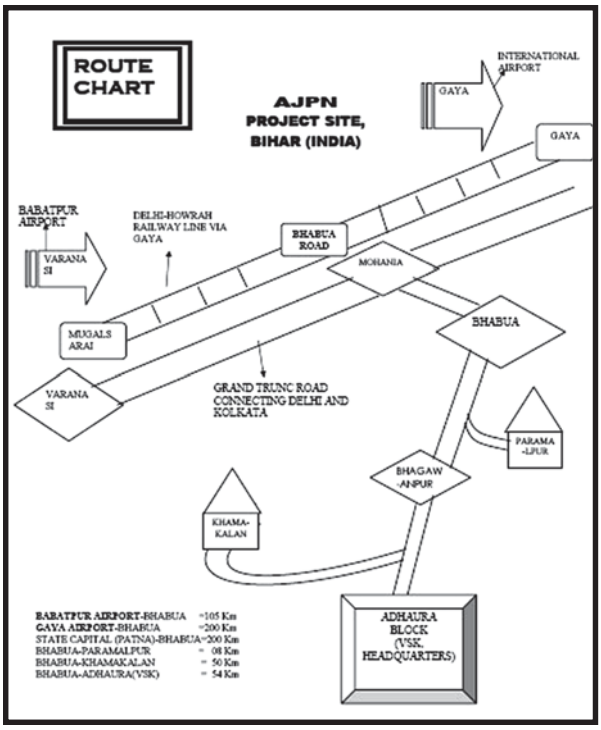


Khamkalan and Parmalpur

Kaimur, Bihar, India

Site Development Plan

Prepared by: Association of Voluntary Agencies for Rural Development (AVARD)

Kaimur's district headquarters, Bhabua, is 105 km. away from Babatpur airport, Varanasi (Uttar Pradesh) and 200 km. away from Gaya International Airport. Two villages were selected for implementation of the program: (1) Parmalpur, 8 km. from Bhabua (Kaimur); and (2) Khamkalan, 50 km. from Bhabua. Both villages are on the Bhabua-Adhaura Road.

As part of the thrust to disseminate Sustainable Agriculture practices among the masses in Kaimur district of Bihar, it was found befitting to adopt two villages at different locations representing different topographies, soil texture and agro-climate condition.

Khamkalan is on Kaimur plateau, which has undulating terrain, rainfed irrigation, and red laterite and sandy loam soil. Forty-five farmers were selected to adopt Sustainable Agriculture techniques in Khamkalan. Major crops are: paddy, niger, sesamum, linseed, pigeon pea, green gram, lentil, tomato, cabbage, cauliflower, chili, cucurbits, and medicinal plants and herbs in the forested areas.

On the other hand, Parmalpur is in plain area, has clay and sandy loam soil and communication and irrigation facilities. Thirty farmers have been selected to introduce appropriate Sustainable Agriculture techniques in Parmalpur. Its major crops are wheat and paddy.

Statistics/Figures

Table 37. **Village Profile**

Particulars	Khamkalan	Paramalpur
Area of the Village *(sq. km.)*	8.47	1.01
Total Population	621	1,418
Total Households	104	190
Male	308	747
Female	313	671
Adapted Households	45	30
a. SC	—	4
b. ST	33	—
c. Others	12	26
Literacy *(%)*	40	85

Table 38. **Income of Farmers *(by types of crop planted)* Compared with Country & State**

Village	Crop	Local *(Qtl/ha)*	State *(Qtl/ha)*	Country *(Qtl/ha)*	Remarks
Khamkalan	Paddy	26.50		20.86	
	Wheat	18.00		27.70	
	Mustard	3.00		9.00	
	Linseed	4.00		8.97	
	Pigeon Pea	8.60		8.65	
	Lentil	6.80		8.65	
	Tomato	96.50		142.00	
	Cauliflower	91.20		174.00	
	Potato	98.40		180.00	
Parmalpur	Paddy	55.00		20.86	
	Wheat	33.00		27.70	
	Mustard	7.00		9.99	
	Linseed	7.00		8.97	
	Lentil	13.00		8.65	

Resource Assessment

Assets of the Project Site

Khamkalan village's major resources are forest, upland, a river (in which Vanvasi Seva Kendra established a Lift Irrigation Scheme), and livestock. Villagers use cow dung as fertilizer. They have an adequate number of cow, buffalo, goat, and chicken.

Its forest teems with medicinal plants and herbs. Forest products such as mahua (Madhuka Indika), chirongi, kendu, aonla, and bel are being collected by villagers for additional income.

Most of the land is upland (about 80 percent), suitable for pulses & vegetables. There is a training center at Adhaura Krishi Vigyan Kendra.

In Parmalpur, 80 percent of the land is in the lowlands and 20 percent is in upland areas, where farmers practice wheat-paddy crop rotation. They have a canal, which caters the need of water in Kharif and Rabi season. Communicational facility and electricity are available. Livestock is also there, but not as much as in Khamkalan. A rice mill is there to help villagers in marketing of paddy. Some farmers have their tube well for irrigation. Annual average rainfall is 1,100 mm.

Structures and Processes

The three-tiered system of panchyath institutions functions at the village, block and district levels.

These institutions are responsible for the development of the communities by implementing government programs for education, agriculture, livestock development, provision of drinking water, housing, and minor irrigation programs. The local panchyaths play a vital role in implementing development programs and act as a bridge between government departments and the people.

For agricultural extension services, a Krishi Viigyan Kendra, a project of the Indian Council of Agricultural Research, is involved in dissemination of technology within the farming community.

Past Agricultural Practices that Have Failed to Improve the Condition/ Increase Income of Farmers

During the last decade, farmers have adopted technologies which consumed a lot of chemical fertilizers and pesticides. As a result, soil textures and fertility decreased, cost of production increased and net income decreased.

The Project Site Development Plan

Goal

The project aimed to promote Sustainable Agriculture as a means of improving the quality of life of the people of the two villages.

Objectives

1. Increase awareness on the importance of the organic farming;
2. Upgrading farmers' knowledge on organic farming;
3. Mobilize local resources;
4. Increase productivity and cropping intensity;
5. Decrease soil toxicity using SA technologies;
6. Maintain the area's ecological balance;
7. Promote group activities for minimizing risks;
8. Promote "value addition" and market facilities; and
9. Increase net profit from agricultural activities.

Strategies

The project started via a series of training programs in both villages. Farmers were first made aware of, then got interested in, Sustainable Agriculture. They were then introduced to the different substitutes to chemical fertilizers and pesticides.

Then, selected farmers were trained on different sources of organic fertilizers and integrated pest management. Training on composting and green manuring, among other types of organic fertilizers and pesticides, was provided selected farmers.

The second stage of the project involved training selected farmers on sustainable farming practices for paddy, wheat, pulses, oilseeds, vegetables, and medicinal plants. It included post harvest management, like safe storage and value addition.

The third stage was the conduct of demonstrations on improved varieties of selected crops using organic fertilizers to show that there is no effect on yield. This greatly helped in the dissemination and adoption of SA technology. Farmers' visits to agricultural schools that have been proponents of Sustainable Agriculture technology were also undertaken.

The fourth stage was the introduction of "value addition" in organic produce and establishment of markets for selling of produce at a handsome price.

Self Help Groups (SHGs) were formed and were themselves involved in processing, collection and marketing of medicinal plants, forest products and other agricultural produce. These SHGs were critical to the successful implementation and impact of the project.

Workshops were held at the district level, with the help of selected SA farmers, to disseminate SA technologies among the farmers of the district and adjoining areas.

Outputs

1. Assured substitutes for chemical fertilizers and pesticides;

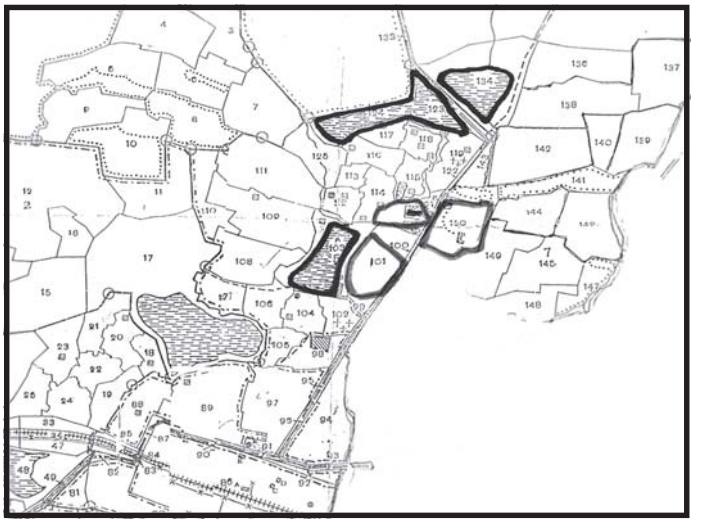
2. Appropriate techniques and crop rotation schedules;
3. Optimum use of local resources;
4. Maximum net profit;
5. Diversification of farming;
6. Balanced eco-system;
7. Food security without any toxicity;
8. Increase in employment;
9. Skills upgrade; and
10. Establishment of networks.

Activities	Year							
	2004–05				2005–06			
	I	II	III	IV	I	II	III	IV
Training			*	*	*	*	*	
Demonstration								
a) NADEP Compost				*	*	*	*	
b) Indori Compost				*	*			
c) Vermi Compost				*	*			
d) BGA *(blue green algae)*					*			
e) Bio-fertilizer					*			
f) Wheat							*	
g) Paddy					*			
h) Green Manuring					*			
i) Niger, Toria						*		
j) Pigeon Pea						*		
k) Green Gram						*		
l) Potato							*	
m) Cauliflower, Cabbage						*		
n) Tomato						*		
o) Chilly						*		
p) Satawar						*		
q) Madhupatra				*	*			
r) Ashwagandha						*		
s) Musali						*		
t) Varahikand						*		
Exposure Visit							*	

Time Frame

Budget

Activities	Total No. of Courses	Trainee Days	Rate *(Rs)*	Amount *(Rs)*
Training	**26**	**917**	**50 / day**	**45,800.00**
Demonstration				
a) NADEP	10 (Units)		5,920 / Unit	59,200.00
b) Indori	15 (Units)		2,980 / Unit	45,000.00
c) Vermi Compost	10 (Units)		4,300 / Unit	43,000.00
d) BGA *(blue green algae)*	6 (Units)		2,689 / Unit	16,134.00
e) Bio-fertilizer Lab	1 (Unit)		100,000/Unit	100,000.00
f) Wheat	2 ha		10,340 / ha	20,680.00
g) Green Manuring *(Sanail Dhaincha)*	5 ha		600 / ha	3,000.00
h) Paddy	5 ha		4,904 / ha	24,500.00
i) Pigeon Pea	2 ha		2,786 / ha	5,572.00
j) Green Gram	1 ha		2,961 / ha	2,961.00
k) Niger / Toria	2 ha		2,146 / ha	4,292.00
l) Potato	0.5 ha		30,000 / ha	15,000.00
m) Tomato	1 ha		13,610 / ha	13,610.00
n) Chillies	0.25 ha		14,010 / ha	3,500.00
o) Cauliflower	0.25 ha		15,410 / ha	3,850.00
p) Madhupatra	0.10 ha		446,400 / ha	44,600.00
q) Ashwagandha	0.25 ha		16,400 / ha	4,100.00
r) Sarawar	0.25 ha		15,410 / ha	3,800.00
s) Musli	0.05 ha		760,400 / ha	38,000.00
t) Varahikand	0.10 ha		35,300 / ha	3,500.00
Total (2)				**454,299.00**
Exposure Visit	2 (No)			**180,000.00**
Monitoring				**45,000.00**
Evaluation				**45,000.00**
Grand Total				**770,099.00**



Moravapalli and Kothapalli

Pulicherla Mandal, Chittoor District, Andra Pradesh, India

Site Development Plan

Prepared by: South Asia Rural Reconstruction Association (SARRA)

THE PROJECT IS located in *Morava Harizana* wada and *Kotta Palli* villages in *Pulicherla* Mandal of Chittoor district of Andhra Pradesh state, South India. The Chittoor district is bounded on the north by *Ananthpur* and *Cuddapa* district, on the east by *Nelloor* District, on the south by North Arcot district of *Tamil Nadu* State, and on the west by *Tamil Nadu* and *Karnataka States*.

The district covers 15,152 sq. km., with a total population of 3,745,875. Literacy rate (per 2003 census) is 66 percent, way above the State's rate of 60.5 percent. Major crops grown in the project area include rice, peanut, cereal, millets, and pulses.

STATISTICS/FIGURES

Table 39. **Village Profile**

Particulars	
Total Households	83
Total Population	333
Male Population	164
Female Population	169
Adapted Households	50
a. SC	40
b. BC	2
c. Others	8
Farmers' Status	
a. Land-less Families	9
b. Marginal Farmers	28
c. Small Farmers	13

Table 40. **Income of Farmers**

Status	Approximate Income of Farmers' Household *(US $/year)*		Approximate Income of Farmers' Household in the State *(US $/year)*	
	Rs.	$	Rs.	$
Land-less Farmers	17,472	416	35,000	833
Marginal Farmers	31,962	761	44,000	1,047
Small Farmers	42,000	1,000	60,000	1,428

Note:

- ***Project area farmers cultivate for only one season a year due to dry land and agriculture is dependent on monsoons.***
- ***In some parts of the state, farmers cultivate for two seasons due to irrigation facilities.***

Resource Assessment

Assets

Major resources of the project villages are dry land, livestock, common property resources like water bodies, vacant government. lands, housing sites, and manpower. Almost all of the project's farmers own houses and vacant plots planted to organic vegetables for family consumption.

About 41 families own dry land, which is totally dependent on monsoons and suitable for food grain production like pulses, peanut, and vegetables – which provide 30 to 40 percent of their food needs.

About 21 families depend on livestock production. Farmers sell cow's milk directly to the markets, and almost all use cow dung as fertilizer. Even landless families are into livestock rearing due to the availability of common property resources for grazing.

Structure and Process

The three-tiered system of panchyath institutions are functioning at the village, Mandal and district levels.

These institutions are responsible for the development of the communities by implementing government programs for education, agriculture, livestock development, provision of drinking water, housing, and minor irrigation programs. The local panchyaths play a vital role in implementing development programs and act as a bridge between government departments and the people.

Agriculture research stations, agriculture universities and agriculture extension departments play a key role in the dissemination of information and transfer of technology in the farming community.

Cooperatives and banks only extend limited financial support services to the farmers, forcing farmers to depend on money lenders to fund their agricultural inputs.

Vulnerable Conditions

- Agriculture is heavily-dependent on the monsoons;
- Monocropping is a serious issue;
- Lack of access to markets is a common problem in the area. Prices of agricultural products and livestock are very low, particularly during harvest season. As a result, farmers' incomes are sometimes even less than the input costs;
- Lack of effective farmers' associations in the area resulting in less bargaining power;
- Most of the agriculture products are sold to middlemen at bargain prices;
- Lack of value-added technologies for agricultural products; and
- The majority of the farmers are illiterate and have no access to information.

Associations and Networks

While farmers' associations are promoted at the village level, they need to be trained on Sustainable Agriculture polices and governmental laws. The agriculture department already started training farmers groups on Sustainable Agriculture practices, marketing, and pest control methods.

Current SA Technologies and Practices

At the end of the project period, *SARRA* aimed to introduce the following SA technologies for enhancing food security:

1. Soil and water conservation technologies

- Composting
- Biomass production
- Mulching practices
- Bunding
- Trenching
- Rainwater harvesting

2. Crop production improvement

- Seed
  a) Selection
  b) Treatment
  c) Production
  d) Preservation
- Crop rotation
- Intercropping
- Seed networking

3. Pest management

- Integrated pest management (IPM)
- Natural pest management (NPM)
- Biological pest management (BPM)

Past Agricultural Practices that Have Failed to Improve the Condition/ Increase Income of Farmers

During the past four decades, under the patronage of international development agencies as well as the national government, the area's farmers have been introduced to green revolution technologies such as hybrid seeds, chemical fertilizers, pesticides and other external inputs for securing higher production levels of various crops. Substantial incentives were offered by the national government to apply these tech-

nologies. Although farmers witnessed higher production levels in the initial stages, they could not maintain the same levels of production due to the decreasing fertility levels of the soil, as well as pest and disease problems due to the heavy application of external inputs.

Overall Strengths and Opportunities of the Project Site

Strengths:

- Almost all households depend on agriculture;
- Big cattle rearing, the by-product of which can be used as organic fertilizer; and
- The partner NGO, *SARRA,* has substantial experience in the area of sustainable development.

Opportunities:

- The agricultural sector in Andhra Pradesh is very much in crisis. Farmers recognize that unless they organize themselves and look for alternatives, it is highly impossible to come out of the crisis;
- The state government gives much priority and focus on agriculture. The government is very much interested in strengthening new interventions related to agriculture; and
- NABARD and other banks were also interested to support farmers' groups, if they fulfill their minimum required standards.

The Project Site Development Plan

Goal of the Project Site

The goal of the project site was "to make agriculture viable and remunerative to small and marginal farmers through Sustainable Agriculture practices and sustainable marketing interventions…".

Objectives

1. To enhance awareness, knowledge and motivation levels of area's families to function as demonstration farmers in the application of SA practices and technology transfer;
2. To enable the farmers to undertake practical demonstrations in order to apply SA technologies in the area of vegetable production for home consumption and marketing;
3. To enable the demonstration farmers to share their knowledge and experiences with other farmers and build farmers' networks for advancing the agenda of food security and Sustainable Agriculture; and
4. To document the experiences of the SA initiatives and its effects on income, employment and poverty reduction.

Operational Strategy

Since SARRA has more than 15 years of experience in working with SA networks in

different parts of India, it recognized the need to develop a small SA demonstration center so that capacity-building programs for farmers could be initiated. SARRA worked with 50 marginalized farmers who experienced several constraints due to the onslaught of green revolution technologies.

Aside from intensive interaction sessions at the village level and periodic consultations with women, youth and other sectors, the farmers also documented their community level experiences and wisdom related to various indigenous technologies.

The families were also given the opportunity to develop homestead nutrition gardens for year-round supply of vegetables for family consumption. They also collected, preserved and propagated valuable indigenous seeds.

The families also developed interactions with other SA farmers in South India and applied their learnings in both their home and farms. The farmers developed their networks with a view to continue their interaction with the other SA networks in other regions of the country.

Output and Indicators

1. Established a teaching and learning center for promoting Sustainable Agriculture practices in the region;
2. Developed the capacity of 50 farmers to undertake demonstrations in their home and farm environment, and thus help other farmers to recognize the need for SA initiatives;
3. Developed farmers' networks and strengthened linkages with other networks in the region for the continuation, consolidation, and multiplication of initiatives;
4. The cross cultural pilot program on SA initiative for achieving reduction in poverty levels set a new trend in the field of sustainable development and food security through farmer's initiatives;
5. The network building exercise helped eradicate various discriminatory practices associated with religion, caste, creed and untouchability; and
6. Replicated by farmers' organizations, NGO federations and Government Agencies.

Indicators

1. An organic model farm was established with all SA technologies;
2. Two self-help groups (organic farmers' group) were strengthened;
3. Farmers' incomes increased by approximately 15 percent; and
4. All 50 farmers adopted SA technologies in the area of vegetable production for home consumption.

Conclusion

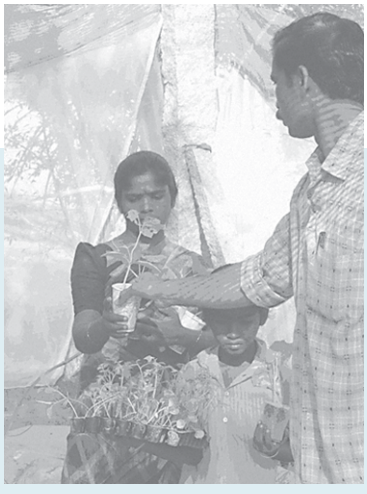
SARRA-AJPN project on Sustainable Agriculture for poverty reduction has added a new dimension in the local area.

Since the local community is under the stress and strain in the area of agriculture due to the onslaught of Green Revolution Technologies, the farmers in the pilot villages have taken a keen interest in Sustainable Agriculture experiments, notable of which is the introduction of Bio Intensive Nutrition Gardens.

Since the BIG is the foundation for advancing the SA Agenda, experienced SA farmers and scientists from different parts of south India played a key role in motivating the project's farmers through example and by recounting their experiences.

At the end of the project, the farmers realized that SA is the only way to provide a safe and bright future for the new generation, as well as achieve self reliance and food security.

The government, through the extension agency of the agriculture department, has started examining the need to introduce the SA dimension in their programs. Hence, the pilot program through farmer's initiatives provided new direction and hope for the future of small and marginal farmers.



Banjaroya, Banjarasri, Jatisarono, Pagerharjo, Giripurwo and Hargorejo,

Kulon Progo, Jogyakarta, Indonesia

Site Development Plan

Prepared by: World Food Day Secretariat (WFD FFD)

Kulon Progo regency is part of Yogyakarta Province and is located in the western part of Yogyakarta City. Kulon Progo is 90 percent mountainous area and is well known as *perbukitan Menoreh* (Menoreh hills).

In its few lowland areas, farmers can access irrigation facilities to cultivate rice for the first planting season. Soybean, peanut, corn, benguk (a kind of bean) and cassava are cultivated in the second planting season.

Since access to water for irrigation is difficult during the third planting season, farmers only maintain cassava crops which are planted within the second planting season to be harvested in the third planting season (dry season).

The majority of the land at the Sustainable Agriculture (SA) project site of Banjarasri village is planted to cassava and intercropped with corn, herbs, banana, coconut, and trees. While in Pagerharjo village, farmers concentrate on clove cultivation since it provides higher returns. The rest of their plots are planted to vanilla, coconut, spices such as ginger, and cassava.

Farmers in Giripurwo village plant rice during the first planting season and *kacang benguk* (kind of bean), also called *tempe benguk* or home industry. Through *tempe benguk*, farmers will enhance their income.

Table 41. **Farmers' Income**

Village	Approximate Income per Household *(US $/year)*	Approximate Income per Household in the country *(US $/year)*
Banjarasri village	578	666
Pagerharjo	657	
Giripurwo	551	

Source: ***baseline survey AJPN in Kulon Progo (2004) for farmer's household***

Statistical Background

Number of Farmers Involved

Initially, the project planned to cover seven villages because SPTN-HPS' role was to assist and facilitate World Food Day farmers in the Regency of Kulon Progo. After Asia-Japan Partnership Network (AJPN) visited and monitored the farmer's group preparation, they suggested that the work focus on three villages to be more effective. There are 25 farmers involved in the AJPN SA in each village, or a total of 75 farmers in three villages.

Resource Assessment

Assets of the Project Sites

A. Agricultural Aspect

Crop Cultivation

Banjarasri, Pagerharjo, and Giripurwo (just like Kulon Progo) areas are predominantly hilly. This kind of landscape dictates the kind of crops grown here. For long term investments, farmers plant perennial plants such as clove, cacao, mahogany, teak, and acacia. After five to seven years, farmers can start harvesting from the clove tree every year. Clove trees are also used to repair houses or for timber. For food, farmers cultivate corn, peanut, red chili, and vegetables that grow well during the rainy season.

As a source of raw material for the home industry, they cultivate cassava and herbs (ginger, turmeric, galangal, and others). Farmers also cultivate tropical fruits like rambutan, mango, durian. These they sell after their domestic needs are met.

In Banjarasri village, farmers have been applying LEISA (Low External Input Sustainable Agriculture) for crop production since 1997. Before LEISA, they used urea (900 kg/0.5 hectares). This then dropped to 75 kg per 0.5 hectares after they learned about Sustainable Agriculture.

In Pagerharjo village, Samigaluh subdistrict farmers have been practicing SA since 1992. While in Wadas Giripurwo village, farmers have been using SA since 1998.

Traditional Methods are Used for Compost Processing

The raw material consists of cow/goat manure and straws/leaves/trunks.

In three sites of the project, a lot of organic material like leaves, legume crops, cow dung are available for compost processing.

Climate

Samigaluh is about 900 m above sea level, so this site enjoys a relatively cooler climate than the others. Banjarasri is about 700 m above sea level, while Giripurwo is about 400 m above sea level.

Like most parts of Java, the rainy season starts October and ends in April. Strong winds are present in August.

Physical-agricultural Infrastructure

Most of the irrigation canals in many sites are traditional. In Samigaluh, farmers use water more for domestic consumption than for farming. Baseline data showed that in Pagerharjo village, upland irrigation reached only 54 hectares. In Giripurwo village, lowland irrigation reached 36 hectares while upland irrigation is at around 860.27 hectares.

B. Economic Development Aspect

Kulon Progo area is well known for snacks made from cassava. Like most parts of Kulon Progo, farmers also make local snack from cassava in these three sites.

Income earned from home industry is used to pay for: (1) children's school fees; (2) capital investment: (3) health care; home repairs. Most children have finished high school and several have graduated from university.

Farmers sustainable consumption pattern are also implemented through alternative foods like taro, corn, and yam. They also grow vegetables for their household needs.

To overcome health problems, farmers grow traditional plants in their home garden where they produce medicinal herbs such as ginger, turmeric, white turmeric, galangal, and pepper battle leaves.

They also maintain traditions such as: '*Wiwit*' and *Merti Desa*. *Wiwit* is thanking and praying to the Gods before harvest, while *Merti Desa* is thanksgiving after harvest.

In October 2004, the group of Ngudi Makmur in Banjarasri village and Pagerharjo village were also visited by participants in the SEA Farmer conference hosted by SPTN in collaboration with APHD (Asia Partnership for Human Development, based in Bangkok).

Participants from Southeast Asian countries, like the Philippines, Thailand, Cambodia, and Indonesia shared their experiences and knowledge on Sustainable Agriculture and marketing.

Structures and Processes

The local government in the three project sites wholeheartedly supports Sustainable Agriculture.

In Banjarasri village, they provide a revolving fund to raise goats in order to augment farmers' incomes and produce more organic fertilizer.

The local government of Banjarasri always reminds farmers during meetings that they should develop and use organic fertilizers since they understand the negative effects of using chemical fertilizers on soil fertility.

The government supports AJPN's intervention to augment farmers' incomes through Sustainable Agriculture.

In Pagerharjo village, local authorities facilitated farmers' meetings on selling of agricultural products aimed at stabilizing prices.

The village has long been used as a demonstration plot for NGO research, and also for cross-visitation programs on food security and development of alternative food sources. Taro, yam, and others alternative food sources are cultivated in farmers' gardens.

The local government ecourages women's groups to set up small savings and loan facilities, and gave them an initial capital of Rp 600,000 in 1997 (USD 60) – which has now risen to Rp 2,600,000 (USD 270). Women use this capital for their "enting-enting jahe" business.

In Giripurwo village, the local government is very supportive of agriculture development. They encourage farmers to grow *kacang benguk*, a local snack.

A. Cooperatives

Pagerharjo Village

There are five cooperatives that support farmer's activities in the village. To access credit from the cooperatives, farmer should meet requirements such as: (1) joining the group; and (2) setting-up a small business.

Giripurwo Village

There are four cooperatives that provide credit to members with interest rates of 1.5 to 2 percent a month. Period of return is 5 to 10 months.

Banjarasri Village

There is one credit cooperative named *UB Mekar Bhakti* that gives credit to its members with interest of 1.5 percent a month. Period of return is 10 months.

B. Agricultural Laws and Policies

The local government in Kulon Progo's motto is *ijo royo-royo*, which means encourage the community to establish Kulon Progo as a green area with diversified crops.

The district government demonstrated their commitment to this motto by supporting farmer's activities in Sustainable Agriculture development.

In October 2004, the farmers' forum of *Sabar-subur* (World Food Day farmer's movements in Kulon Progo established in 1999) celebrated World Food Day in Promasan Kalibawang sub-district. The regent came and encouraged farmers to develop alternative food products. Farmers also sold their organic products to the regent and his staff.

Vulnerability Condition

Hindrances met by farmers in Kulon Progo:

1. Lack of knowledge and access technology weaken farmers' condition and position. In the three project sites, farmers do not clearly understand the materials used in organic fertilizers and methods of organic pest management. In all the three project sites, farmers' groups do not plan their activities well, i.e., they did not carry out proper bookkeeping and business management practices. This caused their enterprises to grow very slowly or even stagnate, thus farmers in this village remain poor.

2. Lack of water for irrigation, particularly in Banjarasri village. During the dry season, farmers have to get water for domestic consumption two kilometer from their houses.

3. Lack of market access was a common problem for most of the farmers in the three project sites. The prices of the agricultural products and home industry products are quite low, particularly during the harvest season, resulting in low incomes.

   In Giripurwo village, for instance, farmers use 5 percent of their harvest to make *tempe benguk*, a local snack made from beans. The remaining 95 percent is sold to middlemen at cheap prices (approximately Rp 1,500 to 2,000/kg or 0.15-0.2 USD). In Banjarasri village, the price of cassava and snacks made from cassava during harvest season (August) is approximately Rp 2,000/kg. Sometimes it can rise to Rp 5,000/kg.

   In Pagerhajo village, the price fluctuations of raw materials, like ginger, coconut, millet and white sugar, influence the profit earned by the farmers' group who are into the *Enting-enting Jahe* business.

4. Lack of networking among farmer's groups in each site of the project has weakened the farmers' bargaining position. This condition resulted in farmers losing out when determining prices for their produce and in fighting for their rights.

Associations and Networks

World Food Day farmers' groups in Kulon Progo have collaborated with institutions/NGOs that advocate for farmer's rights so as to create opportunities to improve their condition and position.

They established an agricultural product network to sell organic rice and other products with Satu Nama Foundation based in Jogjakarta, gain access to credit cooperatives, and inquire from the village government about Sustainable Agriculture policies.

These farmers' groups also held World Food Day celebration every October to thank God for the success of their harvest for the current year and hope for a better harvest the following year.

The celebrations also run concurrently with a bazaar for organic agricultural products. They also conduct farmers' workshops on relevant issues regarding Sustainable Agriculture. Usually the group invites the head of the district (regent) to give the opening remarks and hold dialogues with farmers.

At the end of the meeting, they make resolutions to solve problems and disseminate information to the media and government to advocate farmer's rights.

In Banjarasri village, there are five farmers' groups working on nurturing Sustainable Agriculture. In Pagerharjo village, there are three farmers' groups and in Giripurwo village, there are two farmers' groups involved in promoting SA agriculture.

Mostly at the village level, there are community groups that have a long history of communal activities.

- **PKK:** Formed in Java in 1979, the PKK women's group exists in most villages of Kulon Progo. This group, whose membership is 100 percent women, aims to empower women on family and child care, increase their business skills, upgrade their knowledge, and other related issues of human development. They have meetings every month. Many issues are discussed during the meeting, such as: dissemination of information from the district government relating to healthy life, environmental preservation, savings and loan, and others.
- **Cooperatives:** There are many cooperatives established in each village. These support farmers in running their farming enterprise and meeting their daily needs, such as pay electricity, provide family health care, help defray cost of their children's education.
- **Salawatan group:** Formed in 1999 in Pagerharjo village, Salawatan is a traditional folk song group which aims to revive and maintain local culture and practices and encourage the younger generation to embrace local culture. The group composes traditional songs that encourage people to conserve the ecosystem and maintain diversity of crops.

Current SA Technologies and Practices that are Promoted and Have Addressed Poverty of Farmers

1. SPTN-HPS has promoted Sustainable Agriculture in Kulon Progo sub-district since 1991 in Wates (the head city of Kulon Progo) mostly through World Food Day activities. After one year, a farmer's group was put up in Pagerharjo, Samigaluh sub-district Kulon Progo and one farmer's group

in Girimulyo village that implement SA. They cultivated local rice varieties and applied organic fertilizer on their fields. They later found out that their soil became more fertile, thus sustaining their SA activities to date. From 1996 to present, there are 14 farmer's groups involved in the World Food Day farmers' movement in Kulon Progo. All of them adopted Sustainable Agriculture practices.

2. The promotion of Sustainable Agriculture matches the farmers' needs since they feel that overuse of chemical fertilizers and pesticides has killed the soil biota and is hazardous to human health. They gradually abandoned chemical inputs and converted to organic inputs.

   Some technological aspects of SA that have been introduced to the farmers include: use of local seeds varieties to replace hybrid seeds, use of organic compost to replace chemical fertilizers, and use of biological pesticide to control pests and diseases.

3. SPTN-HPS has strategies to address poverty through several aspects of Sustainable Agriculture, as follows:

   a. Pattern of production through:

   - ❖ Promotion of local seed varieties such as: local rice, corn, soybean, and cash crops in order to replace hybrid or even genetically engineered seeds. Use of local seeds reduced cost of production so the farmers choose this strategy in their agriculture enterprise.
   - ❖ Technical assistance and training on organic fertilizer and organic pest management practices. To control pest and disease, the SA farmers in Kulon Progo use organic pesticide. Through SA assistance, the farmers have converted from chemical to organic fertilizer. This reduced cost of production and enriched the soil's fertility.
   - ❖ Promoting farmers to conserve biodiversity in nature to maintain ecosystem balance.
   - ❖ Increased sustainable production of food and snacks.
   - ❖ Set standard of production process.

   b. Pattern of consumption

   - ❖ Encouraging farmers to consume healthy food
   - ❖ Promoting simple lifestyle referred to as the truth, justice and peace.

   c. Alternative economy

   - ❖ Savings and loan group as an embryo to establish credit unions (CU).
   - ❖ Home industry development
   - ❖ Organic product marketing

Past Agricultural Practices that Have Failed to Improve the Condition/Increase Incomes of Farmers

1. After the Green Revolution, farmers were so dependent on high external inputs such as hybrid seeds, chemical fertilizers and pesticides thus resulting in negative effects on soil fertility and productivity. The loss of local rice varieties, traditional wisdom and

agricultural culture are also felt because reduction in soil productivity simultaneously reduced their income.
2. Onerous agricultural trade policies continue to marginalize poor farmers. Farmers have no bargaining position with middlemen, since there are no clear-cut policies to protect them.

Overall Opportunities and Strengths of the Project Site

1. Farmers are organized under World Food Day farmers' group networks, which is a strong base for the farmers to advocate for their rights.
2. Farmers started practicing Sustainable Agriculture five to 10 years ago, thus their soil is more fertile and productive. Their productive soils have simultaneously reduced their operations costs (for buying chemical fertilizers) and increased their income.
3. Farmers have started home industries to process sustainable agricultural products so as to increase the product's value, making them more marketable and able to demand a bigger price.
4. Farmers have a strong desire to be successful. This was evident to the team from AJPN which monitored their activities in December of 2004.
5. The government is supportive of Sustainable Agriculture development because they know its positive impact to the agricultural ecosystem and farmers' income.
6. Many businesses are interested to collaborate in the selling of organically soorced snacks like cassava and *enting-enting jahe* (ginger snack)

The Project Site Development Plan

Goal of the Project Site

Enhanced capacity for Sustainable Agriculture to reduce poverty in the three sites and in the whole of Kulon Progo.

Objectives

1. Increase knowledge and skills of farmers on Sustainable Agriculture cultivation and processing of snacks made from the farmers' produce;
2. Increase income of farmers from their home industries; and
3. Strengthen networking among farmers' and consumers' groups.

Strategies

1. Sustainable agriculture:
   a. Set up organic model farms in each farmers' group.
   b. Establish biological pesticide processing – *in-vitro* processing practices in each site.

2. Rural economic development:
   a. Set-up marketing teams per site to strengthen market access.
   b. Promote organic farmers' products the consumers.
   c. Strengthen farmers' home industries per group through packing, labeling, and quality control practices.

d. Strengthen cooperatives in each farmers' group through training and capital development.

3. Establish routine coordination activities/meetings among farmers' groups to discuss problems and find the best solutions.

4. Conduct on-site training to increase farmer's technical skills and knowledge in the areas of:
   a. Integrated pest management, composting, cash crops' seeding.
   b. Home industry management and development (include packing, labeling, and marketing).

5. Conduct exposure trips to other successful groups to learn about production processes, post harvest processing, and marketing.

Outputs and Indicators

1. Each farmer's group established organic model farms to convince their members to go organic. There are at least three organic model farms in three sites of the project that were established by 50 farmer-members.

2. There are five farmer experts in each farmer's group who are now capable of making biological pesticides (encouraging natural enemies to control pests) and to teach other farmers.

   In the three sites, there are 50 farmers who are skilled to practice in their respective SA fields and can teach other farmers within their villages.

3. There is a marketing team in each site, who strengthen the group's market access and network to sell organic products.

4. There is one home industry established and well managed in each site. The three home industries in the three sites will benefit 20 farmer-members a site.

5. There is one strong and well-managed cooperative in each site of the project. Three well-managed cooperatives will benefit 60 farmer-members.

6. There are routine meetings among farmers' groups in each project site.

7. Farmers' incomes increased by 25 percent.

Conclusion

1. A medium for community/farmerss learning was established, through: organic model farms and home industry enterprises. The model is chosen to create alternative learning strategy from farmer to farmer (farmer as teacher and learner) farmers/community will share, learn, and extend Sustainable Agriculture practices.
2. Capacity of farmers was increased, whereby they are now capable to implement Sustainable Agriculture practices in their respective villages manage their organization and enterprise as well.
3. Established marketing teams to expand market access to ensure that farmers' products are sellable.
4. Strengthened home industries in each site which are adopted and practiced by each member.
5. Assisted farmers' groups in implementing Sustainable Agriculture practices.

Banjarnegara, Punggelan and Paseh Sub-Districts

Propinsi Jateng, Indonesia

Site Development Plan

Prepared by: Sekretariat Bina Desa

Banjarnegara district's total area is 106,971 hectares. Irrigated land is 16,168 hectares while non-irrigated land covers 90,803 hectares.

There are 18 sub-districts and 278 villages within Banjarnegara District, with a total population of 838,962.

There are eight peasant groups involved in the project living in the three villages, namely: Banjarmangu, Punggelan and Paseh. Inclusion in the project was primarily based on the farmers' willingness to participate, and was done during the socialization and preliminary assessment stages.

Table 43. **Features of the Project Site**

Description	Banjarmangu	Punggelan	Paseh
Major Crops	rice, zallaca (fruit), cassava, banana	rice, zallaca, cassava, cucumber, banana, red ginger, albasia, teak	rice, zallaca, cucumber, hot pepper, albasia, teak
Farmer Groups	1. Ngudi Lestari 2. Sri Rejeki 3. Ajining Tani 4. Ngudi Makmur 5. Ngudi Rahayu	1. KUB Arum	1. Bakti Lestari 2. Ngudi Rejeki
Number of Peasants Involved in the Project	31	10	40

Table 44. **Household Annual Income in the Three Villages**

Description	Amount *(IDR)*	Amount *(US $)**
Average of Farm Income		
a. Cash	4,548,809	535
b. In kind	456,740	54
c. Sub-total	5,005,549	589
Average of Non-farm Income *(cash)*	7,662,541	901

** exchange rate: 1 US$ = 8,500 IDR*

Statistical Background

Profile of Farmers

The three villages have 81 households, with a total population of 421 (48 percent male and 52 percent female). The average number persons per household is four, while the average age of respondents is 38.

In relation to enhancing soil fertility, it seems that farmers prefer three kinds of sustainable practices, namely: mulching, composting and animal manure.

About 65 percent of farmers used animal manure, followed by 16 percent who use mulching, and 10 percent do composting.

In addition, 25 percent of the farmers use chemical fertilizers and lime, mostly for paddy cultivation.

Only 16 percent of farmers use IPM (integrated pest management) methods which involves applying chemical pesticides whenever there is an attack from pests and diseases. As for cropping patterns, 72 percent of farmers adopt sustainable agricultural practices such as polyculture, crop rotation, multi-storey cropping and intercropping. Only 12 percent of the farmers adopt monoculture, which is mostly practiced in paddy cultivation.

At least 31 percent of household rely only on farming for their income, while 51 percent derive their income from a combination of farming and non-farming sources. The rest are engaged in non-farming activities such as trading, carpentry or construction, and as employees (teachers and local government personnel).

Resource Assessment

The Assets of the Project Site

The main crops cultivated by the farmers in this area are paddy, cassava, zallaca palm, tomatoes, long bean, cucumber, and hot pepper. Some farmers also grow teak and albasia. The soil in the villages is fertile because of its proximity to volcanoes.

Only a few farmers in the three villages have any experience in organic and LEISA practices, and only for crops such as tomatoes, rice, hot pepper, long bean, and mustard. As for the fruit crops (zallaca and bananas) and cassava, all farmers in the areas have never used chemical fertilizers and pesticide after planting.

Banjarmangu village is well known as a producer of snack foods such as TORAMA (tomato tasty date), cassava and banana chips, and flour products.

In Paseh or Punggelan village, many households raise cattle, goat, buffalo and poultry for additional income, which is a good and easy source of animal manure for producing compost.

Most irrigation systems for paddy lands are still traditional. About 50 percent of land relies on rain-fed irrigation.

Structure and Process

Farmers' organizations in the area have good relations with the district government and were very much willing to support Sustainable Agriculture development in Banjarnegara District.

In previous years, the district government requested farmer organizations, especially in Paseh village, to provide compost products in large quantities.

Unfortunately, the farmers' organization were not ready to fulfill this requirement. The district government even invites farmers' groups to participate in agricultural exhibitions at the district and provincial level.

An agricultural laboratory of the Agriculture Ministry, located in Purwokerto District (aprox. 90 minutes from Banjarnegara city), is also available for farmers.

UNSUD (Sudirman University), based in Purwokerto city, can provide agricultural information and consultation services for farmers. Some agricultural experiments of UNSUD are carried out in Banjarnegara District.

A branch of BRI-Bank Rakyat Indonesia (a state bank) located in Banjarnegara district gives micro-finance to farmers' groups in Banjarmangu village. The amount of credit varies from IDR 300,000 to 1,000,000 (US$ 36 to 118) and at an interest rate of 10 percent a year. Credit is delivered through the farmers' groups.

Vulnerability Condition

- About 50 percent of the land is rain fed, which affects rice production. In fact, during the dry season, rice production is down to only half the usual production;
- Prices of SA products are higher than conventional agricultural products in order to compensate for lower yield over the first three years. Unfortunately, the market in Banjarnegara district does not yet appreciate SA products;
- Some farmers are wary of shifting to SA due to their long dependence on chemical fertilizers and pesticides;
- Price of fresh agricultural products always fluctuate;
- Lack of knowledge about soil ecology management; and

- Four farmers' groups were already involved in related projects prior to the start of this project. However, the empowerment approach is quite different from the Bina Desa approach.

Associations and Networks

A few of association and networks are able to support SA technology in the three villages:

- IPPHTI (Association of IPM Farmer in Indonesia) – provides technical assistance on SA
- API (Indonesia Peasant Alliance) – with links to the agriculture ministry in Jakarta
- KRKP (People Committee of Food Sovereignty) – able to forward the issue of food sovereignty

Current SA Technologies and Practices that are Promoted/Practiced and Have Addressed Poverty of Farmers

Sekretariat Bina Desa has been introducing the SA concept and practices to farmers in Banjarnegara District since 2002, such as:

- "Ideological" Sustainable Agriculture;
- Promotion of the use of local varieties;
- Production of organic fertilizers and bio-pesticides by using existing local resources;
- Integrated Pest Management; and
- Enhancing the added value of SA products (such as processing organic tomato into a tasty date product)

Food processing and marketing capacities in the promotion of SA technologies and practices should be considered. With an integrated approach, an increase in farmers' incomes from Sustainable Agriculture is more realistic.

Past Agricultural Practices that Have Failed to Improve the Condition/Increase Incomes of Farmers

In order to achieve self reliance in food, the government pushed agriculture production by encouraging farmers to use hybrid varieties and high chemical fertilizer and pesticide inputs. This led to a decrease in soil fertility and environmental destruction. Incomes of farmers have also grown smaller due to the high cost of chemical inputs.

Indonesia is a WTO member-country. Consequently, the country's farmers no longer receive subsidies while farmers in developed countries still get the subsidies from their governments.

Overall Opportunities and Strengths of the Project Site

Bina Desa has organized the farmers in Banjarnegara District in 2002 within the SA framework. Several farmers' groups have emerged as a result of these efforts.

Women in the three villages are very enthusiastic about SA, particularly in making value added products to augment their household. Recently, farmers have started growing red ginger used as raw material for making *enting-enting jahe* (ginger snack).

Slegreng, a local upland rice which can be harvested in 105 days in Punggelan village has a high yield of three tons a hectare via the LEISA method, making this local

variety the answer to the issue of food sovereignty.

In terms of SA practice, Paseh village is a promising area due to the abundance of raw materials and resources. For compost production, for instance, Paseh has an abundance of animal manure. It also has more people engaged in the AJPN project, a lot of green manure, the know-how to make EM4-5, and abundant flower growth.

Although there is an order to supply around three tons of compost, the villagers agreed to supply the local (village) market first.

In the three villages, the farmers' groups have a semblance of a savings and credit program. Although small in terms of volume, this program strengthens the solidarity among members.

The Project Site Development Plan

Goal of the Project

The goal of project is the reduction of poverty in the selected areas by enhancing the capacities of rural communities to increase agriculture productivity, decrease input costs and increase household incomes through the promotion of SA practices.

Objectives

1. Promote and make farmers understand why SA practices are important;
2. Explore and disseminate local SA practices;
3. Increase household income by encouraging women to engage in processing activities; and
4. Advocate policy change with the district government in order to include SA into the mainstream agricultural program.

Strategies

Opportunity	Strategy
Several farmers' groups exist	❖ Sekretariat Bina Desa facilitated the establishment of an umbrella farmers' organization primarily for SA practices
Good response from the government	❖ Kept communication lines with the local government open ❖ Invite local government in training programs
Women interest in food processing activities	❖ Conducted training on food processing and packaging. ❖ Conducted training on cost and benefit analysis and simple bookkeeping. ❖ Conducted training on marketing. ❖ Provided exposure trips to other food processing enterprises. ❖ Provided revolving fund for capital.
Upland rice	❖ Seeds were propagated and promoted to other rainfed areas.

Strategies *(continued)*

Opportunity	Strategy
SA practices	❖ Management of soil ecology. ❖ Compost produced by farmers was analyzed for chemical and microorganism content. ❖ Training of Integrated Farming System included cattle fattening and production of biogas from waste materials. ❖ Provided revolving fund for capital.

Outputs

1. Formation of an umbrella farmers' organization;
2. Got the commitment of district government to help in SA development;
3. Strengthened the capability of women to produce marketable food products;
4. Replicated Slegreng Upland rice to other rainfed areas; and
5. Increased household income by 20 percent.

Budget

Description	Budget		Note
	IDR	US$	
Preparation of Site Development Plan			
Group Meeting			
Accommodation	850,000	100	
Subsidy for Transport	3,400,000	400	
Incentive for Facilitator	1,700,000	200	
Board Meeting			
Board Coordination Mtg.	425,000	50	
Accommodation	425,000	50	
Food Processing Trial	0	0	Community's contribution

Budget *(continued)*

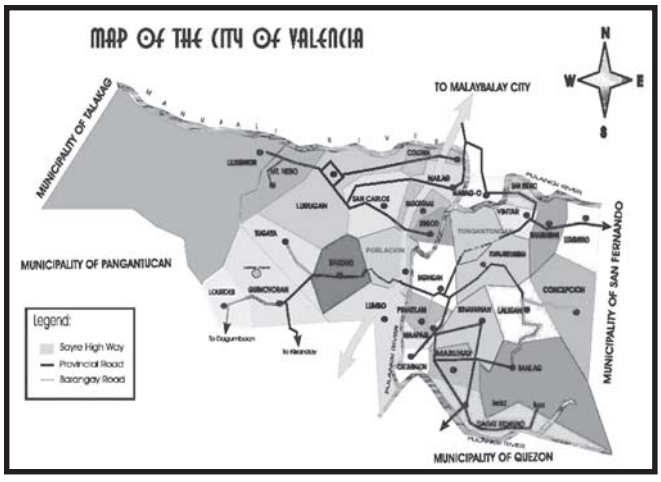
Description	Budget	
	IDR	US$
Upland Rice Trial	0	0
Training		
Management of Soil Ecology	8,500,000	1,000
Food Processing and Packaging	7,500,000	882
Cost-Benefit Analysis and Bookkeeping	5,000,000	588
Marketing		
Integrated Farming System	10,000,000	1,176
Analysis of Compost Product	10,000,000	1,176
Exposure Trip	8,500,000	1,000
Revolving Fund		
Compost Enterprise in Paseh	25,000,000	2,941
Food Processing Enterprise in Banjarmangu	10,000,000	1,176
Food Processing Enterprise in Punggelan	10,000,000	1,176
Organics Shop	17,000,000	2,000
Monitoring	6,000,000	706
Documentation	10,000,000	1,176
TOTAL	**134,300,000**	**15,800**

Note: ***exchange rate US$ 1 = IDR 8,500***

Conclusion

Many SA programs encountered difficulties in expanding their impact because the approach was too technical.

Based on this experience, this project adopted the integrated approach and attacked the issue on several fronts, namely: (1) development of SA techniques; (2) establishment of links with government, NGO and other service providers; (3) increasing the capability of human resources marketing support systems.



Bgys. Sinayawan and Tongantongan

Valencia City Bukidnon, Philippines

Site Development Plan

Prepared by: Philippine Partnership for the Development of Human Resources in Rural Areas (PhilDHRRA)
and Organic Rice Industry Technical Working Group (ORI-TWG)

Valencia City is considered the rice granary of Bukidnon, Central Mindanao, Philippines with 10,370 hectares of irrigated agricultural lands in the lowlands and 510 hectares in the uplands that produce a combined 108,000 metric tons of rice every year.

Due to favorable weather conditions in Bukidnon and the abundance of water for irrigation, the city projected a production surplus for rice until 2010.

However, excess rice production has not been translated into the increase in income of farmers because of the increasing prices of production inputs, especially fertilizers.

Chemical companies have established a strong presence in Valencia City precisely because of its gift of producing huge volumes of rice.

The use of chemical and synthetic form of agriculture inputs was heavily promoted, thus causing irreversible damage to the environment and human health.

This prompted groups like the Philippine Development Assistance Programme (PDAP), Sustainable Agriculture Center, Kaanib Foundation and the City Government of Valencia City to promote Sustainable Agriculture, encouraging farmers to use environment friendly technologies in rice farming like the use of organic fertilizer, use of locally available plants to control pest and diseases.

Organic Rice Production

At least six peoples' organizations are sustaining the production of organic rice.

The entry of the Asia Japan Partnership Network in Poverty Reduction in 2004 has strengthened the implementation of organic rice farming in Valencia City as it identified 75 farmers (22 are women and 53 men) in

the villages of Sinayawan[3] (21 farmers), Tongan-Tongan (26 farmers) and Kahaponan (28 farmers) as the project beneficiaries.

These farmers have a combined 125.65 hectares of land, of which 61.05 hectares are planted with organic rice while 54.70 hectares is planted with in-conversion rice.

In 1998, there were seven types of post harvest facilities scattered throughout the three identified villages. Most common post harvest facilities in the area were rice threshers, solar driers, corn mills, rice mills, warehouses, corn shellers and organic fertilizer plant.

Transportation in the three villages is not a problem considering that the area is only 15 kilometers from the city and farm to market roads traverse the three villages. Jeepneys, hauling trucks, motorcycles serve as the primary means of transportation in these areas.

Although there were no training facilities that could accommodate large number of participants, each barangay has its own barangay hall used as a venue for seminar and training.

In Tongan-Tongan, the local group Tongan-Tongan Organic Farmers Society for SA (TOFSSA) has a small training center constructed by the Sustainable Agriculture Center. Irrigation facilities were also available in the three villages.

The People and Area of Production

Prior to the implementation of the AJPN project in these villages, farmers were already organized and practice organic farming and SA, making it easier to step up organic production programs.

Their formation was facilitated by NGOs who were also the prime advocates of organic rice farming.

In Sinayawan, there were two organizations into organic farming, the Makakabus and BMFMC or the Bukidnon Masipag Farmers Multi-Purpose Cooperative.

Two organizations are based in Tongan-Tongan (Tongan-Tongan Organic Farmers Society for SA and the Tongan-Tongan Multi-Purpose Cooperative) and two in Kahaponan (AFARBAMCO and Kahaponan Multi-Purpose Cooperative). Seventy-five (75) of their members were identified as AJPN beneficiaries.

The six organizations have a combined production area of 272.04 hectares. Of this, 72.55 hectares of rice farms used organic technology; 45.2 hectares used LEISA technology while 154.29 hectares were being farmed in conventional way.

[3] Since the Bukidnon Masipag Farmers Multi-Purpose Cooperative is based in Sinayawan, 6 farmers are incorporated in Sinayawan although they are living in the adjacent villages of Paitan and Mabuhay.

Average production was estimated at 92.5 cavans (50 kilograms) a hectare.

Structures and Process

In 1997, the Philippine Development Assistance Programme (PDAP) implemented its Promoting Participation in Sustainable Enterprises (PPSE) in partnership with the Social Action Center of Malaybalay.

The partnership of PDAP and the Social Action Center has facilitated the organization of Makakabus and the establishment of the organic fertilizer plant.

Kaanib Foundation, a local NGO in Bukidnon has also entered the two adjacent villages in the city, bringing also its expertise in organic farming.

The Xavier University-Sustainable Agriculture Center (XU-SAC) and the Social Action Center of Malaybalay were instrumental in the formation of the Bukidnon Masipag Multi-Purpose Cooperative.

In 2003, XU-SAC in partnership with the Tongan-Tongan Barangay Council formulated the Community Base SA Master Plan for Tongan-Tongan, which outlines the 10-Year Development Plan of the village. It also conducted training and seminars on Sustainable Agriculture and Systems on Rice Intensification (SRI).

The Local Government Units of Valencia has also actively promoted organic farming in the city. Through the City Agriculture Office (CagO), the city mobilizes its 24 Agriculture Technicians to provide technical assistance to farmers.

It also provided organic fertilizers and funds for the conduct of the Farmers' Field School (FFS) and the School on the Air as part of its extension work. It also provided free soil analysis to farmers so that proper nutrient recommendation will be provided.

The Department of Agrarian Reform (DAR) has also provided organic fertilizers to the farmers in Tongan-Tongan and Kahaponan in the form of soft loan.

Such a strong support from NGOs and the active participation of the farmers and the local government unit provided fertile ground for the further development of Sustainable Agriculture practices in the city.

The entry of AJPN played a big role in this development as it was instrumental in shifting the agriculture policy of the city.

The Local Government in cooperation with the farmers' cooperatives and NGOs has agreed to declare the city as the "Organic Rice Capital of the Philippines".

Subsequently, the City Council approved the City Ordinance No 03-2005 creating a Task Force Organic to formulate and implement the SA and Organic Rice Master Development Plan.

This policy declaration presented an opportunity to mainstream and upscale rural community initiatives in Valencia City and produce healthy food while protecting the environment and its agricultural resource base.

It is hoped that this initiative will spur local economic growth and provide increased local employment. It is also hoped that this

initiative will increase competitiveness of the local rice industry and prepare local communities to the impending negative impact of the inclusion of rice in the international trade under WTO.

Vulnerabilities

There are some pressing issues, however, that hinder the implementation of Sustainable Agriculture and organic rice farming in Valencia City. One of these is the land tenure problem.

Rich families own large track of lands in the area. These families also known as landlords who provide farmers with readily available assistance during emergency and credit for production.

When these lands were distributed through the Comprehensive Agrarian Reform Program (CARP), this assistance was cut off. Although government has provided capacity building and infrastructure support, little has been done to address the economic needs of these CARP beneficiaries.

Due to lack of capitalization coupled with family needs, some of the distributed lands were rented or leased out to other farmers and traders who later managed the farm. Land leases or rental averaged between PhP 150,000.00 to PhP 200,000.00 over three years.

This scheme limited the introduction and expansion of SA and organic rice farming in the area. All decisions must come from the current manager (lessee) of the land. To encourage the introduction of organic rice farming, both the new owner and the maintainer should be convinced to go into organic.

During lean season (usually from land preparation until the months before harvest), farmers need financing to support or their family needs such as food, education and other providential needs.

Conventional and hybrid farmers can easily look or financial support since government has available financial assistance for them, unlike organic rice farmers. Though traders and private businessmen served as alternative sources of capital and finances for family needs, they also charged exorbitant interest that ranges between 10-20 percent a month.

Marketing support for organic rice farmers was also limited. Of the six organizations assisted by the AJPN, only two were into organic rice trading in partnership with either a marketing group or NGO.

The Makakabus has a marketing contract with the Bukidnon Organic Products Corporation (BOPC). With this agreement, BOPC purchase the organic rice of Makakabus farmers at a guaranteed price plus other incentives ranging from PhP 0.20 to PhP 0.70 a kilogram.

The Kaanib Foundation also assists the AFARBAMCO in the marketing of their organic rice. Kaanib provides incentive of about PhP 0.20 a kilogram.

Other farmers that do not have marketing agreements with BOPC and Kaanib have to sell their organic products individually or to private traders that provide no incentives and do not recognize their product as organic.

Associations and Networks

The six organizations under the AJPN program are currently promoting SA and organic farming in partnership with the different organizations and networks.

Makakabus for example is linked to the Philippine Development Assistance Programme, (PDAP) Inc., and the Bukidnon Organic Products Corporation (BOPC).

PDAP has been assisting Makakabus since 1997 during the implementation of its Promoting Participation in Sustainable Enterprises (PPSE) program. It provided capacity building, marketing and financial support to start its organic rice trading project.

PDAP also provided financial support to its previous partner Social Action Center of Malaybalay in the establishment of organic fertilizer plant in Sinayawan, which stands as the only commercially operating organic fertilizer plant in the area.

BOPC, on the other hand, is the primary buyer of organic rice of Makakabus and been marketing organic rice since 2000 using the brand name Nature's Bounty.

The product is available in major shops and supermarkets in Cagayan de Oro City, Iloilo, Dumaguete and Bacolod cities. It regularly ships organic rice to Manila through the Upland Marketing Foundation, Inc that markets organic rice using the Healthy Rice brand.

The Organic Rice Industry Technical Working Group under the Philippine Partnership for the Development of Human Resources in Rural Areas (PhilDHRRA) has assisted

Makakabus in the development of their Internal Quality Control System (IQCS) Manual as pre-requisite for their application for organic certification.

IQCS is a system that safeguards the integrity of organic quality of the products. It plays a vital role in ensuring that the organic products specifically the organic rice will be categorized as purely organic or in-conversion.

Therefore, farmers will understand the importance of organic agriculture and will know the benefits they could get as organic implementers.

The Kaanib Foundation has assisted the Araneta Farmers Beneficiaries Multi-Purpose Cooperative (AFARBAMCO) based in Kahaponan since they started organic rice farming in the 1990s.

It was instrumental in the conversion of the AFARBAMCO and the Kahaponan Multi-Purpose Cooperative (KMPC) members into organic rice farmers. They provided training to the two organizations.

It later concentrated its technical and financial assistance to AFARBAMCO leaving KMPC on its own. In the early implementation of organic rice farming with AFARBAMCO, Kaanib provided production support to farmers, deductible after harvest.

The credit support was later transferred to Bukidnon Cooperative Bank (BCB) after Kaanib and BCB signed a Memorandum of Agreement to support the production needs of AFARBAMCO.

Kaanib provides a PhP0.20/kilogram purchased from the members of AFARBAMCO as incentives for the continuous support in the promotion of the organic rice industry.

To consolidate its effort in the Bukidnon Province, Kaanib has organized a federation of organic farmer cooperatives that includes AFARBAMCO. It is now processing the registration of the federation. An IQCS was already installed and ready for application for organic certification.

The organizations based in Tongantongan including the members of the BMFMC have been assisted by the Xavier University-Sustainable Agriculture Center (XU-SAC) since early 1090s. XU-SAC claimed to have trained more than 2,000 farmers in SA.

They assisted the village of Tongantongan developed their 10-Year Comprehensive Sustainable Agriculture Development Program that outlines the vision, mission, goals and objectives of the village to help them realize their aim of promoting Sustainable Agriculture in the area. It also established a cooperative center that serves as venue for on-farm training in Tongantongan.

While training on SA and organic rice farming has been continuously done, demonstration farms were also established to showcase organic farming technology and the new initiative in rice production, the Systems In Rice Intensification or SRI.

The Department of Agrarian Reform (DAR) is the government agency mandated to distribute land to landless farmers. It is the lead agency in the implementation of the Comprehensive Agrarian Reform Program (CARP).

In Valencia City, DAR implemented projects like farm-to-market roads, training and communal irrigation system. In 2004, they distributed organic fertilizers to agrarian reform beneficiaries in Kahaponan and Tongantongan.

The Local Government Unit of Valencia City through the City Agriculture's Office (CAgO) was also actively participating in the promotion of SA and organic rice farming. It

provided financial support to XU-SAC and the Village Council of Tongantongan in the development of their COMBASE and the training of farming on SA.

The declaration of the city as the Organic Rice Capital of the Philippines has provided CAgO to take the lead in the realization of this vision. As initial activities, it identified 500 hectares to be converted into organic rice farms.

The city government provided a guarantee fund of PhP 20M to Quedancor, a government credit and guarantee corporation to support for the conversion of 500 hectares.

SA Technologies and Practices

The entry of different NGOs (PDAP, Kaanib and SA Center) facilitated the introduction of different Sustainable Agriculture practices in the three villages.

Foremost is the organic rice farming that introduced the use of environment friendly technology such as organic fertilizer, herbal sprays for the control of pests and diseases in rice and other crops.

During the implementation of PDAP's PPSE program, the Diversified Integrated Farming Systems (DIFS) was also introduced, especially crop and livestock integration.

The rice-duck technology, where ducks are integrated, as part of the farm has been successful, however implementation was short lived because of the cost of ducklings. Rice-fish system was also introduced in Tongantongan and Kahaponan. Some of the rice-fish farms still exist in the area. Recently, Korean Natural Farming and Biodynamics (another forms of organic farming) were introduced. Makakabus for example is now using Fish Amino Acid (FAA), Fermented Fruit Juice (FFJ) and Indigenous Micro-organisms (IMO) and other concoctions that serve as soil conditioner and alternative to the commercially available and synthetic fertilizers.

The study conducted by PDAP in 2003 of the Makakabus experience in the production of organic rice revealed that it generated an income of PhP 10,155.00 a hectare or 48 percent net profit compared to the income of PhP 2,542.00 or 10 percent net profit generated by farmers for one hectare of conventional rice.

Recently, the National Irrigation Administration (NIA), a government agency that supports the irrigation needs of rice farmers and SA Center introduced the Systems in Rice Intensification to be integrated in the organic rice farming.

Demonstration farms are being established to showcase the system.

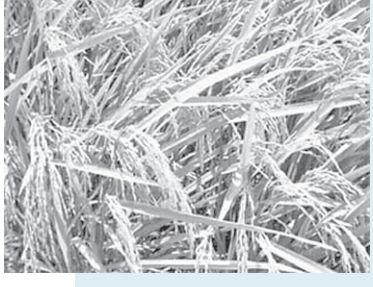
Farmers have taken to organic farming practices as they have realized that their incomes have not improved despite agricultural productivity enhancement programs such as the Green Revolution, Masagana in the 70's and most recently the GMA Hybrid Rice Program in 2000.

Rather, these have put them into heavy financial indebtedness. For the farmers, hybrid is not sustainable.

With the entry of AJPN, the villages of Sinayawan, Tongantongan and Kahaponan, local government units, government agencies, NGOs the private sector and the farmers' organizations worked closely together to show what Sustainable Agriculture can do to improve the farmers' lives.

Over the past two years, farmers were trained, new systems of organic farming were introduced and 125 hectares of rice farms were converted into fully organic or in-conversion farms.

More importantly, marketing support was given to at least 75 organic rice farmers in Valencia City and they have now put Bukidnon on the list of main sources of organic rice, which means that Valencia City is earning its right to be named the Organic Rice Capital of the Philippines.



The AJPN project concentrated on helping the farmers reduce production costs, sustain production yield, ensure the availability of the market and provision of incentives and appropriate technical support.

This was done by training the interested farmers on season-long organic rice production and refresher courses on organic rice production.

Exposure trips to other areas in Mindanao practicing organic rice and biodynamic farming were organized to inspire the farmers to follow in their footsteps.

To further bolster the program proponents' objectives, organic rice demonstration farmers were set up to showcase the Variety Adaptability Trial (VAT) and Rice-Duck or Fish Technology.

The VAT aims to test promising rice varieties from other areas to the locality. Varieties with high yield potential and resistance to pest and diseases can be mass-produced and can be utsed by farmers in the succeeding cropping.

To support the organic rice production, the AJPN assisted the Diocese of Malaybalay in upgrading the existing organic fertilizer plant in Sinayawan.

While the project assisted the diocese in the upgrading of the organic fertilizer plant, AJPN also trained farmers to for-

mulate their own organic fertilizer using locally available materials.

Technologies learned from exposure trips like formulation of Fish Amino Acid (FAA), Fermented Fruit Juice (FFJ) and Indigenous Micro-organisms (IMO) as alternative sources of fertilizer, soil conditioners and food supplements were encouraged.

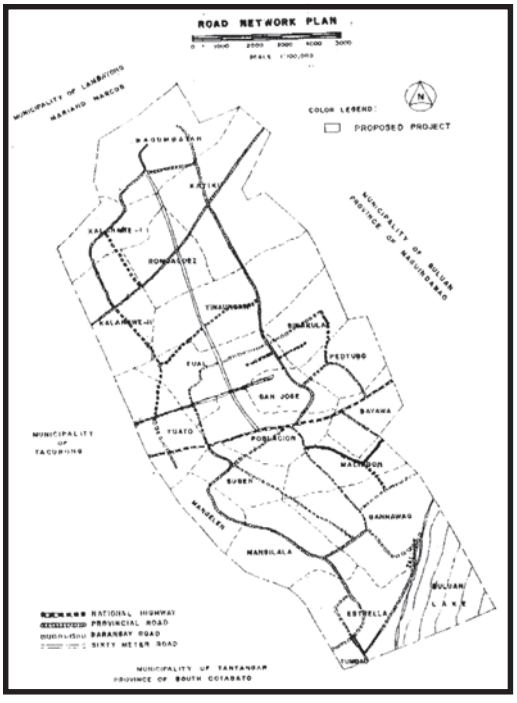
The project's success would also not have been possible without the production assistance given by the local government unit and the Bukidnon Organic Products Corp., which helped look for buyers of the farmer beneficiaries' organic rice.

BOPC provides incentives to farmers ranging from PhP0.20-PhP0.70 a kilogram above the prevailing market price of palay. This incentive is expected to encourage farmers to continue practicing organic rice farming. The marketing assistance covers at least 75 hectares of organic and in-conversion farms in the three villages.

A central processing facility for organic rice was likely established in Valencia City to cater to the increasing organic rice farmers. This was also in line with the Local Government's efforts to declare Valencia as the Organic Rice Capital of the Philippines.

Results show that at the end of two years, AJPN has made a difference in the lives of the farmers here.

Income has been increased and the results are encouraging enough to make one believe that the farmers will continue what they started and make Valencia City a showcase for successful organic farming.



Brgys. Tuato and Tual

Pres. Quirino Sultan Kudarat, Philippines

Site Development Plan

Prepared by: Philippine Development Assistance Programme, Inc. (PDAP)

Consumers in the Philippines and around the world are slowly but surely developing a taste for healthy, natural food.

One product that is benefiting from this trend is muscovado, defined as a non-centrifugal sugar or unrefined raw sugar obtained from sugarcane juice through the process of evaporation and draining off of molasses.

And when it comes to muscovado, Sultan Kudarat in Mindanao is showing great potential to benefit from the growing demand for the product.

Several muscovado mills are operational in Sultan Kudarat, particularly San Pedro and San Emmanuel in Tacurong City. These are operated using technologies that were acquired from their forefathers. Even the equipment that most of them use was handed down from generations.

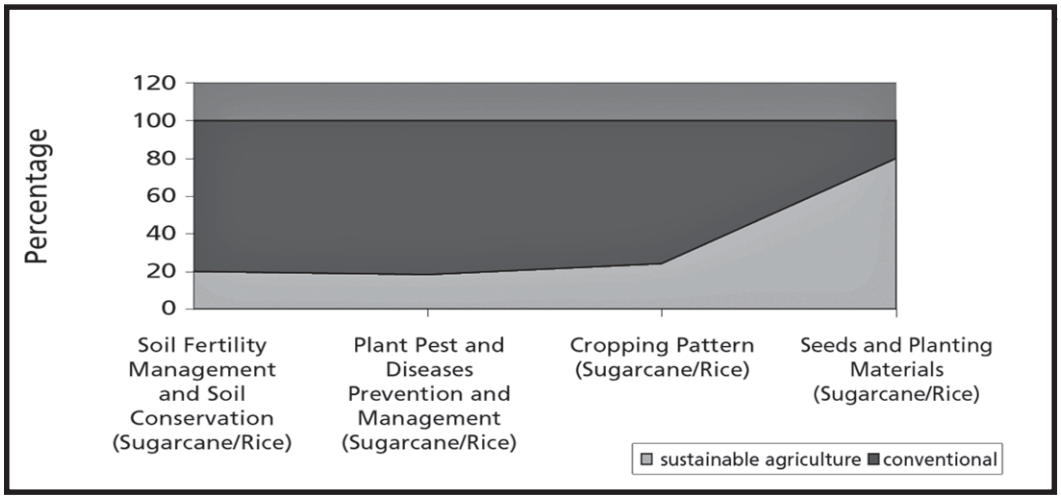
But a shift is happening and the muscovado industry here is stirred to look for ways to strengthen itself to compete in the local and international market.

Muscovado might again have the opportunity to become a "sunrise industry".

This is where The Asia-Japan Partnership Network for Poverty Reduction (AJPN)-Philippine Development Assistance Programme (PDAP) Project for Muscovado in Sultan Kudarat comes in.

The project covers three barangays: Tuato and Tual and San Emmanuel. Tuato and Tual are located at the municipality of President Quirino and San Emmanuel is located in Tacurong City. The Municipality of President Quirino and Tacurong City are within the Province of Sultan Kudarat.

Figure 10. **Farming Practices by AJPN Target Beneficiaries (SA vs. Conventional)**



A total of 75 farmers were involved in the project. 41 of 118 farmers in barangay Tual, 29 of 43 in Barangay Tuwato and five of eight sugarcane farmers in Barangay San Emanuel, Tacurong City.

Barangay San Emmanuel was given priority due to the small number of sugarcane farmers and muscovado producers in the area. They were included in some trainings and other activities to cater to the needs of sugarcane farmers in the area.

There are currently 271 farmers in Barangay Tual, of which 118 are sugarcane farmers. Barangay Tuato has 381 farmers, of which 43 are into sugarcane. Barangay San Emanuel of Tacurong has 239 farmers and only eight are sugarcane farmers.

Baseline survey showed that as much as 80 percent of the farmers were into conventional farming in terms of soil fertility management and conservation (sugarcane/rice), prior to the project and only 20 percent were adopting SA.

The majority or 81.3 percent were also into conventional method in terms of plant pest and diseases prevention and management. The data also showed that the majority of farmers in the area were into monoculture.

Some 76 percent of the farmers were into conventional while only 24 were into SA. Seeds and planting materials, on the other hand, showed the opposite. The majority or 80 percent were into SA while only 20 percent were into conventional method.

Average annual income in Mindanao was PhP 96,978 *(NSCB 2000 Data).*

Baseline survey showed that sugarcane farmers and muscovado millers for "Farm Income" had an average income of PhP 25,742 a year in terms of cash and PhP 97,177 a year in terms on non-cash (This does not include other sources of income).

The farmers in Sultan Kudarat, thus, earn more than the average farmer in Mindanao. This can primarily be attributed to the

equitable sharing scheme of Muscovado producers in Sultan Kudarat.

Sultan Kudarat had the raw materials needed to leapfrog into organic agriculture, especially in sugarcane.

Most muscovado millers in the area have their own sugarcane plantations. With the millers control over sugarcane production, they are assured of the steady supply of raw materials.

The project site also boasts of 21 muscovado mills. Out of the 12 owned by private individuals, only one is owned by a cooperative (San Pedro Sugarcane Planters MPC).

Then there was help that came from the Archdiocesan Center for the Development of Communities (ACDC) Foundation under the Order of Notre Dame (OND), which had existing training facilities for cooperatives and associations.

Sultan Kudarat Polytechnic State College (SKPSC) and Notre Dame of College of Tacurong (NDTC) also had available training facilities but training services was largely limited to entrepreneurial and business development.

Muscovado and Other Sugarcane By-products

Traditionally, sugarcane farmers tend to produce by themselves the naturally milled sugar popularly known as muscovado, or sliced (candied muscovado) and/or vinegar out of the yield.

During harvest, the farmers deliver their canes using a "kariton" or carabao cart and/or trailer to the mill. There is no truck scaler in the area to measure the actual volume of ton canes harvested per hectare.

The farmers determine their income based on the milled muscovado using ganta and/or "kawa" as basis for payment, which in turn sell it to local traders (or landowners/mill owners).

The product was then further distributed to various outlets in at least five areas, which include Zamboanga, General Santos City, South Cotabato, Bukidnon and Pagadian.

Support Groups

There are three people's organizations in every barangay that support farming/ agricultural activities, namely, the Women's Association or Rural Improvement Club (RIC), Poorest Among the Poor, and a Farmers Cooperative.

The Local Government Units are also quite supportive to the project. However, major

focus of LGU's in Sultan Kudarat, particularly in President Quirino and Tacurong is on hybrid rice, hybrid corn and Palm Oil.

The Archdiocesan Center for the Development of Communities (ACDC) Foundation under the Order of Notre Dame (OND) has been assisting farmers cooperatives and associations in Sultan Kudarat.

ACDC is currently producing Organic Fertilizers for the use of farmers that are into Sutainable Agriculture farming.

Technology

While muscovado production is a traditional industry in Sultan Kudarat, it has not prospered because technology has been largely unchanged since it was first introduced centuries ago and handed down through generations.

The same is true with equipment as most millers inherited these from their forefathers or bought them from other old hands in the business.

Most people are resistant to change, including farmers. Many prefer to hold on to traditional practices for fear of failure when new technologies are introduced.

Such barriers to innovations have prevented farmers from improving the sugarcane production technology.

Most farmers are also using conventional inputs to sugarcane production. Prices of conventional inputs are increasing year after year which greatly affected the return of investments of farmers.

As the farmers' return on investments and profit become smaller, they will eventually become poorer and end up entangled in the vicious web of poverty.

Government programs have not helped improve production. Previous efforts, for instance, saw the introduction of plant varieties that were either not applicable to communities or required too much capital for inputs.

Government programs have also overlapped in many cases and were not complementary. As a result, there was replication of programs and activities.

Associations and Networks

There are organizations, however, that have been helping bring about significant change in these barangays.

In Barangay Tual, there are four people's organizations, namely, the Women's Association with 40 members, Poorest Among the Poor with 15 members, San Pedro Sugar Planters MPC with 43 members, and the Parent-Teacher Association with 94 members.

Along with the presence of these barangay–based organizations are several social projects, which are currently being implemented in the barangay. This includes livestock raising, which started in 2004, benefited a total of 55 beneficiaries. The muscovado marketing, also started in 2004, involves 21 beneficiaries.

Among the organizations in the village, the San Pedro Sugarcane Planters MPC (SPSPMPC), established on February 6, 2001 is the pride of the barangay.

External supports from multi-donors have been poured much to the PO in the forms of financial assistance and support services. Despite these, the coop went through many failures in its business and organizational aspects due to mismanagement of the previous officers, which consequently caused division among the members.

The cooperative, however, survived its growing pains and has been recognized for its effort to improve muscovado production, which is the members' main source of livelihood. It has also attracted more investors and development projects related to the establishment of muscovado industry in the area.

Inspired by such developments, some inactive members went back with enthusiasm. The new set of officers also committed to devote the time and energy needed to run the cooperative smoothly and efficiently.

The coop, however, had no involvement with SA projects except milling accommodation to muscovado producers (non-SA). Note that the mill has an average daily capacity of four (4) "kawas" (140-160 gantas), accommodating one to two millers on a first-come first-serve basis.

The coop is strictly implementing policies for regular millers. Chance millers are refused but are advised to register first at the millers' list one week before harvesting.

They have also been recipients of various capability building training provided by multi-development stakeholders. Right now, the coop's assets acquisition increased from PhP 612,886.54 in 2001 to PhP 832,908.95 in 2002. However, the capital build up showed zero movement during this period, which maintained a record of barely PhP 16,250.00.

Barangay Tuato

There are about four associated groups or organizations in barangay Tuato, two of which are women's organization, the Women's Poor - Poorest, which has 33 members, and the Rural Improvement Club (RIC), which has 35 members.

The other two organizations are the Tual Carabao Breeders Association, which boasts of 19 members, and the Farmers MPC with 57 members. These organizations are all based in the barangay.

Hand in hand with these existing affiliations are social projects intended for each organization. The RIC has been a recipient of swine and goat raising projects since April 20, 2004. The Women's Poor-Poorest started its goat raising production on Feb. 7, 2004. The Poorest Among the Poor has been a recipient of carabao dispersal on Feb. 15, 2001.

The Farmers MPC (FMPC), which was established on March 20, 1996 is different from other groups because of its business and service to all members. Both landowner and tenant members are given equal access to its credit services (consumer store and agricultural inputs).

The coop has employed two sales clerks and a manager (for the consumer store) and a production manager (for the muscovado).

The board of directors is composed of the chair, vice and three members, while the general assembly has an aggregate membership of 57 active and regular farmer-members, most of whom are male.

The coop is not engaged with SA projects, and is limited to running the consumer store and providing agri-supply services to its members. It also gives dividends and patronage refunds to its members every year.

SA Technologies and Practices

The farm is located at the semi-lowland area and the farmer rotates between planting corn and sugarcane. During the rainy season, the area can not be planted with corn, which is only suitable during semi- dry season. The choice of crop usually depends largely on the weather.

Due to the increase in prices of farm inputs, most farmers in the area have started to practice LEISA.

Farmers with sufficient funds to purchase farm inputs however, continued to farm the conventional way.

Conventional Farming practices common among traditional farmers, however, have been driving them towards the depths of poverty mainly because the increase in costs has outpaced the corresponding increase in income.

Opportunities and Strengths of the Project Site

The desire to break free from the bonds of poverty made the farmers here mainly receptive to the idea of adopting Sustainable Agriculture techniques.

To spread the gospel on Sustainable Agriculture, farmers cooperatives were tapped to help the farmers as farmers have faith in these groups.

The millers were also allies as they act as the middlemen in production and the buying of sugarcane in the community.

Farmers often request an advance from their "suki" millers to purchase farm inputs and during harvest, the latter also purchase the whole product and sells them to their contact muscovado buyers.

The millers in the area are very influential in terms of suggesting necessary changes in production technology.

The traditional compensation "sharing" system of the sugarcane production in Sultan Kudarat is also quite peculiar than other farm production sharing system. The compensation between labor and land owners is 50/50 after deducting all related expenses.

This system in Sultan Kudarat is very much equitable than in any farm practices and regions throughout the country.

In this situation, assisting the landowners is also tantamount to assisting the laborers in the community.

The Project Site Development Plan

PDAP-AJPN intervention for the Muscovado in Sultan Kudarat, thus, can be described as an integrated approach where marginalized farmers were not the only ones given due focus.

Millers and landowners were also taken into account as part of the solution to reduce poverty in the community.

Due to the peculiar situation in the community and the equitable sharing system, millers are likely to lead the journey of reducing poverty in the community.

PDAP Intervention was not limited to enhancing agricultural productivity through Sustainable Agriculture, but included Muscovado Processing Technology and Establishment of backward and forward linkages as well.

The strategy was aimed primarily at increasing the production of *muscovado*, to cater to a *niche* market in the context of a declining sugar industry and of the Philippine agriculture sector, in general.

Another aim of the this strategy is to shift to increase the production of *organic* muscovado sugar, to position the product at a *growing export market* and obtain *premium prices* for such.

Finally, the aim of the strategy is to improve the trading and marketing of organic muscovado, the challenge includes improving *international competitiveness and product positioning* in terms of product quality through good manufacturing practices and organic standards.

A packaging, branding, and market positioning aimed at organic niche market will allow producers to gain access to higher market prices.