THE PHILIPPINE SUSTAINABLE SEED AND AGRICULTURE DEVELOPMENT PROJECT

End of Project Report

March 2006

Presented to

Agriculture Fund
Environment and Sustainable Development Program
Projects and Innovation Unit – Canadian Partnership Branch
Canadian International Development Agency

Submitted by

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In partnership with

Pambansang Inisyatibo sa Binhi at Likas Kayang Pagsasaka sa Pilipinas (PABINHI-Pilipinas)
National Initiative on Seed and Sustainable Agriculture in the Philippines
Batong Malake, Los Baños Laguna

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I. Project Proponents and Collaborative Agencies

Project Proponents:

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REAP-Canada is an independent research, education and development organization specializing in sustainable agriculture and bio-energy systems development for the advancement of rural communities. REAP has 19 of years experience working with farmers, scientists and the private sector to create greater sustainability in farming systems using participatory training and research approaches, both in Canada and abroad. REAP-Canada has been collaborating on community development efforts with Philippine partners since 1997, conducting four (4) sustainable agriculture and bio-energy projects with sponsorship by CIDA, USAID, Leger Foundation and the Taylor Foundation. In 1999, REAP-Canada was awarded the International Environment Award for excellence in programming under the theme of Climate Change mitigation by the Canadian Environmental Network for a crop residue conservation program in the Philippines. In 2002, REAP began a sustainable agriculture systems and plant material improvement program with the Government of China, sponsored by the Shell Foundation. In 2003, a bio-energy development program was initiated in China to mitigate greenhouse gas emissions through the Clean Development Mechanism (CDM). In 2003 in the Gambia, a new West African program on ecological farming with rural communities was established in collaboration with NGOs and government scientists. REAP has leading Canadian and international expertise in working with communities on sustainable farming and renewable energy systems development through participatory on-farm research and development, and capacity building through the support of farmer-to-farmer training networks.

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PABINHI is a network involved in strengthening local initiatives on management and control of agricultural production systems. It has a membership base of over 80 member Farmers' and Peoples' Organizations from the provinces of Aurora, Nueva Ecija, Laguna, Oriental Mindoro, Camarines Sur, Palawan, Negros Occidental, Guimaras, Aklan, Iloilo, Capiz, Antique, and North Cotabato. Its member scientists, grouped into a Science and Technology Resource Pool (TRP), provide interdisciplinary scientific and technical backing to the efforts of local organizations and lead development across the country, particularly in the areas of sustainable agriculture, farmer-controlled local seed systems, farmer-to-farmer research, training and extension, and the consolidation and development of local organizations. PABINHI has 4 main programs: Sustainable Agriculture Development Program (SADP), Capacity Building, Advocacy, and Networking for Sustainable Agriculture (CANS), Indigenous Peoples Project (IPP), and Special

Concerns Projects. Initial support for the various programs of PABINHI was provided by the National Secretariat of Social Action (NASSA) of the Catholic Bishops' Conference of the Philippines (CBCP) in 2003-2004. After the successful implementation of the NASSA-funded programs, the Canadian Catholic Organization for Development and Peace (CCODP) provided bridge funding for PABINHI's efforts. REAP-Canada renewed their partnership with PABINHI in 2004.

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The SSTD is involved in enhancing the development of the local seed program and industry within the sustainable agriculture (SA) framework through seed education, research and extension. Since 1990, it has published various technical materials on seeds, seed production and handling, plant propagation, genetic conservation and community seed banking and on intellectual property rights (IPR). It also conducts summer courses and other short-term trainings on seed technology and genetic conservation with participants coming from NGOs, government organizations (GOs), local government units (LGUs), POs and the academe. Being an academic institution, the group conducts research through its students and technical staff. It also extends technical assistance to various NGOs and POs as well as academic/formal institutions. Currently, it is part of the Science and Technology Resource Pool of PABINHI.

II. Local Context/Needs Analysis of the Philippine Agricultural Sector

The Philippines faces many development problems including the serious challenges of improving the quality of life of the rural poor and increasing the food production capacity of the nation. The population exceeds 85 million people and is growing at a rate of 1.9% per year. Presently, 40% of households live in poverty with much of the worst poverty located in the farming areas of the Visayas. The growing population is placing tremendous pressure on the country's natural resources.

Agriculture is becoming increasingly important as a livelihood for rural people as the fisheries and forest industries are in decline because of unsustainable resource management. The secondary forests continue to be heavily denuded for use as both charcoal and fuelwood, and by upland farmers in land clearing for agriculture. Without significant forest cover on many islands, crop production is being affected as the dry season is becoming extended and more severe El Niño events are occurring. Severe soil erosion is another consequence during the rainy season, causing landslide calamities for communities and siltation problems for the fisheries. Soil organic matter is also declining due to intensive crop production and crop residue burning. Input-intensive farming practices are making small farmers highly loan dependent and extremely vulnerable to crop losses from typhoons and droughts. The rising price of nitrogen fertilizer and the depreciating Philippine currency have made this situation even more precarious. It is evident farmers need to develop more ecological farming systems and seeds adapted to these systems if they are to reverse the current trends of ecological decline.

With the poorest of the population invested in agriculture, there is a chronic need to diversify farming in the Philippines. Monoculture production systems of rice and sugarcane are commonly grown with high inputs of fossil fuels, synthetic pesticides and fertilizers, leaving farmers vulnerable to external market fluctuations. Additionally, this agricultural work offers limited employment opportunities for women, as much of the fieldwork and processing and marketing are performed and dominated by men. Sustainable agriculture and diversified farming systems can increase food security for families, improve family health and offer significantly more opportunities for the full participation of women in all aspects of food production, from planting to marketing to value-added processing. Farm diversification and development can also provide a mechanism for the equitable social and economic progress for these impoverished regions.

However, there is a serious lack of resources available to the government to implement development of the agricultural sector. In the Philippines, agricultural research stations and extension services have a very difficult task in servicing the rural communities due to the 15 million farmers that require support in scattered and remote rural communities. While the country's mountainous terrain has made it one of the most bio-diverse countries in the world, it has also made agricultural development more difficult due to the tremendous diversity of soil and environmental conditions on the many islands. The challenge exists for farmers, non-government organizations (NGOs), scientists and researchers in academic institutions, and other stakeholders to develop approaches that support sustainable agriculture as efficiently as possible. Economically, it is necessary to develop resource-efficient farming systems, as well as innovative mechanisms for their delivery and for the capacity building of farmers, with the limited financial resources available within the Philippines. The farmers themselves need to take control over their production, training and plant improvement programs and work in partnership with researchers/scientists and NGOs, in order to advance sustainable agricultural systems that perform productively in resource-limited rural communities. The PABINHI Network and its programs were developed with this goal in mind. The farmer led/scientist-assisted network is at the forefront of the sustainable agriculture movement in the Philippines, and is built upon 20 years of experience in the development of resource-efficient farming systems and innovative mechanisms for their dissemination and further development by farmer communities in the Philippines. Member organizations manage programs of production, training and plant improvement and work in partnership with researchers/scientists and NGOs of PABINHI's Science and Technology Resource Pool (TRP) to advance sustainable agricultural systems that perform productively in resource-limited rural communities.

3.0 Background for Phase 1

Since 1998, the Canadian International Development Agency (CIDA) has provided funding for REAP's activities in the Philippines including the Southern Negros Sustainable Agriculture Demonstration Project (SNSADP, Phase I, II and III from 1998 until 2002) and the Philippine Agricultural Climate Change Project (PACCP) project from 2001 until 2002. Several other projects including a natural resource assessment completed for the National Research Laboratory (NREL), allowed REAP to develop their capacity around ecological farming systems, biomass conservation and climate change mitigating in the Philippines. These projects also introduced REAP to the leading farmers and scientists working on sustainable agriculture in the Philippines, many of which are included in PABINHI today.

In 2003, a partnership between PABINHI and the National Secretariat for Social Action Justice and Peace (NASSA-JP) supported the project "Farmer Led – Scientist Assisted Program: Strengthening Local Management and Control of Agricultural Production System." This enabled PABINHI to consolidate member organizations in the provinces of Aurora, Nueva Ecija, Oriental Mindoro and Camarines Sur in Luzon, Negros Occidental, Aklan, Guimaras and Iloilo in the Visayas, along with expansion into Palawan, Pila, Laguna in Luzon, Capiz and Antique in the Visayas and North Cotabato in Mindanao. Reorganizing and revitalizing the PABINHI network was focused on eco-friendly, cost-effective and farmer-managed agricultural technologies and techniques. After the project with NASSA-JP was completed, PABINHI received six-months of bridge funding from Development and Peace in Canada, enabling the continuation of PABINHI programs at the grassroots level. The PSSA Project builds upon the efforts of these previous projects in strengthening the PABINHI network and building the capacity of people around the Philippines in ecological agriculture.

4.0 Project Rationale

Developing project goals and objectives are central features of the PABINHI Network planning and visioning workshops. The stakeholders and local communities were actively engaged in the visioning and planning process to ensure the relevance of project activities and the likelihood of local acceptance and contribution.

Project Goal

To empower farmers organizations to develop sustainable farming and seed systems in some of the most impoverished areas in the Philippines as a means to reduce poverty, enhance food security, increase self-reliance and farm productivity, promote gender equality and reduce environmental degradation while utilizing innovative participatory assessment, training and research methods.

Project Objectives

1. To strengthen the capacity of farmers organizations in the PABINHI network in some of the most impoverished areas in the Philippines, including Panay islands and Guimaras;
2. To enhance sustainable agriculture training through development of PABINHI's farmer-to-farmer training network and training modules to support the development of ecological farming systems in the Philippines;
3. To develop a network of Sustainable Agriculture Learning Farms amongst the peoples organizations as a new mechanism to support farm development;
4. To support the genetic conservation, distribution, testing and local multiplication of food crops such as: rice, corn, millet, grain legumes, root crops, vegetables and other crops suitable for sustainable farming through an adaptability trial farm approach.

5.0 Project Beneficiaries

People living in the Visayas are amongst the poorest in the Philippines. A January, 2004 report from the Philippine Social Weather Survey (SWS) found 6% of households reporting moderate hunger and 81% as poor.

The project originally targeted 29 Peoples Organizations (PO's) in the Visayas, particularly in the provinces of Iloilo, Acklan, Capiz, Antique (on the island of Panay) and Guimaras. Only 16 organizations were maintained, however, due to the difficulties of coordination and communication over a wide area. *Please refer to Table 1 for a detailed list of current members in the Visayas.*

Each organization has more than 20 households active in practicing sustainable agriculture. On average, a PO partner represents approximately 20 households with 6 members per household. Using these numbers as a baseline, the direct beneficiaries of the training and plant material improvement were originally identified as 580 households or approximately 3480 men, women and children. However, the overall number of beneficiaries was actually much higher because each household was mentoring an average of 5 families in the local community. Thus, both the direct and indirect beneficiaries of the PSSA project totaled 1,920 households or 11,520 individuals.

Table 1: PABINHI Member Organizations in the Visayas (Panay Islands and Guimaras)

Province	Organizations
Aklan *(comprised of 4 PO membership)*	1. Palay Upland and Lowland Farmers Multi-Purpose Cooperative (PULF MPC), Palay, Batan 2. Pudiot Integrated Farmers Organization (PIFO), Pudiot, Tangalan 3. Pagsanjan Samahang Nayon (PASAMA), Pagsanjan, Banga 4. Samahan nang Progresibong Magsasaka (SPM), Estancia, Kalibo
Guimaras *(comprised of 1 federation having 4 clusters under its umbrella network)*	*Hubon Himal-usanon Federation (A farmer-led federation with four cluster-membership, namely:)* 1. Cluster 1 situated in Buenavista, Guimaras (comprised of Brgys. Navales and San Miguel, Buenavista, Guimaras) 2. Cluster 2 situated in San Lorenzo, Guimaras (comprised of Brgys. Cabano, Constancia, Igkawayan, M. Chavez, Aguilar and Sebario) 3. Cluster 3 situated in Sibunag, Guimaras (comprised of Brgys. Tanglad and Ayangan 4. Cluster 4 situated in Nueva Valencia, Guimaras (comprised of Brgys. Oracon, Calaya and San Antonio
Iloilo *(comprised of 1 federation and 7 POs memberships)*	1. Iloilo Central Cluster 2. Patanom Federation, Inc. Barotac Viejo (10 SA-practicing base POs) 3. Barotac Nuevo Cluster 4. Lambunao Cluster 5. Sariri Multipurpose Cooperative, Badiangan 6. Sariri Organic Farmers Association, Badiangan 7. San Julian Multipurpose Cooperative, Badiangan
Capiz *(1 PO member)*	1. Mansakol, Sigma

6.0 Workplan for Project Activities

The PSSA Development Project focused on four major activities, which correspond with the project goals and objectives, namely:

1. Capacity Building
2. Farmer to Farmer Training
3. Sustainable Agriculture Learning Farms (SALF's)
4. Community Seed Conservation, Improvement and Dissemination

The detailed Project's Activity Flow is illustrated in Figure 1. Please refer to Appendices 4 and 5 for a more detailed description of project planning.

INPUTS
REAP, PABINHI, SSTD
Technical Resource Pool (TRP)
Training Modules

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CAPACITY BUILDING

- Identification of community's needs, goals and visions through Participatory Processes
- Initiation of farmer training and development of ecological training modules and sensitization on issues of environmental conservation, biodiversity, food security, and sustainable energy systems

FARMER-TO-FARMER TRAINING

- Mentorship and training of farmers in the production of farm ecologization plans, including:
  1. Inventory and strategic analysis of local resources, problems and alternatives and options
  2. Improvement/development of ecological training modules
  3. Technical training in ecological farm management and On the Job Coaching (OJC) by farmer-trainers
  4. On-farm research conducted on Sustainable Agriculture Learning Farms (SALF's) and centers (SALC's)
- Individual and community needs assessment for appropriate farm developments, appropriate technologies, waste management and household energy systems
- Large scale production of Organic Fertilizer (Bokashi) to facilitate the process of farm ecologization

SUSTAINABLE AGRICULTURE LEARNING FARMS (SALF's)

- Community and individual farm plans begin implementation
- Expansion of results obtained from on-farm research on Learning Farms into communities
- Continued training and technical support provided by farmer leaders, TRP
- Demonstrations including eco-rice, drought tolerant crops and vegetables, legumes and organic fertilizer use

SEED CONSERVATION (SALC's)

- Live storage or the active collection of the local genetic base through *ex-situ* conservation
- Propagation of locally available and traditional varieties of fruit trees, leguminous crops, rice, vegetables
- Establish inventories and passport data to allow facilitated seed identification and verifiable comparison of a particular genetic material that comes from different sources

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OUTPUTS
Community Infrastructure Development
Seed Conservation, Maintenance, Improvement
Ecological Farming Systems Development
Improved Food Security
Gender Equality

Figure 1. Overview of the Components of PSSA Project Implementation

6.1. Community Organization

6.1.1 Supporting Community Infrastrucure and Capacity Building

The PSSA project aimed to create stronger linkages between the local and national partners implementing the project, research institutes such as SSTD, government extension workers and the beneficiaries in local communities. Project activities integrated local farmers efforts with each other and other institutions, and improved information transfer networks, communal decision-making and problem-solving.

The capacity building process involved communities strengthening their local infrastructure by building the capacity of their POs and improving their interaction with local support agencies such as provincial agricultural research institutes and local government units (LGUs), as in the case of Badiangan, Iloilo. Other approaches, such as the use of surveys and participatory appraisals, planning, monitoring and evaluation were used to strengthen ties with the PO's and encourage solving common problems together. Capacity building is an ongoing process and a cross-cutting issue in all project components. The main aspects of the capacity building process are:

- Increasing farmers' capacity to analyze their local environment and apply ecological principles to their farming methods
- Institutionalise approaches of mutual learning, support and information exchange within the community (local)
- Institutionalise approaches to network information and experiences outside the community (regional and national)

Drawing on the project proponents' experience working with communities, the beneficiaries underwent an organizational development process. The needs, constraints and opportunities of the community members were identified through strategic-planning sessions, and their development goals and strategies and training requirements outlined. Specific activities, targets, and monitoring indicators arose out of this initial process and were incorporated into the project workplan.

Through the project the farmers capacity was increased through the training of farmer trainers, the establishment of a farmer-to-farmer training network and integrating local technical resource pool (TRP) members into project activities. Local information exchange was encouraged by strategic planning sessions and meetings, and learning farm development within the community. Regional and national information exchanges were supported by meetings, national trainings and general assemblies with national groups and individuals including PABINHI members and scientists. The Science and Technology Resource Pool (TRP) was also strengthened by the expansion of membership outside of the University of the Philippines – Los Baños (UPLB), as well as at the local level. Through increased networking, all project participants improved their capacity in many areas of project implementation including project planning, training module development, survey administration, participatory appraisal, monitoring and evaluation, training, research, dissemination of information, linkaging, technical support and resource generation.

Incorporated into the capacity building aspect of the project, but included in all other areas of the project, is the promotion of gender equality through equal access for both genders to project

benefits. This was evidenced in the training component of the project through the selection of women as farmer trainers and participants in people organizations and farmer training sessions.

6.1.2 Strengthening the Capacity of Peoples Organizations (PO's)

One of the most important long-term contributions of the PSSA Project is the support of local Peoples Organizations (PO's). The purpose of these organizations is primarily to give the farmers greater influence by producing more cohesive goals and objectives as well as to develop local capacity for community action and to continue project activities and impacts long after the project is completed. The majority of the PO's affiliated with PABINHI are currently in the process of reorganizing and consolidating. In this context, the PSSA Project played an important role in revitalizing the organizations as they move towards capacity building and organizational strengthening.

Through the PSSA project, PABINHI actively supported the development of local POs' to continue to be effective, both during and after implementation. Project staff developed a Sustainability Checklist survey for administration at the national and local level, utilizing Sustainability Indicators as Monitoring Tools for the assessment and support of the development of Peoples organizations. This was administered to member groups to assess strengths and weaknesses of the POs', with the findings incorporated into the long-term planning of the PABINHI network.

Capacity Building
To ensure local organization and cohesive implementation of project objectives, each PO has a set of officers, project committees and a community organizer. The responsibility of the Community Organizer (CO) is to expand and strengthen the organization and to ensure that the members' tasks are well defined and the organizational structure is functioning according to assignments and timetables of the project. The CO assists leaders in the mobilization and linkaging of farmer-members to the structures and processes of the PO. About 30% of farmer COs are women and many of these also act as farmer-leaders, focusing on farm-level needs.

Local Strategic Planning Meetings
The PABINHI Pilipinas and Hubon Himal-usanon conducted the 1st Guimaras & Panay Strategic Planning held at Brgy. Navalas, Town of Buenavista, Province of Guimaras from November 17-20, 2004. The three-day event was attended by 38 participants (comprised of 86% male and 14% female farmers) from various organizations/federations and local government units in Guimaras, Aklan, Capiz, Antique and Iloilo. The dynamic leveling-off and identification of local goals and strategies used to establish project objectives and activities strengthened the role of farmers at the grassroots level and incorporated participatory action planning into the project, utilizing the bottom-up approach as an effective tool in empowering farmers towards agricultural development. *Please refer to Table 2 for a summary of the strategic planning and meetings held during the project at both the local and national level.*

Table 2. Summary of Strategic Planning and Meetings at the National and Local Level

Date	Municipality/Province	Activities
Meetings at the National Level		
Oct 27-31, 2004 Jan 3-10, 2004 Mar 7-10, 2005	UP Los Baños, College, Laguna	• National Management Team (NMT) meeting. Project implementation plan and progress was detailed, discussed and leveled-off.
Meetings at the Local Level		
Nov 11-12, 2004	Nueva Valencia, Guimaras	• OMT coordinators meeting (attended by representatives from Guimaras, Iloilo and Aklan). Leveling-off of PSSA project activities.
Jan 6, 2005	San Lorenzo, Guimaras	• Cluster 2 meeting for the planning and preparation of organic fertilizer mass production.
Mar 12, 2005	Nueva Valencia, Guimaras	• OMT meeting. Attended by OMT members from various clusters, the progress of project goals and activities, as well as the problems and constraints, were discussed and monitored.
May 11, 2005	Tanglad, Sibunay and Cabano, San Lorenzo, Guimaras	• Consultative meeting with Dr. Ted Mendoza, Project Agronomist Roger Samson and local PO officers for project planning and implementation
May 12, 13, 2005	San Julian and Iniligan, Badiangan, Iloilo	• Consultative meeting with Dr. Ted Mendoza, Project Agronomist Roger Samson and local PO officers for project planning and implementation
May 10, 2005	Guimaras & Badiangan, Iloilo	• Examination of organic fertilizer production with PABINHI Project Management Team and Mr. Roger Samson (REAP)
May 22, 2005	San Julian, Badiangan, Iloilo	• Consultative meeting with San Julian Multi-Purpose Cooperative (SJMPCI) for a Training Needs Analysis
May 26, 2005	Badiangan, Iloilo	• Consultative meeting with Dr. Pam Fernandez and the PABINHI Project Management Team for Community Seedbanking and Training Needs Analysis on Ecological Household and Agriculture Future Development
May 27-28, 2005	Guimaras Badiangan, Iloilo	• Meeting of PABINHI Project Management Team with organic farmer members for Community Seedbanking and Training Needs Analysis on Ecological Household and Agriculture Future Development and Indigenous Knowledge Systems and Practices
Jul 16, 2005	Nueva Valencia, Guimaras	• OMT meeting preparation for the Trainers' Training on Community Seedbanking
Aug 14-21, 2005	Los Banos, Laguna	• PABINHI National General Assembly involving participation from all member POs
Sept 10, 2005	San Miguel, Jordan, Guimaras	• OMT meeting preparation for the Trainers' Training on Community Seedbanking

PABINHI General Assembly.

On August 19-20, 2005, PABINHI held the 2nd General Assembly at Bay, Laguna. Attended by more than 50 participants the majority of whom were leaders of PABINHI member POs, the activity served as a venue for farmer-leaders and resource pool members to share experiences and participate in planning. Problems and constraints in every level (province, community, PO and national) were identified and discussed, and detailed solutions developed through small group workshops. Short and long term goals were also identified during the General Assembly and incorporated into the PABINHI Declaration of Commitment.

6.1.3 Capacity Building of Project Team Members

Capacity building occurred throughout the lifespan of the PSSA Project, and began with building staff capability at PABINHI and SSTD to support the project and increase public engagement.

Participation at the Karangalan Festival
PABINHI and SSTD were involved as both exhibitors and participants during workshops in the Karangalan Festival held at the Cultural Center of the Philippines (CCP), January 21-23, 2005. This was attended by PABINHI and SSTD staff together with student volunteers for the purpose of promoting the PSSA Project approach and exploring possible linkages with other organizations, while gaining new insights on the positive initiatives all over the country taken by individuals and groups in creating a better Philippines.

The outcomes of participating in the Conference/Festival were:

- Highlight and celebrate the striving and successes of many Filipinos for a better way of life, for a better country;
- Empower Filipinos, through an experience of the dozens of exciting initiatives all over the country, with a sense of vision and hope for their future and for their country;
- Creation of a social space where different prominent and not so well known initiatives can come together and cross-fertilize each other – all towards the creation of a visionary Philippines; and
- Deeper understanding of the present form and future possibilities of the Philippines that is emerging.

Study Tours
Leaders, trainers, TRP and staff organized and joined tours to build PABINHI's capacity around biodynamic & organic farming, beekeeping, permaculture, seed production and multiplication, and organic backyard livestock management. Please refer to *Table 3 for details of the study tour activities throughout the year.*

The field trip exposures included in the study tours allowed farmer-leaders, TRP and PABINHI support-staff to more fully understand organic farming and farmer developed appropriate technologies. This supports PABINHI's focus on transcending from organic farming into a deeper approach to agriculture anchored on Biodynamic and nature farming. The knowledge and experiences gained from various farms was shared to farmer beneficiaries in the PSSA project sites in the Visayas to support the implementation of the trainings.

Table 3: Activities of PABINHI Staff Study Tours

Activities/Highlights	Location
January 28-30, 2005	
• Vermi-composting • Mushroom production	Agro-Technical Assistance & Livelihood Opportunities in the North (AGTALON), Manaoag, Pangasinan
• Integrated, ecological farming	GEO FARM, Bayambang,

• Herbal/organic medicine • Spirulina production • Animal health • Seed propagation • Alternative energy sources (biogas, solar, windmill, beach-side eco-village concept)	Pangasinan
• Seed production sites and on-farm research	Allied Agrotech, Inc., Tayug, Pangasinan
• Organic farming • Organic/anthroposophic architecture • Biodynamic breeding	Prado Farm, Lubao, Pampanga
August 14-21, 2005	
• Biodynamic Gardening • Beekeeping • Organic Backyard Piggery	Los Baños, Laguna Biodynamic Garden, Raymundo Lucero Beekeeping Farm & Backyard Organic Piggery
September 17, 2005	
• Low External Input Sustainable Agriculture (LEISA) --- Solar Farm	Calamba, Laguna
October 8-9, 2005 (initial visit Jan 20-30, 2005)	
• Permaculture • Biodynamic Agriculture • Orchard management with grazers and ducks • Buildings, infrastructure and training facilities • Waste and drinking water management • Rainwater collection • Trees and alternative fuel and energy sources • Native indigenous trees • Organic rice-vegetables and hand-shaped fish pond systems • Wildlife sanctuaries • Waste, soil building and nurseries • Edible landscapes and decorative plants • Natural bamboo houses and compost toilet	Cabiokid, Permaculture Farm, Cabiao, Nueva Ecija

6.2 Farmer-to-Farmer Training and Farm Planning

6.2.1 Farmer-to-Farmer Trainings

The project utilized farmer-to-farmer training, a well-proven peer education training system utilized by farmer alliances in Canada, the Philippines, the Gambia, China and elsewhere. With millions of rural peasants in the Philippines, it is evident that conventional training approaches using existing government extension positions will not adequately meet the enormous training needs of farmers in the nation. Farmer-to-farmer training is a core component of project activities. It is an approach that can help enable large numbers of farmers to have access to training using this effective and low cost learning method. The farmer-to-farmer training process allows local farmers to take the lead in community capacity building. The investment in empowering and training farmers generates a high capacity to continue the development process. Additionally, the investment in strengthening the farmers' institutions and developing bottom-up

training programs to complement the traditional top-down infrastructure are key features that will help continue the development process in communities beyond the project's lifespan.

At least 47 farmer trainers accessed training through the PSSA project, with a number of informal trainers also trained. Farmer trainers included local farmer leaders, PO members and members of the local TRP's and were initially chosen by the POs to ensure that all members would be supportive. Each PO had at least 20 members who were trained and became active in practicing ecological farming, with each of these farmers training 5 or more neighboring farmers.

Development of Farmer Trainers

Fundamental to this approach is to develop experienced local farmer trainers who will lead training sessions. These individuals must be progressive farmers having a sound understanding and skills in farming, social and ecological issues and effective organizational and facilitation skills.

Farmer-to-farmer training was initiated by investing in beneficiaries directly through structured trainings and on-the-job coaching. The farmer trainers were developed with participatory methods, so as to actively engage all members of the community, including the women and the less active farmers. They took the lead in adopting activities that support sustainable community development and training other farmers through a farmer-to-farmer training network on ecological methods and principles. Farmer trainers benefited by being the first to work with improved plant materials and ecological methods on their learning farms.

Small-scale training sessions were provided to upgrade trainers on a periodic basis. Training sessions were held regularly by PABINHI staff, including Leopoldo Guilaran (with Pamela Fernandez and Teodoro Mendoza to support), members and officers of the On-Site Management Team (OMT) and other members of the TRP. Through this participatory peer education approach, trainers were continuously developed, and groups are kept small as farmers are exposed to diverse farmer trainers and issues. Trainers were also involved in developing and modifying the training programs and manuals to improve the understanding of technical information and make it more suitable for the comprehension of local farmers. Scientific experts from the field of ecological farming and seed conservation supported the mentorship of the farmer trainers so that they may be able to provide more advanced trainings in the future.

A large-scale farmer-trainer training session was held in conjunction with the PABINHI General Assembly from August 14-21, 2005. Forty-seven (47) participants attended, including 26% as women. The main objective of this training was to upgrade the knowledge and skills of the trainers, with a focus on community seedbanking. Experts on ecological farming and seed conservation from SSTD provided support in the form of mentorship to the farmer trainers and in advancing the design, methodology and reading materials associated with this topic. A detailed listing of the training components for this session is as follows:

- Seed Systems and Genetic Conservation through Community Seed Banking (CSB)
- Principles and Practices of Seed Production and Multiplication
- Seed and Crop Protection
- Seed Harvesting, Extraction and Processing for Seed Production and Genetic Conservation

- Seed Quality Testing
- Seed Storage
- Community building through Human Resource Development
- Participatory Plant Breeding
- Beekeeping
- Appreciative Inquiry: A Positive Revolution in Change

6.2.2 Training Module Development

The participatory, problem-solving nature of the training program and modules are designed to energize the farmers and encourage them into action in their communities. This is complemented with technical trainings on ecological farming and site visits to learning farms employing sustainable agriculture or that are in the process of conversion and mentoring through farm visits and individualized on-the-job (OJC) coaching by trainers. Throughout the learning process, module development has been continuously refined, improved and enhanced for various changes in appropriate technology development.

Seven documents translated into the local dialect were distributed among the farmers, with topics ranging from sustainable agriculture to farmer developed appropriate technologies (FDATs). Other reading materials topics included beekeeping and participatory plant breeding. The first six modules were drafted through PABINHI's previous work and were completed and refined through the PSSA project. Two new training modules were also conceptualized and developed by PABINHI through Dr. Ted Mendoza and Dr. Pam Fernandez and the SSTD with support from REAP-Canada. The Seed Conservation, Maintenance and Improvement module was created during the course of the project and the ECO-Rice module is still under development based on ongoing research and field observations (ECO-rice).

These materials have proved useful in conducting farmer-to-farmer trainings especially in enabling the localization of appropriate farming technologies. *Please refer to Table 4 for a complete listing of training documents used in project trainings and their sources.*

Table 4: List of Translated Reading Materials Used in Various Trainings*
All developed, compiled and translated by L.A. Guilaran, 2004

Training module	Reference	Version
Nature Farming: Utilizing Micro-organisms in Agriculture		Tagalog Ilonggo
The Principles and Features of Permaculture	Adapted from Mollison, B. "*PERMACULTURE: A Designer Manual"*	Ilonggo
Systems of Rice Intensification - SRI Basic Course	Adapted from Uphoff, N. *"What Can We learn from the System of Rice Intensification in Madagascar about Meeting Future Food Needs"*	Ilonggo
The Biochemistry and Methodology of Composting	Adapted from Lancelot, R.P. *"The Connecticut Agricultural Experiment Station. New Haven, USA"*	Ilonggo

The Practices of Biodynamic Farming	Adapted from Don Bosco Diocesan Youth Center Inc. 200 Batasan Hills, Batasan, Makilala, Cotabato.	Ilonggo
BOKASHI Fermented Organic Fertilizer		Ilonggo
Seed Conservation, Maintenance and Improvement		English, Illongo
ECO-rice - Field based management and maintenance of rice-based ecological farming systems		English, Illongo

Additional resource material on seed conservation, maintenance and improvement was prepared by SSTD during the course of the PSSA project and distributed to some farmers and PO's. Materials include:

- *Applying Biodynamics in Organic Seed System* – a broad introduction to biodynamics and organic agriculture matters as applied to seed system. (Dr. Pam Fernandez).
- *"Sustainable" Community Seed Banking and Seed Production* (Dr. Pam Fernandez).
- *PABINHI Community Seedbanking* (Dr. Pam Fernandez)
- *Seed Harvesting, Extraction and Processing for Seed Production and Genetic Conservation* (Annalissa Lappay-Aquino, Research Associate)
- *Seed Quality Testing* (Lucille Elna Parreno-de Guzman, Research Associate)
- *Ratooning Research Protocol for Community Seedbanking* – (PABINHI)
- *Community Seedbanking*: *The PABINHI Perspective* (Leopoldo A. Guilaran, Ma. Lourdes S. Edano and Lea Angeli J. Bawagan)

These materials are intended to enhance farmers' training sessions, provide resource material to technical resource persons, and to aid in outreach and communication of PABINHI programming.

6.2.3 Farmer Trainings

The strategic planning sessions with communities held November 17th -20th, 2004, were critical in identifying key areas of interest for trainings that would be of benefit to the local faming communities. The strategic-planning sessions first analyzed the needs, constraints and opportunities of the community members, then assisted in outlining and developing training requirements customized to each community's training needs. This bottom-up approach also strengthened the role of local farmers in the various project activities.

Training schedules were set up by local organizers, who determined the most appropriate timeline based on the stage of development of the local farmers. A typical training lasts for a maximum of three days. They are generally held in the dry season (Jan-May) when farmers are less occupied with their farm activities. The training sessions have a maximum of 25 participants and are free for participants. Healthy, well-balanced meals are provided as a counterpart by local peoples' organizations when possible.

The trainings were conducted in a participatory manner involving both plenary discussions and smaller group activities. Trainings were conducted by the trainers with speaking/analyzing done

by the farmers themselves. A special effort during the trainings was made to involve women in activities and discussions to ensure their active participation. A two-hour "situationer" is often held on the first morning of each session to discuss the social, economic, and environmental current events affecting the farmers. This process progressed as the farmers were sensitized and encouraged to actively evaluate their local and national conditions. At the end of each training session, a review of whether expectations were met, and a record of both the positive and negative feedback was made to further improve the training process.

To date, the project hosted a total of 672 individual training sessions with 27% of the participants being female, including the training of the 12 current farmer trainers. Training was carried out by PABINHI, SSTD and agricultural specialists from the Technical Resource Pool (TRP). The sessions consisted of 80% practicum and 20% lecture, with some farmer practitioners acting as co-trainers. Discussions during trainings also highlighted some issues affecting the environment, global warming, health, rapid loss of genetic diversity and cultural breakdown. Besides the formal training and technical demonstrations, field visits are incorporated into the training activities. *Please refer to Table 5 for a detailed overview of the PSSA project trainings delivered to farmers.*

Table 5: Overview of PSSA Trainings Delivered to Farmers

Topic of Training	Date	Location	Participants	Male	Female	Total
Community Strategic Planning	Nov 17-20, 2004	Guimaras, Iloilo, Aklan and Antique provinces	Farmers and PO Leaders	36	7	43
Nature Farming and Bokashi Fermented Organic Fertilizer Production	Nov 17-20, 2004	Guimaras, Iloilo, Aklan and Antique provinces	Farmers and PO Leaders	36	7	43
	Feb 4, 2005	Guimaras - Brgy. Calaya, Nueva Valencia	Farmers, Department of Agriculture (DA) technicians	38	19	57
	Feb 5,7, 2005	Iloilo - San Julian Multi-purpose Cooperative, Inc. (SJMPCI) – Brgy. San Julian, Badiangan	DA technicians, farmers, PO Members, Barangay captain and the municipal Mayor	41	16	57
	Feb 7, 2005	Iloilo - Sariri multi-purpose Cooperative, Inc. (SMPCI) – Brgy. Sariri, Badiangan	Farmers and Barangay council members	9	6	15
	Feb 9-10, 2005	Iloilo - PATANOM Federation, Barotac Viejo	Farmers, DA technician, NIPSC teacher	8	3	11
	Feb 19, 2005	Guimaras – Brgy. Cabano, San Lorenzo	Farmers and barangay official	18	2	20
	Feb 21, 2005	Capiz - Mansakol, Sigma	Farmers and barangay officials	8	2	10
	Feb 24, 2005	Iloilo - Northern Iloilo Polytechnic State College (NIPSC), Brgy. Puerto Princesa, Barotac Viejo	Barangay officials, farmers, students and faculty members	14	3	17

	Feb 24, 2005	Iloilo - De la Peña Multi-purpose Cooperative, De la Peña, Barotac Nuevo	Farmers	8	2	10
	Feb 26, 2005	Iloilo - Santiago, Barotac Viejo	Teachers, farmers and DA Technician.	9	2	11
	Mar 3, 2005	Guimaras - Brgy. Tanglad, Sibunag	Farmers, PO members and municipal councilors	13	2	15
	April 9, 2005	Guimaras – Brgy. Calaya, Nueva Valencia	Farmers and PO Members	17	7	24
	May 25, 2005	Iloilo - Brgy. San Julian, Badiangan	Farmers and PO Members	11	6	17
On-the-job-teaching (OJT) *Bokashi for rice, bonsai, flower and vegetable production.*	May 27, 2005	Iloilo - SMPCI – Brgy. Sariri, Badiangan	Farmers and SMPCI members	7	5	12
	June 4, 2005	Iloilo - Brgy. Sariri, Badiangan	Agro-fair Fiesta participants	-	-	-
On-farm Visits and Farmer-to-Farmer Field Teaching *Greenhouse and market tours, cutflower projects, free range native chicken raising, agri-business, vegetables, and inland fishing.*	May 27, 2005	Iloilo - SJMPCI – Brgy. San Julian, Badiangan	SA farmers associations, 4H Club Members and organic inspectors	24	11	35
	Sept 3, 10, 17, 24, 2005	Iloilo – Brgy. Santiago, Barotac Viejo	Farmers and PO Members, Students from high school and grades 5 and 6.	93	37	130
IMO Demo	Mar 27, 30, Apr 16, 2005	Iloilo - Brgy. San Julian and Sariri, Badiangan	Farmers and PO Members	15	9	24
Community Seedbanking (CSB) Training	May 26, 2005	Iloilo - Brgy. San Julian, Badiangan	Farmers and PO Members	11	6	17
	May 27, 2005	Iloilo - SMPCI – Brgy. Sariri, Badiangan	SMPCI members and Farmer Trainers	7	5	12
	May 28, 2005	Guimaras - Brgy. Tanglad, Sibunag	PO members and Farmer Trainers	10	5	15
	May 28, 2005	Guimaras - Brgy. Calaya, Nueva Valencia	PO members and Farmer Trainers	7	5	12
	May 29, 2005	Guimaras – Brgy. Cabano, San Lorenzo	PO members and Farmer Trainers	6	2	8
	May 29, 2005	Guimaras – Brgy. Navalas, Buenavista	PO members and Farmer Trainers	8	2	10
	August 14-21, 2005	Los Baños, Laguna	Farmers, PO members, Farmer Trainers and members of PABINHI General Assembly	35	12	47
			TOTAL	**489** (73%)	**183** (27%)	**672**

Training on Nature Farming and Bokashi Fermented Organic Fertilizer Production

Bokashi is an organic fertilizer originating from Japan and now famous around the world. It is a fermented organic soil amendment that contains Indigenous Micro-Organisms (I.M.O.'s) from local soil and worm casings, which are beneficial to plants and can dramatically increase soil fertility. Microbes are multiplied on a substrate of carbonized agricultural residues (typically burnt rice hull) with high populations obtained by adding sugars from natural fruit juices and other soil amendments. Bokashi is ready for use after only 2 weeks of fermentation and preparation time and composed of low-cost, locally available materials. It can be used both as a basic fertilizer and also as a supplementary fertilizer during fruiting stages and can significantly assist the transformation to ecological farming by minimizing the yield losses and risk normally associated with this conversion. *Please refer to Appendix 6 for detailed instructions on nature farming including how to make Bokashi fertilizer.*

The efforts during the PSSA project focused on introducing this practice to the farmer trainers, TRP and PABINHI staff and adapting the general production process to materials available in the local communities. The trainings focused on hands-on demonstrations of making or producing carbonized rice hull (CRH) and demonstration farms highlighting Nature Farming application and Bokashi production. Reading materials, written and translated in local dialect, were also used to deepen and strengthen the participants' level of understanding. A series of trainings on organic fertilizer production (OFP), indigenous microorganism (IMO) production, carbonized rice hull (CRH) production and Bokashi fermented fertilizer production were also offered. The trainings demonstrated the actual procedure in producing liquid organic fertilizer and cooking rice for indigenous microorganism (IMO) mass production. Farmers acted as participants in the trainings, with some serving as trainers of the actual on-site demonstration. Technical Resource Pool (TRP) personnel also had inputs on technical components of the mass production process. The trainings resulted in increased interest in organic fertilizer production from the local farmers and Department of Agriculture technicians, who are currently the principal proponents of chemical farming. The training also resulted in non- PO member participants being encouraged to organize and implement ecological farming practices on their own farms. Training impacts recorded through evaluation sheets and verbal feedback from the farmer participants indicated that actual on-site demonstration trainings are better than lectures because farmers can actually see the results after the training. The mass production is necessary because soil conditions must be rejuvenated as soon as possible to gain enough fertility to allow an ecological conversion without the farmers assuming too much risk. Trainings were scheduled during the dry season (Jan-May) when farmers are not excessively busy on their farm.

Through collective action, a total of 88.5 L of liquid organic fertilizer and 33 tons of Bokashi organic fertilizer were produced for the utilization of transitioning farmers, and farmer-practitioners at an average cost of PhP 1,412.00/ton. Compared to chemical fertilizer which has an average cost of about PhP 20,000.00/ton (urea), Bokashi costs only 7% of the total cost of urea. The cost of other organic fertilizers are: Fermented Fruit Juice (FFJ) at PhP 27.00/L, Fermented Plant Juice at PhP 7.00/L, Indigenous Microorganisms (IMO) at PhP 36.00/L, and Fish Amino Acid at PhP 58.00/L. *These mass production sessions are recorded in Table 6.*

Table 6. Schedule of Mass Organic Fertilizer Production in the Communities

Production Activity	Date (fermented/ arvested)	Location	Results *1 sack = 50 kg
Carbonized rice hull (CRH)	Jan 20/Jan 21, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 36 bags
	Jan 26/ Jan 27, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 84 bags
	Jan 29/Feb 1, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 120 bags
Fermented fruit juice (FFJ)	Jan 5/Feb 1, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 4.5 L (2.5 L papaya; 2 L banana)
	Feb 4/Mar 21, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 12 L
	Jan 25/Feb 1, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 2 gallons
	Feb 4/Mar 21, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 20 L
Indigenous micro-organisms (IMO)	Feb 1/Feb 7, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 2 L
	Feb 10/Feb 17, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 2 L
	March 5/12, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 12 L
Calcium phosphate	Feb 4/Mar 4, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 1 container
FAA	Feb 10/Feb 20, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 2 L
	Mar 23/Mar 29, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 4 L
Lquid fertilizers	Feb 4/Mar 5, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 20 L
FAA, FPJ, FFJ, IMO	Apr 20/May 2, 2005	Iloilo (Brgy. San Julian, Badiangan)	• Technical demonstration
Bokashi	Feb 6/Feb 20, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 26 sacks*
	Feb 7/Feb 23, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 3 tons
	Feb 20/Mar 7, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 35 sacks
	Feb 27/Mar 20, 2005	Iloilo (Brgy. Sariri, Badiangan)	• 37 sacks
	Mar 5/Mar 21, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 10 tons
	May 10/ May 19, 2005	Iloilo (Brgy. San Julian, Badiangan)	• Tchnical demo at Mapili Grande
	June 1-3, 2005	Iloilo (Brgy. San Julian, Badiangan)	• 15 tons harvested

Mass production of Bokashi was made possible through local community efforts, with all members contributing supplies from their farm. *The cost of materials bought along with the recipes used and the amount produced is given in Table 7.*

Table 7. Cost of Production for Organic Fertilizer Production

Item Produced	Ingredients	Amount	Cost (P)	Amount Produced
Fermented Fruit Juice (FFJ)	1. Banana or Papaya 2. Brown sugar	2 kg 2 kg	**60**	2 L
Indigenous Microorganisms (IMO)	1. Cooked rice 2. Brown sugar	4 kg 4 kg	**120**	4 L
Calcium phosphate	1. Fish bones 2. Tuba *(fermented palm sap)*	2 kg 4 gallons	**160**	4 L
Fish Amino Acid (FAA)	1. Fish 2. Brown sugar	3 kg 3 kg	**165**	4 L
Bokashi Organic Fertilizer 1. Dry Carbon *(rice bran, carbonized rice hull)* 2. Moist Carbon *(manure, garden soil, mudpress)*		 *1000-2000 kg* *2500kg*	**3000-5000** *375-1500* *0-700*	3 tons

3. Brown sugar *(reduce if using mudpress)*	*10 kg*	*300*	
4. IMO + FPJ	*2-4 L*	*120*	
5. Labour		*2000*	
6. Fare		*100*	
7. Other		*200*	

Participatory research was also introduced into the Bokashi program. Through participatory workshop sessions, on-job-teaching and establishment of learning farms, farmers began to experiment the efficacy of various technologies introduced during trainings. In Brgy. Navales, Buenavista Guimaras, a farmer modified the formula for Bokashi using local materials keeping the integrity of the original formula but making production cheaper and simpler.

The increasing number of adopters, improvement in quality of the final product and the intensification of harvestable crop yield may be attributed to the following unique features of Bokashi:

a) Materials needed for production are locally available.
b) Production time is short (two to three weeks).
c) Cost of production is low.
d) Effectiveness is quickly observed in the crop.
e) Introduction of the technology is timely as the cost of fertilizers and other farm inputs continues to increase.

Leading by example is a key strategy employed throughout the project, in the training sessions and demonstrations. One example that reverberated around the community in Navales, Guimaras was a remarkable recovery of one farmer's corn following a month-long drought after Bokashi application. This example, along with many others attracted the curiosity, interest and support from villagers and officials of Department of Agriculture in the Provinces of Guimaras, Iloilo and Aklan, who have since attended and requested Bokashi training series outside PABINHI network. The versatility of Bokashi and other organic fertilizers appealed to many local chemical-based farmers, the majority of which have been exposed to chemical fertilizers for over 30 years. Providing training manuals in the local dialect also increased the success of the trainings and facilitated the rapid adoption of the technologies and practices taught. Although the conversion process from chemical to organic farming may take some time, farmers are willing to take risks, attributed to the tangible results organic fertilizers manifest and the safety it impose on the farm household health. Moreover, some groups were able to raise funds from Bokashi sales to other farmers, raising the possibility of Bokashi as a viable income-generating project.

6.2.4 Women and Trainings

It was essential that women were enlisted as trainers in the farmer-to-farmer training program. The purpose of this is threefold. First, it is to build the capacity of these individual women as trainers. Second, it is to have women engaged as active participants in the project and ultimately in the community. Third, it is because it is from women that other women will learn best. This was one of the most challenging aspects of the programming as the women in these communities had only limited educated and were quite shy. This was overcome however, as the involvement

of women in every aspect of the project is fundamental to the improvement of the quality of life for the farmers, for the cohesion of the communities, and for overall project success.

The average participation rate of women was 27% in the farmer trainings. At the National level, about 64% of TRP members were women and 26% of the OMT (farmer trainers) were women. This is an encouraging turnout considering that women in the Philippines are culturally not as involved in heavy labour on the farm as the men. Their role revolves more around managing the farm household, performing fuel collecting and cooking duties, managing livestock and assisting with income generation and value added labour for the farm. However, women do perform labour on the farm, and are usually always present during *bayanihan* events where the family or community gathers together to perform a large task such as planting the rice fields. Women's participation in the trainings and project activities is an indicator of their commitment to the project and the improvement of their community, and also of the effectiveness of the trainers in involving them in the training sessions and making them of benefit to both genders. Through farmer training women generally increased their confidence to voice their concerns and opinions on topics on which traditionally men have the final say. They are developing their potential to secure their own livelihood through increased and sustained agricultural production, thereby gaining some measure of economic independence.

6.3 Sustainable Agriculture Learning Farms (SALF's)

The project aimed to establish "Learning Farms" in leading Peoples Organizations. Learning farms combine any of the following approaches to introduce sustainable farming to communities:

- Adaptability trials (new varieties/crops adapted to ecological farming)
- Demonstration of Ecological Farming Systems or EFS (contouring, composting, intercropping, multiple cropping, green manures, soil fertility management etc.)
- Soil fertility enhancement/ nutrient cycle management
- Soil and water conservation (windbreaks, checkdams, drip irrigation, etc.)
- Community seedbanks (living gene bank through ex-situ collection)
- On-farm research and Farmer Breeding
- Livestock (new varieties livestock, poultry, apiculture, sustainable fodder production)
- Weatherproofing farms (reducing vulnerability to vagaries of the weather)
- Nature farming (biodynamic concoctions)
- IGP (Income Generating Projects) – non land based livelihood activities
- Botanical/medicinal plants
- Agro-forestry area (wood plants, fruit trees, etc.)
- Aquaculture/fishponds
- Alternative pest management
- Appropriate technologies and household innovations (farm equipment, on-farm energy, biogas stove, compost toilet, rainwater catchments, biodynamic/anthroposophic preparations of food and herbal medicines, etc.)

Learning farms can broaden development efforts through the integration of several key ideas as techniques on one "regular" farm, with the farmer and the farm at the center of learning in the

community. The concept of a terminal "Model Farm" with one model farmer is avoided. Farmers feel the terminology "Learning Farm" is progressive as it does not create an image that at a certain point a farm is "fully developed or perfect" or encourage superiority among other farmers. A learning farm is an economically viable farm, existing without outside support, and ensures that the development process can be feasibly replicated by other farmers.

The learning-farm approach encourages the exchange and progression of ideas and the constant observation and assessment by the farmer trainer and others farmer volunteers in the community. Additionally, this process greatly stimulates brainstorming sessions in community gatherings where farmer trainers and nearby farmers from other communities assemble in farm cross-site visits. The SALF's also enliven the Filipino tradition of *bayanihan* (community cooperation) and *malasakit sa kapwa* (compassion for others) as it aim towards a sustainable agriculture. Through this, farmers are seen as local scientists in their area, becoming self-reliant on farm technology information, generation, and integration as they become leaders with partner-scientists in agricultural development.

The SALF's established for the PSSA project were coordinated by farmer trainers, Sustainable Agriculture Farmer Research Groups (SAFRGs) and other farmer volunteers who were willing to share their experiences and ideas with other farmers and local communities. In this way, farmer trainers could spend time working on maintaining and improving their own individual farms while strongly supporting community initiatives and enhancing the dynamic sharing of information and local genetic resources in the community. This also established a strong connection between the test trials and the ecological trainings, and was ideal for farm visits and "out of class" site visits.

During and after the implementation of the project, the learning farms were used as part of the training program where small groups of farmers visited learning farms in their region, sometimes staying overnight on the farms. Following these site visits, farmers reported their observations and lessons learned and discussions on how they will improve their own farms. Overall this concept is an important for the development of farmer-led ecological farming research and extension as it enables scarce resources to be used as effectively as possible.

The establishment of four learning farms was the original target made during the initial planning stages of project implementation. However, 45 learning farms have now been identified and developed by farmer members of the local PO's. These farms are situated in Guimaras and the Panay Islands (Aklan, Capiz and Antique). In Ilo ilo province, 29 learning farms are being managed by the four clusters of Hubon Himal-usanon in Guimaras, and 11 learning farms are being managed in the municipalities of Barotac Viejo, Barotac Nuevo and Badiangan. The Province of Aklan has three learning farms and both Capiz and Antique provinces have established one learning farm each. The target of four learning farms was considerably exceeded because the concept became very popular amongst farmer leaders in each community and many of them were eager to establish their farm as a learning farm. *The locations and details of the SALF's in the province of Guimaras are listed below in Table 8.*

Table 8: PSSA Sustainable Agriculture Learning Farms (SALF's) in Guimaras			
SALC number	**Name**	**Location**	**Gender**
Cluster 1 Buenavista, Guimaras			
1	Salvador Mogate	Brgy. Navalas, Buenavista	Male
2	Norberto Fuentivilla	Brgy. Navalas, Buenavista	Male
3	Daniel Dela Cruz Jr.	Brgy. Navalas, Buenavista	Male
4	Carlos Dela Cruz	Brgy. Navalas, Buenavista	Male
5	Felimon Mentoy	Brgy. Navalas, Buenavista	Male
6	Gaudencio Largado	Brgy. San Miguel, Buenavista	Male
7	Dioneto Eñano	Brgy. San Roque, Buenavista	Male
8	Maria Luisa Grio	Brgy. Navalas, Buenavista	Female
Cluster 2 San Lorenzo, Guimaras			
9	Wilfredo Brizal	Brgy. Cabano, San Lorenzo	Male
10	Gildo Diaz	Brgy. Cabano, San Lorenzo	Male
11	Norberto Diaz	Brgy. Cabano, San Lorenzo	Male
12	John Estilo	Brgy. Sebario, San Lorenzo	Male
13	Joel Tacadao	Brgy. Cabano, San Lorenzo	Male
14	Stephen Tacadao	Brgy. Cabano, San Lorenzo	Male
15	Florencio Tacadao	Brgy. M. Chavez, San Lorenzo	Male
16	Roger Vargas	Brgy. Cabano, San Lorenzo	Male
17	Teodolfo Villarua	Brgy. Cabano, San Lorenzo	Male
18	Guillermo Villeza Jr.	Aguilar, San Lorenzo	Male
19	Nicanor Tacadao	Igcawayan, San Lorenzo	Male
Cluster 3 Nueva Valencia & Sibunag, Guimaras			
20	Gerry Garingalao	Brgy. Oracon, Nueva Valencia	Male
21	Fe Gamilong	Brgy. Calaya, Nueva Valencia	Female
22	Efren Gaugano	Brgy. Calaya, Nueva Valencia	Male
23	Desiderio Gapoy	Brgy. Calaya, Nueva Valencia	Male
24	Jose Tapalla	Brgy. San Antonio, Nueva Valencia	Male
Cluster 4 Jordan & Sibunag, Guimaras			
25	Roberto Placido	Brgy. Tanglad, Sibunag	Male
26	Servando Tanaleon	Brgy. Tanglad, Sibunag	Male
27	Alejandro Erpelua	Brgy. Tanglad, Sibunag	Male
28	Juanito Efondo	Brgy. Tanglad, Sibunag	Male
29	Reynaldo Segovia	Brgy. Ayangan, Sibunag	Male

Some learning farms are the existing farms of some of the leading agricultural practitioners and innovators in the area. These farmers are active in local initiatives such as seed conservation, seed improvement, and exchange, particularly in the selection of promising varieties which will undergo crop verification process. Many of the selected farms are not fully developed but have had some level of crop diversification and are in a more advanced state of development in terms of diversification and ecological principles than other farms in the communities. As such, they already represent a valuable learning tool for farmers in order to hasten replications in other farms. During project implementation, farmer-trainers developed and implemented ecological

principles on these learning farms. The SALF's included adaptability trials for native or new and improved seeds, organic (Bokashi) fertilizer incorporation and soil fertility improvement, biodynamic preparation application (nature farming), Income Generating Projects, diversification (agro-forestry, medicinal plants, aquaculture) and demonstration of ecological farming systems. Participatory on-farm research and the enhancement of community seed conservation and dissemination efforts were also deepened. There has also been a great improvement in farmers' access to seeds and field trials of new varieties were undertaken through assessment of planting materials for various agronomic traits, performance and yield. Promising varieties will be increased in coming years into larger field strips through the crop verification process. Farmer breeding for improved varieties adapted to local conditions was also undertaken. Farmer developed appropriate technologies (FDATs) were also implemented in a "trial and error" format, ensuring only technologies and innovations deemed suitable by the farmers themselves were supported. The overall goal is to encourage farmers to take a more active role in developing participatory on-farm research as a tool for accelerating their plant and farming systems improvement. Efforts were also made to further the local understanding of the links between the farmers and the environmental conditions through the farmer training program and field trials.

Farm developments also involved the following areas of importance to more effectively utilize the dry season in the Philippines:

ECO-Rice

A major problem in the Philippines is the frequent failure of the second crop of rice under rain-fed conditions, of which failure rates can reach 50% in some regions. A new ECO-Rice production system, which was conceptualized by farmer trainers and REAP-Canada in 2002 and is now being developed by leading farmers in the Visayas through their on-farm research programs, can help mitigate this problem in rainfed areas and increase production over the entire growing season compared to traditional management. In conventional rice production, land is prepared and rice seed is hand broadcast. The crop matures typically in about 110 days. After harvest, the crop residue is burnt, the land is reworked and seeding occurs within about 10 days of the harvest. The second crop then matures in about 100 days. The total production cycle following the first planting is approximately 220 days. In the Eco-Rice system, Biological Nitrogen Fixing (BNF) varieties are planted, the rice is transplanted at 10 days of age and managed under a modified version of the System of Rice Intensification (SRI) and the first crop matures about 110 days after transplanting. The crop is then ratooned and the second crop matures in about 70 days. The total production cycle is about 180 days. This shortened period of approximately 40 days greatly reduces the risk of the second crop being affected by drought. As well it generally enables sufficient moisture to remain in the growing season to plant vegetables and grain legumes after the second crop rice harvest. The System of Rice Intensification also is contributing to increased productivity of the first crop.

Initial trials in the project areas using the SRI approach identified some problems related to its application in the Philippines. In conventional systems, the seedlings are transplanted in groups of three seedlings per hill at a later growth stage (30-60 days old). In SRI, rice seedlings are transplanted at a younger age (approximately 15 days old), with only one seedling planted per hill. The main vulnerability with the SRI approach in the Philippines was the presence of the golden snail, a serious pest in rice paddies that feeds on young rice seedlings. Through farmer-

led experimentation during the course of the PSSA project, an adaptation of the SRI technique referred to as the Modified Early Planting System (MEPS) has been tested as a preferable option to the original SRI system. This system is optimized to control golden snail problems while also reducing the length of the growing season. It involves transplanting seedlings at a slightly later age than in SRI (less than 15 day-old seedlings), although still much earlier than in conventional systems. It also requires draining all water from the fields for a period of 10 days after transplanting. The lack of water causes golden snails to bury themselves in the mud where they cannot do any damage. During this time seedlings mature past the stage when they are vulnerable to this pest. The snails then function as "weeders" attacking young weeds. Farmers similarly use the leaves of taro root as a trap crop thrown into the rice fields to lure away snails from the rice seedlings until they are mature enough to withstand damage. These localized adaptations of established practices to local conditions testifies to the inherent knowledge many farmers have of their local agro-ecosystems. Encouraging farmers to pursue on-farm research is one of the lasting benefits of the project.

Approximately 5 varieties of ECO-Rice with the suspected BNF character have been identified that are adapted to SRI and ratooning and were tested through this project. It was observed by the farmer breeders that varieties with the BNF trait also have high ratooning potential as they re-grow readily without N-fertilizer. The use of BNF varieties will allow a decrease in urea both synthetic and organic N-fertilizers. This is a positive trait for farm finances because it reduces fertilizer expenditures. There are also numerous environmental benefits entailed by reducing the application of nitrogen which is the main nutrient supplied to rice crops. This reduces nitrogen runoff to surface waters and leaching to groundwater and associated contamination. It also helps reduce the quantity of the greenhouse gas N_2O produced in rice fields from soil emissions.

Breeding of rice varieties with good performance in the ratooning crop cycle was also undertaken. These have both benefits for farmers and for the environment as farmers can save on labour and energy expenditures because they do not have to work the soil between the two rice cops and do not have to transplant a new crop of seedlings. Ratooning is also a good practice for preserving soil structure by reducing the amount of tillage required. Ratooning also ensures crop residue burning does not take place, which reduces greenhouse gas emissions and particulate matter released to the atmosphere. One of the outputs regarding ratooning rice species was the production of a detailed research protocol for farmer-breeders to use in the selection of rice varieties for use in ratoon crops. This protocol allows for the collection of quantitative agronomic data for the identification of varieties possessing desired traits relating yielding, days to maturity and pest resistance. *Please refer to Appendix 7 for a detailed description of ECO-rice and ratooning researching conducted under the project.*

Legumes and Vegetables

There is significant potential for the Philippines to grow and consume directly more legumes such as peanut, soybean, pigeon pea and mungbean to improve the protein status of communities. In particular there is significant scope for expanding soybean cultivation. Soybean works well as a crop following rice production and is well adapted to the clay soils of the rice basket in the Visayas. Locally-developed legume varieties (by the formal institutions in the Philippines) as well as its traditional varieties (especially cowpeas, pole beans, pigeon peas, etc.) were assessed to determine if such crops can be accepted by local people thus help improve the protein status of communities.

Throughout the project duration, particular attention was given to mungbean ('Pag-asa' variety) assessment. At present, the 'Pag-asa' variety is being used as a seed source and planting material for mass production. Primary use of legumes in community areas is its utilization through intercropping and relay cropping, attributed to its ability to bring back loss nitrogen in the soil (nitrogen-fixing ability). Local initiatives have been on the move for acquiring a suitable yellow mungbean variety, due to its known wide adaptability and high market demand. Legume assessment on other legume crops is in progress, as suitable genetic stock and farmers' acceptability are both of fundamental concern in selecting such leguminous crops.

New varieties of principle vegetables for food security were introduced under ecological management in the adaptability trials. A production guide for vegetables including bittergourd, squash, tomato, cassava, corn, peanut, okra, sponge gourd, pechay, cucumber, hot pepper, papaya, bush stringbean, pole stringbean and eggplant was also distributed to farmer trainers. Efforts were made to identify cultivars with pest resistance and drought tolerance, as these are major problems found in local vegetable production. Seeds from the identified cultivars were collected and will be multiplied by farmers in the future. *Please refer to Table 9 for a detailed list of legumes and vegetables assessed in the adaptability trials.*

Table 9: Seeds Distributed as Planting Material in the Adaptability Trials

Name (Local)	Name (English)	Variety	Name (Scientific)	Means of Propagation
Munggo	Mungbean	Pag-asa 7	Vigna radiata	Seed
Mais	Corn	Super sweet	Zea mays	Seed
Okra	Lady's finger	Smooth green	Hibiscus esculentus	Seed
Sitao	String bean	UPLB-PS 2	Vigna sesquipedalis	Seed
Talong	Eggplant	Mistisa	Solanum melongena	Seed

The development of community seed banks and local seed distribution will continue to be supported by the trials on the learning farms and the training of local farmers in seed conservation and plant material replication.

Composting and Organic Fertilizer Mass Production

Chemical fertilizers' contribution in obtaining high crop yield is significant and because of this, its share in the total costs of production is also high at 40-45% in 2004. Farmers do not apply the same amount of fertilizer in their crop every year and decrease the amount of fertilizer applied according to their yearly budgets. Reductions can decrease crop yield considerably and these continuing price increases threaten the food security. Yield reduction also means reduced employment in harvesting and post-harvest activities in the rural areas where poverty and unemployment are already severe. The synthesis, manufacture, transport, hauling and distribution of chemical fertilizers utilize fossil fuel oil. Thus, as oil prices increase, the price of chemical fertilizers also increases. Moreover, the price of imported chemical fertilizer increases due to Peso-Dollar exchange rate adjustments. This considerable increase in the price of

chemical fertilizers can not be avoided and its negative impact on agricultural crop production is certain unless cheaper alternative sources of nutrients are made available to farmers.

The Bokashi organic soil amendment has proved extremely useful for reducing chemical fertilizer use, beginning the soil rehabilitation process on farms and initiating the conversion to organic agriculture. As the long term use of inorganic fertilizers results in a soil that is impoverished in terms of organic matter content, microbial activities and structure, the first years of organic cultivation are frequently characterized by lower yields and reduced farm income until the soil has been restored. This is a particularly serious concern on small-scale farms whose primary function is to provide for the nutritional needs of a family. Funds are not always available to supplement nutritional shortfalls engendered by short term yield decreases. It is therefore important to accelerate the restoration of the soil so as to render the conversion to organic agriculture feasible for small landowners by reducing the associated risk.

The main goal of this project is to help sustain and to improve further crop yield by producing organic fertilizer, contributing to the national aims of food security, rural employment, and a vibrant rural economy in the Philippines. Simultaneously, through this technique of using manures in organic fertilizer and Bokashi production, the odor associated with livestock & poultry production generating health, environmental and social problems can be minimized and eliminated. This is also consistent with the Philippines national agenda, addressing job creation in the rural sector where poverty, unemployment, malnutrition/ hunger incidences are more severe compared to the urban areas.

Participatory research was also introduced into the Bokashi program. Feedback collected through participatory workshop sessions, on-job-teaching and establishment of learning farms showed an encouraging response in all project communities. *Results of Bokashi production and application reported by farmers and farmer leaders are outlined in Table 10.*

Table 10. Reported impacts of Bokashi application from various organic farms

Province	Municipality or organization	Reported Bokashi-Related Impacts
Capiz	Mansakol, Sigma	• Bokashi application on rice fields (sown with farmer bred rice varieties) resulted in farm yields of 60-100 cavans* per hectare, a dramatic increase when compared with conventional farms in the area averaging yields of 40 cavans/ha. *(*1 Cavan = 50 Kg)*
Guimaras	Oracon, Nueva Valencia	• The effectiveness of Bokashi fertilization was very evident when applied to low fertility upland soil.
	Cabano, San Lorenzo	• Bokashi fertilization was very effective in lowland rice cultivation.
	Navalas, Buenavista	• Application of Bokashi on corn stunted by a 1 month drought resulted in a recovery of the crop. This is not generally possible with the use of chemical fertilizers.
	Clusters 3 & 4	• Fundraising was accomplished through the sale of Bokashi. Farmers felt it had excellent potential as an income generating project.
	Clusters 1, 2, 3 & 4	• Of 26 farms surveyed, 14 reported adopting the use of Bokashi.
Aklan	Batan	• Bokashi was found to be an effective fertilizer for many other crops

		other than rice including ornamentals and vegetables.
Iloilo	San Julian Multipurpose Cooperative in Badiangan	• Fundraising was accomplished through the sale of Bokashi. Farmers felt it had excellent potential as an income generating project.

The PSSA project encouraged the interest of large number of participants in organic fertilizer production, who collaborated in the mass production of Bokashi compost. These practices were of such interest as they demonstrated immediate yield increases, decreased cost of fertilization relative to the purchase of synthetic fertilizer inputs and provided a much-needed increase in farm revenue, especially considering the current low prices of main crop products such as rice.

Improvement in the Bokashi and Nature farming training manuals and procedures (including the utilization of different kinds of animal manure, sugarcane mudpress and rice byproducts) has been completed. *Please refer to Appendix 6 for the handbook on nature farming including how to make Bokashi fertilizer.* Resource sharing programs have also been established in order for different communities to assist each other in the provision of resources for Bokashi production. Seasonal availability of resources has been accounted for in order to create different preparation procedures for different times of the cropping cycle

Overall, the most positive aspect of the Bokashi research and development program was the high practicality and ease of use of this technology. In combination with positive outputs and low cost, Bokashi gave hope and motivation to farmers towards the adoption of other sustainable agriculture practices. The identification of effective nutrient sources that are less costly and more effective than chemical inputs greatly minimizes the risk during the transition period from conventional to sustainable agriculture.

Establishment of Sustainable Agriculture Learning Centers (SALC's)

Sustainable Agriculture Learning Centers are farms whose functions are similar to SALF's but have a wider scope. SALC's were formed to have a center of activities for the organization and a focal point for all learning farms in the province arose. The level of learning occurring there is much deeper, emphasizing the integration of various components in the farm, with all farm inputs used being produced internally. The SALC's also serve as a site for genetic conservation for both lowland and upland crops in addition to being used for breeding purposes, on farm research and income generating projects. At least five of the components listed above for inclusion in SALF's above should be included in a SALC.

One SALC was established in Guimaras in Brgy. Calaya, Town of Nueva Valencia, donated by Sixto Gaugano for the project. All local building materials (timber, bamboo) and labour to construct training facilities at the SALC was provided for by the PO members themselves as a counterpart to the project. Activities at SALC sites emphasize sustainable agriculture, prohibition of GMOs/GE crops, provision of genebanking sites/trial farm areas and community ownership. Another SALC was identified in Ilo-ilo province at the Northern Iloilo Polytechnic State College in Barotac Viejo. At present, the establishment of this SALC is still under development as the focus of the local PO's is on Bokashi mass production, the development of other FDATs and the improvement of their learning farms.

6.4 Community Seed Conservation, Improvement and Dissemination

Community seedbanks are live storage or the active collection of the local genetic base. During project implementation, a target of establishing community seed banks on local learning farms through *ex-situ* conservation has been set. In this approach seeds are not only stored in containers or placed inside bags for storage, but are also planted in a portion of the farm as the seeds continuously adapt to the local conditions of the area. Continuous selection of the genetic material is established to maximize its potential for plant growth, as well as its crop yield. Furthermore, out-planting encourages the continuity of existence of the locally-adapted, improved and indigenous gene-stock and the diversity of existing plant genetic resources.

During the project, locally-available and traditional varieties of fruit trees, leguminous crops, rice, vegetables, among others were propagated, produced and multiplied on the learning farms and disseminated through farmer seed exchanges during cross/site visits. Prior to seed exchange, farmers were required to include seed passport data, which includes the following:

- Name of the variety/seed;
- Date harvested;
- Source of seed/name of collector;
- Distinctive characteristics (such as plant color, seed color/orientation, etc.);
- Ideal planting conditions (such as lowland, upland, rainfed, organically-grown, etc.);
- Usual date of planting
- Other characteristics important to farmers (such as eating quality, resistance to certain pests/diseases, storability, yield production, etc.)

The inclusion of passport data facilitated seed identification and verifiable comparison of genetic material that comes from different sources. Farmer trainers partook in disseminating seed conservation methodologies/practices while preserving farmers' traditional knowledge and utilizing locally-available materials.

Five community seedbanks (CSB) have been developed and established. One is at the Guimaras SALC, to increase the manageability of large number of seed accessions the others are located on learning farms in Iloilo, Aklan, Antique and Capiz. Seeds were stored and planted for safekeeping, multiplication and distribution among members. Community seed conservation and improvement were done through farmer-breeding and enhancement of various crop genetic resources situated in the area. Dissemination was actively done through farmer-to-farmer seed exchange. Some farmers at project sites have expressed difficulty in conserving seeds and other planting materials due to recent El Niño events. To provide a temporary solution, PABINHI distributed seeds from member areas such as Negros Occidental, Aurora, Camarines Sur, and North Cotabato to affected areas. However, seed collection was continuously pursued in the project areas; six varieties of black and red rice and three new varieties of white rice were collected in Aklan, Antique and Capiz. In Iloilo, farmer organizations in Barotac Viejo and Barotac Nuevo continuously collected rice and vegetable seeds, as well as of other species of interest. A total of 25 varieties of rice and vegetables were collected on farmers' learning farms, CSBs and SALC's. Moreover, official seed distribution and exchange was conducted from November 17-21, 2004 at the Hubon Himal-Usanon Sustainable Agriculture Development Program (SADP) Strategic Meeting for Panay and Guimaras. Formal seed exchanges were also

carried out during the PABINHI Trainers' Training in Community Seedbanking in Los Baños, Province of Laguna and local farmer-to-farmer trainings across the Panay and Guimaras Islands. Non-formal seed exchanges were also performed through personal communications among farmers and various local organizations.

Activities also focused on the creation of an inventory of collected rice cultivars, forage grasses, fruit trees and vegetables including more than 50 rice varieties used in the adaptability trials and on organic farms, 4 varieties of forage grasses suited for cattle feeding and 5 major fruit trees widely used by farmers (mango, cashew, local berry, citrus and coconuts). *The inventory of crop genetic resources present on member farms in Guimaras was conducted in September 2005 with the results summarized in Table 11.*

Table 11. Inventory and classes of rice varieties used in production

Type of Rice Variety	Number of varieties used		
	Mass production	**Adaptability trials**	**Organic farms**
Traditional varieties	14	11	5
Farmer bred varieties	9	28	2
Introduced varieties	1	15*	0
High yielding varieties	2	0	0
TOTAL	**26**	**54**	**7**

**12 of these are NERICA (New Rice for Africa) strains*

The rice varieties used in mass production and adaptability trials were inventoried and categorized as being traditional, farmer-bred, introduced or high yielding varieties. The most widely planted category of rice varieties was "traditional" with 14 of these varieties used in mass production. About five traditional varieties were also found to be widely used by organic farms, likely because of the high pre-existing adaptations of these varieties to local soil conditions, cooking practices and other local uses. Two farmer-bred varieties were also widely planted on organic farms while 28 farmer-bred and 11 traditional varieties were evaluated in the adaptability trials, illustrating the high level of dedication and confidence of the farmers in the pursuit of the breeding program. The adaptability trials promote the conservation of genetic diversity of locally adapted rice varieties that may also be used in the future for breeding purposes. *Details of the rice varieties recorded are provided in Appendix 9.*

Among the 54 rice varieties evaluated through the adaptability trials, only Nerica 24, Jasmine Rice and Jasmine 105 adapted successfully to the local conditions, these did particularly well in Brgy. San Julian, Badiangan, Province of Iloilo. Farmer-members obtained some agronomic data during the different stages of rice growth. With regards to crop plants other than rice, a survey administered by PABINHI revealed an abundance varieties, particularly in Guimaras, including trees (for production of fruits, nuts, timber, insecticides and many other uses), vegetables and spices, root crops, medicinal plants, ornamental plants and plants with special or multiple uses. *Please refer to Appendix 10 for details on these species*. This reflects the high level of on-farm biodiversity that has been attained by organic farmers in Guimaras involved in the PSSA project. The presence of 16 plants identified as "medicinal" indicates that the farmers in this area have

knowledge of the use of plants for health purposes. *Please also refer to Appendix 11 for a listing of medicinal plants collected by the farmers.*

The development of the CSB sites for seed conservation represents a major step for ensuring the continuity of the project impacts. The average cultivated area of farms surveyed in the project area varied in size between 0.38 and 5.0 Ha with an average size of 1.65 Ha. Due to this small size, a large proportion of this land is needed to ensure food security and revenue for farm households. The presence of CSB sites relieves the farmers of some of the responsibilities of maintaining seedbanks and performing extensive breeding on their own land, allowing a larger area for their own crops. Furthermore, the implementation of CSB sites in different areas for the genetic conservation of crop plants and agro-forestry species adapted to local conditions is very important. The presence of new CSBs in both upland and lowland areas is a good measure for crop biodiversity conservation due to the high diversity of microclimates and growing conditions in the Philippines. This represents a viable approach to conserving a number of locally adapted crop varieties in the Philippines.

Community Seedbanking Manual.
Community seed banking has been the subject of ongoing work and discussion over the course of the project. During the project, a manual on guidelines for community seedbanking was drafted in order to establish concepts, ideals and principles that are the foundations of PABINHI community seedbanking, while partaking an important role in the social, cultural and spiritual dimensions of sustainable agriculture. Basic principles of seed conservation include the following:

- Seeds were not created by man, therefore, seeds should not be considered to be within the boundaries of ordinary commerce.
- As a whole, seeds are not for sale except for special cases or purposes. It is the product of the seed that is for sale, such as milled rice or processed medicinal products.
- The role of women in community seedbanking is indispensable.
- A diversity of seeds have been created to maintain balance in ecosystems. Our agro-ecosystem therefore should not be limited to only a few varieties or species and should be used to support integral levels of biodiversity vital to the planet.

During the course of the project the infrastructure and educational framework with regards to community seed banking have been established and continuously being fine-tuned to allow a continuous process of seed saving and biodiversity conservation in the communities. *Please refer to Appendix 8 for strategies on establishing a community seedbank (CSB).*

7.0 Project Management

7.1 Project Management and Implementation Structure

The main Philippine implementing agency is PABINHI-Pilipinas. It is supported by the Seed Science and Technology Division (SSTD) of University of the Philippines Los Banos through their technical expertise.

Early in the project, the project partners (REAP, PABINHI and SSTD) developed a detailed workplan for the activities/outputs that they are responsible for. The workplan identified milestones, indicators and expenditures associated with the completion of each activity and was reviewed/monitored on a quarterly basis with corrective actions taken as required.

Please refer to Figure 2 for an illustration of the PSSA project management and implementation structure and Table 12 for a list of project team members

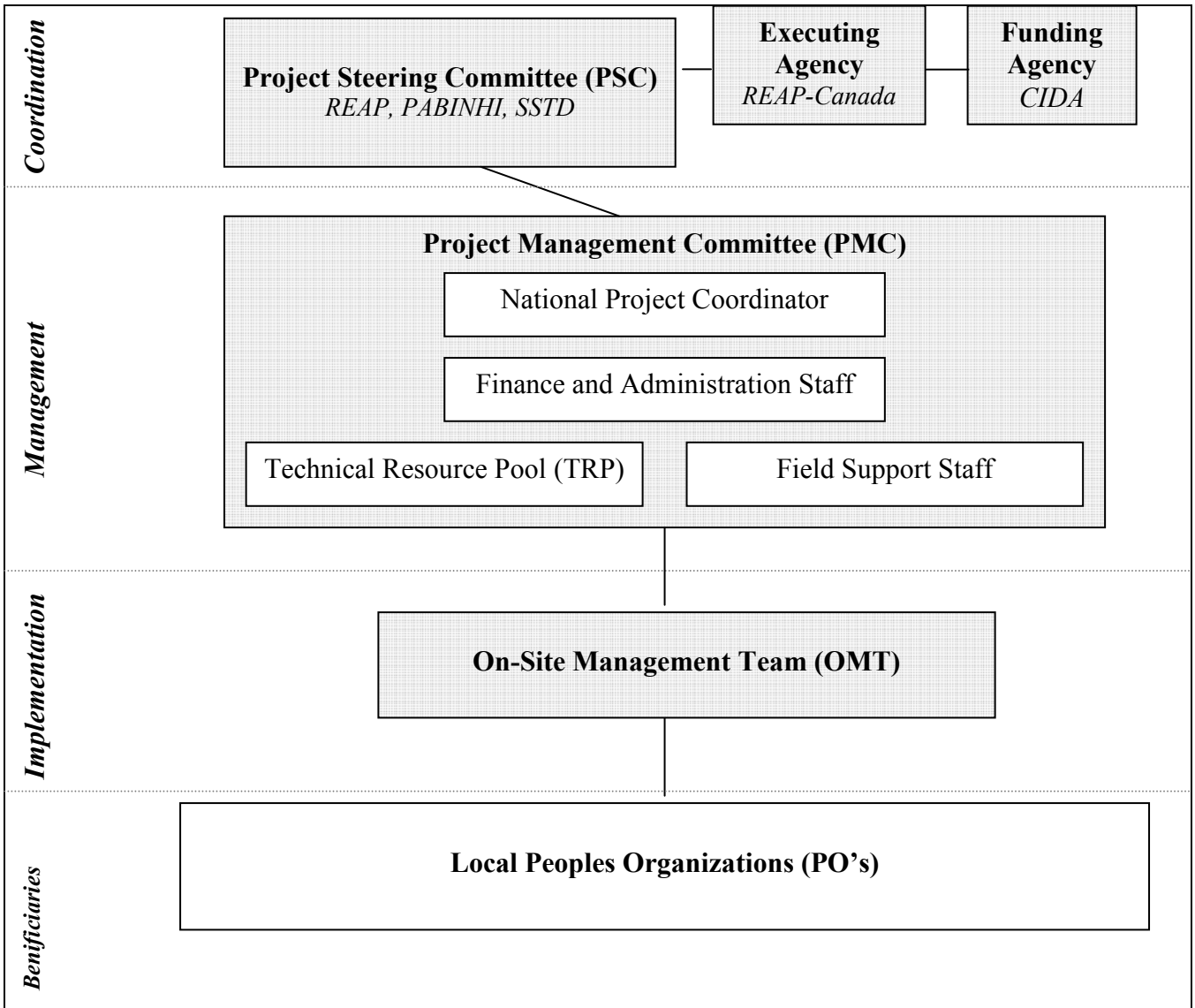

Figure 2: Project Management and Implementation Structure

Project Steering Committee (PSC)

The PSC includes the Canadian partners REAP, PABINHI and SSTD. The committee is responsible for the overall supervision and coordination of the project implementation, field operations, and finances. They are also responsible for the joint project review, assessment and planning, direction setting and policymaking.

Project Management Committee (PMC)
The PMC is responsible for local management of the project at the implementation level. The PMC is headed by the local project implementing partners and also includes financial/administration staff, field support staff and the Technical Resource Pool (TRP).

On-Site Management Team (OMT)
The OMT is composed primarily of provincial community organizers, PO leaders, farmer trainers, local government extension personnel, and other technical persons from the TRP and elsewhere. The OMT is responsible for facilitating project organizing and implementation, coordinating and conducting technical trainings and on-the-job training/coaching, be involved in field implementation and on-farm research and provide a link between the community and the PMC. They are involved in recording the technical trainings (topics, locations, participation, women) and other community activities such as the development of field-level implementation. They also provide feedback and reports during the project assessment and planning sessions on the status of their work to the local project coordinator and PMC.

Technical Resource Pools (TRP)
The PABINHI Technical Resource Pool (TRP) members have expressed their willingness to share their expertise in various areas of sustainable development. The TRP is responsible for assisting farmers develop training modules and appropriate technologies on their farms, and supporting the technical component of the trainings. *Please refer to Appendix 3 for members of the TRP.*

Table 12: PSSA Project Management and Implementation Team Members		
Team or Committee	**Official Project Team Members**	
Project Steering Committee (PMC)	Mr. Roger Samson Ms. Claudia Ho Lem Mr. Leopoldo Guilaran	Dr. Pamela Fernandez Dr. Teodoro Mendoza
Project Management Committee (PMC)	Mr. Leopoldo Guilaran Mr. Irvin Bequillo Ms. Teofila Soriano Dr. Pamela Fernandez Dr. Teodoro Mendoza	Ms. Cherry Blossom Guilaran Ms. Irene Rupac Mr. Emerson Tupaz Mr. Gerry Garingalao
On-Site Management Team (OMT) *(Farmer Trainers)*	**NAME** Mr. Gerry Garingalao Mr. Emerson Tupaz Mr. Dioneto Eñano Mr. Wilfredo Brizal Ms. Fe Gamilong Mr. Roberto Placido Mr. Guillermo Villeza Jr. Mr. Dioneto Eñano Mr. Desiderio Gapoy Ms. Elena Susan Garingalao Ms. Rosalie Gaugano Ms. Socorro Tanaleon	**DESIGNATION** Provincial Coordinator, Nueva Valencia Provincial Coordinator, Panay Islands President, Buenavista President, San Lorenzo President, Nueva Valencia President, Sibunag Secretary, San Lorenzo Treasurer, Buenavista Auditor, Nueva Valencia TRP, Nueva Valencia Local TRP/Audit Chair, Nueva Valencia Local TRP/Secondary School Teacher

7.2 Roles/Responsibilities of REAP, PABINHI and SSTD.

PABINHI role was to facilitate project implementation at the farm level, ensuring POs were empowered to be full participants in all aspects of the project. PABINHI staff facilitated local implementation of the project and engaged the P.O's on farmer-to-farmer trainings and Sustainable Agriculture Learning Farms (SALF's). The SSTD provided the main technical support for community seed banking, seed production and helped coordinate seed conservation, maintenance, multiplication and distribution. PABINHI as also responsible for the financial reporting and consolidation of Philippine expenditures to REAP, with quarterly and semi-annual and narrative financial reports prepared to track project progress. The SSTD also took part in accounting of project funds and assisted in the preparation of financial reports.

REAP's main role was to provide project monitoring and evaluation, technical support around seed improvement strategies and farming systems diversification and help support training module development. Furthermore, REAP-Canada was responsible for the overall financial and narrative report consolidation for submission to CIDA. Claudia Ho Lem managed the project on behalf of REAP. She is fluent in the local dialect of Illongo and previously worked in the Visayas for 6 months in 2001. The management of this project was facilitated through high level of trust and communication between the partners and their mutual dedication to developing sustainable agriculture in the Philippines.

Project reporting arose from both the PM&E Program and field reports from community organizers and farmer trainers. Program officers were responsible for reporting issues encountered at the community level to the local NGO/PO partners and the project administrators on a monthly

basis. This fed into the monthly updates that took place between the southern partners and REAP-Canada, which were used to track immediate progress and any issues that arose to ensure effective and timely management. The project partners also worked together to develop quarterly financial forecasts. REAP-Canada was responsible for the annual reporting to CIDA, based on the field visits, monthly updates, quarterly reports, and frequent communication that took place between project partners. *The breakdown of the partners roles and responsibilities are outlined in Appendix 2.*

7.3 Resource Requirements

Project Staff

National Project Coordinator: Mr. Leopoldo Guilaran
Has been responsible for coordinating the staff to implement field level activities, conducting field monitoring and evaluation; acting as link between project field officers, OMT, PABINHI Staff, SSTD and REAP staff, networked with other like-minded groups to further projects goals and objectives; facilitated technical assistance to the POs (financial management, trainings-SALF Establishment); ensured the submission of reports to the Funding Agency and to the BOT (Board of Trustees); and been responsible for approving fund disbursements and releases, and finalizing financial reports.

Assistant Project Coordinator: Mr. Rogelio Bantiles
Supported project coordinator in facilitating implementation of field level activities, conducting field monitoring and evaluation, communicating with project field officers, OMT, PABINHI Staff, SSTD and REAP staff, and networking with other like-minded groups; supervising the collection and consolidation of technical reports, information, communications or data for monitoring and evaluation; prepared project proposals and documents for BOT meetings; and supervised International Interns.

Technical/Admin/Finance Support Staff: Mr. Irvin Bequillo
Facilitated and assisted the OMT in the technical trainings and on-farm research through data collection, consolidation and analysis (including inventories of seedbanks and production/propagation sites, and characterization of seeds); consolidated technical reports, information, communications or data for monitoring and evaluation; tapped volunteers and oversaw and approved disbursements for regular operating expenses (apartment rental, water & electric bills, supplies and communications) within the budget allocations.

Admin & Finance Support Staff - Ms. Teofila Soriano,
Provided assistance in project administration and helped define Systems and Policies on office management; assisted in reviewing project proposals, reports and financial status, as well as overall report consolidation.

Technical Resource Pool Coordinators - Dr. Pamela Fernandez and Dr. Teodoro Mendoza
Provided technical assistance on project management and implementation, training module and proposal development, and monitoring and evaluation including overall project reporting; assisted in designing monitoring tools for on-farm research and project implementation and acted as administrative coordinators in the absence of project manager; networked with other like-

minded groups who can further the projects goals and objectives and deepen the project Technical Resource Pool (TRP).

Finance Support Staff (Bookkeeper) - Ms. Irene Rupac
Responsible for the consolidation of Southern Partners' expenses and preparation of financial reports and recording of financial transactions such as cash receipts and cash disbursements.

Field Support Staff- Mr. Emerson Tupaz (Panay) and Mr. Gerry Garingalao (Guimaras)
Based in their respective local community, they were responsible for facilitating organizational strengthening activities, farmer-to-farmer trainings, preparations for technical interventions, and monitoring of project activities and field implementation.

Canadian Project Manager – Claudia Ho Lem, REAP-Canada
Responsible for overall written and financial reporting of the project to CIDA; oversaw project management and implementation; also responsible for facilitating the appropriate arrangements for the roles and responsibilities of the Canadian partner as described.

Canadian Agronomist – Roger Samson, Executive Director, REAP-Canada
Responsible for technical agronomical guidance and for co-facilitating the appropriate arrangements for the roles and responsibilities of the Canadian partner as described.

Canadian International Interns – Christina Rehbein and Helen Jensen, REAP-Canada
Responsible for technical research on ecological agriculture related to project initiatives. Also provide a support role in administering REAP's roles and responsibilities to the project and involved in coordinating with project partners on narrative reports, proposal development and project monitoring and evaluation.

Farmer Trainers
Local farmers selected and trained to deliver project trainings to community on sustainable agricultural techniques including soil and water conservation, re-vegetation, and diversified farming. Farmer trainers included both experienced farmer trainers and trainers in training.

7.4 Project Monitoring, Evaluation and Reporting

Meetings at National Level

Project Implementation and Work Plan Levelling-off Meeting
Early on in the project, meetings clarifying project implementation were conducted at the Department of Agronomy in UPLB. The activity was attended by PABINHI Pilipinas staff Leopoldo Guilaran, Rene Jaranilla and Irvin Bequillo. Attending from the Seed Science and Technology Division (SSTD) were Dr. Pamela Fernandez, Prof. Ma. Fatima O. Mercado, Ms. Lucille de Guzman and Ms. Annalissa Aquino together with Dr. Teodoro Mendoza while REAP-Canada was represented by Ms. Claudia Ho Lem. There were 3 follow-up meetings conducted on the first half of PSSA implementation for the updating, monitoring and orientation on the project to the PABINHI Board of Trustees (BOT). The main objective of these meetings was to clarify the project areas, components and roles needed for institutions and staff in the

implementation of the PSSA project. *Implementation of target activities in the project sites were scheduled with details of the planned results referred to in Appendices 4 and 5.*

Meetings at Local Level

Regular meetings at the grassroots level mainly focused on orientations, workshops, levelling-off, monitoring and assessments of project objectives, activities, implementation and achievements. Furthermore, planning and preparations for the regional/local trainings were discussed and strategized in the project sites.

Local Monitoring and Evaluation

Careful monitoring of performance indicators is essential to the success of development programming. The PSSA Project employed a Participatory Monitoring and Evaluation (PM&E), that was developed and maintained by project proponents and beneficiaries. This PM&E program was used on an ongoing basis to monitor important indicators, validate the project action plan, assess the direction of the project, make management adjustments, elucidate procedures and ensure the ongoing capacity building of the local Peoples Organizations (PO's). Some indicators that were monitored using PM&E methods include agro-biodiversity, implementation of farm activities, farmer training effectiveness, progress on the SALF's including adaptability and accessibility of improved seed varieties and the seed banks, and local perceptions of project efforts.

Spearheaded by Mr. Leopoldo Guilaran and assisted by Mr. Gerry Garingalao and the Guimaras On-site Management Team (OMT), monitoring and assessment were conducted in the project sites particularly in Guimaras and Iloilo. Iloilo and the rest of Panay Islands were handled by Mr. Emerson Tupaz. Monitoring and evaluation tools for PO development were drafted by Dr. Teodoro Mendoza and Dr. Pamela Fernandez and finalized after incorporating comments/feedback from the rest of Project Management Committee (PMC) members.

8.0 Gender Equality and Gender Analysis

The project mainly focuses on activities that will help empower women through increasing their capacity, family food security and livelihood opportunities through improved production and more diversified income on the farm. The project engaged local women, farmer trainers and trainees and set participation targets for each of these groups in the project.

Previous work by REAP in the Philippines indicated ecological farming and crop diversification adopted by individual farming families, has the potential to positively change the lives of women. The farming woman's traditional role as farm family caregiver is made easier as crop diversification creates a higher family income. This money can be used to fund children's education, buy food and supplies for the family and carry out household improvement. Diversification also generates a wider variety of nutritious foods for home consumption, contributing to food security and improving the health of women and their families. Finally, farm ecologization improves women's livelihood opportunities. Expanding into vegetable production creates interesting employment opportunities for women selling their products at local markets.

Women have been involved in all aspects the project, from acting in conceptualization to being a project beneficiary. Female participation in project management, leadership in people's organizations, farmer training, and as participants in farmer-to-farmer training sessions has been high with 45% of project staff as women and 26% of the OMT (farmer trainers) as women. The local project team was successful in recruiting a female Monitoring and Evaluation officer and two female Community Organizers. REAP-Canada also secured a female Canadian Project Manager and two female International Interns to work on the project. Women also began assuming leadership roles in local Peoples Organizations, as can be observed in the ratio of one out of four (1:4) farmer leaders. Additionally, 64% of the TRP members participating in the Trainers' Training were also women. These are encouraging results considering that women in the Philippines are culturally not as involved in heavy labour on the farm as the men. Their role revolves more around managing the farm household, performing fuel collecting and cooking duties, managing livestock and assisting with income generation and value added labour for the farm. However, women do perform labour on the farm, and are usually always present during *bayanihan* events where the family or community gathers together to perform a large task such as planting the rice fields.

Efforts were made to facilitate both male and female participation in all decisions regarding farm development and project management. Both men and women were equally represented in the strategic planning sessions through which the project has been evaluated and strengthened. Project information has been collected in a gender-segregated manner to better understand any potential impacts of the project on both sexes, ages and socio-economic bracket. Gender has been a cross cutting issue which was being mainstreamed during the implementation of project activities. A gender strategy was developed for the project which put emphasis on bridging the disparity between men and women. In so doing, the women who are most marginalized, are given more consideration ensuring women's empowerment in the communities. The long-term impacts of the project will continue the active participation of both men and women in communities to ensure they gain balanced control over their family and individual well-being.

9.0. Problems Encountered, Lessons Learned and Recommendations

From our previous experience working in the Philippines, it was found that farmers have limited interest in attending theoretical sessions that lack practical outcomes. The PSSA Project has employed a novel participatory approach, holding theoretical strategic-planning sessions in conjunction with other technical trainings including fertilizer production so that farmers will feel as if they not only contributed something, but were also able to learn something of practical value while attending the training session.

The use of local dialect as a medium of language in training materials used in the project has deepened and strengthened the localization and adaptation of training objectives at grassroots level. The project will continue to ensure that reading materials are written and printed in the local dialect, particularly in regional and local trainings.

There was some difficulty experienced in consolidating the semi-annual written report from the project field sites due to insufficient knowledge of the OMT in report preparation. This was minimized in the preparation of the final report through the delivery of on-site Project and Financial Management Training and on-the-job coaching for the OMT in preparation for writing

the final report. Moreover, OMT coordinators, as well as PABINHI staff now keep daily records for any project activities being undertaken and people participating in project events which has dramatically improved project monitoring and consolidation.

Farmers at project sites have expressed difficulty in conserving seeds and other planting materials due to the El Niño phenomenon. There has been difficulty in maintaining diverse rice cultivars, with forage grasses not yet widely propagated and only few vegetable seeds available in the locality. Nursery sites for forage grasses and vegetable seeds propagation were identified and active seed dispersal has been established through farmer-to-farmer seed exchange. Seeds planted for multiplication and distribution were required to be outsourced. PABINHI distributed some seeds from other member areas such as Negros Occidental, Aurora, Camarines Sur, and North Cotabato. Furthermore, adaptability trial and varietal improvement has been set-up in San Julian, Badiangan, Iloilo. More than 50 rice varieties were identified and collected for organic rice production in various project sites from Negros and from other areas outside the Visayas that are adaptable to the weather conditions. A trainers' training on community seedbanking was also undertaken, with the SSTD-UPLB, to address problems related to seed and community seedbanking.

One farmer cooperator who initially volunteered a portion of his farm for a SALC backed out upon being convinced by some local officials to use his farm as field-testing site for GE (genetically engineered) crops. The initial agreement with PABINHI was cancelled and the OMT identified new sites for SALC establishment. To avoid this in the future, the project implemented a policy to establish a Memorandum of Understanding (MOU) with farm owners for SALC sites to avoid conflicts in the future. Installation of policies, criteria for SALC selection, roles and functions of the key persons have been established and will be completed prior to full implementation. Likewise, local counterparting, support from the municipal government, LGU and the Church can help implement SALC development and monitoring.

The OMT has expressed difficulty in the monitoring process due to relative distances of target areas, limitations in the local transport system and constraints in travel and living resources. Despite local counterparts committed, projects funds focus on activities rather than monitoring and evaluation. In the future, allocation of resources must accurately reflect the actual costs associated with monitoring, assessment and report consolidation for project activities. Capacity building around monitoring and assessment must also be integrated into both project activities and other PABINHI activities.

The increasing adoption of Bokashi is due to many of its remarkable features including: the low production cost, short production time, materials that are locally available, rapidly effective on crops and the high cost of chemical farm inputs. Large-scale Bokashi production also increased community participation and cooperation and greatly strengthened infrastructure and communication between and within beneficiary communities. Bokashi attracted the curiosity, interest and support from villagers and officials of Department of Agriculture in the Provinces of Guimaras, Iloilo and Aklan, who have since attended and requested Bokashi training series. The versatility of Bokashi and other organic fertilizers appealed to many local chemical-based farmers, the majority of which have been exposed to chemical fertilizers for over 30 years. Because of its powerful soil restoration properties, Bokashi is an important method that can

make the conversion to organic agriculture feasible for small landowners by reducing the associated risk.

To support the continuing development and enhancement of sustainable agriculture practices and community seedbanks, it is critical to involve farmers in participatory on-farm experimentation, research and development. Extensive research and implementation of organic fertilizer production, eco-rice management, seed conservation and multiplication, and adaptability and breeding trials must be developed at the local level. Learning farms and community seed banks (CSBs) are an effective and low-cost way to integrate practical rural development into rural areas.

A major problem for PABINHI towards the end of the project was staff turnover. Many staff were forced to take positions with other agencies because of uncertainties with future funding. For young organizations like PABINHI, it was regrettable that Agriculture funding through CIDA was not continued as the program had significant impact.

10.0 Public Engagement

Efforts are being made to ensure the public becomes aware of the PSSA development approach, with the methods and results of the project broadcast locally in the communities, regionally in and nationally throughout the Philippines, and internationally in Canada. In the Philippines, this includes outreach to the local outlying communities, as well as furthering ties and networking between other developmental and governmental organizations both locally, and nationally to improve their understanding of holistic agricultural programming.

PABINHI and SSTD participated as both exhibitor and participants during workshops in the Karangalan Festival held at the Cultural Center of the Philippines (CCP). This was attended by PABINHI and SSTD staff together with student volunteers for the purpose of promoting the PSSA Project approach and exploring possible linkages with other organizations, while gaining new insights on the positive initiatives all over the country taken by individuals and groups contribute in creating a better Philippines. During the project, PABINHI farmers were also invited by various provincial, municipal and barangay government units, civil society organizations (CSOs), NGOs, LGUs, church organizations, and other like-minded individuals in conducting trainings particularly on system of rice intensification (SRI), Bokashi production, nature farming, alternative pest management (APM), farmer breeding for rice and corn, and other sustainable agriculture practices. Such invitations and exposures have further enabled the integrity of PABINHI farmers as active participants on sustainable agriculture. Moreover, their participatory method of “teaching by example” has made them the leading technical support for sustainable agriculture, not only at the grassroots level but also on the national and international scene.

Over the past four years REAP-Canada has participated in considerable public outreach, both within Canada and internationally. Public presentations, seminars, articles, a newly revised website (www.reap-canada.com) and an annual newsletter by the organization have exposed a wide audience to their programming. REAP-Canada’s office location on the Macdonald campus of McGill University provides an ideal location to increase awareness of the project to the university community and to introduce students to the field of sustainable development. REAP-

Canada regularly attends conferences in Canada where project results are shared. The project outcomes will continue to be shared with others in the development community, both in the Philippines and abroad, so that any lessons learned may be applied elsewhere.

REAP-Canada also hosts an International Youth Internship Program (IYIP) funded by CIDA. This program has already sent nine interns on 6-month secondments in the Philippines, working to support project implementation and transfer international skills and information. When the interns arrive back, they promote our projects and the Internship program through CIDA's Youth Zone opportunities. Two more interns are scheduled to be placed in the Philippines next year.

11.0 Project Reach and Sustainability

The primary objective of this partnership is to support the implementation of low-cost, bottom-up approaches to agricultural development, capacity building and the preservation of local knowledge that can easily be replicated in other areas. The transfer of sustainable agriculture techniques to communities as a whole ensures greater household self-reliance through increased income and opportunities, and less dependency on outside assistance for continuing development. The project aims to improve the capacity and self-sufficiency of the PABINHI network of POs' to develop their social, environment, technical, and economic community base, strengthening relations between government offices, research institutes, technicians and farmers, and between men and women. The investment in strengthening farmers' institutions and participatory training programs are key features that continue the development process beyond the project's lifespan. The emphasis on ecological farming systems, environmental rehabilitation, and capacity enhancement will also ensure the long term protection and regeneration of the agro-ecosystems from which the rural communities economies can continue to evolve.

The PSSA project was initially anticipated as a one-year effort to be followed up by additional partnership proposals, with both REAP and UPLB supporting a continued partnership with the local Peoples Organizations (POs'). REAP considers the Philippines an excellent learning grounds internationally in the field of sustainable agriculture. REAP would like to continue to document successes and share lessons from international experiences in sustainable agriculture with partners in the Philippines on an ongoing basis and to develop projects together when opportunities arise. UPLB also finds the partnership with PABINHI very valuable, as any training is made more relevant and credible with the presence of SA Learning Farms (SALF's). REAP recognizes that the local PO's must phase out assistance for the local communities but believes that project support of ongoing networking and capacity building is a healthy development relationship that will ensure the self-sufficiency of the partners in the future.

APPENDIX 1

PROGRAMMES-PROJETS / ANNUAL PROGRAM-PROJECT PROGRESS REPORT

Project Title: The Philippine Sustainable Seed and Agriculture Development Project

Direction et Division/ Direction and Division **Partnership Branch/ESDP** *Section:* **Agriculture** *Agent de l'ACDI / CIDA Officer:* **Amélie Pruneau**

Partenaire de la DGPC / CPB Partner: **Resource Efficient Agricultural Production (REAP)-Canada**

DÉBUT / START: September 2004 **FIN / END:** March 2006	**PRIORITÉ(S) / PRIORITY(IES):** 40% basic human needs, 20% women in development, 40% the environment	**RÉSULTAT(S) D.G. / BRANCH RESULT(S):** *Alleviation of poverty in rural areas by implementing environmentally friendly measures.*	**PAYS / COUNTRY(IES):** The Philippines
Total Budget: $100,000 **CIDA Contribution**: $ 75,000		**PURPOSES:** To support the development of sustainable agriculture and seed conservation, improvement and dissemination as a means to increase self-reliance, reduce poverty, enhance food security and farm productivity, promote gender equality and reduce environmental degradation.	**BUT(S) / GOAL(S):** To empower farmers organizations to develop sustainable farming systems and seeds in some of the most impoverished areas in the Philippines utilizing community-based participatory assessment, training, research and development methods.

EXPECTED OUTPUTS	ACTUAL OUTPUTS	VARIANCES
1. PRA, PAP and PM&E activities undertaken and local agricultural constraints and community priorities identified action plan adapted for ecological agricultural production. 2. Twenty five (25) farmer-trainers (30% female) trained, sustainable agriculture training modules developed to address local issues and the participation of at least 100 local farmers (30% women) in farmer-to-farmer trainings. 3. At least four (4) Sustainable Agriculture learning farms established for diversification and development of rice, agro-forestry, grain legumes, vegetables and warm season grasses. 4. At least four (4) local community seed banks (CSB's) created	1. Strategic Planning sessions conducted in November of 2004. Goals, responsibilities, and activities of each PO defined and used in the finalization of a project workplan and action plan for ecological agriculture development. PM&E framework developed, PM&E launched with local OMT. Plans continued to be refined and adjusted according to local needs at the regular local and national meetings held during the project. 2. 47 farmer trainers (26% or 12 women) were trained on ecological farming methods using farming training modules adapted and developed through the PSSA project, including one module on seedbanking and another on ECO-rice. Subjects also included nature farming and Bokashi production and incorporated approaches such as on-the-job coaching and on-farm field visits. A total of 672 individual farmer trainings were delivered during the project with an average of 27% female participation (181 individual farmer trainings to women). Farmer trainers were also trained in regular sessions at the local level and also attended on large-scale farmer training on genetic conservation through community seed banking (CSB). 3. 45 Sustainable Agriculture Learning Farms (SALF's) have been identified and developed. The SALF's included adaptability trials for native or new and improved seeds, organic (Bokashi) fertilizer incorporation and soil fertility improvement, biodynamic preparation application (nature farming), Income Generating Projects, diversification (agro-forestry, medicinal plants, aquaculture), Farmer Developed Appropriate Technologies (FDAT's) and demonstration of ecological farming systems. 4. Five Community Seed Banks (CSB's) have been established and developed. The CSB's included live seedbanks and farmer breeding trials. An inventory of varieties of rice, trees, forage grasses, foods and medicinal plants was also prepared	1. Actual outputs coincided with expected outputs. Communities became very active in planning localized training programs. 2. Actual outputs exceeded expected outputs with 47 farmer trainers and 672 training sessions held. 12 women were trained as trainers, exceeding the target of 8. Women trained only reached 27% instead of the targeted 30%, however this is encouraging considering that women in the Philippines are culturally not as involved in heavy labour on the farm as the men. A high number of women were also involved as OMT farmer trainers (26%), TRP (64%) and project staff (45%). REAP-Canada also staffed the project with 3 women. The 2 proposed training modules (ecological rice and seed conservation) were developed and delivered to farmer trainers as planned. 3. Actual outputs exceeded expected outputs considerably with 45 learning farms established, a result of the concept becoming very popular amongst farmer leaders in the communities with many eager to establish their farm as a SALF. SALF's were highly successful with nature farming and Bokashi fertilizer application widely accepted and adopted in many beneficiary communities. 4. Actual outputs exceeded expected outputs with 5 CSB's established (including two SALC's). Seed conservation was actively pursued on the five CSB's and informally on many other learning farms. Farmer breeding was also successful in improving adaptation of varieties to local conditions. The presence of CSB's in both upland and lowland areas is important for crop biodiversity conservation due to the diversity of microclimates and growing conditions in the Philippines.

EXPECTED OUTCOMES	ACTUAL OUTCOMES	VARIANCES
1. Communities build capacity in organization and rural development and project activities address needs of the communities and reflect local potential with increased local ownership. 2. Information exchange between farmers is increased and capacity of farmer trainers to spread knowledge on sustainable agricultural practices is improved. 3. On farm research on improved and/or indigenous/local plant varieties of vegetables, field crops, and tree species, and development of ecological farming practices such as mixed cropping and/or polycropping agro-forestry 4. Improved seed dissemination and increased self-sufficiency in acquiring and conserving agricultural resources.	1. Member Peoples Organizations (PO's) identified and their capacity built around group management, leadership, record keeping, communication, and PM&E activities. The process of building the farmer-to-farmer training network also organized the communities around ecological agricultural and holistic community development. A project workplan that incorporates community priorities identified through local participatory strategic planning sessions was developed. It scheduled ecological agriculture development activities in the communities and the roles and responsibilities of project participants, including beneficiaries. 2. Farmer trainers and PO members participated in trainings to enable them to undertake improved ecological farm management. The farmer training network allowed farmers to greatly increase their capacity in sharing knowledge between them by continued trainings and on-the-job coaching through the PO's. Community-scale production of 33 tonnes of (Bokashi) fertilizer also promoted cooperation between farmers and PO's. 3. 45 Sustainable Agriculture Learning Farms (SALF's) have been developed and diversified, testing production of species including rice, vegetables, agro-forestry, fodders, legumes and vegetables (mungbean, string bean, eggplant, okra) and emphasizing drought tolerance, pest resistance and ecological practices. A production guide for vegetables including bittergourd, squash, tomato, cassava, corn, peanut, okra, sponge gourd, pechay, cucumber, hot pepper, papaya, bush stringbean, pole stringbean and eggplant was also distributed to farmer trainers. 4. The 5 Community Seed Banks included live seed storage and testing of farmer-bred varieties of rice. The training module on seed conservation, multiplication, improvement and dissemination was also completed and delivered to farmer trainers, farmers and PO members.	1. The increase in the communities organizational and development skills capacity occurred as expected during project implementation and is expected to continue after project completion. 2. This activity occurred on schedule and greatly extended the capacity of the national PABINHI farmer-to-farmer training network. Of importance was the establishment of large-scale fertilizer production, which dramatically instilled a sense of cooperation in local communities and considerably facilitated soil restoration and the conversion to ecological farming without any loss of yield. 3. On-farm research and learning farm development occurred on schedule and at pace with the trainings on ecological farming principles. Farmers were very active in monitoring improvements established on learning farms and communicating successes (such as the Bokashi fertilizer) to others. Farmers also heightened their awareness of the importance of on-farm biodiversity and identified native species of importance during the farm surveys. Farmer leaders also eagerly adopted the learning farm concept with many of the establishing SALF's on their personal farms. 4. Seed bank development occurred at pace with the training of PO's and delivery of the seedbanking training. CSB's represent a viable approach to conserving a number of locally adapted crop varieties in the Philippines.

EXPECTED IMPACTS	ACTUAL IMPACTS	VARIANCES
1. Improved ability of local communities to address problems over the long term and sustaining of project initiatives after project completion 2. Trainings encourage the widespread implementation of sustainable farming and seed conservation. 3. Preliminary agricultural diversification provides for increased food security and improved variety of crops produced to supplement nutritional requirements. 4. Improved capacity for communities to engage in seed conservation, improvement dissemination and maintenance.	1. Management structures created through PO development emphasize the ongoing nature of the ecological practices and participatory methods used in the farmer-to-farmer training program. SALC/SALF and CSB establishment was led by farmer trainers of the community, with the support of project teams (OMT), which will ensure they are maintained long after the project is completed. The transfer of sustainable agriculture methods and technical knowledge through farmer-to-farmer training and learning farm development has developed local confidence in ecological agriculture, which will allow the community to approach agricultural constraints together and holistically in the future. 2. Increased communication between farmer trainers and farmers through the PO's has created the mechanism for the spread of ecological principles within the beneficiary communities. Increased participation and cooperation through mass fertilizer production has strengthened infrastructure /communication between and within beneficiary communities. 3. Increased understanding of ecological methods among farmer trainers was evident through the interest generated by the ecological training program and practical nature of the trainings. Increased communication among farmer trainers and tangible, immediate benefits of nature farming (including Bokashi application) and seed conservation program is developing greater interest in ecological agriculture practices in surrounding community farmers. 4. At this stage of project implementation, the SALF's and CSB's have been developed to diversify crop production and increase food security. The capacity building in communities around large-scale organic fertilizer production and preservation and improvement of communities existing genetic resources will enable the conversion to ecological farming to take place at a much faster pace while reducing risks to the farmers themselves.	1. Community development occurred at pace with project implementation plan and is expected to continue after project completion. 2. Spread of ecological orientation and understanding of ecological principles and methods was extremely successful and experienced high levels of acceptance and adoption within the beneficiary communities. 3. Understanding and improvement of ecological farm management has been spread effectively through the farmer-to-farmer training network, with impacts to continue after project completion. 4. The utilization of PM&E methods has shown the effectiveness of the introduced ecological methods at increasing food security and diversity of crops. Surveys have highlighted farmers increased confidence in ecological farming practices and the improved, less-risk conversion process to organic farming. Surveys have also identified the existing genetic resources in communities. Farmer led-seedbanking, research and breeding will ensure this process continues after project completion.

Cross-cutting Themes	EXPECTED OUTCOMES	ACTUAL OUTCOMES
IFD & ÉG / WID&GE	• Increased participation of women in farming communities, including increased access to farming implements and inputs, economic independence through land and production ownership, and increased representation within the sustainable agriculture movement	• The project model inherently supports women having equal opportunity to participate in project activities and act as agents of change through inclusion in project management and implementation. • Women trained reached 27%, a high number considering that women in the Philippines are culturally not as involved in heavy labour on the farm as the men. Their role revolves more around managing the farm household, performing fuel collecting and cooking duties, managing livestock and assisting with income generation and value added labour for the farm. However, women do perform labour on the farm, and are usually always present during *bayanihan* events where the family/community gathers together to perform a large task such as planting the rice fields. • A high number of women were also involved as OMT farmer trainers (26%), TRP (64%) and project staff (45%). • The quality of life of women is expected to improve beyond the lifespan of the project as women engage more fully in the sustainable agriculture movement.
ENVIRONNEMENT / ENVIRONMENT	• Increased understanding of sustainable agriculture techniques and the importance of the environment and diversification in farm management. • Reduced air pollution from crop burning • Reduction of synthetic pesticides • Increased on farm biodiversity • Restoration of forested habitats	• Environmental issues are integrated into all community activities. • Project activities focused on long-term rehabilitation of the land while still allowing short term benefits for farmers to combat poverty and unstable weather by diversifying crop production, rehabilitating soil fertility and maintaining yields through organic fertilizer application, providing and protecting seeds and local genetic heritage through Community Seedbanks, and on-farm research on improved vegetable and field crop varieties. • Nature farming and the use of natural pest control methods by farmers in both communities reduces the concentration of synthetic chemicals, fertilizers and pesticides in the regional land and water. • Increased understanding of the importance of environmental issues by local peoples through the ecological training program and the SALF/SALC and CSB establishment.
ENGAGEMENT DU PUBLIC / PUBLIC ENGAGEMENT	• Domestic and international public exposures to programming to encourage support for development	• Domestic and international presentations and publications inform a large and varied audience of this project that increased public support and engagement in development activities in the Philippines and Canada. • The project and its achievements will be posted on the new REAP-Canada website.

LESSONS LEARNED

1. The PSSA project has employed a novel approach in holding theoretical strategic-planning sessions in conjunction with other technical trainings so that farmers will feel as if they not only contributed something, but were also able to learn something of practical value while attending the training session.
2. The use of local dialect as a medium of language in training materials used in the project has deepened and strengthened the localization and adaptation of training objectives at grassroots level. The project will continue to ensure that reading materials are written and printed in the local dialect, particularly in regional and local trainings.
3. Difficulties in consolidating the written reports from the project sites will be avoided in the future through the delivery of on-site Project and Financial Management Training and on-the-job coaching for the OMT in preparation for writing the final report.
4. The El Niño phenomenon greatly affected the seed trials during the first few moths of the trial. Seeds planted for multiplication and distribution were required to be outsourced. More than 50 rice varieties were eventually collected for organic rice production in various project sites from Negros and from other areas outside the Visayas that are adaptable to the weather conditions. Active seed dispersal was then established through farmer-to-farmer seed exchange.
5. The monitoring process experienced some difficulties due to relatively large distances between target areas, limitations in the local transport system and constraints in travel and living resources. In the future, allocation of resources must accurately reflect the actual costs associated with monitoring, assessment and report consolidation for project activities.
6. The versatility of Bokashi and other organic fertilizers appealed to many local chemical-based farmers, the majority of which have been exposed to chemical fertilizers for over 30 years. Large-scale Bokashi production can also greatly strengthen infrastructure and communication between and within beneficiary communities. Because of its powerful soil restoration properties, Bokashi is an important method that can make the conversion to organic agriculture feasible for small landowners by reducing the associated risk. Bokashi production was a great way to draw members into the project, and the PSSA project was the first significant development effort in Bokashi in the Philippines.
7. To support the continuing development and enhancement of sustainable agriculture practices and community seedbanks, it is critical to involve farmers in on-farm experimentation, research and development. Research and implementation of organic fertilizer production, ECO-rice, seed conservation and multiplication, and adaptability and breeding trials must be developed at the local level. Learning farms and CSB's are an effective and low-cost way to integrate practical rural development into rural areas.
8. PABINHI staff were forced to take positions with other agencies because of uncertainties with future funding. For young organizations like PABINHI, it was regrettable that Agriculture funding through CIDA was not continued as the program had significant impact.

FOR CIDA USE ONLY

Rating of the program or project: *(The rating provides an overview of the program or project progress and performance to date and should be selected based on the **officer's** understanding of the program or project (and not the partners').) Use the % of progress in achieving outputs and outcomes and the following scale:*

- *a - project/program is likely to exceed expected results;*
- *b - project is viable and progressing satisfactorily;*
- *c - project has problems that are manageable;*
- *d - project has serious problems requiring major corrective actions and is unlikely to achieve expected results;*
- *e - unable to rate: provide reason e.g. "Too soon to tell".)*

Financial risks: *(As indicated in last FRAU report.)*

Sign off: Officer _____ Director

Appendix 2: PARTNER ROLES AND RESPONSIBILITIES

Breakdown of the Philippine Sustainable Seed and Agriculture (PSSA) Development Project Partner Roles and Responsibilities				
Roles and Responsibilities *(X indicates responsibility, XX primary responsibility)*	**Project Partners**			
	REAP	**Pabinhi**	**SSTD**	**Peoples Organizations**
Project Management				
Project status reporting and contract mgt with CIDA	**XX**			
Joint project review, assessment and planning	**X**	**XX**	**X**	**X**
Coordination of Implementing Partners	**X**	**XX**	**X**	**X**
Field Level Reporting	**X**	**XX**	**XX**	**X**
Field Site Monitoring	**X**	**XX**	**XX**	**X**
Financial Management				
Overall financial report consolidation to CIDA	**XX**			
Financial report consolidation – Philippine expenditures		**XX**	**X**	**X**
Documentation of finances, bookkeeping and accounting of individual budget allocations	**X**	**X**	**X**	**X**
Institutional Building Process				
Strengthening the capacity of Farmer's Organizations	**X**	**XX**		**X**
Community organizing/education & training	**X**	**X**	**X**	**X**
Farmer to Farmer Training				
Develop training modules	**X**	**XX**	**X**	X
Initial Training of Farmer Trainers	**X**	**XX**	**X**	**X**
Perform farmer-to-farmer trainings		**X**		**XX**
Ongoing Training of Farmer Trainers		**X**	**X**	**XX**
Technical support to farmers' initiatives	**X**	**X**	**X**	X
Develop project gender strategy.	**X**	**XX**	**X**	**X**
Implement project gender strategy.	**X**	**XX**	**X**	**X**
Sustainable Agriculture Learning Farms				
Development of Individual Farms	**X**	**X**		**XX**

Development of Learning Farms Training Network amongst P.O's		**XX**		**X**
Community Seed Conservation, Improvement and Dissemination				
Accessing Germplasm for Evaluation	**X**	**X**	**XX**	**X**
Assessment of germplasm in Adaptability Ttrials	**X**	**XX**	**X**	**XX**
Development of Community Seed Banks		**X**	**XX**	**XX**
Communications and public engagement				
Disseminate information to the public through conferences, publications, websites and presentations to interested parties	**XX**	**X**	**X**	**X**

Appendix 3. Technical Resource Pool (TRP) members of PABINHI-Pilipinas

	Specialization	Highest Degree Attained	University
Agronomy/Horticulture			
1. Ernesto B. Cayaban	▪ Agronomy ▪ Plant Breeding	MSc.	University of the Philippines Los Baños
2. Carmelita Cervantes	▪ Agronomy	Ph.D.	University of the Philippines Los Baños
3. Pamela G. Fernandez	▪ Seed Technology ▪ Crop Physiology ▪ Agroforestry Seeds ▪ Sustainable Agriculture	Ph.D.	University of Nebraska
4. Ma. Fatima O. Mercado	▪ Seed Technology ▪ Agronomy	MSc.	University of the Philippines Los Baños
5. Lucille Parreño-de Guzman	▪ Seed Technology	MSc.	University of the Philippines Los Baños
6. Annalissa Lappay-Aquino	▪ Seed Technology	MSc.	University of the Philippines Los Baños
7. Indihra B. Dimaporo	▪ Seed Technology	MSc. (on-going)	University of the Philippines Los Baños
8. Oscar B. Zamora	▪ Crop Physiology and Production ▪ Sustainable Agriculture ▪ Farming Systems	Ph.D.	University of Queensland
9. Alfinetta Fermina B. Zamora	▪ Agronomy ▪ Tissue Culture and Propagation	MSc. (Ph.D. units)	University of the Philippines Los Baños (University of Queensland)
10. Teodoro C. Mendoza	▪ Crop Physiology and Ecology ▪ Sustainable Agriculture ▪ Farming Systems	Ph.D.	University of the Philippines Los Baños
11. Ma. Lourdes S. Edaño	▪ Agronomy ▪ Sustainable Agriculture	MSc.	University of the Philippines Los Baños
12. Antonio Payonga	▪ Agronomy	Ph.D.	University of the Philippines Los Baños
Entomology			
13. Jose R. Medina	▪ Economic Entomology	Ph.D.	University of Wisconsin, Madison
14. Victor D. Gapud	▪ Systematics Entomology ▪ Cytogenetics ▪ Insect Ecology	Ph.D.	University of Kansas

	Specialization	Highest Degree Attained	University
Agroforestry			

15. Nestor Baguinon	▪ Forest Ecology	Ph.D.	University of the Philippines Los Baños
16. Raymundo T. Lucero	▪ Forest Entomology ▪ Forest Ecology	MSc.	University of the Philippines Los Baños
Animal Science			
17. Mafeo B. Bejo	▪ Animal Science (ruminants)	Ph.D.	University of the Philippines Los Baños
Biology			
18. Ruben Aspiras	▪ Microbiology	Ph.D.	
Community Organizing/Organizational Development			
19. Benilda Albao	▪ Community Development ▪ (Women Studies)	B.S. (MA units)	University of the Philippines Diliman (University of the Philippines Diliman)
20. Ursulina Presbitero	▪ Rural Development Management ▪ Organizational Development	MA (Ph.D. on-going)	University of the Philippines Los Baños (Southeast Asia Interdisciplinary Institute or SAIDI)
Other Areas of Study			
21. Roberto S. Verzola	▪ Electrical Engineering ▪ Computer Programming ▪ Environmental Issues (advocacy)	B.S.	University of the Philippines Diliman
22. Dennis Maliwanag	▪ History ▪ Development Communication ▪ Journalism (by profession)	A.B. B.S.	Divine Word College, Calapan City University of the Philippines Los Baños
23. Irene Rupac	▪ Accountancy	B.S.	Philippine Polytechnic University
24. Dominga Damian	▪ English ▪ Bookkeeper (by profession)	A.B.	Divine Word College, Bangued

Appendix 4. Detailed Implementation Plan of PSSA Activities and Outputs.

ACTIVITY(IES)	PERSON(S) INVOLVED	SCHEDULE	BUDGET ALLOCATION	BUDGET CHARGING*
1. Reconnaissance	Poldo	Oct.-Dec. 2004		FT
2. Scientist site visit	Ted	Feb. 3-5, 2004		TL
3. Project briefing/dialogue/meeting with farmers	Poldo, Claudia	Nov. 29-Dec. 6, '04		FT
4. Scientists, (Seed Science and Technology Division) SSTD staff meeting with Claudia	Ted, Claudia, SSTD Staff, Irvin	Dec. 8-9, 2004		TL
5. Finalization of Sustainable Agriculture Learning Farm (SALF) selection + site assessment	Poldo and scientists	Dec. 2004-Mar. 2005		FT & TL
6. Training on genetic conservation and seed technology and Sustainable Agriculture (SA) ***SSTD's Modified Storyboard*** *a. Seed production* *b. Seed storage* *c. Seed regeneration/ variety maintenance quality improvement* *d. Community seedbank* ***PABINHI-Pilipinas Inc.*** *a. Adaptability trial* *b. On-farm breeding (diff. species)* *c. Variety selection* *d. Best bet crosses* *e. Purification (selection-adaptation breeding)* *f. System of Rice Intensification (SRI)* *g. Nature farming (microorganisms)* *h. Organic fertilizer production and composting aprotech* *i. Crop-livestock (poultry) integration*	 SSTD Staff PABINHI Staff	 April 2005 Jan. – Sept. 2005		 SSTD FT
j. Soil-water conservation(vegetative and structural) *k. Biodynamic farming* *l. Ecological household approaches* *m. On-farm research* *Organizational Development (OD)/Organizational strengthening/Human Resource Development (HRD)-Appreciative Inquiry (AI), Alternative Health, Campaign Advocacy, Technical assistance on on-farm research, Peace and Harmony*	Poldo and farmers	Jan.-Nov. 2005 Dec. '04-Mar. '05 May '05		FT
7. Operationalization of SADP: SALF, Community	Poldo and farmers	Jan.-Nov. 2005		FT

Seedbank a. *Building of seedbank cum training area (2) + other related facility (aprotech facilities)* b. *Staffing* c. *Seed collection and recording* d. *Seed and data remittance to national* e. *Seed planting* f. *Application of Ecological Farming (EF) practices/ systems (BDIFS) actual research and demo farms* g. *Best bet crossing & selection; purification* h. *Seed storage, quality improvement & distribution*		Dec. '04-Mar. '05 May '05		
8. Capacity building, Advocacy, and Networking for Sustainable Agriculture (CANS) Program • Local meeting (strategic) • General Assembly/Trainer's Training • BOT meeting (exclusive and expanded) • Orientation, monitoring, coordination and assessment of OMTs, POs, NMTs and program • Participation in other organization/network activities				FT & TL
9. Farmer-farmer training for individual Ecological Farming System (EFS) or SALF, CSB & CANS	Farmers with Poldo	Mar.-July '05		FT
10. Seminars, Assembly Board of Trustees (BOT) meeting, report making	BOT	Apr.-May '05, Sept./Oct. '05		FT
11. Documentation	NMT, OMT	Nov. '04-Oct. '05		
12. Information sharing + Feedbacking and Interneting, Website Development	All	Nov. '04-Nov. '05		COM
13. Training materials production	Farmers and scientists	Nov. 04-July '05 (updating there after)		FT
14. Monitoring and evaluation from National Management Team (NMT)	NMT, scientists, OMT	Jan., Mar., May, July, Sept.		FT, TL
15. Special events: Preparation for Karangalan Event Karangalan Exhibit	To all but open regulated entrance (with fee)	Dec. '04/Jan. '05 Jan. 21-23, '05		SSTD, CONS

**Note: Codes of the budget charging are as follows; Travel and Living (TL), Farmers Training (FT), Materials & Supplies (MS), Communication (COM), Office Equipment (OE), Consultants (CONS), SSTD Research Support, Documentation and Administration (SSTD).*

Appendix 5. PSSA Project Activity Plan

Project Goal	Activities	Outputs	Schedule
Strengthen the capacity of farmer's organizations in the PABINHI network in some of the most impoverished areas in the Philippines including Panay islands and Guimaras	Public engagement: • attendance and sponsorship of seminars • training-workshops • assist PABINHI in newsletter production and other means of information dissemination	• Attended or held seminar/workshops and documentation (of topics related to alternative genetic/seed conservation, biodynamic farming, health management, Waldorf education, household ecological strategies and techniques, animal integration, HRD, indigenous research, appreciative inquiry. • Attended special events. Visited relevant areas (e.g. permaculture, Biodynamic agriculture and breeding) • newsletter production • website development, etc.	November 2004 to November 2005
	Consolidation of report (financial and technical) • bookkeeping of SSTD funds • check keeping of PABINHI funds • prepare financial report	• SSTD report PABINHI report	July to November 2005
Enhance sustainable agriculture training through development of PABINHI's farmer-to-farmer training network and training modules to support the development of ecological farming systems in the Philippines	Development of Training module by SeedTech and Ted Mendoza	• training modules e.g. modified story board (validated by farmers) on seed • SA approaches by Ted Mendoza	November 2004 to July 2005
	Training on SeedTech & Genetic Conservation for SA (1 wk)	• Trained participants • developed and collected learning materials • collected seeds & IKS • documentation of training	May 2005
	Development of training module by farmers of PABINHI-Pilipinas	• PABINHI training modules (validated by farmers and the academe through SSTD)	November 2004 to September 2005
	PABINHI farmer-to-farmer training (by PABINHI, assisted by SSTD)	• Trained farmer trainers • Wants trainers • developed and collected learning materials, collected seeds & IKS • documentation of training • participatory approach	Monthly
	Learning resources production/ sourcing	• Updated and validated data bases • Tagalog manual on seedtech and genetic	**November 2004 to** September 2005

		conservation, seminars/talks documentation • exhibit materials, videos, CDs, VCD's slides of old and new materials, info on BD seed practices, books, articles written or collected (including updating of previous relevant publication)	
Develop a network of Sustainable Agriculture Learning Farms amongst the peoples organizations as a new mechanism to support farm development	Learning farm establishment and documentation; on-farm participatory research	• SALF's or research farms that are actualizing ecological agriculture or SA principles ($\geq$ 4) and • research data and paper (popular and technical)	December 2004 to October 2005
Support the genetic conservation, distribution, testing and local multiplication of food crops such as: rice, corn, millet, grain legumes, root crops, vegetables and other crops suitable for sustainable farming through an adaptability trial farm approach.	Establishment, monitoring, coordination and evaluation of community seedbanks-CIMMEA-H; • seedbanking (collection, ID) maintenance • seed production/ multiplication	• Seeds (if $\geq$ 10 species) in functional community seedbanks ($\geq$ 5) including field banks • passport data • system of identification, collection, maintenance, multiplication, evaluation, adaptation, hybridization • documentation; shared resources and information	January to September 2005

APPENDIX 9

Rice varieties of different origins currently under production in Guimaras				
Production Regime	**Traditional varieties**	**Farmer bred varieties**	**Introduced varieties**	**High yielding varieties**
Mass Production	Sampaguita Red Sampaguita White Pilit (glutinous white) Pilit Tapol (glutinous black) Milagrosa Pilit 2 Pandan Wangi Tapol Tapol 2 Magdiwata Kamoros Malido (upland) Kotibos (upland) Minantika (glutinous) Red Borong	M8 M5 M6 M131 M132 M133 M92 M15 M21	Jasmine Rice (Thailand)	PSB Rc 10 Ag 5
Adaptability trials	Dinorado Mindoro Galomal Pinulapula Bulata Fortuna Batanguena Abrigo Tres marias Malagaya Kindinga Keneko (upland)	M123 11-3- M115 2B GL 9 C-1 9-2R 17-1 9-2W 16-1-2 6-1-2 6-1-1 15-1-2 4-7-3 16-5-1 7-1 18-3-1 6-2-5 10-1 18-1-2 16-1-4 15-1-5 11-3-6 4-7-2 16-1-2 6-1-2 18-1-4 6-1-4 15-1-3	Jasmine 105 White Jasmine Indonesian Rice NERICA-variety 1 NERICA-variety 2 NERICA-variety 3 NERICA-variety 4 NERICA-variety 5 NERICA-variety 6 NERICA-variety 7 NERICA-variety 8 NERICA-variety 9 NERICA-variety 10 NERICA-variety 11 NERICA-variety 12	None
Organic Farms	Magdiwata Pilit (white) Pilit (black) Milagrosa Sampaguita	M5-CS M6-14		

APPENDIX 10

Tree crops and food use crops identified during the inventory of genetic resources in Guimaras			
Fruit trees	**Trees**	**Vegetables/Spices**	**Root crops**
Mango* (Carabao, Indian) Coconut* Cashew* Duhat* Citrus* • Kalamansi • Oranges • Lemon • Kabugaw Jackfruit Atis Guyabano Guava (Apple, Native) Coffee Macopa Santol Tisa Tsiko Sampalok Rambutan Banana Star apple Papaya Marang	Mahogany* Ipil-ipil* • Native • L. leococyphala, (introduced) • L. diversifolia (introduced) Bangkal Inyam Gmelina (introduced) Narra Lanite Bamboo* Salinkapa Talisay Tipulo Payhod Acacia* • Native • A. auriculiformis (introduced) • A. mangium (introduced) Itang-itang* Neem tree (introduced)	Eggplant Kamote Okra Alugbate Munggo bean Bush sitao bean String bean Gaway-gaway (s. Grandiflora) Malunggay (horse radish) Kalabasa Kadios (pigeon pea) Upo Ampalaya Tomato Spring onion Labog (not cultivated) Saluyot Amaranth Tanglad	Sweet potato Cassava Gabi (taro) Ube (yam) Luya Kayos (wild yam, not cultivated) Banayan (wild yam, not cultivated)

* Dominant species

APPENDIX 11

Medicinal, ornamental, special use and other plant species identified during the inventory of genetic resources in Guimaras.			
Medicinal plants	**Ornamental plants**	**Special/medicinal use plants**	**Other plant species**
Kalooy (native mint) Lampunaya (coleus) Maritana (kataka-taka) Alovera Lagundi Artamesa (damong maria) Hierba Buena Alibhon (sambong) Anino (tree) Tawa-tawa Uyangya Sibukaw (tree) Oregano Salong (tree) Ginseng plant Buyo	Ferns Asparagus Euphorbia Crotons Orchids Daisy Palms Golden rosary Gumamela Roses	Asparagus Palms Bamboo Coconut Duhat Miagos (wild) Rosa sa baybayon Cashew Madre de cacao Ipil-ipil Sampalok Neem tree Luya	Corn Peanuts Forage grasses • Guatemala grass • Napier grass • Guinea grass Forage plants • Calliandra • Rensonii • Ipil-ipil