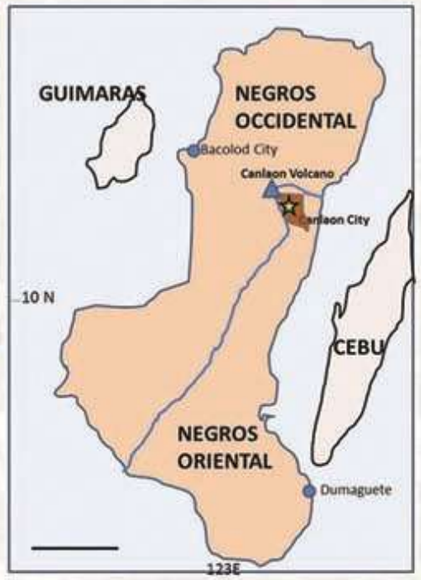
GOOD PRACTICES in VOLCANO DISASTER RISK REDUCTION:

Case Study: Barangay Pula, Canlaon City, Negros Oriental, Philippines

Mitigate and Assess Risk from Volcanic Impact on Terrain and Human Activity (MIAVITA 2009-2012)

Barangay Pula, located in Canlaon City, Negros Oriental is a thriving agriculture-based community. Situated in the southeastern slope of Kanlaon Volcano, the barangay is practically living in the shadow of an active volcano. Its nine sitios are situated within 4-12 kilometers from the volcano's summit, wherein four sitios- Minabuntod, Upper Pula, Pantao and Lower Pantao are situated within 4-6 kilometers from the volcano's summit.

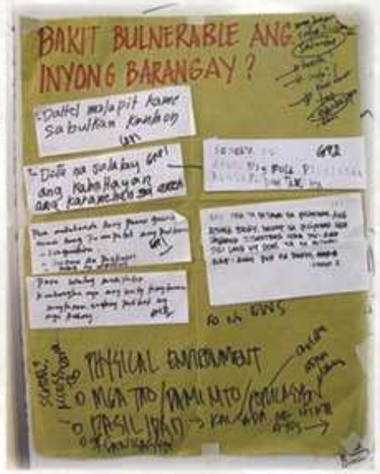
Location of Barangay Pula, Canlaon City, Negros Oriental.



The barangay which covers an area of roughly 908 hectares, is composed of 1,005 households with a total population of 4,475. Farming and trade are the most common sources of livelihood. Major agricultural products are rice, corn, sugarcane and assorted highland-type vegetables. Brgy Pula is a major supplier of vegetables for the Visayas Region.

In August 2009 until January 2010, during the initial reconnaissance for the project, Brgy Pula was shortlisted as a possible pilot site for the development of a community-based risk management under the **MIAVITA Project***. It was determined during the key informant interviews and initial secondary data gathering phase that the barangay, although it sits right on the volcano's slope (thus highly prone to volcanic hazards) has no existing and functioning barangay-level disaster coordinating council, no evacuation plans, and no communication and warning system. Although people are aware on some recent historical eruptions, their knowledge on potential hazards from the volcano that is just in their backyard is low.

(Far left). Interview with resident to determine level of knowledge and perception. (Below) A resident shares why he thinks the barangay is vulnerable to hazards. (Right) Output from the focus group discussion on why the participants think their barangay is vulnerable.



Why are we vulnerable?
"We are near the volcano."
"Our livelihood depends on the volcano."

Conduct of Volcano Evacuation Drill

Brgy Pula Volcano Evacuation Map. It indicates pick up points and location of batingting, barangay facilities, and designated evacuation areas. The description of the sound of batingting depending on type of emergency is written.

Purok/sitio level information dissemination to explain the hazards from Kanlaon and signs of volcano unrest conducted by Brgy Pula prior to the drill

Guest observers during the volcano evacuation drill include Honorable Mayor Jaime Clerigo of Canlaon City and members of the City DRRMC, and PHIVOLCS representatives


Capt Dulla gives the order to evacuate


The batingting is sounded.

Residents respond and evacuate.

Volcano evacuation drill conducted by Brgy Pula on 7 July 2012 to test the BDRRM Plan and communication system

FINAL OUTPUTS

- Reorganized **Barangay Disaster Risk Reduction and Management Committee (BDRRMC)**, with functions defined by the community after a series of small group discussions
- Step-by-step process of putting together the **BDRRMC Plan, focused on volcano emergency**
- Updated **Barangay Spot Map** based on sitio-level spot mapping
- **3-dimensional Map of Barangay Pula**, a product of the Participatory 3-d Mapping Exercise (P3DM)
- **Information Materials in local language** developed together with barangay officials, residents and teachers
- Conduct of barangay-initiated information **campaigns in all sitios/puroks**
- **Established Community-based Early Warning Communication System**. A total of 13 pieces of locally-designed batingting installed from the barangay funds to supplement the existing hand-held radio and base, cellular phones. Sound for each warning signal discussed during Communication Test.
- **Volcano Evacuation Plan and Map**
- Conduct of **Volcano Evacuation Drill (7 July 2012)**

***MIAVITA Background**

In August 2009, a project **Mitigate and assess risk from volcanic impact on terrain and human activities (MIAVITA)** was launched in the Philippines and implemented by the **Philippine Institute of Volcanology and Seismology (PHIVOLCS-DOST)**. Funded by the **European Commission**, this is a 4-year collaboration among several academic institutions from Europe with the Philippines, Indonesia, Cameroon, Monserrat and Cape Verde. The project's end goal is to develop tools and integrated cost-effective methodologies to mitigate risks from various hazards of active volcanoes. The project is composed of work packages, each with specific objectives and concerns ranging from instrumental monitoring, hazard and risk assessment, socio-economic vulnerability and resilience, database design, capacity building and volcanic threat management. Kanlaon Volcano in Negros Island was identified as the focus of MIAVITA Project implementation in the Philippines.

Under the **MIAVITA Work Package 5- Socio-economic Vulnerability and Resilience**, the end-goal is to develop a community-based disaster risk management to reduce people's vulnerability and enhance community resilience and these were undertaken through profiling the pilot community, assessing people's vulnerability and capabilities in facing volcanic hazards and anticipating people's behavior in the event of a volcanic eruption.

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Printed November 2012
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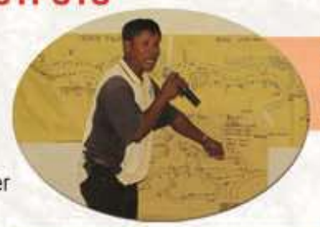
The MIAVITA Project is financed by the European Commission under the 7th Framework Programme for Research and Technological Development, Area "Environment", Activity 6.1 "Climate Change, Pollution and Risks"

KEY ACTIVITIES AND SIGNIFICANT OUTPUTS

Capacity Building

Significant findings during the interviews with key informants and residents revealed that many in Pula have (a) limited knowledge of historical eruptions in 1969, 1993, 1996; and (b) a prevailing belief that the volcano is not going to do bigger eruptions in the near future for it has been doing ash explosions or phreatic events only. This became the basis of the communication strategy that was designed and focused on two key messages: (1) The volcano, although has no known violent eruptions in historic times is capable of bigger eruptions and this can affect us, based on studies by geologists; and (2) We as a community can reduce the risk.

Priority activities are those geared to increase understanding of the barangay situation (capacities and needs) and, knowledge about the volcano and its hazards, and to introduce tools for risk reduction activities. Topics of focus group sessions with officials and residents were on orientation on hazard knowledge, map reading (a skill needed to update sitio and barangay map), discussion on barangay seasonal calendar and, major occupation and products. A special orientation session for teachers and day care workers was also undertaken.



Putting on paper what is known in the barangay's physical environment. The prepared sitio spot maps are consolidated to make the updated barangay spot map.

Discussion of what is known disaster history by the residents. Additional information about geologic history is given during the orientation to better understand the hazards from Kanlaon.

Learning how to use maps. Participants go out to the field to learn how to relate to what is in the surroundings, how this is presented in miniature 3-d model and how this translates into a topographic map.

Residents actively participate in the preparation of the Cebuano version of the poster about signs of impending volcanic unrest.

Participatory 3-Dimensional Mapping (P3DM)

The Participatory 3-Dimensional Mapping (P3DM) was introduced as a tool for a better appreciation of spatial distribution of the various elements and resources in the community, how these are related in space through a 3-dimensional map of the community in order to better visualize planning.

Understanding how the topographic maps relate to mini 3-dimension model

Tracing the map to make patterns for the 3-d model

Cutting the styrofoam using the patterns

Adding clay to shape the surface

Plotting the roads and other known elements to complete the map

The 3-dimensional map of Barangay Pula

Brgy Pula initiated proper maintenance and improvements for the 3-d model. A separate wood frame was fabricated to be used as platform specially made for the model.

Focus Group Discussions: Barangay Pula Volcano Disaster Risk Reduction Management Plan

Discussion of actions of each committee per alert level

The following topics were discussed in several small group discussions during the implementation period. Outputs were collated to be part of sections of the Barangay Disaster Risk Reduction and Management (DRRM) Plan.

- Understanding Kanlaon Volcano and its hazards
- RA 10121- Disaster Risk Reduction and Management Act
- Reorganization of Barangay Disaster Risk Reduction Management Council (Barangay Resolution)
- Defining Committee Roles and Responsibilities, and identified specific leads
- Understanding Kanlaon Volcano Alert Level Scheme
- Scenario-based volcano emergency planning, Committee Actions per Alert Level
- Evacuation Planning (evacuation routes, pick up points, evacuation area)

Identifying DRR-related priority activities

Outcomes and outputs

1. Realization for the need to have updated census data, which they used for the Disaster Risk Reduction Management Planning. The barangay undertook its own population survey in August-September 2010, headed by the Barangay Health Workers and Day Care Workers.
2. Brgy Pula initiated its own information campaign at the sitio level.
3. Barangay Disaster Risk Reducation and Management (DRRM) Plan completed

Stickers in houses indicate it was covered by the barangay level population survey of December 2011

Establishment of Communication and Early Warning System

Fabrication and Installation of Communication System

Design, fabrication and installation of batingting (bell)

Why use batingting (improvised bell)?
According to the officials and residents, the bell is easier to maintain, there is no need for electricity nor battery to generate sound during emergencies and call people's attention.

Communication System Test
Barangay participants walk to Brgy Pula Purok 2 batingting site to discuss the signals.

Capt Dulla leads the communication system test at the batingting site in Sitio Minabuntod. A team of three were assigned in each site to take note and identify which batingtings were heard.

A post- communication system test discussion to determine which worked and which needed to be improved. The barangay discussed the possibility of adding 12 more units of batingting to ensure that the sound will be heard all over the area.