

Resilience building through indigenous knowledge and scientific information

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Background

- Traditional knowledge and practices reinforced with scientific data are effective approaches in engaging with communities on how they can addressing their vulnerabilities
- It is equally important to sustain communities' traditional values in strengthening their identity as we build resilient communities
- Small-scale mitigation measures help reduce adverse impacts of hazards on communities and their livelihoods, and help sustain initiatives and promote community empowerment

Bokod Municipality is a 4th class municipality with a total population of 12,648 (NSO Census 2010). It is located in the mountainous Benguet Province in the northern part of Luzon, and is the second largest municipality in the province. Benguet serves as the gateway to the highland provinces of the Cordillera region. Rugged, sloping terrain and deep valleys characterise the Municipality of Bokod, leaving it highly vulnerable to hydro meteorological hazards such as typhoons and rain-induced landslides. Agriculture has been the traditional source of employment for most of the people in Bokod. One of the main concerns of the community is the lack of water supply. The majority of rice and vegetable farms in the communities are rain-fed. Many farmers use traditional rice varieties that only produce two crops a year. The same is true of vegetable farmers who harvest their crops twice a year due to lack of supplies and materials for planting. Most of these rice and vegetable farms are vulnerable to damage when landslides and typhoons occur, as well as droughts during the dry seasons. Limited rice and vegetable harvests affects the lives of communities in terms of low profit and limited produce available for family consumption.



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Bokod Municipality was one of the three chosen partner communities in Cordillera for the Partners for Resilience (PfR) Program in the Philippines. Community empowerment can be achieved by means of strengthening communities' adaptive capacities and reducing the underlying causes of their vulnerabilities. PfR works towards the integration of Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA), and Ecosystems Management and Restoration (EMR). PfR's Integrated Risk Management (IRM) approach is anchored on eight key principles that serve as the building blocks for implementation at the household, community and landscape levels:

- 1) working on different timescales;
- 2) recognising geographical scales;
- 3) strengthening institutional resilience;
- 4) integrating disciplines;
- 5) promoting community self-management;
- 6) stimulating learning;
- 7) focusing on livelihoods; and
- 8) forming partnerships.

CorDisRDS and ACCORD are CARE Netherlands local partner organisations for the implementation of PfR Program in the communities in Cordillera. CorDisRDS or the Cordillera Disaster Response and Development Services is a non-governmental organisation that has been providing its services in the mountainous provinces of Cordillera for over two decades now. ACCORD, on the other hand, is the Assistance and Cooperation for Community Resilience and Development, Inc. (ACCORD) is the leading partner of CARE in the Philippines for the implementation of the DRR-CCA-EMR program under PfR. Most of their work have been focused on disaster risk

reduction and community-based integrated development programs.

After the first few years of implementation, the partner organisations were able to document accounts of good practices and lessons learned in line with the key principles of PfR. To showcase different stories of innovation and lessons learned a book titled, "Creating New Paths towards Resilience" was published in 2014. The stories of the communities in Cordillera are focused on the 6th key principle of PfR – *stimulate learning* by combining local knowledge with scientific assessments while using educational tools such as participatory videos and educational games to increase awareness on the integrated approach. The case story emphasised the importance of reviving indigenous values to help strengthen community spirit and participation, especially among the younger generation. This case study, on the other hand, is a follow-up story intended to identify further PfR principles accomplished within the last years of implementation.

Dealing with the traditions and beliefs of indigenous communities has always been a big challenge for many organisations, as most of these communities have become sceptical towards new ideas and changes in their communities. CorDisRDS addressed this situation by learning and building on the positive aspects of traditional values and practices of communities. This approach has become a vital strategy for elders and community members to accept and understand the Program and its concepts. CorDisRDS was able to introduce and translate scientific information that was essential to their daily lives. Throughout the

process, community members were able to gain a deeper understanding of the current changes in their environment and how they are being affected (e.g. local farmers better understood climate projections in regard to extreme weather events and were able to relate the data to their own experiences).

Combining traditions, indigenous beliefs and scientific information

Sitio Mangagew of Bokod in Benguet recently reported a steady decline in rice and vegetable production due to the lack of rain leading to reduced water supply especially during the dry months. Based on climate projections for the region for the years 2020 - 2050, the rainy seasons will be wetter, summers will be drier and the whole year will be hotter by 0.9 degrees Celsiusⁱⁱ. Extreme weather events have also escalated uncertainty in community agricultural production as the increased occurrence, intensity, and length of rainfall—which consequently increases erosion rates, triggers landslides, and causes certain crops to be susceptible to disease—has impacted on crop production in the communities.

Climate projections in combination with indigenous knowledge and practices of the communities and ecosystem information have been a starting point for CorDisRDS in identifying suitable interventions for communities. This approach has endeavoured to supplement scientific information with local knowledge in all steps of implementation from

the community risk assessment through to contingency planning at the local government level in order to gain a comprehensive picture of local situations. Utilisation of these climate projections has been vital in designing relevant small-scale mitigation projects for the communities. These interventions aim to reduce vulnerabilities through strengthening, diversifying and protecting livelihoods.

Stimulate learning and empower community through small-scale mitigation measures

CorDisRDS has identified two significant small-scale mitigation projects that address the communities' lack of water supply, protection of their livelihoods and long-term preparation for drier dry seasons. First was the construction of communal water systems, with the aim of providing a steady supply of water that can be used for both irrigation and domestic purposes thereby strengthening agricultural production. After consultations and planning with local government units and community organisations, the work began.

A site was carefully selected ensuring that the environment would incur no damage. Materials were carried four kilometres and the whole community relied on their traditional practice of *gamal* or a cooperative endeavour providing free labour. As the water source was located two kilometres away on the other side of a river, the plastic pipes needed to bring the water to the community were fastened to steel cables that stretched from the water source traversing the river to the *sitio* centre. The community worked steadily for one month whilst also balancing their economic activities in order to complete the project. Even the families who were not direct beneficiaries pitched in. It took two months of hard work. Now, the community is enjoying the benefits of their hard workⁱⁱⁱ; the water system is fully functional and is being used for irrigating newly planted rice.

The introduction of climate-smart agriculture through the System of Rice Intensification (SRI) method was second. SRI is a set of principles for rice production based on use of "less water, fertile soil, healthier plants, greater root growth and the nurturing of soil microbial



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abundance and diversity” (CIIFAD)¹. SRI grown plants can withstand strong winds, flood water and typhoons. According to a study conducted by the Visayas State University, intermittent irrigation methods or alternate wetting and drying keeps the soil moist that helps plants develop thick and deep roots. Rice fields can survive droughts longer and can produce 4-6 times more rice yield compared to conventional rice farming.^{iv} As a strategy to engage the farmers, PfR understands that farmers’ number one concern is their secured profit. CorDisRDS has built demo farms in the communities and discussed the benefits of SRI farming with the farmers. They also organised educational field trips to SRI farms, which provided the opportunity for farmer to farmer discussions pertaining to the SRI.

Over the five years of implementation, CorDisRDS has been able to implement

various interventions that were proven helpful and effective in strengthening the capabilities of communities. Some of the activities implemented included community-based risk assessments; capacity building activities; mainstreaming DRR-CCA-EMR into local plans; and the implementation of small-scale mitigation measures. The stories of PfR communities in Cordillera highlighted the importance of combining scientific information and traditional knowledge based on a suitable approach that is fair to all those concerned. By applying scientific information and concepts in a familiar context, people tend to understand how it relates to their daily lives, therefore recognising its importance, which drives them into action. A PfR community such as *Sitio Mangagew* is an example of how scientific information, climate projections and ecosystem data in combination with indigenous knowledge and practices can be effectively used to build safer and resilient communities.

¹ SRI methodology was developed in Madagascar in the 1980s by the late Fr. Henri de Laulanie, S.J. and is presently promoted by Association Tefy Saina, a Malagasy NGO in cooperation with Cornell International Institute for Food Agriculture and Development (CIIFAD)

i <http://www.dilgcar.com/index.php/lgu/car-profile/benguet/11-lgus/164-municipality-of-bokod-benguet>

ii <http://pubfiles.pagasa.dost.gov.ph/climps/climateforum/ClimatechangeinthePhilippines.pdf>

iii <http://accord.org.ph/human-interest-story/indigenous-knowledge-and-scientific-information>

iv Visayas State University’s FARMI, “System of Rice Intensification and Conventional Rice Culture: A demonstration trial at VSU Campus, Baybay City, Leyte, Philippines” <http://sri.ciifad.cornell.edu/countries/philippines/philFARMI05.pdf>

