also present during the interview. We also did a transect walk, doing some investigation while walking along the shore, to determine the types of plants, trees and mangroves in the area.

We discovered from the transect walk that *talisay*, coconut and *ape-ape* trees can survive in the area.

Based on the recommendation of Mr. Vidallo, we planted the same tree types we saw on the coastline. On November 2012, we started planting ape-ape, coconut and talisay. We visited the planted area weekly with Mr. Jhun Servano, IIRR Field Coordinator, Ms. Joycen Sabio, IIRR Applied Learning Assistant and other NGO representatives.

After a period of time, some of the trees we planted survived while others died. Sixteen out of 68 ape-ape trees, 18 out of 33 coconut trees, and only one out of four talisay trees survived. On the succeeding visit of Mr. Vidallo,

The ACDV members with several barangay officials of Muzon I plant ape-ape on the coastline.

Table 3: Reasons for the Death of Trees in Coastal Areas

Possible reasons for death of seedlings	Actions to be taken
Trees were not tended to properly. Trees were submerged in water during high tide; coconuts floated in the water, and ape-ape were buried in sand.	Assign someone who will regularly visit and monitor the trees planted.
A basketball court was built near the planted trees.	Plant trees away from houses.
The area where trees were planted was not fenced.	Fence the perimeter to protect the trees.
The community does not care about the project.	If trees are to be planted again, encourage the participation of the community residents living in coastal areas. Explain that they will benefit from the project therefore it is also their responsibility to care for the trees.
Incorrect ways of transplanting seedlings, especially that of the ape-ape	When transplanting a seedling, the entire root must be intact together with its soil. The seedling must be immediately transplanted.

he saw why the planted trees died. See Table 3 for the causes of death and actions to be taken.

At present, we have a nursery for the ape-ape tree and other plants that can exist on the coastline. This means that we are now able to propagate suitable plants and trees along our coast, and that we can easily transplant the seedlings since these are already available in our community. Our nursery is located in an area in the barangay hall and based on our estimates, our own seedlings will be available in a month or two. The seedlings that we ourselves raised and nurtured will give protection to our barangay from storm surges once they have fully grown and matured.

Health is first in our community

Rosevi V. Prodigalidad
Barangay Wawa I

The range of ideas and activities under the Modeling Climate-Smart and Resilient Communities project of IIRR and UMCOR is extensive. This project showed us the important role of health in the issue of disaster risk reduction. Our engagement in this project made us realize the significance of having adequate medical equipment to address the needs of barangay residents affected by disasters. In relation to this, IIRR conducted a seminar in Rosario about the connection of DRR to health. The seminar was attended by representatives of IIRR, barangay health workers (BHWs) from the nine pilot barangays, barangay midwives and the municipal health officer and staff.

The first thing we did in the seminar was to determine the major illnesses faced by the residents in Rosario during rainy or typhoon season so we can strengthen our capacity to deal with the said illnesses. It was identified that asthma and pulmonary tuberculosis (PTB) were the major diseases caused by unclean surroundings, smoking and lack of proper nutrition.

Participants and Ms. Emily Oro, Country Director of IIRR Philippine Program, discuss the relationship of DRR and the health system of a community during the seminar.

After the seminar, the initial actions taken by the Municipal Health Center were to offer medical consultation and nebulization to the barangay residents, distribute medicines and most of all, discuss ways to prevent PTB. A feeding program for children was also done. These activities were accomplished with the help of the BHWs, barangay midwife and the barangay residents.

But not all of the discussed and agreed upon actions during the seminar were immediately implemented because of the following:

- Inadequate capacity of the health center or lying-in center, such as insufficient medical supplies
- Absence of a well-defined process or steps for a referral system if a patient needs hospital treatment
- Unsystematic process and guidelines in using the ambulance
- Too much work load placed on BHWs who lack training

I have experienced first-hand the inadequacy of our community health system back in 2010 when I had to rush my very sick child to the hospital during a typhoon. Because the hospital lacked equipment, my child was not admitted. I had to look for and go to another hospital. My child died before reaching the other hospital.

The Municipal Health Office tried to resolve this weakness in our health system. They launched more training programs and seminars about health for BHWs, gave orientation on DRR and had a clean-up drive. The promotion

Rosevi Prodigalidad, barangay secretary of Wawa I, writes the answers to some questions on the health assessment in their barangay.

and extension of PhilHealth membership is also a big help to Rosario residents who need hospital treatment and to get free medicines from the health center. Because the goal of the municipal government of Rosario is for its citizens to be safe and free from any disease, the MHO launched a health program for immunization, anti-TB, nutrition, anti-rabies and others. More importantly, the PhP20,000 from IIRR and UMCOR helped us purchase medical kits like the nebulizer. Several health and lying-in centers are now disaster-ready with trained BHWs and with an ambulance service.

We still have to be strict and vigilant with the government and other organizations so that there will be more efforts in disaster preparedness, and that the programs in improving our health system and a healthy Rosario will prevail.

The Relationship between DRR and a Resilient Health System

A resilient and robust health system contributes greatly to the survivability of the citizens, especially to people at risk. The important components of a robust health system are the following:

1. **Staff – Sufficient in number and with capability to effectively respond to medical and health needs of the people during disasters. An example of this is giving DRR orientations and other trainings for BHWs so they can assist the MHO during times of calamities.**
2. **Facilities and equipment – Sufficient and proper care and management of facilities and medical equipment to respond to the needs of those affected by calamities. Examples include ambulance, medical kit, etc.**
3. **Accessibility – Staff, equipment and facilities are accessible to those in need of medical assistance, especially during a disaster**
4. **Health programs – Programs that boost the resilience of the citizens such as**
   - Nutrition program
   - Immunization
   - Sanitation and hygiene
   - Reproductive health

Profit from rags

Ma. Glenda Lee H. Cupino
Barangay Muzon I

Our rug-making livelihood project started with a seminar on how flood affects the earnings and livelihoods of ordinary people in the nine pilot barangays covered by the DRR-CCA project of IIRR and UMCOR. Women and men whose daily living is affected by rain and disasters like flood are part of this project. Many of us earn a living by smoking fish, vending native rice cakes, selling fishballs and cold drinks, and anything else that could be sold. But every time there is a typhoon or flooding, work stops and so do the earnings. And as long as the barangay is flooded, the days of having no income are prolonged. This situation became the basis of IIRR to initiate a livelihood project in our barangay. The project aims to provide extra income to vulnerable families to recover quickly from the effects of a disaster. In this project, IIRR became a partner of our organization called MOMSLI (Mamayang Okay Makiisa sa Lahat, Inc. or "citizens willing, involved and collaborating with anyone").

MOMSLI

The membership of MOMSLI is composed of women who are mostly mothers. It has 75 members. It started in September 2011 with a mission is to unite women for self as well as community development. MOMSLI has active programs for the youth like games and teaching good behavior. We also join barangay activities such as clean-up drive and cleaning of the drainage.

Aside from carrying out our program, MOMSLI members have to cope with insufficient income of their spouses while caring and looking after the needs of the family every day. This is why the rug-making project is beneficial as it gives the members opportunity to earn extra money.

The rugs that earn profit are made by the members of MOMSLI

In starting the project, we collectively planned the project modules: the business plan, financing, production and marketing. We also did a research by asking our barangay neighbors how often they buy rugs and encouraged them to buy from us at the same time. We needed to secure a permit from the municipal government to buy fabric scraps, the main material for rug-making, from CEPZ. After planning, we defined the roles of each project member to ensure proper management.

The project brought significant changes to our lives. We can now earn and add to the family income. Whenever it rains I stay indoors and can finish several rugs unmindful of the passing time. Doing impractical things like gossiping is lessened because we are occupied with the project.

In any kind of trade, there will be times when business is slow. In our experience, we earn more from rug-making during rainy season when more people need to dry their things, while we earn less during summer. However, this does not mean that we should stop thinking of ways to improve business or to have more livelihood projects out of the fabric scraps. We in MOMSLI are determined to make our project grow. MOMSLI continues to encourage women and work towards further development of our profitable rugs.

We are ready now

Bryan C. Aban
Barangay Muzon II

The Community Emergency Response Team (CERT) is one of the committees identified in the contingency plan as partner of the BDRRMC in responding to the urgent needs of people affected by a disaster. CERT members are trained in giving first aid not only to victims of disasters but also of any accident. The team is headed by a leader assigned by the barangay captain.

CERT training

Through training, we acquired new skills and experiences which will help us to be ready for any event. In a one-week training, the main lesson was the application of first aid. We learned and identified different types of wounds – if it is fatal or not. We also learned the correct way of lifting and carrying victims particularly if the person is injured and about providing first aid to a

Barangay Councilor Bryan Aban of Muzon II shows the correct way of bandaging an injured child.

person with fractures and other related injuries (ex. how to clean wounds properly and how to use the spine board).

CERT members also had training on the proper methods of putting out fire, also known as basic fire suppression. The training taught us how to put out flames using a fire extinguisher. We learned about the different parts and uses of the fire extinguisher.

We also had water survival training even as many of us were afraid of the water or do not know how to swim. We were taught the right way to swim and some of us did indeed learn how to swim. We learned how to save a drowning person and how to use water rescue equipment. The water survival training was quite a challenge because aside from our limitations described above, we trained in the water for two days under the pouring rain.

We conduct quarterly enhancement training so we do not forget and to further develop what we have learned. We became members of the Red Cross Cavite Chapter and are expected to help should a disaster or accident happen in our community. I myself am now able to facilitate the training for School Emergency Response Team (SERT) and CERT for new members.

Barangay Secretary Jing Sarabucin of Sapa III shows the right way to immobilize a fractured body part.

Session on how to make a proper square knot

CERT training is crucial for those of us serving in the barangay council. As a barangay councilor I know that people approach us first whenever there is a disaster or an accident.

Through these training activities, we can now lead and conduct search and rescue operations during a disaster or provide first aid should there be an accident in the barangay. We can apply the training lessons for the benefit of the community and even for our own. Our barangay now sees the value of being prepared at all times and its importance to the community during a disaster. We know that even after the project with IIRR, PACAP and UMCOR, we must continue what has been started so we can be prepared for any hazard event.

CERT members show their competence in giving first aid to a person who might have a fracture.

The Accredited Community Disaster Volunteer

Mario O. Piano
Barangay Muzon I

Section 15 of Republic Act 10121 or the NDRRM Law states of the creation of a group called Accredited Community Disaster Volunteer (ACDV) that will support LGUs (including CSOs and the private sector) to gather volunteers who can perform duties related to disaster risk reduction in their respective communities. The ACDV is comprised of men, women, youth, cluster leaders, barangay associations and even senior citizens who are willing and ready to serve the barangay during a disaster or an accident. In our barangay, the village watch (barangay tanod) used to perform most of the tasks set for the ACDV when it was not yet formed.

Participation in barangay activities

To apply for membership in the ACDV, one has to complete the ACDV form which contains personal information of the applicant. The applicant will then

The ACDV members of Muzon I plant ape-ape and talisay trees by the coastline.

be given an orientation on the ACDV. The final step in the application process is the interview where the applicant is asked about his/her reasons for joining the ACDV.

One of the main reasons given for joining ACDV is to help the barangay residents. Some say they want to learn new skills such as those in DRR and giving first aid. Many of them were motivated because of the beneficial projects implemented by the ACDV. The acceptance for membership is on-going for those who want to give time and talent to help the community through the ACDV.

ACDV is part of the following committees of the BDRRMC: Early Warning System, Evacuation, WASH & Food, Transportation & Communication, and Crowd Control. These committees are headed by barangay councilors. The ACDV also serves as the source for volunteers who will work with the CERT team as needed.

The ACDV is a way to encourage participation of people in the different projects of the barangay. Furthermore, it is easier for barangay officials to explain and inform residents about DRR and its related projects with the help of ACDV members.

Enjoying while learning. This is what a youth member shows as she demonstrates the application of first aid to an elderly.

Model youth

Being a part of the Youth Council (SK or Sangguniaan Kabataan) and as one of the leaders of the youth, it is a challenge for me to find competent volunteers who can join the ACDV. Some do not really understand the purpose of the project or are not sincere in becoming a volunteer. Nevertheless, many young people still show good intentions in joining the activities of the ACDV. One example is their active participation in building a nursery for plants and trees that would help protect the environment. They were also involved in the tree planting project along the coastline to lessen the impact of storm surge on our barangay.

The hardworking leaders of Muzon I plant trees along the coast.

By participating in the ACDV, young people gain two advantages: they learn new knowledge and skills, and they can avoid vices. Youth members of the ACDV serve as a good model to others by showing that they too can contribute to and help protect the environment and the barangay.

The formation of the ACDV with the support of IIRR and UMCOR is a big help because more people participate in our activities in preparing for a disaster or an accident. Continuous orientation and training for volunteers are held to increase their knowledge on how to help and to encourage them to keep supporting the efforts in preparedness.

Sourcing for additional funds

Elsie S. Ibiaz
Barangay Ligtong III

Barangay Ligtong III is located in a low-lying area in the town of Rosario. It is surrounded by rivers that flow out to the Malimango River. The population in Ligtong III is 8,570 with 1,454 households and 1,772 families.

Life is hard in Ligtong III. Most of the residents are unable to finish school, are unemployed and have no livelihood. Some residents earn money by selling smoked fish, making rugs and putting up small stores. Currently, there are 398 beneficiaries of 4Ps in Ligtong III.

In 2006, the whole barangay of Ligtong III was flooded with waters reaching 10 feet for two days. Residents found it hard to recover from the devastation of their houses and from the effects of flooding on their livelihood and their health as many of them became ill.

During high tide or whenever it rains, many parts of the barangay are flooded like in Callejon, Vietnam, Pinagpala and Pilipinas.

A billboard shows the actual fund expenditures for the river dredging and canal lining in Barangay Ligtong III.

A timely program on preparedness

The IIRR program on disaster preparedness came at a most appropriate time. On August 2011, IIRR conducted a seminar in our barangay led by Mr. Gonzalo Servano, Jr., IIRR Field Coordinator, and attended by the barangay officials. The seminar discussed steps on how we can be ready for risks and disasters. It was followed by a workshop where we collectively made the hazard map showing the low and flood-prone areas in our barangay. Following this, we drafted our Five-Year BDRRM Plan.

Disaster preparedness and risk reduction plan

The possible solutions to reduce and prepare for flooding are laid down in this plan. The solutions are:

- Dredging of the Malimango River. The river needs to be dredged so that water coming from GK, Pilipinas, Vietnam, Callejon and Pinagpala can flow.
- Canal lining or repair of the canals for unobstructed waterflow
- Collecting of trash that clogs the canal which can cause flooding
- Purchase of medicines to have enough stock in the barangay for residents to use in a disaster event
- Have a patrol car to transport evacuees during disasters
- Planting trees to help prevent floods

Implementation of canal lining in Barangay Ligtong III.

Sourcing additional funds

We had to look for extra funding because the allocated funds were not enough to carry out the solutions laid down in our BDRRM Plan. It is through perseverance in seeking

funds that we were able to achieve full funding to implement our plan. Here are the following donors who helped:

- Dredging of Malimango River – Office of the Mayor of Rosario
- Canal lining on Tramo Road – Office of the Provincial Governor of Cavite
- Canal cleaning and purchase of cleaning equipment – IIRR
- Purchase of medicines – BDRRM Fund
- Motorcycle patrol – Office of the Provincial Governor of Cavite
- Tree planting – Association of Barangay Captains

Another area in Barangay Ligtong III where canal lining is implemented

We were also able to purchase more items and materials for the barangay from the funds we collected such as boots, rain coats, flashlights, emergency lights, whistles and others.

Despite the implementation of the planned activities, there are still areas that have defective drainage like Masuerte, Garizon, Pilipinas, Korea, Australia, Callejon, Vietnam and Pinagpala. Although there is funding allocation worth Php2.4 million from Kalahi-CIDSS and JSDF-LVUC for infrastructure projects, collecting the fund and to using it took a long time. It can be recalled that in 2012, we were selected to be the funding recipients of Kalahi-CIDSS and JDSF-LVUC to solve the flooding problem and to live more safely. The total allocation was PhP3.6 million. Php2.4 million was for infrastructure and the remaining for training and capacity building for livelihood. It was only in February 2013 when the canal lining in the following areas started: Masuerte, Garizon, Korea, Vietnam,

Pilipinas, Australia, Callejon and Pinagpala. There were also manual canal dredging in Callejon, Vietnam, Pilipinas and GK.

We cannot do this all if not for the tireless effort of our barangay captain in seeking help from different government agencies. There are also the hardworking volunteers who carry out the projects even if they do not receive any payment and also the NGOs, 4Ps and Kalahi-CIDSS staff who guide the volunteers. Of course, there is IIRR who helped us in identifying solutions to our flooding problem in the barangay.

We now have carried out the planned solutions to prevent flooding but we still have to maintain and keep our rivers and canals clean and by doing so, everyone benefits. From this experience, we learned that we should work together, have discipline and participate in finding solutions to the problems in our barangay.

Ready for hazards

Conrad Abutin
Barangay Muzon I

When I first heard about hazards from the TV and radio, the first thing that came to mind was: whenever it rains, there might be flooding. Sometimes, even when it does not rain, there is still flooding because of high tide. There is hazard.

But what are hazards? What hazard can possibly occur in our barangay? Who is ready for hazards? These were our questions.

Many of these questions were answered when a project on Disaster Risk Reduction-Climate Change Adaptation (DRR-CCA) was implemented in our barangay by IIRR and PACAP. The project promoted our readiness for hazards through the formation of the Community Emergency Response Team (CERT). It raised our awareness and increased our capability to face up to emergency situations through the training given to CERT members.

We had some experiences that tried our new skills. Once while a barangay neighbor was playing basketball, he suddenly stumbled. A CERT member immediately gave him first aid and bandaged his ankle. "You know how to do that?!" exclaimed some of those who witnessed it. Another time a mini bus hit a barangay resident who was riding a bicycle. A witness called

Barangay Captain Nomer Morabe of Muzon II and Barangay Captain Conrad Aubtin of Muzon I with other CERT members simulate a disaster.

me and said that the accident victim was to be loaded into a patrol car. I advised them to wait for me because we have to ensure that lifting and carrying the victim is done correctly so as not to worsen the victim's condition. I asked for the spine board to which we carefully laid down the victim, using what I learned as proper ways to attend to accident victims. We were able to bring the victim to Our Savior Hospital appropriately.

Once, we had to rush a pregnant woman from our barangay. Fortunately CERT members were in the barangay hall. We were able to properly transport the patient to a lying-in clinic. The mother named her child after us. When a fire broke out in Home Along Store, a relatively big household appliance and grocery store, the councilors of Muzon I who are also CERT members helped in putting the fire out together with the Red Cross, police and firefighters.

CERT members of Muzon I, Muzon II and Sapa III simulate a vehicular accident.

Through training and gained experiences, the barangay councilors are now ready and have more confidence in their capability as CERT members. As one councilor said, "I have upgraded myself."

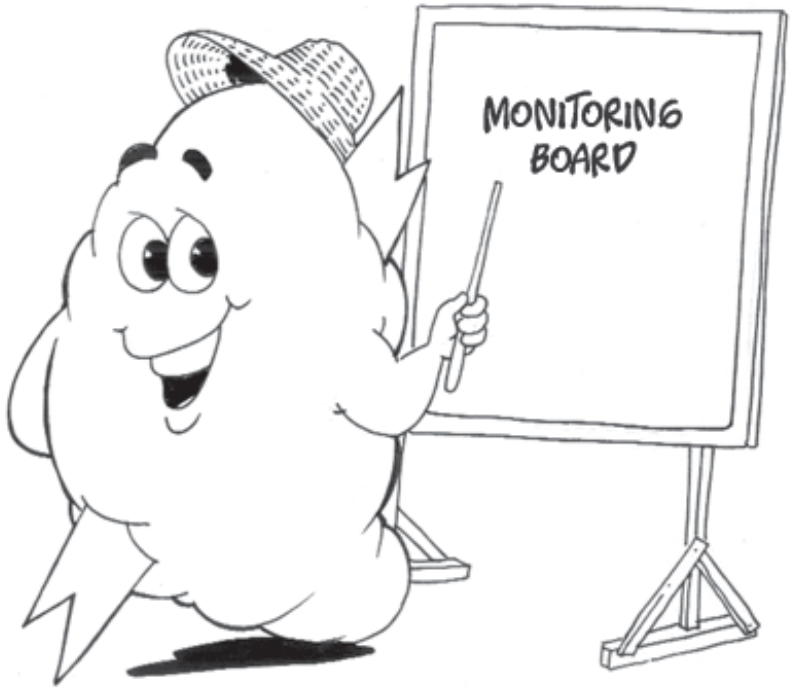
CERT members of Muzon II show how to put out a small fire using a fire extinguisher.

Being the barangay captain, I can say that much has changed in me and in the barangay because of the training, new information and experiences. One of these is the increase in my capacity as a barangay leader especially during an emergency, so that we can be ready for any hazard.

Chapter 4

Monitoring, Evaluation and Learning

The stories in this section are just some of the ways on how monitoring, evaluation and learning (MEL) was applied based on the experiences of Rosario. Central in the CMDRR process is the management and participation of the community in monitoring, evaluating strength and weaknesses of the project and documenting new information and learning. It should be emphasized that these experiences and information gathered from and written by the authors are important components of MEL for the Modeling Climate-Smart and Resilient Communities in the Philippines project towards further enhancement of the CMDRR process in the country.


MONITORING
BOARD

Transparency monitoring board

Tess Quintao
Barangay Bagbag II

The board measures 4x4 feet. It is placed at the façade of the barangay hall where it is easily seen and read. Important documents like the IRA, plans, and information on barangay funds and expenses are posted on this board. Before, details and information such as these were only discussed during sessions of the barangay council. But now, we are pleased to be able to announce to the whole barangay the critical issues affecting the lives of each and every one in the community. This board is called the transparency monitoring board. Because there is transparency, speculations on the misuse or abuse of funds can now be avoided. The said board is funded by UMCOR.

The barangay transparency monitoring board of Sapa III

The board bears our barangay logo to signify that whatever information posted there is official. One can see on the board the BDRRM structure, the Five-Year BDRRM Plan, the Annual BDRRM Plan, and the allocations of the 5% calamity fund. The barangay maps where the hazard-prone areas are marked are also posted. Most of all, the hotline number for assistance during emergencies, disasters or accidents is written on the board. The board also lists the names of the organizations supporting us to be prepared and to lessen the impact of disasters in our barangay.

There is a space on the board for comments and suggestions from the barangay residents. This space is important because it keeps the communication lines open for both the people and the barangay officials.

Towards active community participation

Joycen D. Sabio
IIRR

From the past projects of the IIRR Philippine program on DRR-CCA, it has already been established that having strong community participation is important for a successful program. Planning, implementation and decision-making should be led by community members. Their participation is essential to ensure that programs are suitable to their situation and needs. Different community sectors have to be represented (ex. barangay, church, fisher folks, women, youth, senior citizens and people with disability) because each should take part in designing a program that would be appropriate to each of their needs.

From this experience the concept of having a Project Management Team (PMT) and Project Implementation Team (PIT) were developed. The PMT and PIT are important components of the DRR-CCA project that is supported by the Philippine-Australia Community Assistance Program (PACAP). The project aims to strengthen the capacity of three barangays in disaster preparedness. And the key to this is the participation of community members.

PMT

The PMT leads and manages the implementation of the project. It is composed of three barangay captains and a representative from IIRR. Through the PMT, the community and IIRR have equal voice in how the project is managed especially in terms of decision-making.

PIT

The PIT is the partner of PMT in carrying out the project. The PIT is

The active participation of different sectors is important for the success of any project in a community.

composed of barangay captains, barangay councilors, barangay secretary, youth council or SK representative, IIRR representative, and people's organizations from three communities. Members of the PIT are meticulously selected to ensure the active participation and representation of their respective communities. The PIT sees to it that there are established plans and activities and that these are implemented according to the agreed schedule.

Open Discussion

The PMT and PIT have meetings at least once a month. In the meeting, they discuss the progress and issues of the project. The PIT gives the PMT reports on the status of the activities (i.e. which ones have been completed, which have not started) and the steps that need to be taken. Each group tackles any related matter, be it positive or negative, to give clearer direction to activities. The PMT and PIT members are free to state their opinion, thoughts and suggestions about the project. Both PMT and PIT help each other to ensure that there is community participation in implementing the project.

It cannot be denied that there are some members of the PMT and PIT whose participation are not sustained due to their personal circumstances. Oftentimes, they cannot give time to run the project. In such instances, they realize that while being a PMT or PIT member is voluntary, it is a great responsibility and with it is the need to devote time to prepare and implement the activities.

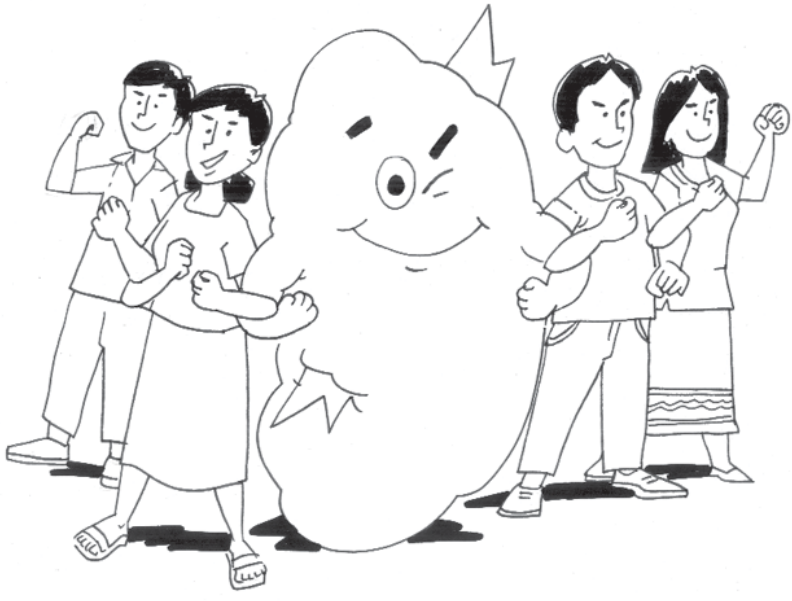
On the other hand, one of the positive results in having the PMT and PIT is being organized as each member has duties to fulfill and roles to play which are properly planned by the group. PMT and PIT members learned how to listen to suggestions of each member and they can decide based on this. The new information they learned and experiences can certainly help them as community leaders.

The members of PMT and PIT try to practice what they have learned. For example, by not using plastic bags and bringing their own food containers during group activities, they show the importance of reducing plastic use to lessen the garbage in the community especially since garbage is a concern in their barangays.

There have been many activities undertaken together by the groups such as the study tour in Laguna, the writing of barangay contingency plans, and training sessions. The two groups have contributed significantly to the good management and implementation of the project. It is proof and offers sufficient basis in forming groups like the PMT and PIT so the community can own the project and the process. If we believe that everyone will benefit from the project, it is only right that everyone should take part in its operations. Even if the project has ended, it is expected that those who were part of the PMT and PIT, through their new skills and experiences, would have the capacity to run other projects.

Chapter 5
Sustainability

This section is about sustaining the efforts and gains of the community from the project until they become resilient and progressive. Also found here are the ways on how the communities value the project. There are ways to make projects more "sustainable" but what is most important is that the community has ownership of the project.



BDRRMC: Stronger together

Gonzalo S. Servano, Jr.,
IIRR , and

Conrad Abutin
Barangay Muzon I

There is a Filipino saying that goes: "A stick broom is stronger if all the pieces are together." This is also the characteristic of a group or organization that helps one another in reaching a common goal. On disaster risk reduction and management (DRRM), Republic Act 10121 states that LGUs should form a committee or council that will ensure the protection and safety of their constituents from the effects of disasters. The creation of committees and a council should be at the barangay, municipal, city and provincial levels and up to the national level. This council leads the making of plans that will strengthen their respective capabilities to prepare for, prevent and mitigate the effects of disasters in their communities.

The selection of the nine pilot barangays for the DRR-CCA project of IIRR and UMCOR paved the way for integration and unity of the councils of the said barangays. Together they analyzed the hazards in their barangays, assessed the level of their vulnerability and accomplished a plan on how to manage the said hazards.

Through the collective and participatory process of analyzing their performance, their capability to raise the safety level of their barangays was strengthened. The council each made their BDRRMC vision, mission and goal which served as the basis for the tasks and responsibilities of each member. To ensure the implementation of the BDRRMC vision, mission and goal, a resolution was drafted and passed to guide the performance of their tasks and responsibilities that are included in the BDRRMC structure.

It can be said that they have reached a certain level of excellence in promoting DRRM. The structure for BDRRMC is now established and the BDRRM plan is already written, and because of these, the allocation of funds for DRRM activities became clearer and more understood. The community people became more involved in assessment and planning; the

implementation of DRR activities in the community continues. The status and level of implementation of DRR activities are posted on the transparency monitoring board for everyone to see.

Some members in the council who perform their duties well can be considered advocates of DRR because of their interest in and sincere support for the project. As an advocate, they are expected to continuously encourage their fellows to join DRR activities. They are also expected to promote the "DRR Agenda" in the council, which means ensuring the council has a systematic implementation of DRR focused on the four minimum requirements: assessment, planning, monitoring and learning from organization to implementation. Together as one, they can effectively lead their barangays towards a more efficient process of reducing disaster risk.

The DRR Team of IIRR with members and representatives of pilot barangays while doing the evaluation and assessment after the orientation on Health Systems Strengthening in DRR.

Effective when supported

Gonzalo S. Servano, Jr.
IIRR

In 2010, IIRR and UMCOR launched a DRR project in Rosario, Cavite, which aims to raise the capabilities of the barangay and the municipality in the field of DRR considering the rising incidence of disasters in the entire town. Although the project was piloted only in nine barangays, it did not stop there. The project also influenced 11 remaining barangays in the town of Rosario on the aspect of DRR. In fact, a representative from each of the 20 barangays in Rosario participated in a three-day training on DRR where risk assessment was discussed.

After the DRR training, a comprehensive risk assessment was conducted in the nine pilot barangays. After they have successfully completed creating their BDRRM Plan, the municipal administrator declared that the other barangays need to do their own risk assessment as well. Together with several members of the MDRRM office of Rosario, the schedule for the risk assessment for the remaining 11 barangays was immediately planned. However, there were some difficulties in keeping with the schedule.

Some obstacles

Due to the lack of active participation and time of several MDRMM staff, the plan to conduct risk assessments for the 11 barangays was not immediately carried out. The creation of a comprehensive plan for the municipality was put on hold for several months, and was further delayed due to staff movements in the MDRRM Office. The new MDRRM staff needed to be reoriented on the project and their pending assignments. Likewise, the MDRRMC needed to convene a meeting to explain to the heads of the agency that they need to continue the stalled risk assessments in the barangays and complete the comprehensive DRRM Plan of the municipality.

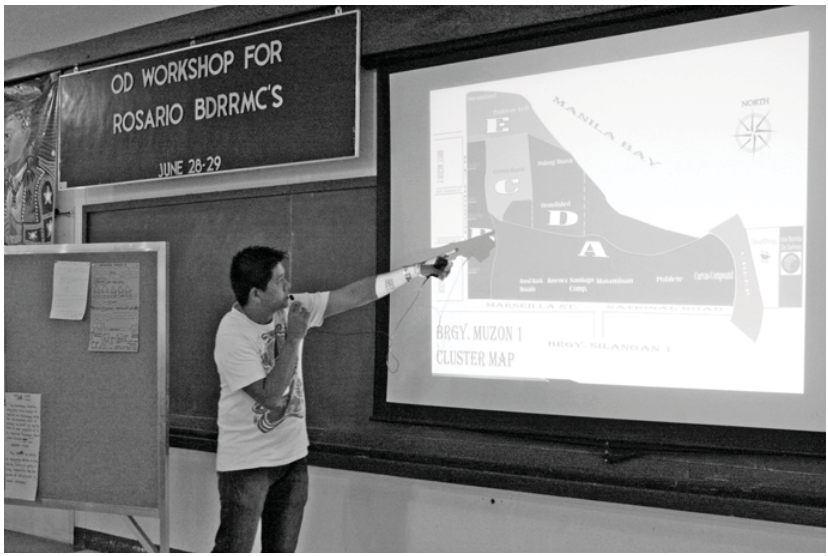
After the meeting, it was agreed that the 11 barangays would endeavor to complete their pending BDRRM Plan. Using their own resources, and with the assistance of the officials and members from the nine pilot barangays, the 20 BDRRM was finally completed. The barangay council was very grateful for the successful completion of the DRR plans, which was immediately sent to the DILG, thereby fulfilling one of the agency's requirements.

Tasks to be Accomplished

Continuous and intensified coordination and information-sharing between the MDRRMC and the LGU are needed to prioritize and appropriate funding on the items specified in the plans.

It is also important that the MDRRM office has enough staff that are capable of implementing the said plans. At present, while some have adequate training, many of their positions are not regular. This situation may affect the efficient and continuous implementation of the plans.

This experience shows that the LGU's strong political will and support are crucial to the proper implementation of DRR, especially in ensuring that all



Barangay Captain Conrad Abutin of Muzon I speaks about their barangay map.

Some staff members of the Rosario Municipal Health Office during the DRR workshop for 11 barangays of Rosario, Cavite

the plans share a common goal, and that there is greater coordination between the municipal government and the barangays in implementing these plans. On the one hand, the MDRMM is dependent on the individual plans of each barangay. Its effectiveness relies on the common goal that the 20 barangays aim to pursue. On the other hand, the barangays need support and guidance from the LGU: supportive staff, equipment, budget, etc. It is also important that the barangay officials know whom they should correspond with in implementing their plans, especially during times of disaster. The experience of Rosario shows that even if the project was only piloted in nine barangays, it was not a hindrance to broaden its influence to other barangays, as long as other government agencies are ready to provide support, particularly the LGU.

Then and now...The right way of using the LDRRM Fund

Gonzalo S. Servano, Jr.,
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Conrad V. Abutin
Barangay Muzon I

Being a country that almost every year experiences disasters brought about by different hazards – earthquakes, floods, annual typhoons, and many more, there has been a vast change in the mindset and attitude towards managing and responding to disasters. Whereas before, the Local Government Unit (LGU) reacts only when there is flooding, or during typhoons, now, an increasing number of LGUs are working towards preparedness, prevention and mitigation of the effects of hazards. In the past, management of calamities is referred to as disaster management where the emphasis is placed on emergency relief. Now, there is greater emphasis on risk reduction. The passing of R.A. 10121 or the NDRRM Law of the country is very instrumental in promoting an early and prompt response to disasters.

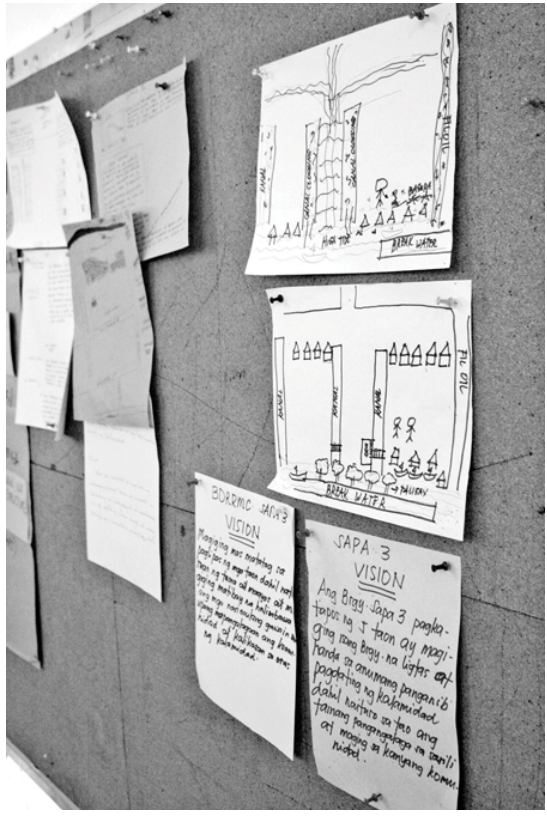
Accompanying the change in the mindset and attitudes towards disaster is the issue of funds. Previously named "calamity fund", it is now known as Local Disaster Risk Reduction and Management Fund (LDRRM Fund). Highlights of the difference between the two are detailed in Table 4.

With these changes, many LGUs find it difficult to comply with the requirements, especially if they have no experience or knowledge in doing risk assessments and DRRM planning. And because of this limitation, they might not be able to access and use the funds immediately. This is why the project supported by IIRR and UMCOR to raise the capacities of the town of Rosario, most especially the barangays prone to hazards, has been very valuable. Because of this project, they were given an opportunity to upgrade their skills and abilities in the field of risk reduction to effectively respond to the requirements and adhere to right processes in using the LDRRM fund.

Table 4: Calamity Fund and LDRRM Fund

	Then	Now
Name	Calamity fund	Local Disaster Risk Reduction and Management Fund (LDRRM Fund)
Source of fund	5% of Internal Revenue Allotment (IRA)	5% of IRA, but it is made up of and used in two parts: 70% for prevention, mitigation and preparedness measures 30% for Quick Response Fund
How to use the fund?	Can only be used if the barangay, municipality or city has declared a "State of Calamity"	70% of the IRA can be used in the absence of a declaration of a "State of calamity". The 30% can only be used for quick response if there is a declaration of a "state of calamity"
What happens if fund is not used within a year?	If not used within the fiscal year, the fund will no longer be available for use the following year	If the budgeted 70% has not been used, it can be carried over to the budget for the following year, and to be used exclusively for DRR. In the event that the 30% Quick Response Fund has not been used within 5 years, it can be added to the funds for prevention, mitigation and preparedness measures
What are the requirements for approval of BDRRM fund?	There is no BDRRM fund aside from the calamity fund, the requirement of which is a declaration of a state of calamity	Risk assessment results 5 Year BDRRM plan Annual BDRRM plan
What are the required documents to use the fund	Once a state of calamity has been declared, the municipality, city or province shall issue an ordinance on the state of calamity, which will be the basis for the fund. The budget is processed by the municipal/city or Provincial Treasurer	If the fund will be used for supplies: disbursement voucher; Purchase request; Invitation for price quotation from bidders; Abstract of canvass (lowest bid); Notice of award Purchase order, then delivery to the barangay; Inspection by the barangay inspector; Issued check payment to the supplier All transactions must be supported by a notarized certificate from the barangay head

Now, they know the importance of going through the right processt so they can responsibly use the LDRRM fund. It is equally important that they effectively carry out their responsibilities to raise their capabilities on preparedness, prevention and mitigation of the effects of hazards within their communities.



The outputs of pilot barangays during the Organizational Development Workshop in IIRR Silang, Cavite

The Authors

- **Bryan C. Aban** is a Councilor of Barangay Muzon II and is a CERT Team Leader. At age 23, he is a trained first aider, CERT facilitator and member of the Philippine Red Cross, Cavite Chapter.

- Serving his second term as Barangay Captain of Muzon I is **Conrad V. Abutin**. He also served as a councilor in the same barangay prior to his election as barangay captain. Kap Conrad is a graduate of Bachelor of Science in Industrial Engineering (BSIE) from the Technological Institute of the Philippines.

- **Ma. Glenda Lee H. Cupino** is the Secretary of Barangay Muzon I. She is a trained CERT member and first aider. Her message to the readers: "Be good and smart and you will surely find a fulfilled life."

- Accounting is the college degree of **Elsie S. Ibiaz**, the Barangay Secretary of Ligtong II. She worked as a forelady in a processing zone. Her wealth is her three children who are studying and striving hard to finish their college degrees.

- **Councilor Rogel P. Paje** of Muzon I is a CERT member aside from being the Chairperson of the Appropriation Committee in the barangay.

- Trained as a Red Cross first aider, **Mario O. Piano** is a councilor of the Sangguniang Kabataan (Youth Council) in Muzon I. He is a CERT member and facilitator, chair of the Youth for Peace Organization and board member of the Samahan ng Nagkakaisang Kabataan ng Rosario Cavite, Inc. (Association of United Youth of Rosario, Cavite, Inc.).

- **Rosevi V. Progalidad**, currently the Secretary of Barangay Wawa I, strives to be a model citizen who participates in community development activities. She is a simple lady who wishes for a modest life for her family.

- The favorite TV program to watch of **Ma. Teresa E. Quintao** is “Be Careful with My Heart” but only when she is not busy being the Councilor of Barangay Bagbag II. Tess is married to Romeo and together they have four children — Ryan, Rohma, Ray Vincent, and Cyrelle Mae.

- **Jessie Sarabucin** is the Secretary of Barangay Sapa III. She is also a CERT member and facilitator—"At your service 24/7!"

The IIRR DRR-CCA Team

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- In 2005, **Joycen D. Sabio** graduated from De La Salle Dasmariñas with a degree in A.B. Major in Development Studies. She was a volunteer for organizations here and abroad before joining a faith-based NGO. She is currently the Applied Learning Assistant of the IIRR Regional Center for Asia in Silang, Cavite. Joycen is active in several sports like biking and swimming.

- **Gonzalo S. Servano, Jr**. or Jhun is a graduate of Computer Engineering Technology from Technological University of the Philippines (TUP), and B.S. Electronics and Communications Engineering from Emilio Aguinaldo College. He had his Master in Management from TUP Cavite anbd he is currently enrolled in the Continuing Teachers Education Program. While his educational background may be unrelated to his current position as Field Coordinator for DRR-CCA program of IIRR, Philippines. Jhun has extensive experience in disaster preparedness and emergency response gleaned from his several years as a volunteer with the Philippine Red Cross.

Bryan Aban • Mario . Piano • Glenda Cupino • Jessie Sarabucin • Ma. Teresa Quintao • Rosevi V. Prodigalidad • Rogel P. Paje • Conrad V. Abutin • Elise S. Ibiaz • Wilson John Barbon • Gonzalo Servano • Joycen Sabio • Bryan Aban • Mario . Piano • Glenda Cupino • Jessie Sarabucin • Ma. Teresa Quintao • Rosevi V. Prodigalidad • Rogel P. Paje • Conrad V. Abutin • Elise S. Ibiaz • Wilson John Barbon • Gonzalo Servano • Joycen Sabio • Rosevi V. Prodigalidad • Mario . Piano

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