

typhoonbopha

Sloping agricultural land technology:

A post-calamity intervention on sustainable farming in Cateel and Boston, Davao Oriental



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foreword

Responding to natural or man-made disasters is a central part of livelihood development in many parts of the world. Effective crisis response is dependent on a number of resource and capacity related issues – essentially related to the ability of local communities to deal with the detrimental effects resulting from a crisis situation and recover from lost or damaged/interrupted livelihoods.

Local resource-based approaches combine and optimize the use of local resources in infrastructure and environmental works. These include the use of local skilled and unskilled labour, local technologies, local materials and local suppliers. Implementation is encouraged through partnerships with affected communities, local small-scale contractors, local non-government organizations, local governments and local training and service providers. Local resource-based approaches have a multiplier effect on the cash injected into the local economies, the training provided and the capacity built through local partnerships.

Such approaches to infrastructure development and community works have proven to be effective tools for disaster preparedness as well as during relief, recovery and reconstruction works.

In terms of income, local resource-based works can function as social protection schemes by providing short-term unskilled employment in the immediate aftermath of a crisis. Initially, such works prioritize the quantity of employment generated over the quality of works created. This emphasis then gradually changes so that the objective of creating employment is not compromising the efficiency and quality of the work itself. Various ILO programmes support such a transition by implementing employment creation projects and building capacity for local resource-based works in crisis affected areas. One of those programmes has been the ILO response to Typhoon Bopha that struck southeastern Mindanao in December 2012.

Two ILO implemented projects funded by Department of Foreign Affairs and Trade (Australia) helped communities recover from the tragic event that impacted so much on their livelihoods. The projects engaged local partners to rebuild destroyed infrastructure and community and environmental assets. It provided income support and helped communities to re-establish lost livelihoods. In all its work, the projects promoted and applied the use of local resource-based methods.

This document summarizes the achievements of these projects and present the various sub-projects that were implemented by the ILO in three affected municipalities (Baganga, Cateel and Boston) in Davao Oriental in the aftermath of the typhoon (2013-2014). Many lessons have been learned which have been integrated in the stories.

Typhoons and natural disasters will continue to affect the Philippines and other countries in the region. The lessons learned and the interventions presented can be of great help in formulating a coordinated response to future natural disasters in the Philippines or the rest of the world. This document is also an important contribution to the ILO's overall knowledge and strategy development for post-disaster response centering on employment promotion and livelihood support.

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The implementation partners and communities in Davao Oriental of course made it possible that all activities were conceived and implemented in such a way that the investments contributed to employment creation and more sustainable livelihood development.

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background

After Typhoon Bopha swept across Davao Oriental Province in December 2012, homes, communities, infrastructures and livelihoods were left devastated. According to the Post Disaster Needs Assessment of Davao Oriental, the reported damages to the agriculture sector – the main driver of the local economy – stood at PhP469.7 million. Most of the agricultural livelihoods of the people in the province were severely affected, particularly in the municipalities of Cateel and Boston. These were among the group of municipalities struck first by the Typhoon. The municipalities realized that a long road towards rebuilding and recovery lay ahead.

To help communities recover and return to normal productive lives, the International Labour Organization (ILO) with funding from Australia's Department of Foreign Affairs and Trade (DFAT) introduced a sustainable and resilient farming system to the farming communities and People's Organizations (POs) in Cateel and Boston. This farming system can help farmers increase their harvests and encourage them to apply environmentally-friendly farming practices.

The farming system called Sloping Agricultural Land Technology (SALT) was piloted by the ILO in its Washi Project at Iligan City from June to November 2013. The Washi Project assisted 19 POs in developing 19 hectares of sloping and hilly lands¹. The SALT approach taught farmers to maximize sloping farm lands, prevent soil erosion and adopt natural and organic farming in a sustainable manner.

With many slope areas in Cateel and Boston, the DFAT-ILO Project adopted SALT as one of the local resource based subprojects to help farmers bring back livelihoods and incomes.



¹ILO: Typhoon Washi Post-Calamity Final Report. Manila, 2013.

sloping agricultural land technology

Approximately 23 per cent of the Philippines' total land area has slopes ranging from three to 30 per cent, with many of these lands having high agricultural potential². During the wet season, heavy rains can often cause soil erosion because of water runoff. At times, heavy rains can also cause landslides in sloping lands. As a response



to soil erosion and degradation, innovative farming techniques have been developed all over the world to prevent losing soil and also maximize the potential of sloping lands. Farming techniques such as contour farming, alley farming and SALT are approaches to effective soil conservation, land management and farming of sloping or hilly lands.

SALT originated from contour farming or terracing steep lands. This has been practiced for centuries in many parts of the world, especially in the Tropical Islands of the Pacific Ocean. In the United States, the technique was first practiced during the early 1900s and efforts by the U.S. Soil Conservation Service to promote contouring in the 1930s as an essential part of erosion control eventually led to its widespread adoption³.

In the Philippines, the spectacular rice terraces which used contours in planting rice paddies were developed by Ifugao farmers in the mountains of Banaue, Ifugao Province even before Spanish colonization⁴. But, the development of SALT as a system was developed by the Mindanao Baptist Rural Life Center (MBRLC), a non-government organization based in Kinuskusan, Bansalan, Davao del Sur in the southern part of the Philippines⁵. It was developed to help farmers in the area prevent erosion of soil in their farms, respond to declining crop yields, and discourage harmful farming practices such as slash and burn.

²Senate Bill 1546. "Sloping Agricultural Land Technology (SALT) Act of 2013". Senate of the Philippines. Retrieved from http://www.senate.gov.ph/lis/bill_res.aspx?congress=16&q=SBN-1546, (last accessed, May 21, 2014).

³Encyclopedia Britannica: Contour Farming. Retrieved from <http://www.britannica.com/EBchecked/topic/135192/contour-farming>, (last accessed, June 9, 2014).

⁴UNESCO: Rice Terraces of the Philippines Cordilleras. Retrieved from <http://whc.unesco.org/en/list/722>, (last accessed June 14, 2014).

⁵See footnote No. 3.

Basically, SALT is a package technology on soil conservation, land management and food production, integrating different sustainable measures in just one setting⁶. It refers to a system of contour farming of sloping areas including hills and mountainsides wherein alleys of commercial or food crops like corn, cacao, beans and other crops are grown in between rows of perennial nitrogen fixing trees and legumes like *falcata*, *kakawate* or *gliricidia* and *ipil-ipil* or lead tree which are planted along the contours⁷. As a practical, simple, low-cost method of upland farming that requires little capital and tools but is labour-intensive,⁸ the SALT farming system can help farmers make hilly lands more productive, preserve the topsoil, minimize soil erosion and improve soil fertility. Since, SALT is widely applicable in many rural upland farming areas, there is strong potential for helping farming communities increase agricultural productivity and diversify income sources,⁹ as piloted in Bopha-affected municipalities of Davao Oriental.



Various SALT systems were also developed by the MBRLC to provide different options that would suit the preference of farmers. Besides the general SALT system design, three other types or models of SALT systems may be adopted by farmers on their sloping or hilly lands¹⁰:

SALT 2: Sloping agro-livestock technology

SALT 2 is a small livestock-based agroforestry including dairy farming with some portion of the land used for agriculture, some for forestry and some for livestock. As in a conventional SALT

hedgerows of different nitrogen fixing trees and shrubs are established on the contour lines. The manure from the animals is utilized as fertilizer both for agricultural crops and the forage crops.

⁶Watson, Harold. "The Development of Sloping Agricultural Land Technology in the Philippines". Retrieved from http://www.ffc.agnet.org/htmlarea_file/library/20110722063823/eb400a.pdf, (last accessed, May 21, 2014).

⁷See footnote No.2.

⁸Laquihon, W. and Pagbilao, M.: Sloping Agricultural Land Technology in the Philippines. Retrieved from <http://www.fao.org/ag/AGP/AGPC/doc/publicat/gutt-shel/x5556e0y.htm>, (last accessed, June 1, 2014).

⁹Sommer Haven Ranch International: Sloping Agricultural Land Technology: Sustainable Agriculture. Retrieved from http://sommerhaven.org/prac_app/sus_ag/t_pac_salt3.pdf, (last accessed, May 26, 2014).

¹⁰See footnote Nos. 5, 7.

SALT 3: Sustainable agroforestry land technology

SALT 3 is a type of agro-forestry which follows a cropping system to accommodate food production, fruit production and forest trees that can be sold to the market. The farmer first develops a conventional SALT project to produce food for his family and possibly food for livestock. On another area of the land, the farmer can plant fruit trees such as rambutan, durian and lanzones between the contour lines. The plants in the hedgerows will be cut and piled around the fruit trees for fertilizer and soil conservation purposes. Also, nitrogen fixing trees like falcate may also be used as lumber in making plywood.

SALT 4: Small agrofruit livelihood technology

SALT 4 is a model focusing on fruit production. The sloping land can allocate a big portion for fruit trees and a smaller portion for food crops, like corn. Hedgerows of different nitrogen-fixing trees and shrubs are planted along the contours of the farm, similar to the generic SALT design.

All the three models of SALT are based on the generic design of Sloping Agricultural Land Technology especially in following contouring and planting of nitrogen-fixing trees. It is also important to note that the SALT systems can be applied singly or in combination. Using a combination of SALT models can help farmers maximize the potentials of sloping lands and also multiply income sources.

introducing SALT to farming communities in Cateel and Boston

After a multi-stakeholder consultation, SALT was identified as one of the interventions for the agriculture sector in Cateel and Boston. The project assisted a dozen POs engaged in farming livelihoods to develop sloping lands into SALT farms. The project employed 454 farmers and generated 7 833 work days with most of the sites completed in 15 days and with a few sites completed in around 30 days.

The post-calamity intervention in the farming communities of the two municipalities became an ideal response as the devastated farms where mostly coconut trees stood, were quickly transformed into SALT farms – offering a package of potentials in the near to the long-term. As a result, the recovery and restoration of livelihoods in these farming communities were greatly hastened. The following were the processes observed throughout the project cycle.

site selection

The selection of the sites in Cateel and Boston was done in collaboration with the Food and Agriculture Organization of the United Nations (FAO). As early as November 2013, the ILO Project Team and FAO conceptualized the intervention and generated a selection criteria to rank target sites. The development of the SALT sites mainly targeted Agrarian Reform Beneficiaries (ARBs) many of which were beneficiaries of the FAO. The criteria used in finalizing all the sites in Cateel and Boston are:

- (a) The site is owned by an ARB and will be used for communal farming (30 per cent). A local farmers' association has land that can be developed through communal farming. Communal farming includes both developing the land and sustaining it.
- (b) The development of the site should include the participation of women (30 per cent). The group that will develop the site have women members.
- (c) Maximum visibility of the site as a SALT model farm (20 per cent). Sites to be developed are visible to commuters and people in the community. This will encourage other farmers to adopt the technology. Should the site not be directly visible from the highway, it should, at the minimum, be easily accessible from the highway.
- (d) The site will support ecotourism (10 per cent). SALT was also intended to support ecotourism. Potential visitor arrival will be maximized by the local association in terms of charging appropriate entrance fees and selling other products.
- (e) The site is not highly prone to geo-hazards and risks (10 per cent).



Although SALT relatively addresses prevention of soil erosion which can prevent landslides, the finalization of the sites considered the local government unit's *no build zone* policy. All areas that were classified with high probability of landslides were not considered in the final selection of sites. Likewise, the percentage of slope of the land was considered, avoiding areas with slopes of more than 50 per cent.

engaging local organizations

In the first quarter of 2014, the FAO assisted the Project in identifying local partners in the two municipalities considering the ILO's procedures for contracting, requirements and work standards. For the SALT Project, two types of organizations were identified and involved those composed of ARBs and non-ARBs. These organizations were requested to submit their registration documents to verify their legal personality. While most of the



organizations had no previous experience in small contract management, this posed no problem given the technical assistance of the ILO.

Three POs were partnered and supported, the Para-Iso Association, Karancho Nature Farming Advocates Association (KANAFARMA) Inc. which is the umbrella PO for five different POs and the Boston Women's Association

(BWA) which also has five POs under it. The structure of the project team in each site includes a team leader, a project monitoring staff, an on-site nurse and farmers.

site visits

Site identification and validation visits were undertaken by the POs, ILO Project Team, the Project SALT Technician and the Project Coordinator of the FAO. The SALT technician and FAO representatives were primarily responsible in picking out ideal sites where SALT can be applied. One important consideration is that the one-hectare sites should have a land sharing agreement between the owner and the PO that will develop it.

Site visits also enabled the ILO Project Team to provide guidance and recommendations to the POs regarding the technical and operational requirements that needed to be indicated and complied within the proposals.



project proposal development

After the POs were determined to be eligible as local partners, the project proposal was developed. The project proposal was appended by a Programme of Works and Cost Estimates and Breakdown. The development of the proposal was guided by the ILO SALT technician since all POs had little knowledge on making one.

The project proposal outline includes the rationale or background; project objectives and expected outputs, outcome, number of workers per site, and profile (especially gender disaggregation), tasks, work days of workers, project activities and schedules, role and equity of the implementing organization, project sustainability and the budget including counterpart funding. After the proposal is approved, the partnership between ILO and the local organization is formalized through the signing of a contract.

The finalization of the three PO proposals formalized the development of 14 sites and employed 454 farmers.

project orientation and technical briefing

Once the project proposals were completed, project orientation was conducted along with the distribution of Personal Protective Equipment (PPE) and hand tools to the farmers. Wearing of PPE and proper use of tools were basic operational requirements that the farmers needed to comply with throughout the implementation of SALT.

The ILO Project Team oriented the POs on SALT, its advantages and uses, green works and climate change adaptation, occupational safety and health, standard labour policies and subproject targets. The SALT technician provided technical inputs to all subproject teams, particularly in carrying out SALT. The POs were also capacitated in basic administrative skills such as book keeping, project status and monitoring reporting, time management and proper use of tools and equipment, among others. Skills transfer on both administrative and operational matters were necessary to allow the smooth implementation of the project. Computation of wages, as well as payment tranches, was also discussed.



accident insurance and social protection coverage

For the social, health and accident insurance of the farmers, the lead PO first conducted an inventory of the insurance coverage of the farmers. This was done to determine who among the farmers were yet to be registered or insured. Documentary requirements were requested and gathered from the farmers and consolidated by the lead POs that also coordinated enrolment or registration of the farmers with the Social Security System (SSS), Philippine Health Insurance Corporation (PHIC) – the government's health insurance system, and a local accident-insurance provider. Delays were experienced in the collection of documentary requirements, it was agreed that premiums shall be paid on the third tranche of payments, along with the wages of the farmers. For the one-year accident insurance policy, the farmers paid the premium first and were reimbursed by the ILO during the first payment of wages.



After the processing of documents with the various insurance offices, payment requests for the premiums was then undertaken, in coordination with the ILO Project Team. Once funds for the payment of premium arrived, the POs then facilitated the payment of premiums to the different insurances in order to begin the coverage. It was emphasized to the farmers that it is a matter of both policy and principle for the ILO that workers should be insured.

payroll and wages



The lead POs facilitated the payroll and wages of the farmers. It was emphasized that as subproject proponents, the POs also acted as partner fund managers for the subproject. This enabled the POs to develop their skills in bookkeeping, cost estimation, cash disbursements procedures and making liquidation reports.

During the project orientation, it was made clear to the farmers that processing of the various payments for wages followed standard administrative procedures. Farmers were also advised of the timeframe for the payment of wages and other expenses.

For the wages, the POs kept a record of the farmers' attendance on the work site since this was the basis for the computation of individual farmers' wages. Once computed, the requests for payment of wages were done. Upon arrival of funds for wages, withdrawal of money from the rural banks followed. Scheduling of payout and actual payout to the farmers was done afterwards. All payments and cash disbursements from the various POs were incorporated in a liquidation report submitted to the ILO Project Team including receipts and validated list of workers that were paid.



on-site application of SALT

Once the farmers were oriented, actual work began in transforming the sloped lands into SALT farms. The farmers, with the assistance of the SALT technician, conducted the following activities:

Land clearing and removal of debris. Common to all the programme of works of POs was clearing fallen trees and other debris. A chainsaw was used by the farmers in cutting the fallen trees and using these as lumber for constructing sheds. The activity also includes removing overgrown grasses and shrubs as well as identifying the plants and trees to be retained. The cut grasses and shrubs were placed on the contours to act as mulch.



Establishing the contour lines, and constructing the diversion canal. The farmers made an A-Frame out of long sticks found in the area and with an ordinary rock as the plumb-bob. The A-frame was used to locate the contour lines. After the contour lines were



located, the farmers carried out contouring activities using common hand tools to establish the desired terracing and strips for planting. Afterwards, diversion canals were constructed to direct the flow of either of rain water or water from a natural source towards a water impounding area to store water that can be used to water plants and crops, especially during the dry season. In Davao Oriental, the

water impounding area served a double purpose in SALT; it was not only meant for storing water, but was also converted into a fish pond (inland fish culture) to provide more income earning opportunities for farmers.

Constructing the farm working bench with shed, nursery and vermi bed. All of the sites established their farm working bench with shed that can be used as a venue for meetings, training or even as an evacuation center in the community during a calamity. The facility made use of coconut lumber that was sourced out from fallen trees. However, there are other areas that made use of available hard wood that were in stock in the households of farmers. Given that the SALT approach also encouraged farmers to adopt organic farming, the sites also had their respective nurseries and vermi beds constructed.



Planting. After the contoured alleys and facilities were completed in the area, the planting phase followed. Determination of the type of crops, trees and plants to be planted in the SALT sites was done in consultation with an agriculturist or the local agriculture office prior to actual planting. The identification of crops, plants or trees is critical because this will determine the potential revenue of the site.

In each stage, emphasis was provided on safety in the operations and the proper techniques employed in SALT. An on-site nurse provided medical assistance whenever necessary, while the project monitor kept track of the progress of the subproject and regularly updated the ILO Project Team on the same.



After the hilly lands were completed and transformed into SALT farms, the teams regularly monitored the development of the plants, and organized rotational maintenance teams among themselves to keep the site properly maintained through de-weeding and watering of the plants.

A total of 14 hectares were developed into SALT farms in Davao Oriental, with eight sites in the town of Cateel and six sites in Boston.

SALT sites in Cateel and Boston

In the municipality of Cateel, six local organizations benefitted from the SALT projects, with the Karancho Nature Farming Advocates Association Inc. (KANAFARMA) and the Para-Iso Association being directly contracted by the ILO to manage and implement the subprojects in the eight sites. The former covered five sites, while the latter, three sites. In Boston, six organizations were able to develop the six sites. Of these organizations, the ILO contracted the Boston Women's Association (BWA) to manage the development of the sites. All three of the contracted organizations were responsible in managing the farmers in respective sites, ensure productivity rate of farmers per site, attend to financial and administrative procedures of the Project and complete site development in programmed timelines.

municipality of Cateel

Barangay Maglahus

The land was developed by 96 members of the Para-Iso Association composed of 82 male and 14 female farmers. It has slopes ranging from 15 to 40 per cent. Before SALT was introduced, the lands were covered with many kinds of grasses and shrubs along with fallen coconut trees. In addition, the areas in the Barangay had different land characteristics. One site was very rocky while another was very tall and steep. Converting these areas showed farmers that SALT is highly flexible and applicable in many types of lands, emphasizing the local resources that can be used in during and after transforming a hilly land into SALT. Many types of crops, vegetables and fruit trees were planted on the three areas including more than 3 000 chili hills, 1 500 bell pepperhills, 250 hills of cacao and 21 hills of lanzones, among others.





Barangay San Antonio

The Coconut Farmers' Association of San Antonio (SAMASA) and KANAFARMA developed the land with 20 male and 12 female farmers. The area has slopes ranging from 20 to 30 per cent. It has prime tourism potential as it is very near the national highway and offers a panoramic view of the flat lands of Cateel from the top of the site. The area is planted with 200 pineapple hills and 150 tomato hills, among others.

Barangay San Alfonso

This area was developed by the United Lambog Farmers' Association (ULFA) in collaboration with the KANAFARMA, with 19 male and 13 female farmers. It has slopes ranging from 15 to 20 per cent. The location of the site is on a hill surrounded by rice fields. The area was planted with 2 300 chili hills, 2 000 peanuts hills and 580 corn hills to name a few.



Barangay Abejod

The land was developed by the Abejod United Women's Association (AUWA) with the KANAFARMA employing 10 male and 22 female farmers. The area has slopes ranging from 20 to 30 per cent. The women farmers learned various farming techniques such as contouring and making organic fertilizers. The area was planted with various fruits and vegetables including 536 radish hills and 100 cassava hills.



Barangay Aragon

The area was developed by the Barangay Aragon Indigenous Peoples Initiative Association (BAIPIA) with the KANAFARMA. The BAIPIA had 18 male and 14 female farmers. It has slopes ranging from 20 to 35 per cent. The area has two hills facing each other between flat strips of land which looks like a small valley. Crops planted on the area included 1 000 chili hills and 150 eggplant hills.



Barangay Poblacion

The one-hectare land was developed by the Karancho Nature Farming Advocates Association (KANAFARMA) with 18 male and 14 female farmers. It has slopes ranging from 10 to 20 per cent with much of the area covered by cogon grass. The area is located in one of the many hills of the municipal center. The area is a distinctive view of terraced land among the hilly greenery surrounding it. Crops planted in the site include 500 chili hills and 50 squash hills.



municipality of Boston

Barangay Carmen

The land was developed by the USWAG Carmen Association with the BWA employing 19 male and 11 female farmers. It has slopes ranging from 10 to 20 per cent with much of the area covered by assorted grass and shrubs. The area lies in between two small creeks and has a scenic view of the sea. The area was planted with 800 peanut hills and 560 corn hills.





Barangay San Jose

This area was developed by the San Jose Farmers' Association (SAFARCO) with the BWA composed of nine male and 23 female farmers. The area in Site 2 has slopes that range from 20 to 30 per cent with much of the area covered with cogon grass. The area is located adjacent to a residential area. This makes selling the farmers' harvests easier, as potential customers are just nearby. Crops planted on the area include 400 peanut hills and 50 mung bean hills.

Barangay Cabasagan

This land was developed by the Boston Women's Association (BWA) with 16 male and 16 female farmers. The area has slopes ranging from 10 to 30 per cent. The area is largely planted with a variety of crops such as 500 peanut hills and 300 chili hills. Before Typhoon Pablo, most of the trees standing on the site were banana trees; luckily many of those banana trees are still standing.



Barangay Poblacion

The area was also developed by the Boston Women's Association (BWA) with 14 male and 18 female farmers. It has slopes that ranging from 20 to 30 per cent. The land has a large number of heavy brown rocks which were used to strengthen the hedgerows. Planted on the area include 300 cassava hills and 400 peanut hills.

Barangay Sibahay (Sitio Manat)

This land was developed by the Sibahay Farmers' Association (SIFACO) with the BWA employing 14 male and 18 female farmers. The land has slopes ranging from 30 to 40 per cent. The area has the highest peak among the sites in Boston with many of the steps leading to the top decorated with sea rocks and broken dead corals taken from the nearby beach shore. The farmers planted among others, 500 corn hills and 400 peanut hills.



Barangay Sibahay (Sitio Talisay)

This area was also developed by the Sibahay Farmers' Association (SIFACO) Association with the BWA having nine male and 21 female farmers. It has slopes ranging from 10 to 30 per cent. The area is now a farm and beach resort. Among the crops planted on the land were 400 chili and 300 peanut hills.

potential impacts

SALT can provide many potential social and economic advantages and benefits. As demonstrated in Cateel and Boston. SALT and its other models can¹¹:

- **effectively control and minimize soil erosion**

The type of SALT model to be applied in a sloping lands involves considering the natural flow of water during the rainy season, type of soil, percentage of slope and existing environmental and natural resources. Controlling and minimizing soil erosion can be achieved by making diversion canals in the area. The canal will direct the flow of water into areas where water can be fully utilized. Besides controlling and directing the orderly flow of water, the SALT system, through the planting of nitrogen-fixing trees as hedgerows, can also minimize and control soil erosion by having the hedgerows act as barriers to strong rains and wind.

- **help restore soil structure, integrity and fertility and reduce chemical-based fertilizers**

Planting nitrogen-fixing leguminous trees contribute to maintaining and improving soil structure and stability since the strong roots of hedgerow plants can further hold the soil besides acting as barriers to soil erosion.



Applying SALT should also be complemented by Natural Farming System (NFS). Farmers of the subprojects, are taught on organic farming (e.g. identifying plants that can help build resilience of crops against pests and insects, formulating organic fertilizers and application of organic fertilizers on various crops) and educated on environmental protection processes (e.g. no slash and burn). These environmentally friendly practices were applied in all the SALT sites.

¹¹For a discussion on agriculture and tourism see APO: Evolving Sustainable Production Systems in Sloping Upland Areas. Japan, 2004.p.6,23. Retrieved from www.apo-tokyo.org/publications/files/agr-01-esps.pdf, (last accessed on June 12, 2014).

- **increase efficiency in food and crop production and incomes through diversification of crops**

SALT requires planning for the various types of crops, plants and trees to be planted in the area. As done in the two municipalities of Davao Oriental, farmers considered their short-term production (e.g. cash crops) and medium- and long-term production (e.g. fruit trees). Farmers were adequately oriented and taught about the various types of crops, plants and trees, the method of planting and harvesting, as well as their maintenance. They were also guided on how they can implement multi-cropping approaches to farming in order to diversify their income sources and increase agricultural productivity. Short-term crops like vegetables are those that can be harvested within two to three months. Medium-term crops are those above three months to a year, while long-term crops/trees are those that will yield harvest after more than a year.



- **be widely applicable in many hilly farm lands**

Empowering farmers on SALT application provides them the opportunity to utilize idle sloping lands and turn these into crop and food production areas. In Cateel and



Boston, the different associations were able to maximize hilly and sloping farm lands that were previously unutilized and unproductive. Since, the farmers were taught on how to develop hilly land into SALT farms, the technology can then be easily replicated in other sloping areas.

- **be implemented using simple tools, local resources and low capital**

The development of SALT areas does not require a farmer to have sophisticated tools and modern equipment. In Cateel and Boston, farmers used common hand tools – pick mattock, digging bar, bolo and shovel. A chainsaw is used when the site



requires clearing works as experienced in the municipalities of Cateel and Boston. In addition, carrying out SALT requires only a relatively low capital. As experienced in the six sites in Boston, one-hectare of land can be converted into a SALT farm at a cost of PHP265,225 or around US\$6,168 benefitting 32 farmers. The said amount covers the procurement of working tools, personal protective gears, minimum wages, social protection coverage and administrative support for operations. Because of the simplicity of implementing SALT, the system is considered a practical, low-cost and sustainable farming approach.

- **be workable in a relatively short time**



Implementing SALT does not require a long period of time in developing an area. As carried out in 11 of the 14 sites in Davao Oriental, the work can be done within 15 days for one-hectare of sloping land provided that there are 32 farmers working fulltime with the use of hand tools, and guided by a SALT technician.

- **promote eco-tourism**¹²

Although SALT is known to prevent soil erosion and increase farm production, several sites in Cateel and Boston have prominently shown to support eco-tourism. In Boston, two sites provide scenic views of the sea with one site being marketed as a SALT resort since it leads to the beach.



- **increase local employment**



SALT as a post-calamity intervention can help generate local employment. In Cateel and Boston, 454 farmers were provided short-term employment and social protection. The cost of labour can be set at the minimum daily wage multiplied by the total working days to develop one site. SALT may also be adopted by local

¹²For a discussion on agriculture and tourism see APO: Evolving Sustainable Production Systems in Sloping Upland Areas. Japan, 2004.p.6,23. Retrieved from www.apo-tokyo.org/publications/files/agr-01-esps.pdf, (last accessed on June 12, 2014).

government units as their regular programme to strengthen the agriculture sector particularly in areas with sloping lands.

- **promote green works**

SALT is considered as green works since it makes farms and farming resilient by minimizing hazards such as landslides. In addition, the farmers in Boston and Cateel were oriented with climate change adaptation as well as the use of more sustainable farming practices.



case profiles

12 People's Organizations applied Sloping Agricultural Land Technology on 14 sloping lands, employing a total of 454 farmers, including 165 women and 7 833 work days were generated





In Barangay Maglahus, Cateel, Davao Oriental, the Para-Iso Association is recovering from the losses caused by Typhoon Pablo in December 2012. The livelihoods of around 340 families, as well as their sources especially coconut farms have been devastated. In fact, the agriculture sector, the primary source of livelihood of the community suffered the most in terms of income loss and production. Realizing that rebuilding is the only way to move forward, the Para-Iso Association composed of more than 300 farmers has committed to continually adopt sustainable and more resilient farming systems to help in preserving the environment, and add other income sources to uplift the living circumstances and livelihoods in the community. The Para-Iso Association which means “For the Children” in Mandaya dialect is one of the many farmers’ associations in Cateel. It was established in the early 1990s as a People’s Organization (PO) to unify the efforts of the farmer-members and improve its representations with the local government, national government agencies, fellow POs and NGOs. With many of the members working as coconut farmers

and greatly relying from coconut trees which were now uprooted, the Association was looking for ways to recover from the setbacks brought by Typhoon Pablo. The association, a non-Agrarian Reform Beneficiary, led by its Chairman Junel Batao, approached and sought the assistance of the DFAT-ILO Typhoon Bopha Project to restore agriculture-based livelihoods in the community.

Subproject at a glance			
Location	Sitio Mangipus, Barangay Maglahus, Municipality of Cateel, Davao Oriental		
Duration	Site 1: 26 days; Site 2: 30 days; Site 3: 25 days March 19-April 19, 2014		
People's organization	Para-Iso Association		
Project cost	PhP1,121,426.09 (US\$24,926.11)		
Project counterpart funding	DFAT-ILO PhP945,667 (US\$21,250.94)	PO PhP42,650 (US\$953.09)	Government PhP40,400 (US\$918.18)
Workers and work days	97 farmers (82 males and 15 females) 2 472 work days		
Working tools	shovels, pick mattocks, digging bars, bolos, hammers		
Social Protection	97 farmers provided with SSS, accident insurance and PhilHealth		

Subproject activities and accomplishments

The Association formally requested assistance from the ILO by passing a Board Resolution in December 2013, specifically requesting for short-term livelihood support/emergency employment focusing on sustainable farming. The Para-Iso Association became the official subproject proponent in Barangay Maglahus.

With many sloping lands in Cateel and in Barangay Maglahus, SALT became the ideal approach of the ILO in designing labour-intensive and local resource-based post calamity interventions. Three sites with a standard size of one-hectare each were then identified and validated, a project proposal was drawn accompanied by a Programme of Works.

The land for each of the sites was owned by several members of the Association allowing a mutually beneficial arrangement to be made. A 10-year land and income-sharing agreement was implemented between the land owners and the groups of farmers who developed the land. This procedure provided all the farmers a way to bring back livelihoods and boost potential income.

Prior to the work, the farmers were provided with Personal Protective Equipment (PPE) such as rubber boots, gloves and working shirts. They were also oriented on the proper use of tools and equipment, emphasizing the importance of occupational safety and health. The farmers, with the guidance of a SALT technician, conducted several activities in converting the sloping land into a SALT farm. These activities included clearing and hauling of indigenous materials such as fallen trees and overgrown shrubs; forming an A-frame; establishing terraces and contours; and planting of both indigenous nitrogen fixing trees on the hedges and various crops and plants on the strips.

Nearly one-third of the members of the Association were provided with short-term employment from the SALT subproject and they came from all eight sitios of the Barangay Maglahus. All of the workers were provided with a one-year accident insurance, social security and health insurance.

Accomplishments

Constructed:

- 4 water impounding areas with inland fish culture
- 4 workers bench with shed
- 3 vermi beds
- 1 comfort room

Planted:

- 6 000 chili hills
- 3 000 corn hills
- 2 000 peanuts hills
- 1 500 mung bean hills
- 1 500 bell pepper hills
- 350 cacao hills



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SALT farms by the Para-Iso Association



“I personally liked being able to learn and actually make organic fertilizers. It was my first time to make them. I now know that fruits and vegetables and their peelings can be used as ingredients to make organic fertilizers”.

Ms Linky Manambay
Farmer

After Typhoon Bopha swept across Cateel, Davao Oriental, most of the coconut trees standing on hills like here on Site 1 fell down. To regain lost steps in their livelihoods, the Para-Iso Association decided to rebuild their farms into more resilient farming systems. SALT was applied on a sloping hill which was just in front of the Association’s office. With sloping land readily available, the challenge for the farmers was to convert such a tall hill. Farmers like Mr Vitoriano Badang shared that if they successfully

converted the tall hill, they would have the privilege of having transformed the tallest hill among all of the sites into a SALT farm. The hill was successfully transformed even making the site highly accessible to visitors and for the farmers, themselves. The farmers made 500 stone-decorated steps with railings. At the top, visitors can have a scenic view of the Cateel River.

For the farmers, they realized that such a tall hill could become more than it was—just a hill of grass and shrubs.

Site 2

With so much grass and shrubs covering the sloping land, most of the farmers were in disbelief that a hill could be turned into SALT such as the models they saw from pictures shown during the orientations on the SALT system. But, as the days went by and little by little the SALT farm formed, the seemingly impossible gradually became doable.

Soon afterwards, the farmers developed innovative livelihood enterprises such as eco-tourism opportunities including the water impounding area that could be converted into a swimming pool. Some of the children from the nearby houses already enjoy the man-made spill over near the entrance pathway leading to the Site.

Among the crops, the most noticeable are the hundreds of chili plants growing besides the entrance path way of the site. Bright red chili pods decorate the green colored chili plant hills. The farmers intend to make their SALT farm a major producer of fresh chili, with already 3 500 chili hills planted on their site. This red hot commodity sells well in the province and the big cities.



“Before, I only knew traditional farming like slash and burn. Now, I learned it is not good for the environment. SALT is more friendly to nature and I would like to do SALT on my farm as well”.

Mr Aresteo Batao
Team Leader/Farmer



Site 3

The third area developed was a rocky hill just beside the national highway. The distinct features of the site are the behemoth limestone rocks on the sloping hill. The white colors of the rocks offer an eye-catching contrast between the green and brown hues of the surroundings.

Before SALT was applied, the land was idle and all kinds of trees, shrubs and grass common to the area crowded the sloping rocky land. Most of the farmers thought that not much can be done on a sloping piece of land with so many large rocks. But, the SALT farming system changed this perspective. The farmers found that the large rocks can still be used for food production especially for climbing plants or vines which can grow on rocks like cucumber, bell peppers and eggplants. The farmers also realized that the SALT system is flexible since it can be applied in rocky lands. The farmers were able to add other sources of income by using what was on the site.

“Of all the things I am thankful for is the learning I gained from this subproject. This expanded our knowledge on farming. It is like going to school again, but this time in the field. We are very fortunate”.

Mr Junel Batao
Para-Iso President



Impacts and lessons

Job generation and social protection

Short-term employment was provided to 97 members of the Para-Iso Association and thereby helping around 485 households sustain their daily basic needs, as well as help get them back on their feet after Typhoon Bopha. The ILO's commitment for a decent job meant that the wages for the farmers were fair and based on the legally mandated regional wage rates – unfamiliar to many of the own-account farmers. Mr Junel Batao shared that the farmers for all three sites came from all 8 sitios of Barangay Maglahus.

The farmers were also appreciative that the project facilitated their enrolment and registration to the Social Security System, the Philippines state pension system and to PhilHeath.



Support to livelihood

The farmers' commitment to maintain and sustain the SALT farms was apparent because they saw the clear income potentials of the unique farming system which applies multi-cropping. The farmers planted both vegetables and cash crops to gain income in just a few months. Fruit trees were planted so that the farmers can have something to look forward to in the long-term. The farmers saw that the SALT farms can greatly augment their livelihoods, and could become their main source of income. The farmers also thought of maximizing the income potential of the SALT farms with ideas for eco-tourism and other commercial activities.



Climate change adaptation and resiliency

Orientations on climate change adaptation and resiliency allowed farmers to further expand their appreciation of the SALT farming system as a preventive and adaptive system against soil erosion and landslides. The farmers also constructed simple diversion canals which directed the orderly flow of water. This ensured that rain water would not flow down uncontrollably causing soil erosion. This also allowed precious water to be saved in water impounding areas, which the farmers can use to water the plants.



Use of local resources

The SALT projects in Barangay Maglahus used locally-sourced seeds in populating the farms with income-generating vegetables, crops and fruit trees. The hedgerows also used trees such as falcata that were common to the area to help enrich soil fertility. The pathways especially in Sites 1 and 2 were decorated with pebbles gathered from the nearby Cateel River. A huge fallen tree was also used as a bridge, further keeping costs to a minimum.



Knowledge transfer and skills development

The SALT farming system was completely new to the farmers; hence their knowledge on a unique farming system for hilly lands was born which they can apply in their own farms. The farmers also learned many skills such as mixing their own organic fertilizers, vermi composting and using appropriate farming tools and equipment. The project also taught the farmers skills in project development and preparation, project monitoring, cost estimation and budgeting and project maintenance.



Building sustainable and resilient farming systems through the KANAFARMA

Subproject at a glance

Location, lead PO and partner POs	1. Barangay Poblacion, Cateel: Karancho Nature Farming Advocates Association (KANAFARMA) Lead PO 2. Barangay Aragon, Cateel: Barangay Aragon Indigenous Peoples Initiative Association (BAIPIA) 3. Barangay San Alfonso, Cateel: United Lambog Farmers' Association (ULFA) 4. Barangay San Antonio, Cateel: Samahan ng Magniniyog ng San Antonio (SAMASA) 5. Barangay Abejod, Cateel: Abejod United Women's Association (AUWA)		
Duration	15 days per site (April 28-May 15, 2014)		
Subproject cost	PhP1,370, 203.15 (US\$30,455.72)		
Counterpart funding	DFAT-ILO PhP977,658.15 (US\$21,726.86)	Government PhP116,750 (US\$2,594.44)	PO PhP77,600 (US\$1,624.86)
Workers and work days	162 farmers (87 males and 75 females) 2 436 work days		
Working tools	Bolos, pick mattocks, shovels, digging bars and hammers		
Social protection	162 farmers provided with SSS, accident insurance and PhilHealth		

Embedding sustainability in farming

Rural farming communities in many barangays in Cateel, Davao Oriental realized that natural calamities like Typhoon Bopha, can have a severe negative impact on their lives and livelihoods. Since farming is a main source of livelihood, farmers were asking how they could make their farms better, or more resilient, so they could prevent losing their crops to strong rains and winds.

Five People's Organizations (POs), all of which have Agrarian Reform Beneficiaries, partnered with the DFAT-ILO Project to make their farms more resilient to natural risks. Employing 162 farmers, the DFAT-ILO Project allowed the farmers to gain short-term employment income, but more importantly allowed them to lay the foundations for a more long-term income-generating livelihood through SALT, coupled with other novel enterprises.

Through the cooperation and teamwork of the five POs, the five SALT farms further showed that agriculture-based livelihoods can become resilient and even hastened the recovery of farming communities in Cateel.

Subproject accomplishments and activities

The Karancho Nature Farming Advocates Association (KANAFARMA) led four other POs that were chosen as the DFAT-ILO's subcontractors for the SALT sites. Except for KANAFARMA, the four POs had no experience in handling projects or undertaking small contract management. The Abejod United Women's Association (AUWA) was formed as an all-woman's fans club dedicated to a local TV show host and actor. While they were Agrarian Reform Beneficiaries, most of the POs did not yet know how to make project proposals.

The four organizations, in consultation with the ILO Project Team, agreed to team up with the larger KANAFARMA which facilitated the crafting of a consolidated project proposal, Programme of Works, Budget and Cost documents, as well as the timelines of the works. Mr Alicio Reyes, President of the KANAFARMA said that the arrangement greatly hastened compliance with the operational and administrative requirements of the DFAT-ILO Project. With all the five organizations under one contract, it became easier to implement the SALT projects on five sites, given that reportorial and monitoring activities are highly coordinated.

Accomplishments

Constructed:

- 5 water impounding areas
- 6 worker's bench with shed
- 5 vermi beds

Planted:

- 4 000 chili hills planted
- 580 corn hills planted
- 2 000 peanut hills planted
- 300 cacao hills planted
- 500 water spinach hills
- 330 okra hills
- 300 eggplant hills
- 100 falcata hills
- 200 cassava hills
- 50 bitter gourd hills
- 50 squash hills
- 536 horse radish hills
- 356 pineapple hills
- 150 tomato hills

Before actual work began, all 162 farmers were provided with PPE and accident insurance. Health and social security were also provided in coordination with the SSS and PhilHealth. The farmers were also given orientations on the SALT system, green works and green jobs, climate change adaptation and occupational safety and health. Among the activities conducted by the farmers included clearing the site of fallen trees and wild grass to pave the way for locating the contour lines, digging and contouring and planting of crops and vegetables. Canals were also dug to divert rainwater into a water impounding pool to store water.



SALT farms of the KANAFARMA, BAIPIA, ULFA, SAMASA and AUWA

Barangay San Antonio: SAMASA

The Samahan ng Magniniyog ng San Antonio (SAMASA) wanted to get the best possible location for their SALT farm. The hill they chose to transform had the best view of rustic Cateel. With location as their best asset, the SALT farm offers a good potential for tourism-related enterprises, besides being in front of the Cateel highway. The farmers of SAMASA already have plans of constructing picnic huts across their SALT farm, offering the residents of Cateel a place to share their meals while getting a deeply relaxing view of country fields.

The farmers were previously harvesting only coconuts, but have now ventured into other crops such as corn, cacao and fruit trees like durian, papaya and banana. Seeing that multi-cropping would allow the farmers to produce more, the organization aimed to expand their site from one-hectare to three hectares in the next few years, and bring more from their 313-member group to work on the other expansion sites they plan to develop. In this way, many more could benefit from the SALT farming system.



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“When I first heard about SALT, I thought it was the one you put in cooking your food. It was really our first time to undertake SALT and we thought at first it was impossible. But after a few days, there was some development and we were seeing a good picture of how SALT would look like. It looked good”.

Mr Bernardino Oniot
President of SAMASA

Barangay Poblacion: KANAFARMA

The Karancho Nature Farming Advocates Association (KANAFARMA) established their SALT site at the town center of Cateel at Barangay Poblacion. Although at the center of town, it still takes about 10 minutes' walk from the highway. It cannot be seen at the highway but when seen at the top of an adjoining hill, it makes the short trek worthwhile, as the SALT farm displays a wonderful distinction from all the other hills that surround it. The uniqueness of the farm in the middle of so many green hills makes it a potential model SALT farm in the

area, which many neighbouring farmers could also replicate. The neatly laid out contours of the area made planting vegetables manageable, as contours were not too steep. Mr Alicia Reyes, President of KANAFARMA, said that he never imagined that hilly land could be transformed in such a way that it could be very productive.



“I monitored the health of the farmers and I was impressed that all of them had lower blood sugar levels and lowered blood pressure after completing the SALT project. Doing SALT has good effects on health”.

Ms Sheena Añonuevo
On-site nurse



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Barangay Aragon: BAIPIA

The Barangay Aragon Indigenous People's Initiative Association (BAIPIA) transformed one-hectare of farm land into SALT. The contoured slopes cover two hills about 200 meters apart. In between the two hills is a relatively flat land, which was also contoured. When seen at the highway, the site looks like a miniature valley, with most of its surface terraced and planted with a variety of crops, especially corn. With their site just along the road, the corn harvests can be conveniently transported to the town market, or to the big cities in the south. Farmers like, Mr Luisito E. Verdy, who is also the President of BAIPIA, shared that their crops can grow much better in the SALT farm, since there is a good system of trees that help keep the soil rich with nutrients.



"Never until now have I seen such a way of farming hilly lands. The SALT system is very good, because what I can produce in a flat land farm, I can produce four times more in this SALT farm here".

Mr Luisito Ronquillo
Cooperator for BAIPIA

Barangay Abejod: AUWA

With no experience in undertaking a communal project such as SALT, the women of AUWA shared that they found the work initially difficult and were not used to being supervised in their work. But the women successfully transformed their site into a SALT farm, completing the work on target. Ms Teresita Reyes, President of AUWA, agreed that while the work was really difficult, she saw no reason that the women could not complete the work. She even appreciated in hindsight that the supervision on the work of the women farmers made them learn about discipline and dedication to work. The women farmers, most of whom were regular housewives and had a lot of spare time, realized that they could still do much in cultivating their SALT farm as well as expanding it on the nearby land.



"I am really thankful that this Project provided short-term employment which helped a lot for our daily needs, especially for each of our families. What we aim for our Association is that every day, for a long time, we can gain income from this SALT farm".

Ms Dedith R. Lobos
Vice-President of AUWA

Barangay San Alfonso: ULFA

The site at San Alfonso is the only hill in an area covered by hectares of rice field paddies. It stands out among the flat rice lands of the village. The farmers of the United Lambog Farmers' Association (ULFA) decided to make their SALT farm a sloping vegetable garden with strips of the hilly land orderly laid out with a variety of mostly vegetables and some fruit trees. Since, vegetable prices in Cateel and other neighbouring towns tend to be high, the farmers thought that focusing more on planting vegetables would be more ideal as they could sell the produce at good prices, and even use them for household consumption.



“We were taught how to apply the multi-cropping system with many types of vegetables and crops that can bring income continuously. This system will be very helpful to us in bringing better incomes”.

Ms. Mira Tananor
Farmer



Impacts and lessons



Job generation and social protection

162 farmers from five different POs were provided with short-term employment and income, helping them and their families gradually move on from the negative effects of Typhoon Bopha. Ms Denia Martesio of the ULFA shared that her daily minimum wage income of Php301 (US\$6.7) for 15 days allowed her to buy food and simple groceries for her family. In addition, the farmers were provided with one-year accident insurance, as well as health insurance and social security coverage.

Use of local resources

With the aim of minimizing costs, the POs utilized readily available materials in the area in transforming their sites to SALT farms. In San Antonio, the SAMASA used the fallen coconut trees to make their uphill pathway. The organization also used bamboo poles available in the area to make the railings of the pathway. The subproject intended to utilize locally-sourced materials whenever possible, ensuring that the costs are minimized and the natural assets of an area are optimized.



Support to livelihood

Mr Herman Del, President of ULFA, shared that the fruiting season tends to be different in Cateel and the areas nearby. Rambutan in Cateel, he added, would be in season here but not in Davao City which would make a good profit when harvests come, and with the fruits being delivered to the big cities and sold at an off-season price which is higher. All the other SALT farms will potentially boost livelihood income, since a variety of fruits, crops and vegetables were planted.



Climate change adaptation and resiliency

Most of the farmers were not aware about climate change and its potentially negative impact on agriculture and farming. Farmers, like Mr Noel Barlis said that the traditional slash and burn technique of farming were common in rural farming communities. The subproject orientation on SALT, and climate change adaptation and mitigation allowed farmers to gain a better perspective on sustainable and resilient farming.



Knowledge transfer and skills development

Learning how to make organic fertilizers was one of the skills that the women of the AUWA really appreciated. They were more familiar with the synthetic and commercial fertilizers that were commonly available in the market. Besides natural organic fertilizers, the SALT subproject also provided training on making natural insect repellents and attractants. The women of the association, as with other POs, were also oriented in the proper technique of planting, observing appropriate distances of each plant, as well as determining the right areas for planting cash crops, vegetables and fruit trees.



Diversifying income-earning opportunities



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Boston, Davao Oriental is a small municipality of around 2 534 households¹ relying on agriculture-based livelihoods. When Typhoon Bopha swept across the municipality, these livelihoods were negatively affected. Crops especially coconut and rice, were lost to the strong winds and rains, and the eventual inundation brought by the typhoon.

Four People's Organizations (POs) led by the Boston Women's Association (BWA) implemented SALT on six sites to aid reconstruction, recovery and sustainable development of the Bostonian rural communities after the calamity. The farmers have ventured into resiliency by diversifying income-earning initiatives and enterprises in their SALT farms. In this way, the farmers have reduced reliance on a single-source income. SALT as a technology on sustainable and resilient farming can be modelled into eco-agri tourism farms as shown in the experience of the POs in Boston. The application of SALT in six areas in Boston helped 195 farmers speed up the restoration of their productive communities.

¹For a fuller treatment on the relationship of agricultural productivity and rural poverty, see IFAD (2008). Agricultural technology choices for poor farmers in less-favoured Areas of South and East Asia. Retrieved from www.ifad.org/operations/projects/regions/pi/paper/5.pd, (last accessed on June 12, 2014).

Subproject at a glance

Location, lead PO and partner POs	1. Barangay Cabasagan (Sites 1 and 2): Boston Women's Association (BWA), Lead PO 2. Barangay San Jose: San Jose Farmers' Cooperative (SAFARCO) 3. Barangay Cauwayanan: USWAG Carmen Association 4. Barangay Sibahay, Sitio Talisay and Sitio Lahug: Sibahay Farmers' Cooperative (SIFACO)		
Duration	15 days per site (June 2-19, 2014)		
Subproject cost	PhP1,591,352.95 (US\$35,768.77)		
Counterpart funding	DFAT-ILO PhP1,107,728.95 (US\$24,892.79)	Government PhP140,100 (US\$3,148.31)	PO PhP105,714 (US\$2,419.108)
Workers and work days	195 farmers (120 males and 75 females) 2 925 work days		
Working tools	Shovels, pick mattocks, digging bars and hammers		
Social protection	195 farmers provided with SSS, and accident and PhilHealth		

Subproject activities and accomplishments

To facilitate project preparation and compliance with operational and administrative requirements for the DFAT-ILO subproject on SALT, the POs agreed to have the bigger BWA arrange the necessary documents and preparatory work to allow smooth implementation of the six SALT subprojects.

Consultations and meetings with the POs project and the DFAT-ILO Team provided a background on SALT, its uses and objectives and the work of the DFAT



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and ILO on employment and sustainable agriculture. The POs determined the 195 farmers to be part of the subprojects.

After the crafting of the project proposal and validation of the sites—both of which were done in coordination with the ILO Project Team, the contract for the six subprojects was signed on May 23, 2014.



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A general orientation and technical briefing was conducted by the DFAT-ILO Team afterwards to fully orient the farmers on the

labour policies and standards, wages and occupational health and safety. More importantly, the technical aspects of SALT, climate change adaptation and mitigation, green works and green jobs were discussed.

The farmers also underwent a seminar on gender-based violence in order to mainstream gender

equality in the workplace and correct perceptions of bias of men in the farm fields.



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A training on making organic fertilizers was also conducted to expand the farmers' knowledge on sustainable agriculture and farming. The training on organic fertilizers



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also serves to dissuade and change the practices of farmers employing traditional farming techniques such as slash and burn which are harmful to the environment and depletes essential topsoil nutrients.

Before actual work began, personal protective equipment and hand tools were provided to all farmers.



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Accident insurance, health and social insurance were also provided to the farmers.

The farmers completed all six SALT farms on June 19, 2014.



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Accomplishments

Constructed:

- 6 water impounding areas
- 6 worker's bench with shed
- 6 vermi beds
- 2 beach picnic huts

Planted:

- 2 900 peanut hills
- 1 400 chili hills
- 1 300 corn hills
- 200 mung bean hills
- 175 okra hills
- 50 water spinach hills
- 75 string bean hills
- 20 eggplant hills
- 20 lemon grass hills
- 15 horse radish hills

SALT farms in Boston, Davao Oriental



Barangay Cabasagan: BWA

The farmers in Cabasagan converted a sloping land full of banana trees into SALT, keeping the banana trees and coconut trees left standing after Typhoon Bopha and clearing those that fell. Keeping the banana trees, in particular, was ideal since it was the only site among the SALT farms of Boston and even Cateel that had mostly banana trees planted. Besides bananas, other fruit trees already growing on the site included durian, rambutan, lanzones and guava. Aside from the fishpond, the farmers also plan to raise livestock, such as chicken, pigs and goats.



For pig-raising, the intention partly comes from the idea of using some of the fruits that the banana trees will produce to use as feed for the pigs. This would entail lesser costs for the farmers in raising pigs. Pork meat is a staple in most of Boston and Cateel.



"I think the SALT farming system is really good, because it's the only way that a sloping hill could be used very well to grow crops. I like how the planting is done in an orderly manner. And more importantly, I like how this type of farming could add and sustain our incomes as rural farmers".

Ms Lelith Latiban
Farmer



At another site in Barangay Cabasagan, there are numerous large, brown-colored rocks on the land. The farmers decided to use this local resource to fortify the contours of the SALT farm. The rocks were placed on the hedgerows along with gliricidia, lead and falcata trees, which were also planted on the hedgerows. The use of the rocks made the hedges stronger as the trees grow beside and on top of them. Using these rocks were not done with ease, as the farmers exerted extra teamwork effort in digging the rocks out and carrying them to the hedges. Mr Ruben Dumaguete shared that the men took the initiative of undertaking this labour-intensive portion of converting the rocky land into SALT.



"I thought at first that it was impossible to do SALT, given I'm already old. But I'm happy that I was able to help complete the SALT farm. SALT made this land very accessible to us farmers and convenient for planting crops".

Ms Villamora Yvcosing
Farmer

Barangay San Jose: SAFARCO

Of all the SALT farm sites in Boston and Cateel, the SALT farm in San Jose stands out as the one situated closest to the villages' center. The site is actually in front of the barangay's residential area. It is just a few minutes' walk from the site to the residences below and vice versa. The advantage of the sites' proximity to the center of commerce of this barangay is the ease of securing an electrical connection, since the farmers intend to put up some tourist-enticing enterprises in the area, such as picnic sheds with family entertainment devices at the ready. Besides these novel enterprises, incomes will also be realized from the vegetables, crops and fruit trees planted on the site. Their harvest can be very conveniently delivered or transported to the nearby residences.



"It was a first time for all of us doing SALT, and the heat was tremendous. We get sweaty all the time and we could sometimes smell each other (*laughing*). But it was really fun, we went by really well doing the subproject with many of us fond of telling jokes".

Mr Disodado Feliscoso
Farmer



Barangay Carmen: USWAG Carmen



"The storm caused a landslide and damaged 400 of my cacao trees. With this technology, hopefully I can make my farm more resilient and prevent losing my crops to strong rains and winds from another storm".

Mr Ed Butulan
President of USWAG Carmen

The site at Barangay Carmen is a quaint little hill fronting the sea, which is around 500 meters away. The farmers considered the scenic panorama of the sea to be one of the main reasons that they regularly visit and maintain the site. Besides having a great panoramic view of the sea, the site is also uniquely featured, since the SALT hill lies between two small brooks or streams. At one side of the site is a small brook that fills the water impounding area, while the other brook flows much more downwards to the nearby rice fields, serving as irrigation to this major source of livelihood in many communities of Boston. The two brooks make the SALT hill fertile and well-supplied with water—highly important in growing the crops and fruit trees in the area. Some of these trees include durian, jackfruit, rambutan and coconut trees.



Sitio Talisay, Barangay Carmen: SIFACO

The SALT site at Barangay Sibahay, Sitio Talisay is the only site in all of Boston and Cateel that extends to the beach. Since the area is on the beach, there is a viable tourism potential that can grow and provide income-earning livelihoods for the farmers. Ms Milacuna Lozano shared that she is proud that their site is on the beach; they can offer visitors or tourists a relaxing swim on its rocky beach. With two picnic huts already constructed- and more to be built—the farmers have already derived some income from the entrance fees they

charge to people wanting to take a dip in the waters. At present, the farmers charge a token PhP10 (US\$22 cents) for adults, while it is free for children. It is an inexpensive treat for many families living in Boston, especially in Sitio Talisay, where beach resorts are not common. Besides the beach, the farmers also aim to gain income from the crops they planted, including chili and peanuts.



“This SALT project gave so much to me, like being insured in SSS and being covered in PhilHealth. I also received daily income which helped a lot sustain my family”.

Ms Adelim S. Patiño
Farmer



Sitio Lahug, Barangay Carmen:

At Sitio Lahug, the Sibahay Farmers' Cooperative (SIFACO) developed the tallest and steepest SALT farm among the sites in Boston, Davao Oriental. The degree of slope at the site is the steepest at 40 per cent and is comparable to that in Barangay Maglahus, Cateel. Because it is the tallest and steepest of the sites in Boston, converting the previously idle land became quite a challenge to the farmers, more likely the most hard-fought accomplishment of the SALT sites in the town. According to Mr Erlindo Valeroso, one of the farmers taking care of the site, vegetables and crops will grow much better because of the more fertile soil in the area. The richness of the soil was evident even before the project began, as the site had the most shrubbery growing in the area. They planted 500 corn hills on the site.



“As a single mother, this SALT project helped me a lot to sustain my family. I also learned a lot, especially a new way of farming, where before we only do slash and burn to clear the land. I hope more projects like this would be implemented”.

Ms Arisa Valeroso
Farmer



Impacts and lessons



Job generation and social protection

The six subprojects in Boston allowed 195 farmers to be employed even for just a short time. Farmers, like Mr Lorgerry Orayo, who worked on the Carmen site, also appreciated his enrollment to the SSS, since he was unable to be registered before due to the complicated process that was unfamiliar to many rural farmers in Boston. The subproject was able to register a total of 195 to the SSS and PhilHealth. All of the farmers were also provided an accident insurance.

Use of local resources

It was emphasized throughout subproject implementation that it is possible to physically complete the sites, but also satisfy the aesthetic character of the sites by using locally sourced materials. In Sitio Lahug, Sibahay, the farmers used dead corals, sea rocks and shells found on the nearby sea shore of Cateel Bay to fill up the steps of their pathways.



Support to livelihood

The SALT subproject was considered as a way to boost incomes and expand livelihood opportunities. In Sitio Talisay, Sibahay the farmers capitalized on the tourism potential of their site, since it was on the beach. The farmers constructed two picnic huts and charge a small fee to anyone wanting to dip in the cool waters of Cateel Bay or just have a family lunch on the huts. This attraction allowed farmers to gain additional income, besides the crops they planted.



Knowledge transfer and skills

The farmers were able to gain very useful skills in areas such as contour farming, organic farming, handling of work tools and carpentry. Mr Jovenel Butulan of the USWAG Carmen Association appreciated being chosen as one of the farmers that were taught to handle and use the A-frame in locating contour lines. Others like Ms Lina Gambas of the same organization also shared that she was thankful for being picked as one of the farmers to work on the subproject in Carmen, since she was able to learn how and when to pick mattock, a digging bar and a shovel.

sustaining SALT

Sustaining the SALT farms in Cateel and Boston involves setting up the right arrangements that will allow both farmers and land owners of each site to maintain and improve the SALT sites, gain income and maximize the land for food production and other income earning enterprises.

In the experience of carrying out SALT in the two municipalities, an *Agreement of Land Cultivation* for 10 years was made for each site between the People's Organization (PO) and the land owners who were also members of their respective POs. There were no problems in securing agreements noting that land owners were very much willing to have their idle lands made productive. The land agreement stipulates that the farmers' group for each site can develop and utilize the land for up to 10 years, with the possibility of extension. In many ways, the arrangement allowed both the farmers and the land owners, to gain opportunities for better incomes in the near-term to the longer-term and even beyond.

Besides land sharing, an income sharing agreement provides that 15 per cent of the profit realized from a SALT farm shall go to the land owner. The remaining 85 per cent of the profits shall be equally shared among the farmers, with 25 per cent going into a retention fund. The retention fund can be tapped by the farmers of each site for future development of the SALT farm for additional capital, or beneficial use the respective groups may agree upon.

The proper and effective maintenance of the sites are important in order to fully maximize the potentials of the SALT farms. Maintenance schedules and rotation among the farmer groups were established to monitor the growth of crops, vegetables and trees, as well as check the spread of wild grasses by regular weeding. Organic fertilizers should also be consistently applied to retain and increase nutrient absorption of soil and enrich growth of plants.

Good management of the farmers' organizations should also be maintained to enable the farmers to truly benefit from the land and income sharing arrangements set up in the SALT farms. Enabling the farmers to engage in regular dialogue and gain consensus towards improving the productivity of their respective SALT sites.

SALT can also help farmers in adapting to climate change and more importantly contribute to reduce rural poverty and address food security¹. It can generate employment for farmers and can be utilized either as a regular government

¹For a fuller treatment on the relationship of agricultural productivity and rural poverty, see IFAD (2008). Agricultural technology choices for poor farmers in less-favoured Areas of South and East Asia. Retrieved from www.ifad.org/operations/projects/regions/pi/paper/5.pdf, (last accessed on June 12, 2014).

programme or a post-calamity intervention. The SALT system and its three additional models can be also be supplemented by other innovative activities such as establishing an inland fish culture (fishpond), a nursery with vermicast bed, a shed and even a restroom.

Essentially, the most important sustainability factor would simply be the commitment and determination of the farmer groups of each site to diligently maintain and continuously improve their SALT farms, as this farming system presents high potential in earning income and raising productivity.



