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**Facilitating Collective Action and Enhancing Local Knowledge: A
Herbal Medicine Case Study in Talaandig Communities, Philippines**

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ABSTRACT

The indigenous people of Talaanding in Basac village, Bukidnon, the Philippines, had to deal with a high occurrence of disease and a high number of malnourished children in their village. This situation was due to the inability of the local health clinic to provide adequate health service and medicine to the community. Using an approach that promotes social learning and collective action, a CIFOR Adaptive Collaborative Management (ACM) research team facilitated a group of women, mostly the village health workers, in addressing their local health problems by using their local knowledge of medicinal plants and herbal medicines. This paper describes the ACM concept and the social learning processes that the women went through in identifying their health-related problems in the village, devising strategies to deal with those problems, monitoring the outcomes of their action, and improving their subsequent strategies. This paper also shows that the ACM processes promoted not only collective action and social learning among the women, but also helps to revive local knowledge of herbal medicines and conserve genetic resources in the area. The sustainability of the women's efforts will depend on their ability to mobilize more community members to manage the established herb gardens, to enforce rules so that the costs and benefits of the gardens can be shared more equally, to link-up with local government and other stakeholders, and to continuously learn and adapt their management strategies.

Key words: social learning, local knowledge, medicinal plants, adaptive collaborative management, Philippines

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Facilitating Collective Action and Enhancing Local Knowledge: A Herbal Medicine Case Study in Talaandig Communities, Philippines

by

Herlina Hartanto¹ and Cecil Valmores²

1. INTRODUCTION

The indigenous people of the Philippines, just like other indigenous people in other parts of the world, have been largely ignored in the political and social life of the country. According to the National Commission on Indigenous People, the total population of indigenous people in the Philippines in 1998 was estimated to be between 12 and 15 million (the total population of the country was 78 million in 2000). The Commission's reports also show that the majority, or 61 percent, of the indigenous communities are located in Mindanao, 33 percent in Luzon, while the rest (6 percent) is distributed among the Bisayan Islands (Burton 2003).

Today they are variously referred to as tribal Filipinos, ethnic minorities or cultural minorities. According to Scott (1982 in Burton 2003), the latter term highlights a high maintenance of their own culture and customs due to the resistance of their ancestors to assimilation into the Spanish and American colonial systems. Local knowledge, local values and beliefs unfortunately have slowly eroded over time and many indigenous communities are now struggling to cope with newly introduced socio-economic and political systems while trying to maintain their own local systems.

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Many indigenous groups in the Philippines have tried to revive and promote their customs, beliefs, and practices in their attempts to secure management rights over their ancestral domains. Once these rights are granted by the State, in the form of a Certificate of Ancestral Domain Claim or Title, communities can apply their customary laws and local management systems of land and other natural resources within their ancestral lands. One of these indigenous communities is called Talaandig and is located in Bukidnon province, Mindanao. Apart from applying for a Certificate of Ancestral Domain Claim, with the support from local government and NGOs, the elders and a small group of communities actively regulate entry of visitors to their domain and patrol the area against illegal extraction activities. They also set up monuments at sites of special cultural significance, and protect their property rights against biopiracy whose threat is growing due to the increased interests of national and international research institutions and commercial enterprises in local knowledge and valuable medicinal plants (Vanzi 2000).

Herbal medicine is a part of the culture of many indigenous communities. The use of medicinal plants in the Philippines has been recorded even before the 1800s. Despite its long history, more and more herbal medicine is neglected and many people, especially in the urban areas, prefer to use modern medicine and consequently lost touch with the traditional herbal heritage. Modern medicine has also reached many indigenous communities, and local knowledge of herbal medicine is slowly fading away. On the other hand, herbal medicine has gradually found its niche within modern medicine. The renewed interest is probably driven by the need for healthy alternatives, the trends set by green consumers for natural products, and better research and development that increases the quality, safety, and efficacy of herbal medicine. The rising cost of health care is also a contributing factor that prompts people to

look for alternative cures, which are safe and effective. According to de Padua *et al.* (1999), nowadays many western-trained doctors prescribe herbal medicine to their patients, and medicinal plants continue to be a primary source for treatment, especially in remote areas and islands where the lack of medicine is critically felt.

This paper presents the process and results of a study on Adaptive Collaborative Management (ACM) in Bukidnon, the Philippines. Using an approach that promotes social learning and collective action, the research team facilitated a group of indigenous Talaandig women in addressing the lack of medicine at their local health clinic. This paper describes the ACM concept and approach, and presents the processes that the women group went through in order to identify their health-related problems, devise strategies for action, monitor outcomes and improve their subsequent strategies. Although ACM aimed to promote social learning and collective action among these women in their attempts to produce herbal medicine and to improve health conditions of the village population, in the process ACM also contributed to the enhancement of local knowledge and conservation of genetic resources in the area. While the results are still preliminary, the paper argues that ACM is a potential approach to revive and add value to local knowledge and to conservation of genetic resources of medicinal plants in the area.

2. ADAPTIVE COLLABORATIVE MANAGEMENT

The study is part of the wider effort of the Center for International Forestry Research (CIFOR) on Adaptive Collaborative Management (ACM) in the Philippines. The project was conducted between 1999 and 2002 in two CBFM sites located in Bukidnon (Mindanao) and Palawan (Luzon). It was a part of the global ACM research effort in Asia, Africa and Latin

America. The aim of ACM project was to find suitable approaches, tools, and methods that could enhance the ability of the people and other stakeholders to manage forest resources³ in collaborative and adaptive ways.

ACM is rooted in two natural resource management concepts: collaborative management and adaptive management. While the first concept recognizes the ‘pluralism’ of resource management (Fisher 1995; Borrini-Feyerabend *et al.* 2000; Anderson *et al.* 1998), the second concept tries to deal with the complexity of ecosystems. It recognizes that there is scope for action and improvement despite the lack of complete knowledge and understanding about the complex interactions of ecosystem components. To overcome the knowledge gap, nevertheless, each management intervention should be treated and designed as an experiment and an opportunity to learn (Holling, 1978; Walters 1986; Lee 1993).

Integrating the two concepts, ACM places collaboration, coupled with learning and adaptation, at the center of its approach. ACM tries to enhance not only collaboration or learning/adaptation on its own, but the combination of the two. ACM is defined as ‘a process in which groups of people who use, control or have interests in a forest agree, on the basis of shared information, to act together when they draw up plans for the forests. They then implement their plans, aware that they may not fulfill their stated objectives. It is, therefore, important to ‘observe and learn from the implementation in order to improve the plans or seek alternatives’.⁴

At the heart of ACM are the conscious efforts of the stakeholders to collectively plan, implement, observe, and learn about the impacts of their management on forests, and

³ Although ACM project focuses on the management of forests and forest resources, the project recognises the need to pay attention to other issues considered important by local people and other stakeholders in the research site. These issues may or may not be related directly to forest management.

⁴ This definition was formulated by ACM Group in the 3rd International Steering Committee meeting, October 2001.

incrementally improve their management. ACM therefore puts special attention on collective action and learning. It highly emphasises *social learning*, i.e., learning that takes place within a group of people through a deliberate process of action and reflection. Maarleveld and Dangbégnon (1999 2002) define social learning as a continuous dialogue and deliberation process among scientists, managers, users, and planners to discuss problems that arise from the interplay between aggregates of individuals and their natural environment, and to come up with solutions. Due to the complexity of the problems, they also emphasize that the solutions can only be addressed through collective action.⁵ An important dimension of social learning is *knowledge sharing* within the group, where group members accept the diversity of others' values, capacities, perspectives, experience, etc., as valuable contributions that can enrich and enhance the group's knowledge (Maarleveld and Dangbégnon 1999; Buck *et al.* 2001).

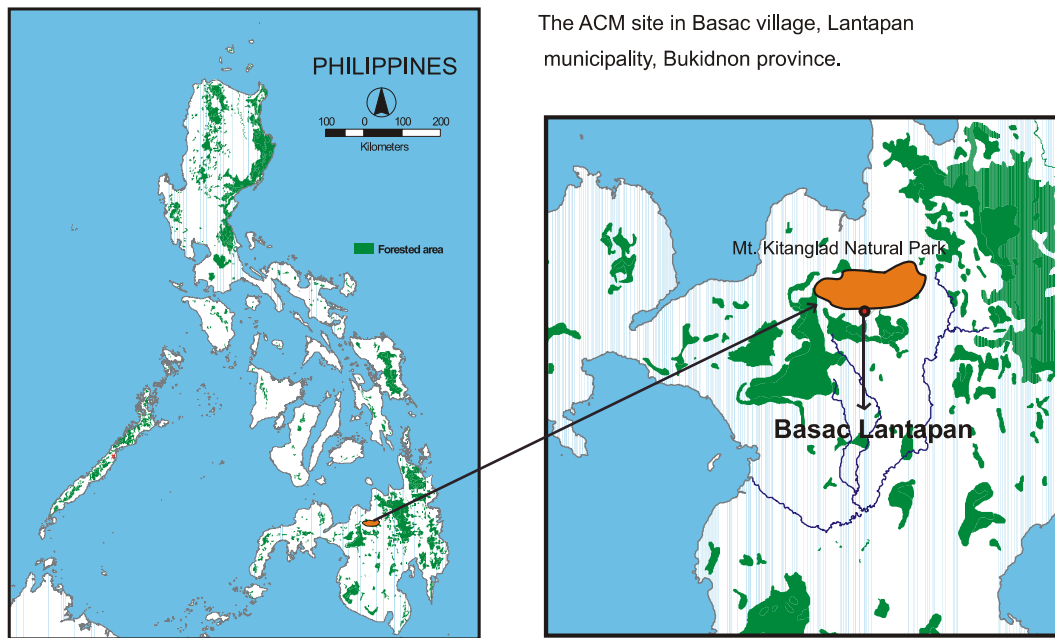
In facilitating learning-based processes in our ACM research program, the research team applied a research methodology called *participatory action research* (PAR). PAR seemed to be the most suitable methodology, because it allows local people to participate and to control all stages of the research (Guerrero *et al.* 1995), or in other words, it empowers local people and local stakeholders to address their own problems (Sriskandarajah and Fisher 1992; Fisher and Jackson 1998).

⁵ Marshall (1998) defined collective action as 'action taken by a group (either directly or on its behalf through an organisation) in pursuit of members' perceived shared interests'.

3. SITE DESCRIPTION

The research site is located in Basac village in the municipality of Lantapan, Bukidnon province in north central Mindanao. The village lies in the southwestern foothills of Mt. Kitanglad, the second highest peak in Mindanao (see Figure 1).

Figure 1-- The location of the research site



The ACM site in Basac village, Lantapan municipality, Bukidnon province.

Mt. Kitanglad is considered one of the most critical watersheds in Northern Mindanao. It is the source of water for agricultural, domestic, and industrial purposes. It supports the richest diversity of mammals and birds in the country, and provides habitats to many endangered, endemic and economically important species of plants and animals. There are at least 58 families and 185 species of trees and other woody species, 345 fern species (20 percent endemic), 63 species of mammals (43 percent endemic), 25 species of reptiles (57

percent endemic), 26 species of amphibians (12 percent endemic), and 168 bird species (37 percent endemic) including the critically endangered Philippine eagle (*Pithecophaga jefferyi*) (DENR-IPAS 2000). According to Garrity (2001), the tree density in the area is the highest ever reported in the country.

Due to pressure from various sources, such as high population growth (with the annual rate of 4.18 percent) and continuous encroachment into the forests, illegal logging, shifting cultivation, fire, etc., environmental quality in Bukidnon started to decline. Indicators of environmental degradation, such as high soil erosion (the area is prone to erosion as 61 percent of the area has slopes greater than 40 percent), frequent occurrence of floods (during the rainy season) and drying up of springs and other water sources (during the dry season) (Catacutan *et al.* 2000; Valmores 2002) have been recorded. Similarly, forest resources have declined over time. A participatory assessment that the research team conducted with various community groups in *Barangay* (village administrative unit) Basac in 2002 showed that rattan, *abaca* (*Musa textilis*), coffee, herbs, wild animals, and forest trees had become scarce. Such scarcities create problems for the communities as they depend on many of these forest resources (Burton 2002).

The alarming degradation of natural resources in Mt. Kitanglad and the potential impacts on the rich flora and fauna, and on the people who live within and around the area led policy makers to formulate a strategy to protect and conserve Mt. Kitanglad. The Mount Kitanglad Range Natural Park was declared a protected area by virtue of Presidential Proclamation no. 896 in 1996. The total area covered by the protected area and its buffer zone is around 40,000 hectares. It is one of the ten sites in the Philippines funded by the Global Environment Facility (GEF) through the Conservation of Priority Protected Areas

Project implemented by the World Bank. The management of the park follows the 1992 National Integrated Protected Areas System Law. Under this law, the management of the park is put under the responsibility of the multi-stakeholder policy-making body called the Protected Area Management Board (PAMB). The board consists of representatives from the Department of Environment and Natural Resources (DENR), the Park Superintendent, Local Government Units, representatives of the indigenous people, local NGOs, and the People's Organisations.⁶ The day-to-day management of the park is carried out by a DENR special office called Integrated Protected Area System (DENR-IPAS 2000).

The Mt. Kitanglad region has high social and cultural importance as it is the home of many indigenous communities, including the Talaandig community. The total population of the Talaandig is roughly estimated to be around 100,000 people. Traditionally the Talaandig were semi-settled agriculturalists in the uplands, planting corn, rice, root crops, *abaca*, and banana (Saway 2002). In pre-colonial times, they depended almost exclusively on forest resources. As the population grew, they adapted to a semi-settled system - gathering forest resources while cultivating the land through shifting cultivation. New systems of forest and forest resource use, permanent settlement, and religions were introduced during Spanish and American colonisation. Migrants introduced conventional farming, characterised by intensive chemical inputs. Monocropping almost completely replaced the traditional way of cultivation. Today, the community observes that their crops will not yield well without fertilizers (Valmores 2002).

⁶ People's Organisations are legally recognised organisations that are registered with the Securities and Exchange Commission or Cooperative Development Authority. Members of communities who would like to apply for Community-Based Forest Management(CBFM), Certificate of Ancestral Domain Claim (CADC), or Certificate of Ancestral Domain Claim Title (CADT) have to organise themselves and form People's Organisations (PO) first.

Barangay Basac, where the ACM research was carried out, has a total land area of 2,800 hectares. It borders with the municipality of Talakag on the southwestern fringe and with Barangay Kibangay on the eastern side. Basac is subdivided into six *puroks* (wards/districts). It has a population of around 4,000 people (750 households), 95 percent of which are indigenous Talaandig. The rest are migrant settlers, mostly from the nearby provinces of Cebu, Bohol, and Leyte. Participatory stakeholder analysis conducted by the research team showed that there are numerous community groups, government and non-government institutions who are involved in forest-management related issues in Basac (Arda-Minas 2001; see Table 1).

Table 1--The main stakeholders in the research site

COMMUNITY GROUPS

1. Basac Upland Farmer's Association Inc. (BUFAI)
2. BUFAI Women's Association
3. Council of Elders
4. Basac Tribal Farmers' Association (BATRIFA)

GOVERNMENT INSTITUTIONS

1. DENR-Integrated Protected Areas System
2. Local Government Units at the *barangay* and municipal levels
3. Protected Area Management Board

NON-GOVERNMENT INSTITUTIONS

1. Kitanglad Integrated NGOs
2. Barangay Integrated Development Assistance for Nutrition Improvement
3. World Agroforestry Centre
4. Heifer International

The Basac Upland Farmers Association Inc. (BUFAI) is one of the key community groups in Basac. This People's Organisation (PO) received use rights over 517 hectares of forestland within Basac. The rights to use, manage, rehabilitate, and protect the forestland

(under a Community Based Forest Management or CBFM agreement) was granted by the Department of Environment and Natural Resources to BUFAI in 1999. The CBFM area covers 517 hectares of land in the buffer zone of Mount Kitanglad Natural Park. Around 60 percent of the CBFM area is cultivated land planted with food crops, around 15 percent is grassland, 15 percent is open canopy forest, and only around 10 percent is closed canopy forest (Hartanto *et al.* 2002).

The Bukidnon BUFAI PO had 180 members at the time of the study, representing 4.5 percent of the village population. There were several other community groups with different interests from BUFAI, including the Council of Elders and BATRIFA. The Council of Elders serves as the repository of customary laws and rules, and as arbitrator during the settlement of community conflicts and disputes. It also provides advice on spiritual matters and conducts necessary rituals. BATRIFA is mainly concerned with agriculture as income-generating activity. Although these other community groups also depend on the forest in one way or another, there has been no close collaboration between these community groups and BUFAI (Hartanto *et al.* 2003).

4. HEALTH CARE SYSTEMS AT DIFFERENT LEVELS

The Philippines is one of the countries that adopted Primary Health Care (PHC) as the strategy to enhance health delivery service and related development requirements of the individual, family, and community. Initiated nationwide in 1981, PHC mobilises community members to organise themselves and enables them to actively participate in community development activities to meet their basic health needs, and become less dependent on health workers. The role of health workers is not only to provide health services, but also to motivate and mobilise community members to take part in health activities, from identifying health needs and problems to solving them. When the central government decentralised or

transferred most of the power and responsibility to the local government, with the issuance of Local Government Code of 1991, the responsibility of PHC was also transferred from the Department of Health to the municipal and village (or *barangay*) governments (IIRR *et al.* 2001).

In recent years, there was an initiative at the national level to integrate herbal medicine into the country's health care system. With the passage of the Traditional and Alternative Medicine Act of 1997, the Department of Health established the Philippine Institute of Traditional and Alternative Health Care with the aim of meeting the needs of the people for health care through the provision and delivery of traditional and alternative health care products, services, and technologies that had been proven safe, effective, and affordable. From thousands of medicinal plants, ten species were selected for promotion and commercialization (Dominguita 2003).

According to Saway (2002), herbal medicines are usually the first resort of the Talaandig communities in Bukidnon to heal illness. If the illness is not cured by this method, people seek help from a *mananambal* (healer) who would perform a religious ceremony. This is usually done when people believe spirits have inflicted the illness. Our survey of 250 households conducted in mid 2001, using simple systematic random sampling, however, showed that traditional healing was not dominant anymore in Barangay Basac. Around 40 percent of the respondents mentioned that they would self-medicate by taking medicinal tablets upon the onset of illness, 28 percent would use herbal medicines, 14 percent would apply both, and the rest (18 percent) would either use a combination of herbal medicines and a religious ceremony, consult a midwife, or visit the health clinic. When the illness persists, the majority (57 percent) would go to the health center, 17 percent to the hospital in a nearby

town, 10 percent would continue to use herbal medicine, and the rest (16 percent) would go to a traditional healer, *hilot* (masseur), or others (Burton 2002).

With the transfer of responsibility for health delivery from the Department of Health to the municipal and *barangay* governments, the quality of health services very much depends on the capabilities and commitment of the local government. In Basac, the eight *barangay* health workers and a midwife can only provide limited health services, such as prenatal examination, weighing babies, determining the incidence of malnourished children, conducting immunisation, and family planning (i.e., distributing 'modern' contraceptives). They were not able to provide other services, such as conducting classes to educate mothers on hygiene, good nutrition and child care, conduct first aid, etc. due to their lack of capacity and time, or the lack of interest and commitment from the mothers. Furthermore, on many occasions, the health workers were unable to provide adequate health services and medicines to community members who needed them.

With those limited resources and capabilities, the *barangay* health workers were not able to deal with the high occurrence of illness and disease in Basac. Apart from this, they have to deal with a high number of malnourished children. Basac has the second highest number of malnourished children in the municipality. Realising the poor health delivery system in their *barangay*, all *barangay* health workers (eight women) and one female *barangay* resident formed a group to address the problem. These nine women, all of them were BUFAI members, were occasionally joined by the *barangay* captain (a woman) and one male *barangay* officer. This group later expanded to include seven other women who were occasionally joined by their husbands.

5. THE APPLICATION OF THE ACM APPROACH IN ADDRESSING HEALTH PROBLEMS IN BASAC

Applying the ACM learning-based approach, the research team facilitated the group in order for them to address their health-related problems using a continuous cycle of reflection-planning-action-reflection. The group was encouraged to:

- Reflect on the causes of the problem by analysing past experience in handling the issue and why previous attempts had failed
- Plan together how to address the problems
- Implement the agreed strategies collectively
- Monitor their actions and learn from them
- Adjust their management strategies accordingly

The above process took place in a cyclical and iterative way until the problems were successfully addressed. Through this process, the group gradually made changes and adjusted their strategies, while learning and understanding the consequences of their decisions and actions throughout the process.

At the reflection stage, the group discussion was facilitated to identify several health-related problems in Basac. The most pressing one was the unavailability of medicines. The group remembered that a *botica sa barangay*, a store that sold modern medicine, existed in the past with support from the municipal government. The store started off well. But it did not last long due to a number of reasons including the inability of residents to pay for the medicine that they took, the lack of clear arrangements on how the store should be managed, and the lack of management skills to run the business. As the idea of establishing the store

came from outsiders, the store may be established without proper considerations of the local socio-economic conditions of the community.

Taking into consideration their past experience, the group thus decided to try a new approach and revive the use of herbal medicine. They realized that traditional herbal healing had always been a part of their community's history and culture. Furthermore, these plants are available in the area. The group decided that establishing a local herb garden was the appropriate option. They recalled that their past efforts to establish a herb garden had failed for two reasons: 1) the drought brought about by the El Niño phenomenon in 1997-1998 and 2) the lack of land tenure security for the land that was used for the herb garden, as the land was privately owned and the owner later decided to use the land for other purposes. Learning from these experiences, the group decided to establish the new garden on a public land within the village territory - i.e. the land next to the health center. They requested permission from the *barangay* captain to make use of that land. The captain approved this request and granted the group use rights for an area of 400 square meters.

In the subsequent discussion sessions, the group decided to start with plant propagation. The research team facilitated the group to decide which herbs to grow. The group listed all the plants that were frequently and commonly used, and those that were in demand and had been found effective. Initially, the group came up with 34 species of medicinal plants: 24 species were lowland or introduced species, and 10 species were species that can only be found in the forests. All of the lowland or introduced species were herbs except *madre de cacao* (*Gliridia sepium*) and *Eucalyptus*, while the forest species were a good mix of herb and tree species. The lowland species include *lagundi* (*Vitex negundo*), *hilbas* (*Artemesia vulgaris*), *luy-a* (*Zingiber officinale*), and *angelica* (*Bryophyllum*

pinnatum). The complete list of lowland or introduced species is provided in Appendix 1. The women then listed the sources of these species (from their own plots at home, from immediate neighbours, from adjacent villages, or from the forest), and each member of the group was assigned to secure the plants from the identified sources. Not much was known about the species that can only be collected in the forests. Therefore, those assigned to collect those species, had to gather additional information about them first.

On the agreed date, the group reviewed the plants that were collected. The members assigned to collect forest species had difficulty in collecting the plants as they can only be found deep in the forests. For this reason, the group decided to initiate the garden with the 24 lowland species only. Subsequently, they collectively prepared the land for the herb garden and planted the herbs. This collective action included their husbands, who built a bamboo fence around the plot, and their children, who watered the plants. They then planted additional food crops and vegetables like beans, *pechay* (*Brassica chinensis*), *patola* (*Luffa acutangula*), gourd, and some cut flowers. The group also lobbied the *barangay* officers to install a water faucet near the clinic. A water channel system was later built so that the women could water the plants regularly.

Once the herb garden in the health center was established, the group considered the need of other community members that lived on the other side of the village who could not easily access the herb garden at the health center. They decided to establish another herb garden and requested permission from the BUFAI President to set one up within the CBFM area. The request was approved and a 1,000 square meter herb garden was established. Here they also planted root crops, such as sweet potato, cassava, and *gabi* (taro). The root crops

and vegetables planted in the herb gardens would be used and served during village meetings or community's *pahina*.

The group's herbal plant propagation project and vegetable garden establishment were progressing very well. As these activities prospered, many people took notice of the women's efforts. Other community members and visitors began to go to the herb garden. Some of them commented that they expected a larger number of herbs rather than food crops. The group took their advice and propagated more herbs, especially those that were often obtained and used by *barangay* residents. Many of the residents were also encouraged to take some planting stock from the herb garden and plant them in their backyards. Others took vegetables for home cooking. As more residents started to make use of the herb garden and some took the plants without permission, the group faced the issue of who should benefit from the garden. They then decided to monitor who actually made use of the plants. We facilitated a discussion for the group to come up with a monitoring form as shown in Table 2. Those who took the plants from the garden were required to complete the form. At a later stage, the group found the abundance of information collected in the first couple of weeks so overwhelming that they simplified the form.

After the plants grew and propagated naturally, the research team felt the group could make use of the herbs better if they learned more about herbal medicine, particularly about different uses of herbs and processing techniques. The group welcomed this idea. The local NGO, the Katilingbanay Foundation, was therefore invited to conduct a training programme for the group. The group also invited other community members, i.e. 5 BUFAI members (men), 4 members of the BUFAI Women's Association, and 2 non-members, to join the training. The training was held for two days in July 2002. Using an intensive small group

practicum, the Katilingbanay team taught the group about practical diagnostic and herbal processing procedures. It employed the methods of reflection, integration and learning from experimentation as the group was led to reflect and understand cultural and integrative medicine concepts. The introduced procedures later became integrated with the participants' own experiences. There was an exchange of information between trainers and participants on the processes in both traditional and modern diagnostic and preparation procedures.

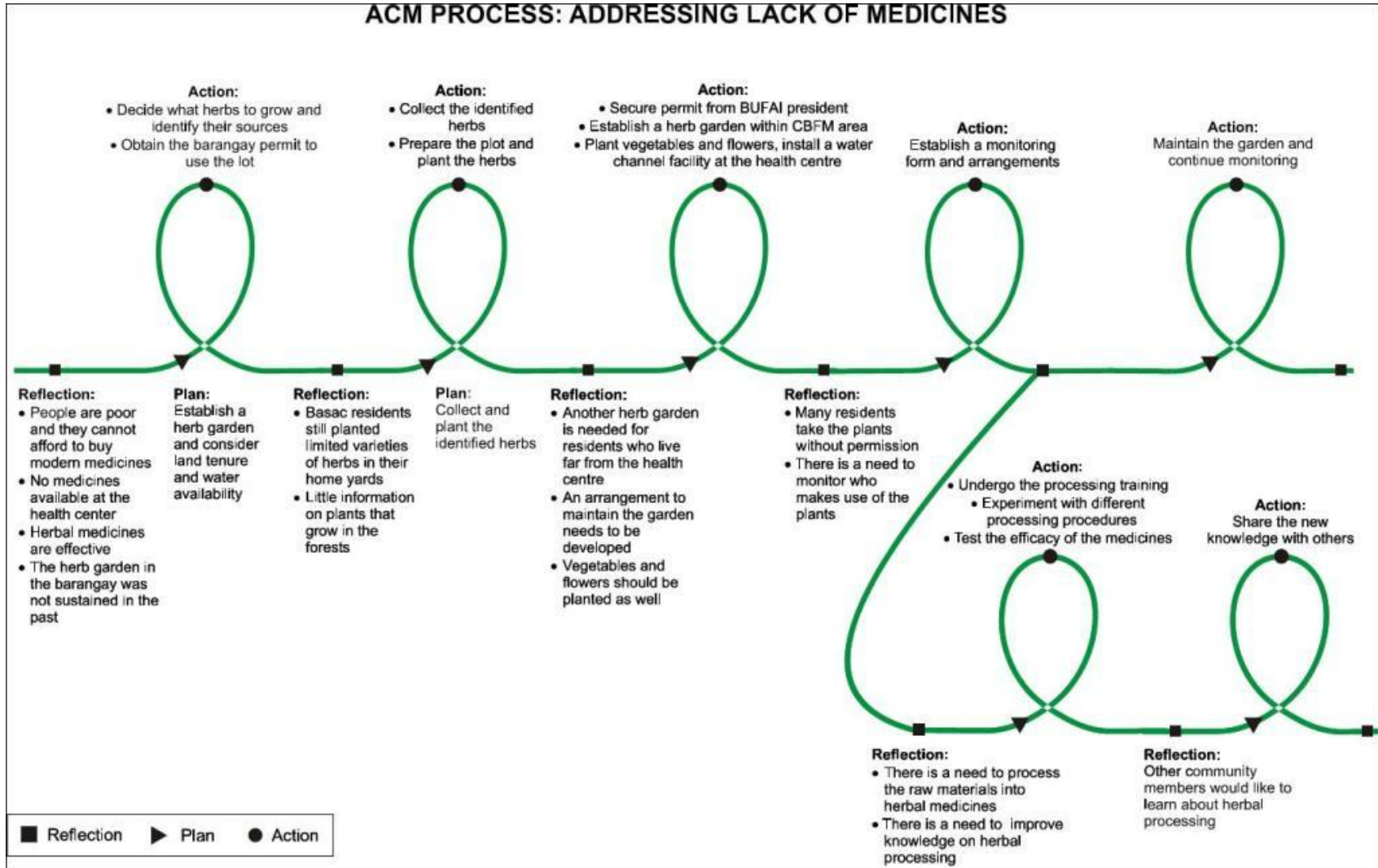
Table 2--Example of monitoring form for herb garden

Beneficiary	Herbs	Use
1. Consorcia Zulita	<i>Atay-atay</i>	For propagation
2. Pelinia Coliling	<i>Angelica</i>	Treatment of fever
3. Bads	<i>Bawing, herba buena</i>	For propagation
4. Consorcia Zulita	<i>Bawing</i>	For propagation
5. Juanita Luna (BHW)	<i>Lagundi</i>	For propagation
6. Merlyn Carpe	<i>Lagundi</i>	For propagation
7. Rosita Wacda	<i>Lagundi</i>	Cough treatment
8. Teresa Tinio, Juanita Luna, Perlita Abando, Merlinda Sinhayan	<i>Petsay</i>	For cooking
9. Glenda Zulita	<i>Lagundi</i>	Cough, fever treatment
10. Diana Sihagay	<i>Angelica</i>	Treatment for swelling
11. Narcisa Sanghid	<i>Kalabo</i>	Cough, fever treatment
12. Bong Gonzales	<i>Kalabo, herba buena, comfrey</i>	Cough, fever treatment

As a result of the training, the participants learned the procedures to prepare herbal home remedies such as processing *lagundi* to obtain cough syrup, ginger for massage oil, *sambong* (*Blumea balsamifera*) for tea, and *akapulko* (*Cassia alata*) for medicinal soap. After the training, the participants took home and distributed about 183 different medicinal

concoctions to the community and subsequently tested the products. They also shared their newly gained knowledge with their family members, relatives and neighbours. The *barangay* health workers started to prescribe herbal medicine to their patients. The whole learning process that the women's group underwent to address the health problem is described in Figure 2 below.

Figure 2--The ACM process in addressing lack of medicines at the *barangay* health center.



The efforts of the women were recognized and appreciated by the *barangay* and municipal governments. The *barangay* councils of Basac acknowledged the women's contribution by explicitly expressed their appreciation in one of the *barangay* meetings. The municipal health workers requested the group to train others in the municipality and provided the budget for the training. The group so far declined this request as they felt they need to focus their efforts in training more people within their own *barangay*.

6. THE ROLE OF COLLECTIVE ACTION AND LEARNING IN ENHANCING LOCAL KNOWLEDGE AND CONSERVING GENETIC RESOURCES

This section describes how the learning-based approach facilitated within the group revived the culture of collective action, and how collective action and the learning-based approach enhanced their local knowledge and contributed to the conservation of genetic resources. All the outcomes were observed during the 7-month period of action research facilitated by ACM research team.

COLLECTIVE ACTION

Collective action has been an integral part of the Talaandig's way of life for a long time, and is manifested in several different ways and forms. One is called *pahina* and the term is used when a group of people works together for public purposes and benefit, and community members participate without expecting any compensation for their contributions. Examples of *pahina* among *barangay* residents in Basac include repairing and fencing the *barangay* school, cleaning the *barangay* and other public facilities such as the chapel, maintaining the roads, etc. *Pahina* is generally carried out by a group of people to meet the shared purpose or interest of the group. For example, BUFAI members worked together in

building their office. Nevertheless, *pahina* can also be organized by a group of people to help certain families in the *barangay*, for example in building a coffin for poor families whose family member passes away (it is considered a taboo for the family to make the coffin themselves).

A further form of collective action, common in the past but quite rare today, is called *liyuwa*. It is an exchange of labor among a group of people, done in rotation, until everyone in the group has benefited from it. *Liyuwa* is therefore for the private benefit of each member within the group. It usually takes place among several families. *Liyuwa* is usually carried out for agriculture-related activities, for example planting, harvesting, etc., but it can also be carried out to help building houses. Two practices that are still present in Basac and can be considered variations of *liyuwa* are *patabangan* and *pamulig*. *Patabangan* involves a farm owner dividing the meat of a pig or of another large animal equally among those who help on his farm. One share is equivalent to a day's work. In *pamulig*, the person who helps during the planting of corn does not get paid after the day's work but rather after harvest when he would again help. This is also a sort of savings in the form of corn because the person's share would be a little higher in value than the daily wage.

In addressing the health issue, the research team observed the activation of these different forms of collective action. Understanding that the CIFOR ACM project does not provide financial assistance, the women decided that they would undertake *pahina* to collect seedlings, prepare the land, plant the seedlings, maintain the herb garden throughout the year, and expand the herb garden to the CBFM area. In the process, they also engaged their husbands in building a fence for the garden and their children in watering the plants. In addition to engaging in *pahina*, the women decided to establish home gardens using the

liyuwa system. Using this labour rotation system, each member of the group was helped to establish her own herb and vegetable garden in her backyard. The group also hoped to influence other women in Basac with their example.

The idea of using *pahina* and *liyuwa* was proposed by the women themselves and we observed that all the planned collective activities were carried out without major difficulties.

The contributing factors might be:

1. The embeddedness of collective action in the local culture of the communities. Although collective action nowadays is practiced less than in the past, leaders in the community or leaders of the community's groups can mobilize and engage their members in collective action when needed, such as when financial sources do not exist to pay for workers, as long as they can convince them of the importance and benefits of the effort.
2. The active participation of the *barangay* health workers in the group. As mentioned earlier, they fostered participation of the community, following the Primary Health Care strategy, in addressing health problems. The volunteer spirit to serve the community set a good example for other women in the group.

ACM indeed capitalized on the local practice of collective action in the community, but it also complemented this local practice by incorporating social learning. The research team felt that the learning-based approach added value and enhanced the quality of the women's collective action efforts. Although the women have taken part in many collective activities in the *barangay*, they were assigned to undertake supporting roles (cooking and other logistics) rather than strategic contributions. Furthermore, they were usually not much involved in the planning and evaluation of those collective activities.

The learning approach facilitated in the project put the women at the heart of the overall process, from reflection on their past experience, to making decisions and planning their next action, to reflection on the outcomes of their action, and adapting their next actions

based on the results of their observations. The overall learning process allowed the women to understand the rationale for engaging in collective action and strategize their collective activities effectively to meet their identified shared objectives. Their involvement from the beginning helped build a sense of ownership and of achievement in the strategic areas of development in their *barangay*.

In addition, the group was encouraged to reflect on past actions and to monitor outcomes to be able to adapt strategies according to their needs. Learning from past failures, for example, this time the group decided to engage *barangay* officials early on. This helped to obtain permits to utilise the land and the water faucet installed near the garden, and contributed to the success of their collective enterprise.

The group was also encouraged to start off on a small and experimental basis by using their existing resources and capital without depending on external resources. In doing so, the group could minimize the risks (if the attempt failed) and become more self-reliant. This approach appeared to be effective, as a little success encouraged their self-confidence while failure was seen as an opportunity to learn and improve, which in turn helped maintaining their interest and active participation.

Previously, the issue had to be handled by the *barangay* health workers themselves. The example of collective action by the women group served as a catalyst which fostered other community members to collaboratively address health problems. Since then more community members and other stakeholders, such as the Municipal Health Office, Department of Environment and Natural Resources, *barangay* captain and officers, and Katilingbanay Foundation, have joined the efforts of the health workers and community women.

COLLECTIVE ACTION AND THE MAINTENANCE AND ENHANCEMENT OF LOCAL KNOWLEDGE

The efforts of the women helped maintaining and enhancing local knowledge with regards to medicinal plants, their use, and the processing techniques. In the Talaandig communities, there is a role differentiation between men and women. Men, usually the appointed members of Council of Elders, can conduct rituals and other spiritual ceremonies. Therefore, the male members of the Talaandig usually hold knowledge about herbs and their preparations for ritual and ceremonial purposes. Furthermore, due to their longer stays in the forests, for example in clearing land for their swidden farms, collecting forest products, etc., the Talaandig men are usually more knowledgeable about different forest herb species than women. Knowledge about different kinds of plant species is very important for survival. Through the close association with forests, men learned different uses of plants, such as for food, medicine, housing materials, etc. (Erlinda M. Burton, pers. comm., 7 April 2003). On the other hand, women are more knowledgeable about lowland and introduced herbs, their preparation and processing techniques, and use. The different knowledge was not usually shared between men and women. Information sharing may have occurred in the past, but sporadically. The project enhanced knowledge and exchange of information between women and men during the planning discussions, *pahina* activities, and training sessions.

The women realized their knowledge gap about forest herb species. They gathered the information about the most commonly used forest species from men. Despite the information given to them, the women were not sure whether or not the forest species would survive in lower elevations. They therefore decided to focus first on the lowland species, which they were more familiar with.

Local knowledge was also enhanced through the interaction with the local NGO workers of the Katilingbanay Foundation. The NGO workers provided them with the information about different processing techniques and uses of the herbs. As herbal medicine has been practised for generations, the women know the uses of many herbs. But their knowledge on the use of each herb and the processing techniques appeared to be limited to:

- Simple boiling of the leaves or other herb parts with water for drinking or for a bath.
- Burning herbs to get the ashes for medicine, to be applied externally or taken orally.
- Crushing and pounding leaves to apply externally, a process that is called *haklop* or *halob*.

There are other more ritual-related healing methods that are usually applied by traditional healers, such as:

- Burning the materials that cause the illness (for example fish bone or food that caused an allergic reaction) and applying the ashes or the remains to the affected parts of the body. This is called *palina*.
- Chewing of herbs and spitting them on the affected part of the body, locally called *talutho*.

The new introduced knowledge includes procedures in making home remedies such as cough syrups (made from *lagundi*), liniments, ointment (made from betel leaves or *akapulko*), massage oil (made from ginger), herbal teas (made from *sambong*), medicinal soaps (made from *akapulko*), moxa rolls,⁷ herbal compresses (e.g., from ginger),

⁷ A cone or cylinder of cotton wool or other combustible material, places on to the skin and ignited in order to produce counter-irritation.

moxibustion,⁸ and ventosa.⁹ Apart from different herb use and processing techniques, the foundation also shared information on different forms of disease diagnosis, healthy diets, how to cook healthy food of high nutritional value, acupressure points and acupressure massage.

The participants immediately practised the newly acquired knowledge and skills by processing herbs into different home remedies. Others transferred the knowledge to their families, friends, or neighbours. An officer from BUFAI Women's Association, who joined the training, shared knowledge and trained other members who were not able to join the first training programme. It is expected that the group will share the knowledge with the wider community as they have been requested to teach residents in the neighbouring *barangays*.

COLLECTIVE ACTION AND CONSERVATION OF GENETIC RESOURCES

The newly gained knowledge regarding different processing techniques and different uses of herb species encouraged the women to increase the diversity of the herb species in their herb garden and in their backyards. Four out of the nine members of the women's group made more effective use of their backyards by planting herbs, vegetables, and cutflowers. Their backyards are still well maintained at the moment. There were several other households in the *barangay* that diversified their backyards, but the research team was not able to assess the exact figures. Nevertheless, the monitoring form used by the group to follow the use of herbs from the garden showed that in July 2002 alone (around 4 months after the herbs were planted) on average 5 persons per week took 1-2 different species from

⁸ Moxibustion is usually the application of heat, through the burning of specific herbs, to replenish body heat. It counteracts the effects of cold and dampness on the body and it serves to replenish and revitalise a weakened or depleted body. Moxibustion can be applied directly or through needles.

⁹ This involved burning of the space inside the glass or bamboo so it becomes hot. It is then put on the aching back of an individual. The vacuum space of the bamboo or glass absorbs the gas inside the body parts that cause problems.

the herb garden for propagation purposes (most likely they planted them in their backyards). The monitoring form also revealed the high frequency of *lagundi* being taken from the herb garden for propagation purposes. In the past, *lagundi* could only be found in one *barangay* resident's backyard, and this was at least in part due to the encouragement by the Heal Project of the Adventist Development and Relief Agency¹⁰ to appreciate its many uses. After learning about its effectiveness in curing fever, headache, toothache, cough and asthma, many women propagated the plants. Nowadays, *lagundi* can be found in many residents' backyards. Other species in high demand were *kalabo* (*Coleus aromaticus*), *comfrey* (*Symphytum officinale*), *atay-atay* (*Graptophyllum pictum*), and *ganda* (*Curcuma zedoria*).

Exchanges of planting stock also occurred among the group members (during most of their *pahina* activities), among community members (irregularly and informally during visits of friends and neighbours), and between the group and other local stakeholders. The women's group gave the planting stocks of *bawing*, *comfrey*, and *lagundi* to the staff of Agriventures, a banana plantation firm in a nearby village. In return, the women got different varieties of medicinal plants.

The efforts of the women also positively affected similar efforts by different groups. A school in Basac has already set up its own herb garden earlier but it was not maintained properly. The group approached and encouraged the schoolmaster to improve the school's herb garden. Afterwards, the research team observed that the school's herb garden was maintained more properly and tended more frequently.

Another indirect spin-off of the women's efforts was the recent participatory forest assessment done by BUFAI members and other community residents, with the support of a

¹⁰ The Adventist Development and Relief Agency is an international humanitarian agency that provides assistance to the community on issues such as health, housing, disaster assessment, etc. It started working in the Philippines since 1984.

research team from Xavier University, to identify tree species (particularly endemic tree species) and their economic, medicinal, cultural, and conservation values. The group also planned to set up a nursery for endemic species to rehabilitate a degraded watershed area and plant those species of medicinal value at the *barangay* center.

The research team felt that the achievements within the period of 7 months were modest with regards to conservation of genetic resources. However, if those promising initiatives can be maintained in the future, the efforts of the women and other community residents will significantly contribute to the conservation of genetic resources in the area, particularly of those endemic herb and tree species that have been given little attention in the past.

CONSTRAINTS AND CHALLENGES

We anticipated several challenges that could hinder the sustainability of the women's collective action in the future. They include:

- The capacity of the group to enhance its social capital so that they can regulate users and mobilise others to sustain their initiative. The collective activity of planting a herb garden is quite unique as the intention was not to serve the needs of the members of their group but more to serve the needs of all *barangay* residents. This means that the benefits from the herb garden will be shared with others although it was the group who invested time and energy, and therefore bore the costs of establishing, maintaining, and developing the garden. Consequently, the behaviours of the users in extracting the herbs without permission or in extracting them in destructive ways were discouraging for the group members. There is the need to set up rules for all users and be able to enforce them effectively. Related to this, they increase their capacity to mobilise more community members, apart from the existing 16. So far they cannot properly maintain the herb garden in the CBFM area because of its relatively remote location. The sustainability of this garden would depend on the

ability of the group to mobilise and get the commitment from other residents, who live closer to the CBFM area, to take care of this garden.

- The research team observed that several *barangay* residents were encouraged to diversify and maintain their own herb gardens because of their access to the stocks of the health center. However, this very positive development might have negative implications on the collective efforts of the women's group, as individual motivations to maintain the communal garden will decrease if individuals can get similar, if not more, benefits from their own gardens with lower investment. If this happens, the women's group may need to reevaluate its efforts, redefine its roles, and identify the proper use of the communal garden.
- The capacity of the group to sustain a learning-based approach in managing the garden, to enhance and maintain self-confidence and self-reliance in order to be able to deal more effectively with more 'powerful' stakeholders. The *barangay* health workers, supervised by the village midwife, have been the spearhead of the group. At the municipal level, they are both under the supervision of the Municipal Health Officer. Both the village midwife and the Municipal Health Officer were not members of the women's group. Collective action and the learning-based approach introduced and implemented during the ACM project so far have not increased the group's self-confidence enough to implement the group's agreed action plan in the face of interference from these more 'powerful' stakeholders. The group decided to follow the instructions from the midwife to convert the monitoring logbook to an attendance book and the request from the municipal health officer to remove the vegetables from the herb garden although the monitoring logbook and vegetable planting were the fruit of their own collective decisions. Apparently the learning process needs to be facilitated longer in this group to increase their internal capacity.
- The support from government institutions is a key condition for success. So far the group has enjoyed the support of the *barangay* government. However, in order to maintain and scale up the activities, the group needs to establish better collaboration with the municipal government, especially with the Municipal Health Office.

- The ACM project was not able to identify the herb species properly. The scientific names listed in Table 2 were produced by matching the vernacular or local names with the scientific names provided in several references and manuals. Most of the scientific names of lowland species can be identified this way as there have been numerous studies and projects implemented on herbal medicine in the Philippines. All the scientific names were checked and confirmed by a taxonomist. Proper identification will be done by the research team of Xavier University in the near future. The identification of species, especially of the forest species, may improve the local knowledge about the species, their habitat, uses, etc. and contribute to the local development of *in-situ* conservation strategies.

7. CONCLUSION

Collective action by the women's group was prompted by the government's lack of capacity to effectively address the health problems in the *barangay*, the lack of affordable medicinal options, and poverty. Using a learning-based approach introduced by the ACM project, the group decided to act collectively, using local knowledge of herbal medicine to address the problem. Collective action and herbal medicine are embedded in local Talaandig culture and can be easily revived. It also appears that the quality of collective action and local knowledge on herbal medicine were further improved by the introduced learning-based approach that encouraged the group to reflect on past experiences, monitor outcomes, and plan their next action accordingly. Through this learning cycle, the participants can adjust their actions along the way. The approach also encourages the local actors to start off on a small and experimental basis to minimise risks.

In situ conservation of medicinal plants in Basac is still at an early stage. It has been a result of concerted efforts of the women's group, certain community members, *barangay* government, another community organisation (BUFAI), and a local NGO (Katilingbanay

Foundation). Information and knowledge sharing among the group occurred in relation to herb species, their use, and processing techniques. Improved skills were observed among group members in the production of more varieties of herbal home remedies. Collective action by the women's group has increased local conservation efforts, as indicated by increased abundance and diversity of herb species planted in the communal herb gardens and individual's backyards, achieved through propagation and exchanges of planting stock among the community members and local stakeholders. Although it is too early to say, we expect that this effort will have a positive impact on the health status of the communities.

Despite the successes mentioned above, several challenges remain. Since the collective efforts of the group were in the interest of the larger community, future successes will likely depend on the ability to mobilize more community members to manage the garden, and enforce rules, so that the costs and benefits of the herb gardens can be shared more equally, to link-up with local government and other stakeholders, and to continuously learn and adapt their strategies.

8. POLICY RECOMMENDATION

In the Philippines, the responsibility to deliver health service to the people lies in the hands of municipal and *barangay* governments. With the adoption of Primary Health Care strategy, the governments have to rely on the ability of the *barangay* health workers to engage community members to participate in the local health care activities, such as identifying the local health problems, formulating strategies and implementing them to address those problems. Due to the embeddedness of collective action in the local culture and tradition, the health workers in the Philippines should be able to engage the community

members without much difficulty, provided that they have the commitment and proper skills in community organizing. The problem encountered is usually not in initiating collective action but in sustaining the efforts over a period of time.

The results of this study suggest that the quality and sustainability of collective action can be enhanced by learning-based approach. The incorporation of social-learning approach into the Philippines health care system would, however, require some investments on the part of the government to train and equip their municipal and *barangay* health workers with proper facilitation skills so that they can facilitate the learning processes among the community members properly.

To improve their health care services to the community, there is also a need for the municipal and *barangay* governments to identify and collaborate with other government and non-government agencies. These different agencies often have more skills, knowledge, and resources than the local government, and they are more than willing to assist the local communities and local government if it is within their capacities and mandates.

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Appendix 1. The lowland or introduced species planted at the herb garden¹¹.

No.	Local name	Scientific name	Other name
1.	Angelika	<i>Bryophyllum pinnatum</i> (Lam.) Kurz.	abisrana (Ilk.); angelica (Sp.); aritana (Bik.); haling-bang (If.); inginga (Ig.); kapal-kapal (Bis.); katakataka (Tag.); kokoeng (Bon.); lapak-lapak (Sul.); putputok (Bon.); siempre-viva (Sp.)
2.	Atay-atay	<i>Graptophyllum pictum</i> (Linn.) Griff.	antolang (Tag.); atai-atai (Sul., C. Bis.); balasbas (Tag., Bis.); balasbas-malomai (Bis.); kalpueng (Tag.); morada (Sp.); moradong-maputi (Tag.); sara-sara (Tag.); ternate (Tag.)
3.	Comfrey	<i>Symphytum officinale</i> (Linn.)	comfrey (Filipino)
4.	Luy-a	<i>Zingiber officinale</i> (L.) Roscoe	ginger (English)
5.	Herba buena	<i>Mentha cordifolia</i> Opiz.	yerba buena (Filipino), mint, peppermint (English)
6.	Hilbas	<i>Artemesia vulgaris</i> L.	gilbas; damong maria (Tagalog); mugwort (English)
7.	Banaaba	<i>Lagerstroemia speciosa</i> (L.) Pers.	banaba (Filipino)
8.	Calabo	<i>Coleus aromaticus</i> Benth.	bildu (Sul.); latai (Sub.); oregano (Sp.); suganda (Tag.); torongil de limon (Sp.)
9.	Lagundi	<i>Vitex negundo</i> (Linn.)	lagundi (Tag., Bik., Bis.); Dangla (Ilk.); Five-leaved chaste tree, horseshoe vitex (English)

¹¹ References used to obtain their scientific names include: PROSEA Herbal Species List, List of Philippines herbal medicine plants, and PROSEA Plant Resources of South-East Asia.

No.	Local name	Scientific name	Other name
10.	Sunting	<i>Cassia alata</i>	andadasi (Ilk.); palochina (Bis.); kasitas (Bik.); sunting (C. Bis.); akapulko, katanda (Tag.); ringworm bush or shrub (English)
11.	Ajos	<i>Allium sativum</i> (Linn.)	ajos (Bis.); bawang (Tag.); garlic (English)
12.	Ulasiman	<i>Portulaca olearacea</i> (Linn.)	olasiman, ulisiman, sahikan (Tag., Bik.); golasiman, kolasiman, makablang (Tag.); alusiman, ausiman, gulasiman (Bik.); bakbakad, lungum (If.); dup-dupil (Bon.); kantataba (Pang.); ngalug (Ilk.); purslane (English)
13.	Tuba-tuba	<i>Croton tiglium</i> (Linn.)	tuba-tuba (Bik., P. Bis.); croton, purging croton (English)
14.	Yahong yahong	<i>Centella asiatica</i> (Linn.) Urb.	yahong-yahong (S. L. Bis.); takip-kohol, tappingan-daga (Tag.); hahang-halo (Bis.); Indian hydrocotyle (English)
15.	Kalawag	<i>Curcuma longa</i>	kalawag, kalauag (Mbo., Bis.); dilaw (Tag.); kalabaga, kinamboy (Bis.); kulyaw (Ilk.)
16.	Tanglad	<i>Andropogon citrarius</i> DC.	balioko (Bis.); barani (Ilk.); tanglad (Tag., Bik., Bis.); salai, salaid (Tag.); sai (Mbo., Mand., Sul.); paja de meca, zacate limon (Sp.); lemon grass, sweet-rush, ginger grass (English)
17.	Dawa/daua	<i>Setaria italica</i> (Linn.) Beauv.	bikakau (Ilk.); borona (Pamp.); bukakau (Ilk.); daua (C. Bis., P. Bis., Tag.); rautnokara (Iv.); sabug (Ig.); sammang (Bon.); turai (Sul.); millet (English)
18.	Pahid	<i>Boehmeria celebica</i> Blume.	alamai, tamasi (Buk.); pahid (C. Bis.); rami-rami (Bag.)
19.	Sumayau	<i>Citrus hystrix</i> DC.	sumayau (C.Bis.)
20.	Pugapong	<i>Piper umbellatum</i> Linn.	buyagong (Ilk.); balai (Bon.); bayag-bayag (C. Bis.); tobayag (P. Bis.); dijaran (Ig.); gumba (Sol.); kamamba, kumamba, kubanbang-damo (Tag.); kuyo, kuyok (Bag.); pugapong (Buk.)

21.	Ganda	<i>Curcuma zedoaria</i> (Berg.) Rose.	ganda (Sbl.); alimpuyas, alimpuying (C. Bis.); barak, bolon, luya-luyahan, tamahiba, tamokansi (Tag.); konik, langkuas (Ilk.); koniko (Bon.); lampoyang (P. Bis.); tamahilan (Bik.); tamo (Pamp., Tag.); unig (If.); sedoary.
22.	Bangat	<i>Perotis indica</i> (Linn.)	bangat (Mbo.)
23.	Madre de cacao	<i>Gliridia sepium</i>	kakawate (Tagalog)
24.	Eucalypt	<i>Eucalyptus deglupta</i>	bagras (Bil., Bik., Mag., Mbo., Tir.)

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