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# Surfacing development needs of a marginal upland community through participatory tools: The case of a village in Samar, Philippines

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## ABSTRACT

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Efforts to alleviate the productivity of marginal uplands necessitate the use of participatory approaches to identify development needs of the community. However, despite the popularity of participatory methods for assessing community resources and needs, the literature lacks information on how it works, especially in the Philippine setting. This study aimed to determine the needs of a marginal upland community and demonstrate the use of the participatory tools. Data were gathered in a marginal upland community in Samar, Philippines whose primary source of livelihood of the residents is farming. Rice is the staple food. The people's livelihood activities are beset by some threats, including scarcity of water in the area, declining soil fertility of their farms, extreme weather events, and the occurrence of pests and diseases. To augment their livelihood, the people identified livelihood projects, including food processing, vegetable farming, and animal raising. However, results of the resources vulnerability analysis indicate that the assistance needed by the community should go beyond training workshops on crop production, food processing, and animal raising. The assistance should also consider the rehabilitation of the environment, which is now highly degraded. The implementation of a Rainforestation project may be considered to raise food crops and rehabilitate the watershed of the community to address its serious problem of water scarcity. There may also be a need to identify other crops that would survive in the area given its current condition so that the people will have food sources aside from rice. This study has demonstrated that use of participatory tools allows for the collection of in-depth information on community needs and promotes active participation among the participants.

**Keywords**: community needs, livelihood projects, upland farmers, Samar

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## INTRODUCTION

The Philippines is considered one of the countries vulnerable to climate change impacts because it is situated within the west rim of the Pacific Ring of Fire (Global Facility for Disaster Reduction and Recovery nd). Recent data show that climate-induced natural disasters, including typhoons, floods, and droughts are increasing in frequency and magnitude (Comiso et al 2014, Thomas and Lopez 2015, Coronese et al 2019). The country's vulnerability to disasters has been highlighted on 8 November 2013, when super typhoon Haiyan struck the eastern part of the country. The Citizens' Disaster Response Center (2013) reported that Haiyan has set off landslides, storm surges and flashfloods, knocked out power and communication lines, and most importantly, caused damage to properties and deaths to thousands of people (Citizens' Disaster Response Center 2013). The Food and Agriculture Organization ([FAO] 2015) reported that Haiyan affected approximately 14.1 million people in the Philippines and caused more than USD700 million worth of damage to the agriculture sector, thus threatening the country's food security.

Given the country's vulnerability, steps are taken to build livelihoods' resilience to disasters. Among those targeted with these interventions are marginal upland communities. Examples of projects aimed at building livelihood resilience are the Landcare Program (Metcalfe 2004), the Enhanced National Greening Program (ENGP) of the Department of Environment and Natural Resources (DENR), the Special Area for Agricultural Development (SAAD) by the Department of Agriculture (DA) (Government of the Philippines 2017), and other projects.

In designing and implementing a project, several development agencies like the Food and Agriculture Organization (FAO), Asian Development Bank (ADB), and other organizations have recommended the use of participatory approaches (Heck 2003, ADB 2004). Briefly, participatory project design and implementation mean that the local partners decide on the project and participate in its implementation, monitoring, and evaluation. Castillo (1983) said that the advantage of using participatory approaches is that the people, for whom the project is intended, develop a sense of ownership of the project, thus increasing its chances of success.

Several projects in the Philippines have demonstrated the contributions of participatory approaches to the success of projects. Examples of these are the forest landscape rehabilitation (FLR) project in Biliran Province (Gregorio et al 2020) and the livelihood rehabilitation project by the typhoon Haiyan survivors in Eastern Samar (Bales et al 2015) funded by OXFAM. These projects harnessed the local communities' participation from needs identification to project implementation, monitoring, and evaluation. Today, aside from maintaining the tree plantations, the local partners of the FLR project in Biliran are already enjoying harvest from their agroforestry crops. The International Union for the Conservation of Nature ([IUCN] 2015) has identified the FLR project as a model FLR initiative. On the other hand, the Haiyan women survivors are now engaged in agri-based livelihood activities. Some cases in point are the members of a women's group called *Abante Kababaihan Organization* (AKO) in Balangiga, Eastern Samar, and the Farmer Entrepreneurs' Association (FEA) in Salcedo, Eastern, Samar organized as an offshoot of the project, who have put up a plant nursery. The success of AKO and FEA has earned them recognition not only in their respective municipalities but also in Eastern Visayas. In fact, until this time these people's organizations are still

vibrant and have increased their capital build up by millions, as in the case of FEA, because they felt that helping themselves and solving their problems themselves are the only means they can survive calamities.

Despite the popularity of participatory methods for assessing community resources and needs, the literature lacks information on how it works, especially in the Philippine setting. In this paper, we demonstrate the application of participatory tools known as the climate vulnerability and capacity analysis (CVCA) participatory tools, developed by the Cooperative for Assistance and Relief Everywhere ([CARE], 2009; 2019), in eliciting the needs of farmers in a marginal upland.

In the next sections, we present the methods we applied, the results we obtained, and the implications of these findings. We also present the findings' implications to practice.

## MATERIALS AND METHODS

### *Research Setting*

We conducted the study in Brgy. Caticugan (11.3477, 125.0194), one of the 38 barangays under the municipality of Sta. Rita in Samar. As of the 2015 census, the barangay had 486 households and a total population of 2,162 (Philippine Statistics Authority 2016). The community is accessible to transportation because it is located along the national highway. It is approximately 12km away from Tacloban City, the regional capital of Eastern Visayas. The people's primary source of livelihood is farming. The crops commonly grown by the farmers are rice, coconut, banana, corn, cassava, mungbean, and peanut (Cagasan et al 2017). Generally, farmers in the barangay experienced low yield from their crops because the soil in the area is infertile (Oraiz and Asio 2017), and farmers do not usually apply proper cultural management practices such as fertilizer application, variety selection, and proper timing of planting the crops (Cagasan et al 2017). Because of its low farm productivity, the village is considered among the Philippines' poor and vulnerable communities. Given this situation, Caticugan provides a good case for applying participatory methods for assessing the resources and needs of a community vulnerable to the impacts of climate change.

### *Research Design and Participants*

This study is anchored on the constructivist research perspective. In constructivism, people who are being studied are involved in generating knowledge (Charmaz 2006). Thus, the qualitative methodology was applied. More specifically, the study used the focus group discussion (FGD) and actual observation to gather data. The suitability of FGD to the present research problem has been discussed by some authors who said that this method is appropriate when the researchers have specific topics to explore (Finch and Lewis 2003, Taylor and Bogdan 1998), and when the purpose is to "generate a rich understanding of the participants' experiences and beliefs" (Mishra 2016 p2). In this study, the aim was to understand the people's needs and not obtain information from a representative sample of the population studied (eg, Macnaghten and Myers 2004).

We conducted the FGD in Brgy. Caticugan. We purposively chose 12 barangay officials and farmer leaders as FGD participants. As local leaders, these people are knowledgeable of the community's resources and needs. The small sample size of this study is not a concern because the researchers' intention was not to generalize the results for the whole population but rather to get a deeper understanding of the community's situation (Bird 2009).

### *Data Gathering Procedure*

During the FGD, we used the CVCA participatory tools of CARE (2009; 2019) as guide (Table 1). One of the researchers served as the discussion moderator, and another member of the research team served as the documenter. To capture the participants' ideas, the documenter, with the permission of the participants, recorded the discussion using a digital recorder.

Table 1. Participatory tools for the FGD

| Guide | Purpose |
|---|---|
| Historical timeline | To determine significant events in the community, especially those related to farming and climate variability that can also be considered part of its history. |
| Resource and social mapping | To identify the resources and facilities available in the area, distribution of households in the community, and the people's important livelihood sources. |
| Vulnerability matrix | To determine the hazards affecting the community's livelihood resources and to identify coping strategies used by the people to address the hazards identified. |
| Seasonal calendar | To identify important farming and other activities in the community done in a particular period of the year, including the risks and coping strategies for climate-induced natural disasters. |
| Venn diagram | To determine institutions or organizations providing support to the people in the community and to analyze the engagement of different groups in the local planning processes. |

Ethical measures were applied in gaining entry to the village. Specifically, permission was sought first from the village head before the fieldwork. Also, the FGD proceeded only after gaining prior and informed consent from the participants.

## RESULTS AND DISCUSSION

### *Historical Description of the Study Site*

Construction of a historical timeline was the first activity conducted during the FGD. Using Manila papers and pentel pens, the participants were requested to provide information about their community's population, livelihood activities,

facilities and infrastructures, human diseases, pests and diseases for crops, and weather events during specific periods. The historical timeline of Caticugan is presented in Table 2. As revealed by the FGD participants, the village used to be a small sitio of Brgy. Sta. Elena, also in Sta. Rita, Samar. Known as Sitio Malapirit, it was composed of 30 households, which depended on farming as their primary source of livelihood. The place was an upland area which was far from the road.

In 1950, the community was severely hit by typhoon *Amy*. The typhoon was so strong that it resulted in starvation among the people. Some of the residents went to Tacloban City to earn a living. A year after the typhoon, a plant called 'tikog' (*Fimbristylis globusa*) sprouted in many rice fields. The plant became very abundant in the area. The people learned to use 'tikog' for mat weaving, which became the women's livelihood activity. Thus, residents changed the name of the sitio to Caticugan. In 1976, during the Presidency of Ferdinand E. Marcos, Sitio Caticugan was elevated into a barangay of Sta. Rita, Samar. At present, the Caticugan has a total area of 510.4 hectares.

Through the years, the population of the village kept on increasing. From 800 in the 1970s, the village's population has grown to 2,162 (486 households) in 2015 (Table 2). Given the increasing population, there was also an increase in livelihood activities in the community. From just farming and mat weaving in the 1970s, livelihood activities diversified to various activities starting the 1990s. Some of the barangay residents started to engage in fishing, animal raising, operating sari-sari stores, and rice mills. Others worked as construction workers, drivers of passenger vehicles, construction workers, and teachers.

The community's facilities and infrastructures were also improved over the years. In the 1970s, the community only had a school building and a small chapel. Later, more facilities and infrastructures were added, including a health center, concreted barangay road, a basketball court, electricity, water source, a daycare center, and rice mills (Table 2 and Figure 1). It is also shown in Figure 1 that the community already has some concrete and semi-concrete houses, which indicate an improvement in the economic condition of some barangay residents.

Table 2. Historical timeline of Barangay Caticugan

| Changes/ Occurrences | 1970-1980 | 1980-1990 | 1990-2000 | 2000-2015 |
|---|---|---|---|---|
| Population | 800 | 1,300 | 1,600 | 2,162 |
| Livelihood activities | Mat weaving<br>Farming | Mat weaving<br>Farming<br>Fishing<br>Animal raising (with the introduction of the carabao dispersal project of DA) | Mat Weaving<br>Farming<br>Fishing<br>Piggery<br>Construction<br>Sari-sari store<br>Driver<br>Rice mill<br>Poultry<br>Animal raising (through the goat, carabao and pig dispersal projects of the LGU/DA) | Mat weaving<br>Farming<br>Fishing<br>Piggery<br>Construction<br>Sari-sari store<br>Driver<br>Rice mill<br>Poultry<br>Animal raising (still part of the goat and carabao dispersal projects of the LGU/DA)<br>Teacher |

Table 2. continued

| Changes/ Occurrences | 1970-1980 | 1980-1990 | 1990-2000 | 2000-2015 |
|---|---|---|---|---|
| Facilities and Infrastructure | School<br>Chapel | School<br>Chapel<br>Health Center<br>Barangay Road (partially cemented)<br>Basketball court (partially cemented) | School<br>Chapel<br>Health Center<br>Barangay Hall<br>Barangay Road (fully concrete)<br>Basketball court (fully concrete)<br>Electricity<br>Water system | School with computer set<br>Chapel<br>Health Center<br>Barangay Hall<br>Concrete Barangay Road<br>Basketball court (fully concrete)<br>Electricity<br>Water system<br>Day Care Center |
| Human Diseases | Diarrhea<br>Measles<br>Chicken fox<br>Cough & colds<br>Fever | Diarrhea<br>Cough<br>Fever | Diarrhea<br>Schistosomiasis<br>Asthma<br>Cough/ Running nose<br>Fever<br>Measles<br>Tuberculosis<br>Rheuma | Diarrhea<br>Schistosomiasis<br>Asthma<br>Cough/Running nose<br>Fever<br>Tuberculosis<br>Rheuma<br>Hypertension<br>Diabetes<br>Skin allergy Tetanus |
| Pests and Diseases for Crops | Snail<br>Stemborer<br>Tungro<br>Worms<br>Aphids | Snail<br>Stemborer<br>Tungro<br>Worms<br>Aphids | Snail<br>Black bug<br>Stemborer<br>Rice bug<br>Aphids | Black bug<br>Snail<br>Stemborer<br>Rice bug<br>Aphids<br>Worms |
| Weather events | Typhoon *Claring* destroyed houses | Typhoon Undang that resulted in casualties, damaged houses, and fallen trees; Measles which caused death among most of the children | El Niño phenomenon | Typhoons *Ruby*, *Seniang*, *Amang* and *Yolanda* that resulted in damages to houses, plants, and livelihoods<br>Continuous rain |

Regarding health, diarrhea was the most common disease experienced by the barangay residents through time because they lack a source of clean water. With the increasing population, the illnesses experienced by the people also increased starting the 1990s.

For crops, some pests were also experienced, especially for rice and vegetables. These pests include snails, stemborer, black bug, rice bug, worms, and tungro for rice; and worms and aphids for vegetables (Table 2).

There were extreme weather events experienced by the community through time. These include Typhoon *Klaring* (international codename: Pamela) during the 1970s, Typhoon *Undan*g (international codename: Agnes) in the 1980s, El Niño in the 1990s, and four strong typhoons between 2000 to 2015, which took lives and damaged the properties and livelihood of the people in Caticugan.

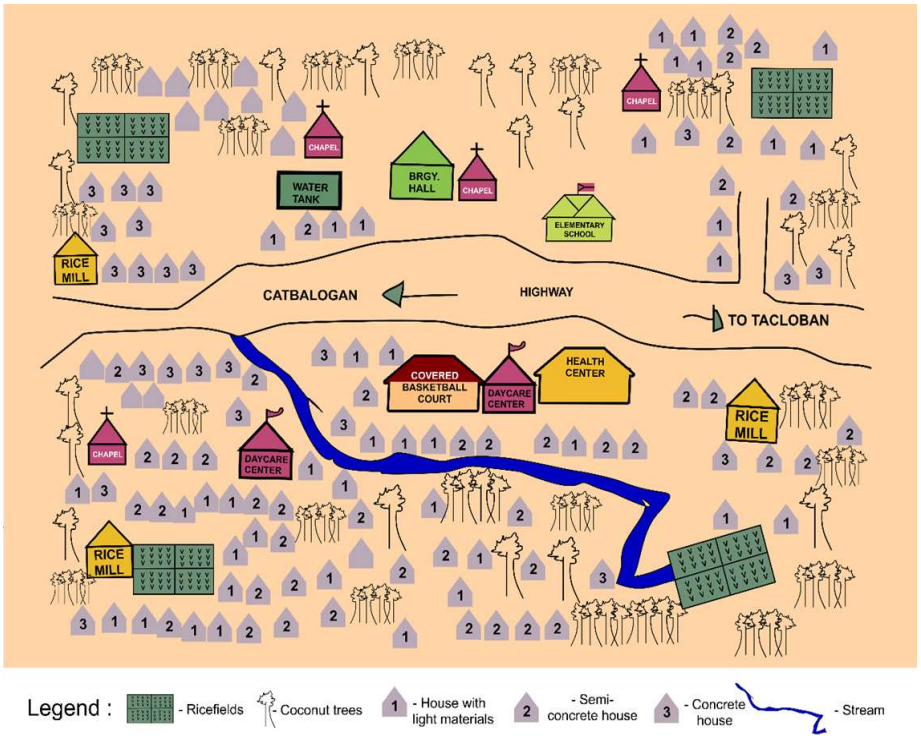


Figure 1. Social map of Brgy. Caticugan, Sta. Rita, Samar produced by the FGD participants

### *Livelihood, Resources, and Threats*

Information about the people's livelihood, community resources, and the threats to these resources were obtained through the historical timeline, social and resource mapping activities, and the vulnerability matrix. Results showed that farming is the main livelihood activity of the people in Barangay Caticugan. As shown in the resource map (Figure 2), the major crops grown include rice and coconuts. According to the FGD participants, rice is their most important crop as it is the people's primary source of food, while coconut is an important source of cash income. Other crops grown include vegetables, corn, banana, and root crops such as sweetpotato and cassava. Some residents are also raising animals, including chicken, pigs, goats, and carabaos.

Regarding facilities and infrastructure, the community currently has an elementary school with a computer equipment, a day care center, barangay hall, health center, basketball court, a concrete barangay road, electricity connection, a source of potable water, and rice mills (Figures 1 and 2).

The vulnerability of the community's livelihood resources to some threats was analyzed by asking the participants to fill in a vulnerability matrix written on sheets of Manila paper (Table 3). They were asked to identify their major livelihood resources and the corresponding threats to these resources. Results showed that the local people considered the lack of water and the infertile soil in their farms as the main threats to their major livelihood resources, specifically rice, corn, coconut,

and vegetables. The FGD participants also revealed that the community's livelihood resources are vulnerable to adverse climatic conditions (storms and drought) and pests and diseases. They explained that crop productivity is greatly affected by the decreasing soil fertility in their farms and the lack of water supply. Since Caticugan is an upland community, its rice fields are rainfed and are planted to upland rice varieties, which have lower yields compared to the lowland rice varieties. According to a farmer, they have already been trained by agricultural technicians in their area on how to improve rice production. However, since their farms lack water supply and have infertile soils, they could not get the high yield. He said, "We have already been trained [on farming technologies], but it's still the same, since we lack supply of water and the soil is already infertile, our harvest is still not good enough. We hope that one day, some groups will be able to help us solve our problem on lack of water and infertile soil."

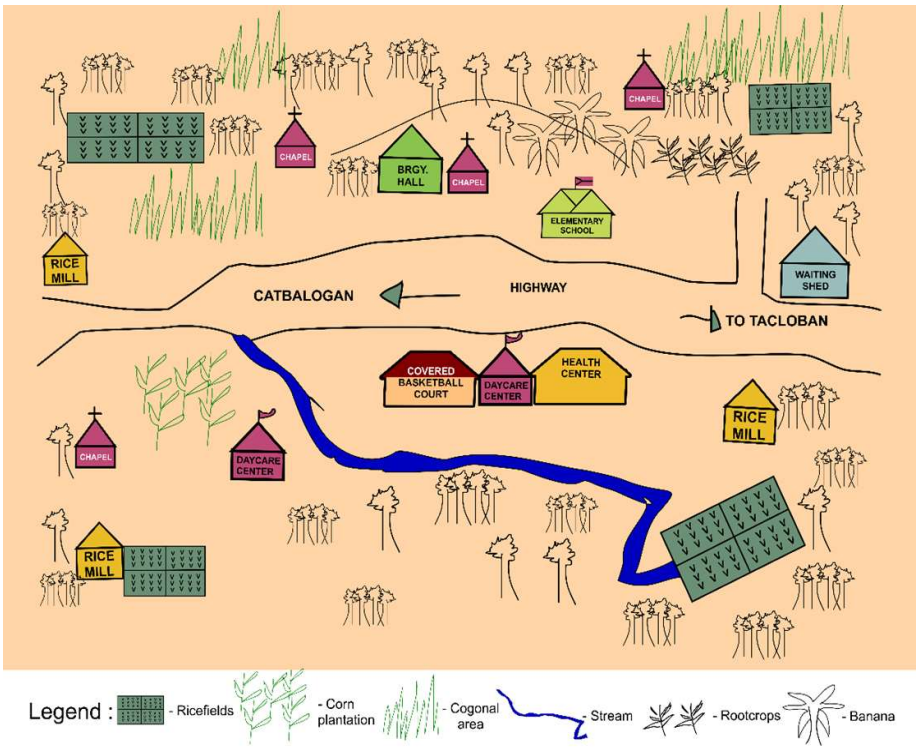


Figure 2. Resource map of Brgy. Caticugan, Sta. Rita, Samar produced by the FGD participants

As a stop-gap measure to the problems of lack of water and infertile soil, the FGD participants said people in the community plant crops that thrive under adverse conditions. These crops include banana and root crops (sweetpotato, cassava, and gabi), which, they said, thrive even with less water and infertile soil. They also plant vegetables, but during the dry season, they said they water the plants using water from their deep wells.

Aside from lack of water and infertile soil, the FGD participants said that farmers in their community also encountered pests and diseases attacking their corn, vegetables, and banana. They said their production of corn and vegetables had been threatened by storms and droughts and by pests and diseases that they could not identify specifically. For banana, the FGD participants reported the occurrence of "bugtok," a local term used to describe the infected banana fruit that is discolored and hard even when ripe. It is caused by *Pseudomonas solanacearum* E. F. Smith.

For animals, the common diseases were diarrhea and a viral disease which affect chickens, especially during cold months from January to March. To help them solve this problem, they said they sought the help of the agricultural technicians in their municipality.

The FGD participants had also emphasized the problem of natural calamities. They said that before the typhoons in 2013, the barangay had more than 10 hectares of coconut farms. But many of these were heavily affected by the typhoons that hit the area. After typhoon *Yolanda*, other typhoons came, damaging the farmers' standing coconuts. Those who lost their livelihood sources due to these calamities said they looked for other jobs like fishing, driving a single motorcycle, which is a common means of transportation in the area, and working in Tacloban City as house helpers or storekeepers.

Table 3. Vulnerability of livelihood resources to threats

| Resources | Threats | | | |
|---|---|---|---|---|
| | Main threats | Disaster/Extreme Weather Events | Pests | Diseases |
| Rice | Lack of water supply | Drought, Flood, Storm | Rats, Maya, stem borer, black bugs, worm, golden snail, grasshopper | Tungro |
| Coconut | Infertile soil | Storm | Beetle | |
| Vegetables | Infertile soil | Drought, Storm | Not specifically identified | Not specifically identified |
| Banana | | Storm & typhoon | | *Bugtok (tibaglon)* |
| Cassava | | Storm, Drought | Rat | |
| Sweetpotato | | Drought | Weevil | |
| Gabi | | Drought | Grasshopper | |
| Corn | Infertile soil | Storm, Drought | Not specifically identified | |
| Animals (chicken, pigs) | | | Viral disease for chicken (*Tukwaw*) | Diarrhea |

## *Seasonal Calendar*

Since Caticugan is a farming community, major activities in the area focused on crop production. The community observes two seasons for rice production – the dry season cropping, which is from June to September, and the wet season cropping, which is from November to May (Table 4). They also grow corn from February to May. However, according to the FGD participants, with the unpredictable weather conditions brought about by climate change, many farmers are not anymore sure when is the best time to plant their crops. In many instances, their crops were damaged either because of prolonged dry spells or too much rain. At present, they said they are experiencing a more extended period of food scarcity, the most pronounced of which is in January, February, and August, when all the crops are still in their vegetative stage.

Table 4. Seasonal calendar

| Activities | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rice Production (***Dry season cropping or Baksalan***) – June to September** | | | | | | ■ | ■ | ■ | ■ | | | |
| **Rice Production (***Wet season cropping or Karayapan***) – Nov to May** | ■ | ■ | ■ | ■ | ■ | | | | | | ■ | ■ |
| **Lean months (***Katgutom***)** | ■ | ■ | | | | | | ■ | | | | |
| Fiesta in Caticugan | | | | ■ | ■ | ■ | | | | | | |
| **Corn Production** (Feb to May) | | ■ | ■ | ■ | ■ | | | | | | | |
| High disease incidence in animals (chicken and pigs) | ■ | ■ | ■ | | | | | | | | | |
| Opening of classes | | | | | | ■ | | | | | | |
| All Souls Day | | | | | | | | | | | ■ | |
| Christmas | | | | | | | | | | | | ■ |
| Lenten season | | | | ■ | | | | | | | | |
| Leyte Landing Anniversary | | | | | | | | | | ■ | | |
| Feeding activities | ■ | ■ | ■ | | | | ■ | | | | | |
| New Year | ■ | | | | | | | | | | | |
| Barangay Assembly | | | ■ | | | | | | ■ | | | |
| PTA[1] Induction | | | | | | | ■ | | | | | |

PTA means Parents-Teachers Association. The association promotes parents' full cooperation in the design and implementation of schools' programs.

## *Institutions that Assist Caticugan*

The FGD participants reported that some institutions' staff came to the community to help the people (Figure 3). Among the institutions was the Department of Social Welfare and Development (DSWD), which assisted in constructing pathways, construction and operation of the Day Care Center,

implementation of the 4Ps (Cash Transfer) Program, and the conduct of feeding projects and related activities. Other organizations which assisted the people in Caticugan were the non-government organizations (NGOs) including World Vision, Plan International, and the Center for Agriculture and Rural Development (CARD, Inc.) which assisted the community in rehabilitating their livelihoods after the occurrence of calamities. The Department of Education (DepEd), religious organizations, and the local government unit (LGU) also provided various forms of assistance, including provision of temporary shelters and evacuation areas during calamities, food assistance, and livelihood opportunities. Implemented in response to their request, the participants reported that these forms of assistance are of great help to their community.

### *Desired Livelihood Projects*

The development needs of the community revolved around the residents' need to diversify their livelihood sources. Believed to improve their current situation, the livelihood projects they desire included food processing, vegetable farming, and animal raising (Figure 4).

For food processing, they specifically wanted to embark on cassava and sweetpotato processing because these crops are grown in their place and are known to withstand adverse weather conditions. To be able to implement this livelihood activity, they said they need to organize the women in their community. Those interested would need to develop their skills in processing, packing, record keeping, and product marketing.

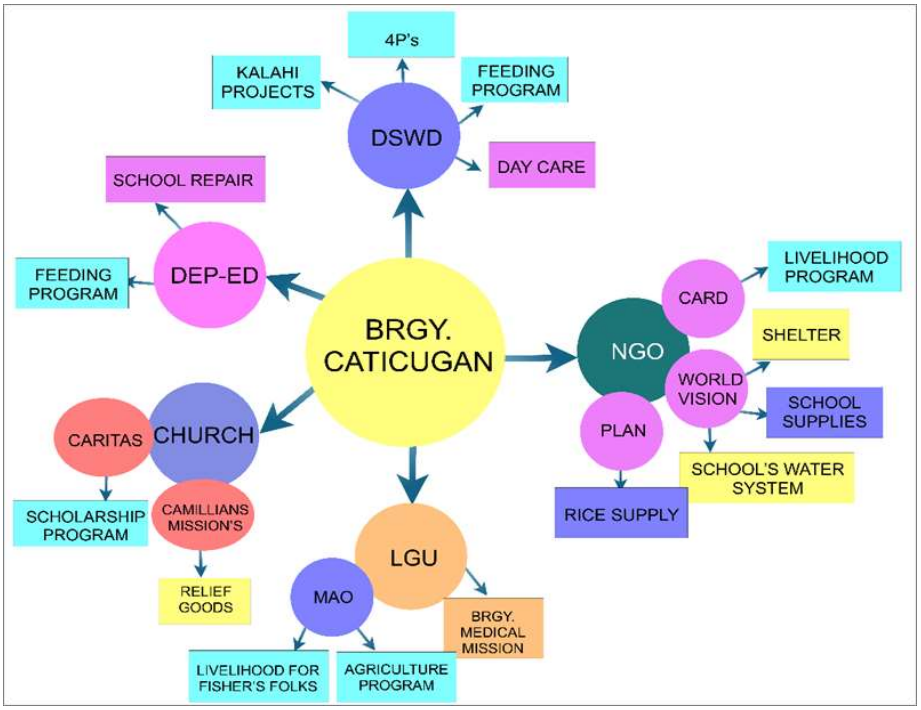


Figure 3. Organizations that assisted Brgy. Caticugan

The other livelihood activity is growing and selling vegetables, specifically string beans, eggplant, squash, and *ampalaya* (bitter gourd), which they said have a good market in Tacloban City. To pursue this project, they said they need seminars on vegetable production and assistance on sourcing good quality seeds.

The third livelihood activity is hog raising. As with food processing and vegetable production, participants are targetting to supply the market in Tacloban. However, they acknowledged that they need capability development on hog raising and marketing and financial assistance in sourcing piglets and the construction of pig pens

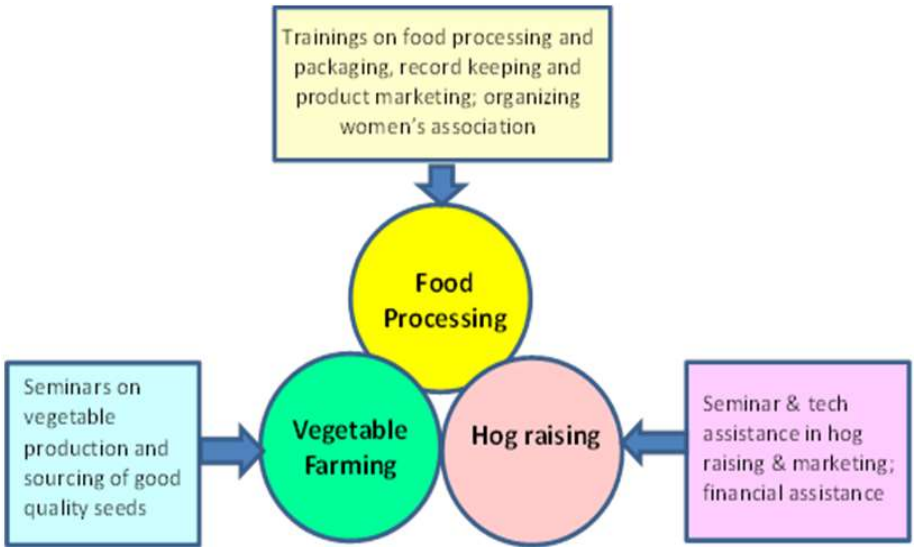


Figure 4. Livelihood projects desired by the people in Caticugan and the needed assistance

## IMPLICATIONS

The purpose of this study was two-fold. First was to surface the development needs of a marginal upland community and the other to demonstrate the application of participatory tools in identifying these development needs. As with other marginal communities, food insecurity in the case study site was apparent. The problem is caused by a range of conditions, including soil degradation and extreme climate events. There is a need for assistance to augment the residents' livelihood and improve their well-being.

However, the livelihood activities identified by the people are intended to address their immediate needs of food and cash income. But overall results of the study indicate that the assistance needed by the community goes beyond capability development on crop production, food processing, and animal raising. The assistance should also consider the rehabilitation of its forest resources, which are now highly degraded, according to the participants' narratives. A strategic move may be to design and implement a Rainforestation project (Asio 2017, Göltenboth and Hutter 2004) not only to raise food crops but also to rehabilitate the watershed area

of the community to address its serious problem of water scarcity. Second, there may also be a need to seriously assess what other crops would be productive and profitable in the area, given its current condition so that the people will have sources of food aside from rice.

This study also provided practical implications for the use of participatory tools in assessing community needs. Firstly, despite its being a tedious and time-consuming process, these tools yield an in-depth and holistic understanding of the community's circumstances. In development projects, a participatory needs assessment provides an opportunity for the team to establish a collaborative relationship with the community and set for the social preparation activities.

The use of participatory tools in FGDs encourages active participation. Our experience shows that in traditional FGDs characterized by question and answer and usually dominated by a member considered an authority (ie, local official or farmer-leader) in the community, the participatory tools provide participants with equal opportunities to contribute ideas. To a large extent, the data gathered represent the community's voice, not only by the dominant member of the group.

We observed, however, during the discussion, that issues on politics tend to emerge. While this is understandable because, in the Philippines, politics is intertwined with development initiatives, there is a need to regulate political issues because the discussions tend to focus on the current leadership's weaknesses, thus provoking negative reactions from those associated with the incumbent officials.

In this study, we observed that the use of participatory tools requires effective facilitation skills. Future development workers' capability to facilitate needs elicitation activities needs to be emphasized in their training.

## ACKNOWLEDGMENT

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