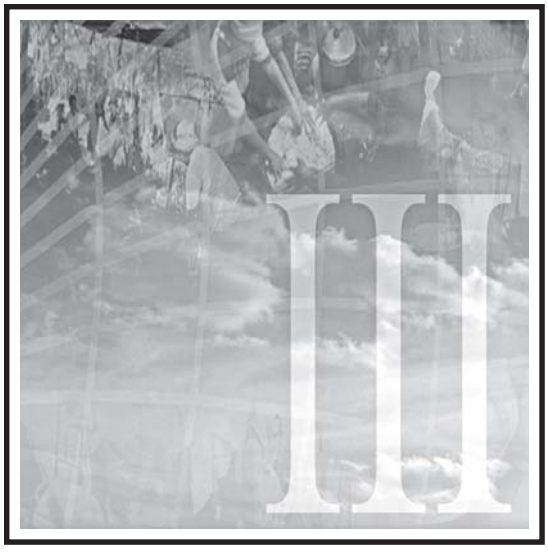

Khamkalan and Parmalpur

Kaimur, Bihar, India

Project Site Profile

Prepared by: Association of Voluntary Agencies for Rural Development (AVARD)
Edited by: Teresa Lingan–Debuque

The project site in North India consists of two small villages in Bihar: Khamkalan and Parmalpur.

Agriculture is the major source of income in both villages. Khamkalan households get 71 percent of their income from farming, and the rest from non-farm activities. In Parmalpur, households appear to have more alternate sources of income, although over half of their income comes from agriculture-related activities.

The average annual income a household in Khamkalan is Rs. 19,239 (US$458), or US$1.25 a day. In Parmalpur, both farm and non-farm activities yield better returns than in Khamkalan; the average annual household income there is almost three times higher: Rs.57,446 (US$1,367). Nonetheless, this income level is still considered quite low for a six- to eight-member household—the average household size in Khamkalan.

Agricultural Practice

Khamkalan has a rainfed agriculture system. *Kharif* (autumnal) crops are primarily grown with rainwater, but in the latter stages of cropping, some farmers use the lift irrigation system when necessary. On the other hand, *Rabi* (spring) crops are wholly dependent on lift irrigation.

Meanwhile, Parmalpur's semi-arid agriculture system is characterized by an irrigation canal system and tube wells owned by individual farmers. Both *Kharif* and *Rabi* crops are completely dependent on irrigation canals. Alternatively, farmers use tube wells when the irrigation canal dries up.

The total area planted in Parmalpur is 57 percent higher than in Khamkalan. Parmalpur farmers also have larger (*i.e.,* by almost a hectare) combined and per parcel landholdings than farmers in Khamkalan. Cropping intensity, or the rate of land use during cropping seasons, is also higher (by 44 percent) in Parmalpur than in Khamkalan.

Parmalpur likewise grows more crops on its lands. Rice and wheat are its major crops, while mustard, linseed, gram and lentil are common secondary crops. Khamkalan farmers tend to observe a longer fallow period and focus on growing paddy and wheat.

Farmers in Parmalpur and Khamkalan have fairly good access to land. Almost all farmers in both villages are owner-cultivators and only a few are mortgagors and shareholders. These lands are mostly acquired by inheritance while the rest are either bought or acquired through agrarian reform.

Adoption of Alternative Farming Practice

Both Parmalpur and Khamkalan farmers know little of Sustainable Agriculture technologies, the former being much less knowledgeable than the latter.

Soil Management

The application of animal manure is the most common practice adopted by the farmers to enhance soil fertility. Some farmers also practice a form of composting but none of them is trained to do it properly.

In Khamkalan, as much as 81 percent of farmers use animal manure on their farms; 5 percent practice composting; and 10 percent apply chemical fertilizers. In Parmalpur, all farmers use chemicals to fertilize their farms, although 41 percent also use animal manure and 20 percent practice composting.

Plant Pest Management

None of the farmers in either village practices sustainable pest management techniques. In fact, almost all farmers (98 percent) in Parmalpur and 8 percent of those in Khamkalan use chemical pesticides.

Cropping Pattern

The two villages are characterized by different cropping patterns, which are in turn determined by the source of water for agriculture. Khamkalan farmers observe a longer fallow period for paddy and wheat cultivation, while in Parmalpur, wheat is rotated with secondary crops like mustard and lentils, with a fallow period observed after the second cropping.

Seed and Planting Material

Different seed varieties are used in the two villages. In Khamkalan, most farmers (86 percent) use traditional varieties, while in Parmalpur, most (87 percent) prefer the improved lines. Generally, however, farmers in both villages use high-yielding varieties: 93 percent in Khamkalan and 81 percent in Parmalpur.

Utilization of Organic Materials

There are enough organic materials for use in the farm, as farmers in both villages attested. Such materials may be sourced within the farm, or within or outside the village.

Cost of Agricultural Inputs

Parmalpur's farmers spend more than Khamkalan's farmers do in growing both major and secondary crops. In particular, they spend 107 percent more on secondary crops, and some 55-64 percent more on major crops. The discrepancy could be explained by differences in farming practice in the two villages.

For example, Parmalpur's farmers use as much as 20 times more chemical fertilizers than do farmers in Khamkalan. In fact, Parmalpur's higher production cost can be attributed to this difference in fertilizer spending. Khamkalan's farmers spend a lot less on fertilizers partly because they use animal manure in place of chemicals, but mostly because they can't afford to buy more of it.

However, in both villages, wheat and paddy production use up more chemical fertilizers than other crops. Farmers in Khamkalan as well as Parmalpur are also generally unaware of the proper application of fertilizers, and thus get lower yields than they should.

Farmers in Parmalpur allot 1.3 to 1.8 percent of their total production cost on irrigation for all of its crops except paddy where irrigation costs twice as much. Farmers in Khamkalan do not spend on irrigation since their crops are mainly rainfed.

On the other hand, farmers in Khamkalan spend more on seeds than do those in Parmalpur. In fact, the cost of seeds makes up a bigger portion of the total production cost in Khamkalan than in Parmalpur, especially in the case of gram, lentils, linseed, and wheat.

Labor makes up the bulk of spending of farmers in both villages. Labor requirements are highest during planting and harvesting, particularly for paddy.

Farm Productivity and Farm Income

In Parmalpur, the highest farm yields are derived from paddy and wheat production while in Khamkalan, the top grossers are gram/pigeon pea and wheat. Mustard trails the other crops in both villages. Livestock products, particularly cow's milk, are also underperformers in both villages.

Most of Parmalpur's farmers sell their crops, while those in Khamkalan either use their produce to repay loans or consume it themselves. Yet, Parmalpur's farmers are no better off financially from selling their produce.

Some 14-30 percent of their wheat and paddy produce goes towards repaying loans; 6-8 percent is used to pay their farmworkers; and 1-11 percent is put aside as planting material for the next cropping.

In Khamkalan, farming is largely subsistence rather than income-generating. Yet, farmers set aside more of their produce (especially of wheat and paddy) to pay off their loans than to feed their families.

The net income from the production of major and secondary crops in both Khamkalan and Palmarpur is quite low.

Gram/pigeon pea and lentil cultivation appear to be the most profitable for farmers in Khamkalan. The average net income per cropping from gram/pigeon pea cultivation is Rs 5,390 or US$128, while from lentil it is Rs3,650 or US$87.

Farmers earn only half as much from growing major crops, i.e., paddy and wheat. For instance, paddy production earns only Rs 2,250 or US$53 a hectare, or a net income of US$101 a cropping (duration: four months). Farmers earn just a little more from growing wheat, at US$118 a cropping.

In Parmalpur, paddy, lentil and wheat production generate the highest income. With earnings from major crops and few secondary crops, Parmalpur is in a bit better condition than Khamkalan. Its highest profit is generated from paddy production, at an average net income of Rs 9,050 or US$215. Lentil production comes second, with an average net income equivalent to US$198; followed by wheat, with US$165.

In general, net returns are higher in Parmalpur than in Khamkalan, except for gram/pigeon pea. It is particularly higher in paddy, wheat and lentil production. Mustard growing has the lowest return in both areas.

Access to Credit

In Khamkalan, farmers choose between local moneylenders and the rural bank, which lend at 5 percent and 10 percent interest, respectively. Relatives and neighbors are likewise immediate sources of credit. However, in all cases, the loan amount is minimal, including loans taken out from the bank. On the other hand, Parmalpur farmers appear to borrow only from the State Bank of India, which lends at 9 percent interest.

Marketing

Local traders are the major buyers of almost all types of crop produce. In Parmalpur, sales are highest for paddy, lentil and linseed, while in Khamkalan, gram/pigeon pea, linseed and paddy are the biggest sellers.

Khamkalan and Parmalpur products are similarly priced, but their marketing costs are not the same. Due to terrain and distance from the city, marketing costs are about 50 percent higher in Khamkalan than in Parmalpur. This translates to lower incomes for Khamkalan farmers.

Food Security

In Khamkalan, most of the food consumed by the family is bought and takes up almost half or 48 percent of the total household income. The portion of the harvest set aside for a family's consumption is clearly not enough to last a family until the next harvest period.

In Parmalpur, only 27 percent of the household income is allocated for food. While the percentage of yield consumed by the household appears to be smaller than in Khamkalan, the absolute volume is actually higher. As a result, Parmalpur households depend less on the market for their food needs and are in this sense more food-secure. Moreover, with their higher yield and other non-farm sources of income, Parmalpur farmers also have greater purchasing power.

Nevertheless, spending on other household needs and loan repayments limits the households' option to allocate more of their produce for their own consumption. Paddy, wheat and mustard are the usual crops saved for household consumption in Parmalpur, while households in Khamkalan generally consume their wheat and mustard produce.

Moravapalli and Kothapalli

Pulicherla Mandal, Chittoor District, Andra Pradesh, India

Project Site Profile

Prepared by: South Asia Rural Reconstruction Association (SARRA)
Edited by: Teresa Lingan–Debuque

The project site in South India consists of two villages (Moravapalli and Kothapalli) located in the municipality of Pulicherla Mandal of Chittoor District, Andra Pradesh, India.

The majority of families in the two areas belong to the scheduled (untouchable) caste; while the rest are classified as "economically backward" or "backward caste". Half of the families are nuclear families and the other half are extended families, with an average of four members.

Agricultural Practice

Farming is the major source of income of all families in the two villages. Most own their farm lands, although there is a rather huge gap in the size of landholdings: 56 percent of landholders have less than a hectare each and are considered marginal farmers; while 26 percent are small farmers, with two hectares of farmland each. The rest of the farmers (18 percent) are landless agricultural workers.

To augment their farm income, marginal farmers and their families hire out their labor and raise some livestock. Small farmer households, on the other hand, engage in various regular and temporary employment.

Small farmers and a few marginal farmers earn Rs.40,000-Rs.50,000 (US$950-US$1,200), or an average of US$3 a day (2004). On the other hand, landless and marginal farmers earn less than Rs.10,000 (US$238), or a measly US65 cents a day. Apparently, household farm incomes are a function of the size of landholdings as well as of landownership.

Of the farmer-owners, 76 percent acquired their land as a result of agrarian reform, 22 percent inherited it, and 2 percent bought it.

Groundnut (peanut) is the major crop in the project site. Some 40 hectares in all are planted to this crop. However, due to lack of rainfall, only part of this land area is actually cultivated. Farmers also grow secondary crops such as mango orchids, *jowar* (a type of millet), and horse gram (a type of pulse used as animal feed).

Most farmers are dependent on rain for farming, including farmers in upland areas (95 percent) and the small number of them in lowlands (2 percent). Only 2 percent of farmers benefit from irrigation.

Most farmers also raise livestock. Eight-eight percent of them have four poultry birds; 40 percent have three cows; and one family has 18 heads of sheep.

Adoption of Alternative Farming Practice

Farmer-owners in the project site practice a combination of conventional and Sustainable Agriculture methods.

Soil Management

The practice of applying animal manure as fertilizer is familiar to the farmers, but few of them actually use it on their farm lands. In fact, half of the marginal farmers and 60 percent of small farmers prefer chemical fertilizers. A very small percentage practices mulching, while none of the farmers has adopted green manuring and cover cropping.

Plant Pest Management

None of the sustainable pest management techniques is observed among the farmers. At the same time, only a few of them (5 percent of marginal farmers and 15 percent of small farmers) reported using chemical pesticides.

Cropping Pattern

Ninety percent of farmers engage in intercropping. Other cropping methods, however, such as polyculture, crop rotation and multi-storey cropping are unknown to them.

Seed and Plant Material

Most farmers (90 percent) prefer improved varieties of seeds and planting materials. Only a few (10 percent) opt to use traditional varieties. However, almost all of them use high-yielding seed varieties.

Cost of Agricultural Inputs

Seeds account for the bulk of spending by both marginal and small farmers. Besides their high cost, the high-yielding seeds which the farmers prefer are not easily accessible and are prone to pest infestation.

A few farmers have been observed to use pesticides, although there is no available data on actual spending.

Since most of the farms are rainfed, farmers do not spend on irrigation.

Marginal farmers pay hired hands only during planting, and spend an average of Rs.300. The rest of the time, farm work is done by family members and other relatives and is therefore unpaid.

An average of eight people are needed for each farming task. Except for planting, where females dominate, all other activities are done by an equal number of men and women. Male and female workers are paid the same wages.

Small farmers have more labor requirements. Some 20 to 25 people, mostly women (77 percent), are hired for planting, weeding and threshing. These get Rs.10 for land preparation and Rs. 40 for planting, but much less for the other tasks. Hence, 40 percent of small farmers' spending on labor is allocated for planting.

Women are paid the same as the men. However, the women also make up the majority of unpaid laborers who are recruited for land preparation and drying.

Small farmers pay double the amount paid by marginal farmers on machine rental and workers' food, since their bigger farm lands require more work than family members can handle.

Farm Productivity and Farm Income

Recent records of gross production value generated would indicate that marginal farmers are more productive than small farmers. However, this may be explained by the fact that fewer small farmers than marginal ones actually did any farming in that cropping, and on a smaller area than that planted by marginal farmers (i.e., 4.4 hectares compared to 6.4 hectares planted by marginal farmers).

As it happened, the small farmers opted to concentrate on other income sources rather than risk crop failure due to limited rains.

In the meantime, landless households that raised livestock yielded only 10 percent of the gross production value attained by small and marginal farmers.

Groundnut production yielded a high return, despite the reduced effective area planted (less than a hectare each for small

and marginal farmers). The farmers also earned from residual products from groundnut production, such as fodder and pulses. Cow's milk production yielded a return of 79 to 94 percent, excluding the income from selling the calf and manure.

Access to Credit

The majority of farmers have outstanding obligations ranging from Rs.5,000-Rs.15,000 (US$120-US$360), while a few have much larger loans.

Self-help groups (SHGs), money lenders, banks and other groups are common sources of credit. However, farmers prefer to go to SHGs (44 percent) and even moneylenders (20 percent), who charge as much as 24-28 percent interest a year, because of the ease and speed at which loans are released. For bigger loans, however, banks are still popular. Meanwhile, among landless workers, SHGs are the only option.

Loans are frequently used to buy food or to pay for health, education and other household expenses. Only the small farmers take out loans for farming purposes.

Marketing

The farmers sell 50-60 percent of their groundnut produce and 80 percent of the cow's milk. Groundnuts are generally sold to middlemen, cow's milk to dairies, and mangoes and sheep at the market. All these products are sold fresh and unprocessed, as none of the farmers is engaged in processing their products.

Groundnut producers complain of various marketing-related problems, namely: (1) lack of storage space and facilities; (2) absence of a credit facility or village-level market support from the Government; (3) lack of skills in product processing; (4) absence or inaccessibility of other market outlets, such as factories, which forces farmers to sell only to middlemen; and (5) corruption in the marketing of groundnuts.

Food Security

Some 13 to 14 percent of livestock products and 21-28 percent of the groundnut produce are set aside for household consumption. This indicates a level of household food security, at least insofar as peanut and milk consumption are concerned.

Purchasing power among the farmers is also rather high, since half of them spend just Rs.10,000-Rs.20,000 (US$238-476) on food. Only 14 percent spend more than this. However, this food budget is still small considering that farmers buy all of their rice.

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

Kulon Progo, Jogyakarta, Indonesia

Project Site Profile

Prepared by: World Food Day Secretariat
Edited by: Teresa Lingan–Debuque

The six villages of Banjaroya, Banjarasri, Jatisarono, Pagerharjo, Giripurwo, and Hargorejo comprise the project site in Kulon Progo, Jogyakarta, a city in southern Java, southeast of Jakarta. The main Kulon Progo region is a rain-fed area. About 80 percent of the project site is located in a sloping area; the rest is in flat or lowland areas.

Households generally have four to five members. A few households (10 percent) are quite small, with just two to three members.

Households earn rather low incomes from both farm and non-farm work—less than Rp.500,000 (US$60) a year, or US16 cents a day. Moreover, almost half of all households earn no income at all.

Nonetheless, households generally own their homes, homelots, and farmlands. The average landholding is about 6,000 square meters in size, or a little more than half a hectare. Yards or tree plantations, on the other hand, have an average size of about 10,000 square meters or one hectare.

Agricultural Practice

Sixty-seven percent of farmers are owner-cultivators. Thirteen percent are concurrently owner-cultivators and share tenants on other land parcels; and the rest are alternately share tenants, farm workers and owners.

Kulon Progo gets its water from the rain and the river. Hence, farmers generally depend on the rain and other natural water sources, such as the river and deep wells. Access to irrigation is rare.

Rice and cassava are the most common crops planted by farmers. However, many of them are also engaged in the cultivation of coconut, maize, cloves and tubers.

On hilly land, farmers usually plant more than one secondary crop. Lemongrass, soybean, vanilla, etc. are planted alongside cassava, fruit trees, palm trees and clove. A number of fruit trees, such as durian, jackfruit, avocado and others, can also be found being grown on farmlands.

Chicken is the most common livestock raised in the villages, although goats, cows, rabbits and ducks are also seen around the villages. A very small percentage of households are engaged in fish cultivation.

Adoption of Alternative Farming Practices

Many of the farmers practice Sustainable Agriculture, especially in regard to soil fertility management and cropping method.

Soil Management

Farmers use animal dung (36 percent) and compost (31 percent) to enhance soil fertility. A few others use rice straw and green manure. Farmers have access to a variety of organic materials to fertilize the soil.

Plant Pest Management

To control pest infestation, farmers have a wide range of local materials to choose from, including bitter leaves, ginger, galangal and other medicinal crops. By adopting multiple crops, the farmers help stabilize the agroecosystem, thus reducing plant pest infestation and diseases.

Cropping Pattern

A little over half of the farmers are engaged in multiple cropping (i.e., combining major crops and fruit trees with secondary crops), as evidenced by the diversity of agricultural products in the project site. On rice lands, a number of farmers adopt variations in crop rotation, for example, alternating rice cultivation with cash crop production.

Cost of Agricultural Inputs

Because of their heavy reliance on local materials to fertilize the soil and to control pests, the farmers spend little, if at all, on agricultural chemicals.

They also generally don't have to pay farm workers as much of the work is done by them or by household members and relatives—a common enough practice among poor farming communities.

Farm Productivity and Farm Income

Farmers get their highest yields from cassava, at 10 tons a hectare. Rice is a distant second, yielding 4.5 tons a hectare, followed closely by maize/corn, at four tons a hectare.

However, growing rice is by far the most profitable, yielding an average gross income of Rp 6,750,000.00, or about US$ 794. Corn comes next, with US$470, and cassava, with Rp 294.

Access to Credit

There are various credit sources in the project site. Formal sources include banks, the credit union and cooperatives. Farmers who are members of cooperatives can acquire collateral-free loans at 1-3 percent interest a month.

The banks charge 16-20 percent interest a year and require collateral. Banks generally give out bigger loans (average: Rp3,000,000 [US$353]) than do cooperatives (average: Rp1,200,000 [US$143]).

Neighbors and local stores are alternative (informal) credit sources. Such loans usually pay for the seeds and are repaid upon harvest. Farmers also borrow money to pay for farm labor, especially during land preparation and planting, but they have to pay this back soon after (i.e., after one to two weeks). Credit from local stores—usually for food items—has to be repaid in one to five days.

Marketing

The traditional market is the most common venue for selling produce. The local market and middlemen are also common distribution channels, especially for bulk sales. Other farmers sell their products to cooperatives and selected groups or contacts.

Food Security

Households generally consume their fruit products, and sell these only when necessary.

Rice is the staple food, but is sometimes replaced by cassava and taro, especially during a drought.

In the uplands, vegetables are grown mainly for household consumption. In the lowlands, however, vegetables are mostly sold.

Banjarnegara, Punggelan and Paseh Sub-Districts

Propinsi Jateng, Indonesia

Project Site Profile

Prepared by: Sekretariat Bina Desa
Edited by: Teresa Lingan–Debuque

The project site in Propinsi Jateng District in Indonesia consists of the villages of Banjarnegara, Punggelan and Paseh. All three villages are in the uplands.

The typical household in the three villages is small, with just four members on average.

Farming is a major source of income in the three villages. Thirty-one percent of households rely on it exclusively, while 51 percent combine it with non-farm work. The rest are engaged solely in non-farm activities, such as trading, carpentry or construction labor, or are employed as teachers and local government personnel.

Sixty-three percent of the total household income is derived from non-farm sources. With more income coming from non-farm activities, each household earns an average of Rp 11,100,807 (US$1,306) a year, or US4/day.

This income level is relatively high for a family of four. However, there are significant income differences among households, with the most well-off earning US$5000 and the poorest, a mere US$125 a year.

Agricultural Practice

Farmers either own or rent their farmlands. Eighty-six percent have their own farmland, most of which were inherited and some were purchased. Many of the farmers have been working on their lands for over 10 years.

As the villages are located in the uplands, almost half of the farmlands are rainfed. Meanwhile, of the lowland farms, 21 percent are rain-dependent.

Despite this, the farmers are able to grow a number of major crops, such as zallaca palm, rice paddy and cassava. A variety of secondary crops, along with various tree species, are also cultivated in the villages. Banana is a common secondary crop, frequently planted on farmers' second parcel of land. Other secondary crops are coconut, albasia, long beans and corn, among others.

Some livestock are also raised in the villages, such as goats, chickens and ducks. A few farmers maintain fishponds.

The practice of Sustainable Agriculture is widespread in the three villages. Sustainable agriculture adoptors attest to the initial decline in production following the shift to Sustainable Agriculture, and to the eventual recovery of the soil, leading to improved fertility and better yields in future.

However, a significant number of farmers (20 percent) are unfamiliar with Sustainable Agriculture technologies and unaware that these are being implemented in their village.

Adoption of Alternative Farming Practice

Soil Management

Almost all of the farmers are used to or have tried out some form of soil conservation/ enhancement method. Seventy-five percent of the farmers apply animal manure on their crops; a smaller percentage practices mulching and composting; while some maintain hedgerows and cover cropping.

The diversity of soil conservation practices indicates the farmers' high level of awareness of how local materials can be used to conserve and manage the soil.

At the same time, however, 25 percent of the farmers use chemical fertilizers and lime for the same purpose, especially in paddy cultivation.

Plant Pest Management

The farmers are rather less familiar with sustainable pest management practices. Nonetheless, there is at least one farmer practicing each type of pest management technology, the most common of which is Integrated Pest Management (IPM), which has been adopted by a number of farmers. However, the use of pesticides, particularly, nematocides, is still quite prevalent.

Cropping Pattern

Seventy-two percent of the farmers practice polyculture, or the cultivation of multiple crop species on the same land, which is more sustainable than the conventional monoculture.

Other farmers engage in crop rotation, multi-storey cropping and intercropping. However, some 12 percent of the farmers have kept to monoculture, especially in paddy cultivation.

Seed and Plant Material

Judging solely by the kind of seed and planting material used, almost 75 percent of the

farmlands may be classified as under Sustainable Agriculture.

Fifty-three percent of the farmers prefer to use improved lines, especially for zallaca palm production. Other farmers (21 percent) producing paddy, albasia and cassava use both improved lines and the traditional variety.

On the other hand, hybrid and high yielding varieties are also used by some farmers (22 percent), especially for paddy production.

Utilization of Organic Material

Farmers have easy access to organic materials; hence the widespread practice of applying them on the farmlands. Half of them get such materials within the farm itself; others outside the farm, but within the village.

Cost of Agricultural Inputs

Paddy production using chemicals is 15 percent more expensive than organic production, owing primarily to the high cost of chemical fertilizers and pesticides. Seed, labor and milling costs, however, are about the same for both farming systems.

Labor costs may seem to be slightly higher for organic farming (68 percent of the total cost for organic farming vs. 59 percent of the cost of chemical farming) but in fact, both systems require the same manpower for all farming activities. Labor costs are particularly high during land preparation, planting and harvesting.

In particular, the cost of zallaca palm production is highest in the first year and tapers off towards the fifth year. After the initial spending on seeds, which accounts for as much as 71 percent of the total cost, the zallaca palm stem generates yield for several years, thus reducing the production cost by 70 percent on the second year.

Fertilizer costs are also higher in the initial year and then level off at 40 percent of total cost until the fifth year. Labor makes up the bulk of spending till the fifth year, at 60 percent of total cost, but is still cheaper on the second year onwards because there is no longer need for land preparation, planting and re-planting.

Farm Productivity and Income

The highest yields are derived from cassava, followed by coconut and banana.

The yields of major crops like paddy and zallaca palm are quite low. This is due to the small size of holdings (the average landholding per farmer is 4,300 sq. meters) and the lack of irrigation. Yet, farmers still earn more from cultivating them compared to other crops.

Moreover, the diversity of agricultural products cultivated in the project areas augments the income from farming and to some extent lessens the farmers' vulnerability to unfavorable farming conditions.

Cost and return estimates show that growing organic paddy should be highly profitable—considering the potential yield of 7.5 tons a hectare.

Milled organic rice should produce a 178 percent return on investment (ROI), compared to ordinary rice's 123 percent ROI.

Hence, the net return a hectare from organic paddy production would be about US$ 400 and US$1,000, for unmilled and milled rice, respectively. Chemical cultivation produces a much lower net return: US$ 300 and US$900, for unmilled and milled rice, respectively.

On the other hand, the cost and return estimates for zallaca palm production forecast that in the first year, farmers would at best break even, because of the initial high cost of seeds/stem. Actually, a negative net return would be quite probable on the first year. However, in the fifth year, the net return is expected to be double that of the cost of production.

Marketing

Agricultural products, particularly the major crops, are sold *unprocessed* to the *tengkulak,* or middlemen.

Food Security

Households sell *all* of their products, except for a small portion of their paddy and zallaca palm harvest which they set aside for the family's consumption. This explains their high spending on food. Therefore, household food security in the three villages is more a function of income rather than production.

Bgys. Sinayawan and Tongantongan

Valencia City Bukidnon, Philippines

Project Site Profile

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

The project site in Bukidnon consists of two villages: Tongantongan and Sinayawan. Tongantongan has a land area of 3,300 hectares, 59 percent of which is lowland and the rest, upland. Roughly half of the lowland area is rainfed, and the other half, irrigated. Two rivers—Maapag and Pulangi—supply the village with water.

Tongantongan supplies rice to nearby Valencia City and Cagayan de Oro City. Sinayawan has a total land area of 1,891 hectares, of which 68 percent is classified as plain and the remaining 32 percent as hilly. Some 426 hectares of its land are devoted to agriculture. Its agricultural area covers approximately 425.98 hectares. Sinayawan is Valencia City's largest rice producer.

Two members of every household (averaging five members each) do on-farm, off-farm, or non-farm work. Eighteen percent are salaried employees or run their own business; a few make a living from raising livestock.

However, all households depend on agriculture for most or all of their income. Eighty-two percent are engaged in organic rice farming, 55 percent are corn producers, and some grow rice, sugar, coffee, and vegetables.

The average household income a year ranges from PhP50,001 to PhP100,000 (US$ 910 to US$1,800), or US$2 to US$5 a day. At this level, families are hard-put to provide for their household needs, especially during the lean months.

Agricultural Practice

The majority of farmers (65 percent) own the land they cultivate. This means that they are able to make decisions concerning their farmlands. Most of the lands were purchased, inherited, or awarded through agrarian reform.

Agricultural landholdings are quite small, averaging 1.31 hectares a farmer. In fact, almost 25 percent of farmers have less than a hectare each, while a few have five hectares or more. The majority have one to two hectares.

Most farm lands are irrigated and found in the lowlands. Only a few are rainfed.

Rice is cultivated exclusively on 42 percent of the farm lands. Rice, as well as livestock, is grown on another 42 percent of lands, while the rest combine major and secondary crops, and livestock.

The other major crops are vegetables, banana, corn, and mango. Fruit trees are secondary crops.

Adoption of Alternative Agricultural Practice

The farmers have a rather wide knowledge of sustainable agricultural practices. However, conventional farming is still prevalent.

Soil Management

A large number of farmers have adopted practices such as mulching and planting of hedgerows. Cover cropping, composting, and use of green manure are other common practices to enhance the fertility of the soil. However, nearly half of the farmers are still dependent on synthetic fertilizers and lime.

Plant Pest Management

Only a few farmers here use chemical pesticides. Ecological pest management (EPM), which uses the interactions among pests, predators, and microorganisms on the farm to control pest infestation, is the most popular system for managing plant pests, followed by the use of biological pest repellants and Integrated Pest Management.

Cropping Pattern

The majority of farmers still practice crop monoculture. Very few have adopted polyculture, and other forms of crop diversification on their farm lands.

Seed and Plant Material

Most farmers (65 percent) use or prefer traditional crop varieties, especially the improved (by plant breeding) ones. A few use hybrid varieties.

Availability of Organic Material

Organic matter for soil management is plentiful and easily available in the project site.

Plans to Adopt or Upscale Organic Farming

Farmers who are the most informed or knowledgeable about Sustainable Agriculture are the most inclined to adopt new techniques. Many of them in fact are making plans to adopt organic farming, while others would like to convert more of their lands to organic farming.

Cost of Agricultural Inputs

The high rate of adoption of Sustainable Agriculture, particularly LEISA (Low External Input Agriculture) in the project site is reflected in their relatively low spending on inputs—PhP 3,925 or 28.3 percent of the total production cost—and their high labor costs—65 percent of total production cost.

Spending on seeds is low, as farmers produce their own or trade seeds with other farmers. Land rent is paid only by the few who do not own their lands. Water is mostly supplied by the two big rivers in the area.

Other expenses amount to some PhP 600 a hectare. These include food for workers, fuel and oil among those who have their own irrigation pump and other equipment, and rent on equipment for those who do not have their own.

Farm Productivity and Farm Income

The average rice yield is 4.12 tons or 82 cavans a hectare. This is a better than average performance, and proves that organic rice farming can be just as viable as conventional rice farming.

In fact, rice production in the project site shows a 208 percent return on the cost of production, and gives farmers a net income of PhP7,261.60 a month.

Access to Credit

The most popular source of credit in the project site are private individuals, who also happen to charge the highest interest rates (5-9 percent a month on loans ranging from PhP 9,000 to PhP 23,000) but are frequented nonetheless because they supply credit quickly.

Cooperatives and NGOs also give out loans ranging from PhP 5,000 to PhP 24,000, and charge a lower interest rate (2.5 percent, and 3-4 percent a month, respectively). Local traders and investors are another common credit source, charging six percent interest on loans not bigger than PhP 37,500. Banks and government lending institutions are the least popular source of credit.

Marketing

Farmers sell as much as 75 percent of their rice harvest, and set aside just 15 percent of it for their own consumption. The rest is saved for the next cropping or used to pay farm workers. None of the rice harvest goes towards paying loans.

Organic rice is sold to cooperatives, NGO marketing groups, traders, retailers, or directly to consumers. Inorganic rice is sold to traders and other groups who provided the production loans.

BOPC, a non-government organization engaged in marketing of organic produce, pays the highest prices for organic rice, or as much as PhP10.50 a kilogram. MAKAKABUS, an organization of organic rice growers, facilitates the sale of organic rice produced by its members to BOPC.

BOPC buys unmilled rice from the farmers, paying PhP0.070 more than the farmgate price, processes it, then packs and delivers it to supermarkets and other outlets.

Another NGO, KAANIB, is also engaged in buying fresh organic rice, paying PhP 0.30 more a kilogram than the prevailing price, and sells it to supermarkets or directly to consumers.

Food security

Households spend PhP 27 to PhP 55 on food a day, or PhP 5 to PhP22 a person in a five-member household. This does not seem like much, but then food is relatively cheap in the area. Besides, households generally put aside over a 10th of their rice harvest for their own use.

Judging by the fact that households produce their own staple food and usually have enough money to buy their other food needs, they can be said to be food secure. However, there are still a few households in the project site who borrow money just to buy food.

Brgys. Tuato and Tual

Pres. Quirino Sultan Kudarat, Philippines

Project Site Profile

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One project site in the Philippines is located in Sultan Kudarat, and includes three barangays: Tuato and Tual in President Quirino; and San Emmanuel in Tacurong City.

Brgys. Tual and Tuato are predominantly agricultural areas. Of the 867.07 hectares comprising Barangay Tual, 858.51 hectares (or 99 percent) are agricultural. Similarly, 90 percent of Barangay Tuato's land (or 832.06 hectares out of a total land area of 921.07 hectares) is devoted to agriculture. Both barangays are primarily rain-fed lowland, and drought-prone.

There are two distinct seasons in both places: wet and dry. The dry season starts in October and ends in April in Tual; while in Tuato it starts much earlier, in January. The month of May signals the beginning of the wet season in both barangays, lasting till September in Tual and till December in Tuato. Palay and corn are planted in Tuato during the wet season, while sugarcane is planted/harvested throughout the year.

The majority of households, averaging five members each, have two income-earners. A smaller number of households are supported by just one income-earner, while the rest have three to five members earning a living for the family.

Agricultural Practice

Most households depend on farming, although a significant number is engaged in non-farm work, such as salaried employment and wage labor, as well as off-farm work, such as selling and processing of agricultural products.

Of the households engaged in farming, more than half cultivate sugarcane exclusively; some grow rice besides sugarcane; others grow corn, vegetables and coffee in addition to sugarcane; while a few are plain rice farmers.

In Barangay Tual, sugarcane, rice, and corn are the main crops. The area planted to sugarcane is the largest agricultural area devoted to a single crop, but it has been declining in recent years: from 368.25 hectares in 2001 to 254.25 hectares in 2003. However, its production yield (recovery) has held steady at 5.0 tons a hectare. Rice lands occupied some 300 hectares from 2001 to 2003, with yield rising in 2002 then declining in 2003. Meanwhile, corn productivity increased from 2.5 tons a hectare in 2001 to 3.2 tons a hectare in 2002, and held at that level in 2003.

Livestock are also raised in Tual. In 2001, these included buffaloes, cattle, pigs, sheep, goats, ducks and poultry. Except for a creek, there are no water bodies large enough to support fisheries-based livelihood. The barangay has 35 variety/convenience stores, and this number has remained constant from 2001 to 2003. It also has two agricultural input suppliers and 10 traders of muscovado or raw sugar.

Barangay Tuato's households are mostly engaged in farming. While some of its residents are engaged in non-farm work, their number has remained constant from 2001 to 2003. They would be found doing construction-related work, vending, driving tricycles, and doing other service-related work.

Livestock are raised, of which the most common are ducks and chicken, for the household's consumption and as an added source of income. Fisheries are non-existent. Commerce has not grown much in recent years. The number of variety/convenience stores, traders, and muscovado dealers and millers has stayed the same in three years (2001-2003).

Less than half of farmers have security of tenure as owner-cultivators. An almost equal number are share tenants, and the rest are leaseholders.

Close to half of landholders have one to two hectares of land; about a fourth of them have as much as five hectares and more; while a few have less than a hectare of land. The average size of landholdings is 3.575 hectares.

Most of the farmer-owners also own two parcels of land; about a fourth of them have one parcel each; while some have as many as eight parcels.

Land was acquired on the basis of a "verbal agreement", or was bought or inherited. Only a small percentage of the land was acquired through agrarian reform, or was held by virtue of "cultivation rights".

Adoption of Alternative Farming Practice

Most of the farmers are engaged in conventional farming. However, a number of them have been observed to practice Sustainable Agriculture, primarily in their choice of seeds, and to a lesser extent, in the way they maintain/conserve the soil, manage pests, etc.

Soil Management

The use of compost as fertilizer is the most common form of alternative soil management practice in the project site. Many farmers have also been seen to use mulch-

ing material, animal and green manure, cover cropping and hedgerows.

Nonetheless, the greater majority of farmers still prefer to use chemical fertilizers, especially in rice farming.

Plant Pest Management

A small number of farmers practice a variety of sustainable plant pest management techniques, such as Integrated Pest Management (IPM), Ecological Pest Management (EPM) and the use of pest repellants and bio-sprays. However, close to half of farmers use chemical pesticides, while others use nematocides.

Cropping Pattern

The majority of farmers practice monoculture, especially since they are mostly sugarcane farmers. On the other hand, most of the rice farmers have adopted such practices as crop rotation, intercropping and polyculture.

Seed and Planting Material

More farmers opt for traditional and mix varieties over the improved lines.

Utilization of Organic Materials

Almost all of the farmers utilizing local materials for feeds get those materials from their own farms.

Willingness to Try New Farming Technologies

Almost half of the farmers are not considering changing their crop/s or the practices they have grown used to. However, some have said that they are willing to try new farming technologies, such as intercropping, "mudpress" and other Sustainable Agriculture practices. A few are inclined to changing crops. This indicates that it might not be too difficult to introduce Sustainable Agriculture technologies.

Cost of Agricultural Inputs

Labor accounts for the biggest expense in both sugarcane and rice cultivation.

Spending on seed cane is minimal, ranging from PhP 70-200 only, since much of the planting material is taken from the previous stands of sugarcane. For rice farming, the cost of seed makes up the smallest percentage of the total production cost a hectare. On the average, farmers spend about PhP 1,000 on seeds. However, users of hybrid seed varieties spend more—almost PhP 2,000 a hectare.

Rice farmers spend PhP 2,000 a hectare on chemical fertilizers. This comes out to about 15 percent of their total production cost. On the other hand, a mere 2 percent of total spending by sugarcane farmers goes on chemical fertilizers.

Rice farmers spend PhP 1,700 a hectare on chemical pesticides and other inputs, and

this accounts for 10 percent of their total production cost. On the other hand, none of the sugarcane farmers report buying or using chemical pesticides on their crops.

At least among the farmers with no holdings of their own, land rent accounts for the one of the major costs in sugarcane production, next only to labor. It averages at PhP 16,454.30 a hectare.

In rice production, land rents amount to over PhP 5,000 a hectare. Hence, for those that have to pay it, they account for about 30 percent of the production cost, and, consequently, a much lower income from farming.

Processing is a major cost in sugarcane production, since income is derived from selling its by-products rather than fresh canes.

Farm Productivity and Farm Income

Sugarcane farmers earn more than rice farmers. The net income from sugarcane is about PhP 76,000, or US$1,400, a hectare. This is a return of 171 percent on cost. Given that sugarcane is harvested in batches, this income is spread throughout the year and comes out to an average of PhP 6,300 a month.

Sugarcane farmers also earn from sugarcane by-products. Muscovado is the highest income-earner among the by-products.

While sugarcane farming is profitable, many sugarcane farmers also grow rice, which earns for them an average yearly net income of PhP 11,000, or US$ 200, a hectare. This translates to a monthly net income of PhP 2,750, or US$50.

Access to Credit

The most common sources of credit among the residents are informal ones, such as private individuals, variety stores, and landlords. Banks are rarely approached for loans because of their collateral requirements and longer processing times.

Banks usually charge 14.8 percent interest a year. Private individuals have been reported to charge as much as 22 percent interest, but others give out loans with no interest at all.

Landlords traditionally lend without interest, since part of their arrangement with their tenants is to provide the capital for farm inputs. Variety stores charge the lowest interest rates on loans, at 1.8 percent a year.

Tual has access to three nearby rural banks: the Rural Bank of Isulan, offering credit at 2 percent a month; the Rural Bank of Tacurong, charging the same interest rate; and the Rural Bank of Lebak, which charges a lower interest rate (21 percent a year) and

requires no collateral (but is available only to officials of Tual).

Marketing

Most of the rice and sugarcane products are sold to pay household expenses.

Sugarcane farmers do not sell their standing crops or harvested cane, as these are delivered to the mill for processing. The farmers generally produce the by-products themselves, like muscovado sugar (or naturally milled sugar), sliced/candied muscovado, and vinegar, and sell as much as 60 to 84 percent of these. However, they set aside some 14 to 33 percent of the by-products to pay their laborers.

Fifty-three percent of the rice yield is sold to traders. The rest is allocated for household consumption (17 percent), loan repayment (16 percent) and payment for laborers (13 percent). A small portion is also put away for replanting.

In addition, the corn harvest in Tual is marketed differently in the wet and dry seasons. During the wet season, corn farmers sell their harvest immediately after shelling to local traders. On the other hand, during the dry season, they dry the harvest after shelling it, and then sell it, giving them a better price.

Food Security

Households generally spend about PhP 43,000 on food annually, or PhP 118 (US$2) a day. In fact, for the majority of households food accounts for no more than half of total spending. Only 9 percent of households spend more than half of their income on f

On the other hand, only about a fourth of respondents in a survey of the project site reported taking out loans to meet their food needs. This seems to indicate that there is usually enough money to buy food for the family.