

## I. NEW VILLAGE INITIATIVE

# CHAPTER I

## NEW VILLAGE INITIATIVE

### (A PILOT PROGRAM IN SAVANNAKHET AND KHAMMOUAN)

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#### **I-1 Background**

More than 80% of the Lao population are living in the rural areas. The rural population in SKR accounts for 86% and this rate is elevated if the population living in the district center towns (some of which are classified as urban population) is included. The New Village Initiative (NVI) is geared to accelerate rural development in SKR and Lao PDR.

The central and local governments have taken some measures for rural development promotion. The National Leading Committee for Rural Development (NLCRD) at the central level and the Rural Development Committee (RDC) at the provincial level were formed in 1994. These committees have been mainly promoting a program called the “focal sites”, whose aim is to provide defined villages with farm-to-market roads, small irrigation facilities, schools, tree nurseries and other facilities for resettlements in shifting cultivation areas. The government’s efforts in this direction are appreciated, but additional efforts are required to consolidate the resettlements through the enhancement of villagers’ income. Raising rural income is of prime importance not only for focal site’s villagers but also for all rural villages.

The government has been preparing a poverty reduction strategy paper (PRSP) to alleviate poverty all over the country. The Interim PRSP focuses more on improving social infrastructure at the village level. However, through diagnosis in SKR, it is found that household income elevation is much more important, and the holistic approach for rural poverty reduction should be taken with primary attention given to income elevation. Therefore, NVI is proposed focusing on increasing household income through the introduction of integrated farming and the promotion of local industries at the village level.

Enhancing the rural household income is not attainable in the short run, and it should be programmed and implemented stage-wise. For the SKR rural development, NVI will be implemented in two to three stages. In the event that

NVI is effective for poverty reduction and rural development, NVI may be disseminated to other provinces and regions in Lao PDR.

## **I-2 Objectives and Strategies**

### **1) Objectives of NVI**

NVI is proposed to assist rural development through the following principal objectives.

- (i) To enhance household income through the introduction of integrated farming based on crop diversification, the promotion of organic farming, and the promotion of livestock, fisheries and tree crops,
- (ii) To enhance additional household income through the promotion of local industries at the village level,
- (iii) To alleviate burdens imposed on villagers in securing water supply and other social infrastructures, and
- (iv) To ultimately alleviate rural poverty and build up strong, healthy and hearty villages by the contemporary way of life.

### **2) Strategies for NVI**

To attain the objectives as defined above, NVI should apply a specific strategy. This strategy is a combination of the following:

- (i) **Creation of Motivation among Farmers:**  
NVI is promoted through farmer-driven or community-based development. Farmers and their community should be motivated to promote NVI, with the understanding that it is not a communal activity and that the income from NVI is produced individually. To this end, farmers will be encouraged to select for themselves one or two menus for integrated farming and/or local industry promotion. Marketability and profitability of such products is paramount to encourage and enhance farmers' motivation.
- (ii) **Technical Support:**  
NVI envisages promotion of new agricultural and industrial activities to generate additional incomes for farmers and villagers, and technical support for new practices will be extended to the motivated farmers. Farming System Extension Workers (FSEWs) at the district level and Subject Matter Specialists (SMSs) at the provincial level should be trained to provide technical support to farmers on diversified crop cultivation, promotion of organic farming and promotion of livestock, fisheries and tree crops. Some

technical advises to FSEWs and SMSs will be provided by consultants and/or specialists at the initial stage, and subsequently the graduates from the proposed Agricultural College will be responsible for such a technical support.

(iii) Marketing Support:

Marketability of products is of vital significance in promoting NVI. Menus recommended to farmers/villagers should have fair prospects for domestic and/or international markets. Some specific measures will also be taken for marketing, including the establishment of a local product promotion center. The formation of farmers' production groups or associations will also contribute for effective marketing.

(iv) Financial Support:

Farmers and villagers have a lack of funds to initiate integrated farming and production of local industries. It is indispensable to set up new financing schemes to promote NVI. To this end, it is proposed to create a Regional Development Fund and Microfinance in SKR. The fund will be used not only for promoting integrated farming and local industries, but also for improving village infrastructure.

(v) Improving Village Infrastructure:

Villages in SKR have limited access to social infrastructure. For instance, access to piped water or protected wells is reported to be 38% in Khammouan province, and households with latrine are 11% in Khammouan and 14% in Savannakhet. This situation leads to poor public health conditions in SKR. Villages with no road access are proportionally high. Therefore, NVI will integrate programs for improving village infrastructure along with the promotion of integrated farming and local industries.

Additional strategy applied for NVI is to combine it with other sub-programs envisaged under the SKR development initiatives. For instance, NVI will be promoted in villages where the primary school expansion and improvement program (100 schools in SKR at the initial stage) is to be executed. Part of the Market Promotion Initiative (i.e., a pilot program of the local product promotion center) is programmed for implementation in combination with NVI. Part of the Resource Management Initiative (e.g., utilization of small-size wood and non-wood products) may also be incorporated into NVI where appropriate.

It is proposed that NVI be implemented with the combined strategies as cited above and in combination with other programs envisaged under the SKR development initiatives.

### **I-3 Program Outline**

The proposed NVI will integrate the following sub-programs:

- (i) Enhancement of integrated farming through the promotion of crop diversification and organic farming, and the promotion of livestock, fisheries and tree crops,
- (ii) Promotion of local industries to generate additional household income, particularly for women, and to lessen seasonal under-employment, and
- (iii) Improvement of village infrastructure with the initiative of villagers (e.g., provision of wells for water supply, improvement of village roads/bridges).

It is planned that NVI and its sub-programs will be implemented with a specific financial arrangement (i.e., establishment of a Regional Development Fund and Microfinance). An outline of such a financial scheme is proposed herein.

It is also planned that NVI will be scheduled for stage-wise implementation. At the initial stage (about three years), a dozen villages in Savannakhet and Khammouan will be selected as an experiment/demonstration of NVI and the effectiveness of the financial scheme will be monitored. A sizable implementation program in the later stages will be based on the results of such experiment/demonstration at these model villages.

### **I-4 Technical Plan for Integrated Farming Promotion**

Under the proposed NVI, it is planned that integrated farming will be disseminated through the promotion of crop diversification and organic farming, and the promotion of livestock, fishculture and tree crops. Practically, it is proposed that several Menus for integrated farming promotion will be prepared for selection by villagers. These Menus are provisionally prepared as follows:

- Menu-1 : Crop Diversification (Diversified Drops)
- Menu-2 : Livestock (Cattle and Native Chicken)
- Menu-3 : Fishculture (Fishculture and Chicken)
- Menu-4 : Tree Crops (Fruit Tree and Field Crops)
- Menu-5 : Tree Crops (Coffee and Field Crops)

The proposed farming practices and outline of each Menu is described below.

### **1) Crop Diversification**

Crop diversification is one of the government's agricultural strategies. In consideration of the current momentum to market-oriented agriculture in SKR and the projection of future demand for meat, feed crops and agro-processing crops such as maize, peanuts, soybean, cotton and fruits, there is a scope to promote such crops. Presently, the production of these crops is limited. It may be because these cash crops are not attractive to farmers due to low yields, poor quality, thus low returns. This stems from limited technical support by the government and the farmer's poor experience in these crops. However, the scope exists to increase areas and yields of these crops. Production can be increased through use of improved varieties and cultivation practices. Improved weed control and integrated pest management (IPM) are effective measures that can increase yield.

With this in mind, the following strategies for crop diversification will be pursued:

- Production of field crops will be increased in accordance with the increase in population and the change of food balance and taste;
- Demand for feed crops, particularly maize, will be increased considerably to cope with the increase in demand for livestock;
- Oil crops such as soybean and peanuts will be promoted in view of the increasing demand for vegetable oil in Thailand as well as for local consumption; and
- Market mechanism of competition in a contract production system will be basically applied under market-oriented agriculture.

#### ***Peanuts:***

Peanuts are a rich source of oil and protein and are a nitrogen fixer, thus enhancing soil fertility. Peanuts grow best on soils that are well drained, loose, light (coarse textures), with enough organic matter, but not too damp. The soil should be slightly to moderately acidic. If the soil is too acidic, application of limestone is required. Estimated yield of peanuts seems to be conservative, 1.0 ton/ha under rainfed conditions based on present farming techniques. However, it will gradually increase as the farmer gains experience. Peanuts can be roasted, toasted, salted, boiled, or used as a fresh vegetable. They are made into confectioneries, bakery products and ground into butter. Its shell can be used as fuel and a soil conditioner. Further, it is used for food shortening, cooking oil, peanut cake for livestock, in shaving creams and hair lotions. With this in view, the existing vegetable oil factory (Savan Advance Agriculture Co.) in Savannakhet will be one of the leaders for marketing such cash crops in SKR.

**Maize:**

Maize is grown under a wide range of ecological conditions in SKR. Maize requires well-structured, permeable soils with a high content of organic matter. Maize is seriously affected by water-logging and is fairly sensitive to salinity. Estimated yield of maize is 1.6 ton/ha under rainfed conditions based on no chemical fertilizer input and with maximum input of organic manure. Maize is used as grain or meal for human consumption and as livestock feed. Maize oil is also extracted from maize germs. The residue is used as cattle cake. The stover remaining after removal of the cobs is used as cattle feed and for bedding.

**Cassava:**

Cassava is grown mainly for its tubers, a source of carbohydrates. It can be used to produce starch, flour and feed. Additionally, its leaves can be used for Eri-silk culture, one of potentials for local industry development in SKR. Cassava can grow well in various soil types ranging from light to heavy. For better root development, however, deep, well-drained, friable sandy loam to loamy soils are ideal. Cassava is an exhaustive crop requiring a correct rotation. A rotation with a leguminous crop is beneficial. For direct consumption, cassava is usually harvested after about 12 months. For industrial processing, it is harvested at a later stage when the crops is 16 to 20 months old. Estimated yield of cassava is 4.0 ton/ha in this area. As for cassava processing, dried cassava is an important ingredient for animal feeds. For animal feed processing, cassava will be traded as dried chips in pellet and granule forms. The processing of cassava roots for animal feed involves simple and easy steps. It can be done at the village level, and can bring additional income to small farmers.

**Proposed Menu-1: Diversified Crop** (See Attachment I)

The maintenance of soil fertility and its protection from erosion are indispensable for sustainable upland farming. Therefore, a rotated mixed cropping pattern with peanuts, maize and cassava is proposed as a menu for NVI farmers. A size of 0.6 ha is proposed as a unit based on family labor availability. No specific facilities are required for this menu since all the crops will be grown under rainfed conditions. The land will be fenced around with paling to protect from animal attack. Logs for the paling will be collected during the land clearing and the fence will be set up by farmers themselves. Alternatively live fencing could be used such as *Jatropha curcas*. Land clearing is also made manually if trees are not so dense.

**2) Livestock: Cattle and Native Chicken**

It is projected that the demand for meat in local market will increase due to the trend of food balance and the requirement for nutrition per capita. In addition, it is expected that cattle and native chicken have export prospects judging from the

current market trend in neighboring countries and the advantage of natural conditions in SKR.

### ***Cattle***

Presently, cattle are an important component of the farming system and are grazed on lowland savannah and secondary forest areas. Livestock act as a form of savings to provide cash for emergencies and as a major source of household income.

SKR has sizable areas suitable for pasture development and expansion of cattle raising through development of extensive, more intensive and even feedlot systems of production. Productivity of cattle raising will depend on improved disease control and animal health services and improved provision and utilization of feed resources. So far, farmers have raised cattle in an extensive manner, benefited from natural resources in the forest and by using such farm by-products as rice straw and maize stalk. Thus, the actual costs for cattle raising are relatively small. However, in the long run, a semi-intensive raising system with improved pasture should be applied to increase the cattle numbers. Pasture is to be maintained by applying organic manures. Grazing land for cattle will be a combination with natural forest and improved pasture, though it is expected that the area of improved pasture be extended step by step.

Improving animal health is seen as the first step in raising livestock production. Improved animal health impacts on higher birth weights, faster growth rates, lower mortality rates, and improved reproductive performance. As the major disease problems are well known, the emphasis must be on establishing an improved capacity for vaccine production, improved distribution of vaccines and other medicines, and improving the knowledge of local district livestock staff and villagers on animal health problems and treatment. The second major step in improving livestock production is to improve animal nutrition. In the case of cattle, improved nutrition would depend on more efficient utilization of crop by-products, improvement of natural grasslands and in certain places the establishment of improved sown pastures. Local development would be based on over-sowing suitable legume pasture species in native grasslands and establishing suitable grass-legume pasture mixtures for sown pastures, together with appropriate pasture husbandry practices.

### ***Native Chicken***

Poultry are the principal livestock in rural areas. These are raised under extensive husbandry systems near each house and roadside. They are used for meat production, asset savings and cash to buy food and other necessities of life.

Traditional practices are to let the chickens find their own natural food, with the owner providing some broken rice and leftover food in the morning and evening. Some farmers have small chicken coops, but mostly chickens sleep under trees, on fences of buffalo pens, or scattered underneath the house. Little attention is paid to management, and if the chickens survive, they will be sold or eaten when mature. Native varieties are preferred, prices are good, and markets exist almost everywhere. Unfortunately, mortality rate is high due to various disease, and the farmers generally lack of knowledge on disease control, feeding and general management. Fowl cholera, fowlpox, Newcastle disease cause poultry losses. In order to overcome these problems and to realize the true potential for native chicken production, improved animal health should be introduced as a first step. The second major step in improving livestock production is to improve animal nutrition. In the case of poultry, this can be achieved through formulation and use of improved feeds from locally available sources and better feeding and animal husbandry practices.

Currently Lao PDR is not competitive in poultry production due to a lack of technical skills for meat processing by internationally accepted quality and hygienic standards and a lack of export certificates to other countries. However, in the Japanese market, native chickens are called “Jidori” and priced higher than ordinary chickens. The Thai poultry factories have obtained license for export to Japan since 1994, but they have difficulties in raising a large number of native chickens because of land limitation. Consequently, it may be possible that native chickens grown in Lao PDR could be exported through those Thai channels. In the long run, poultry processing companies in Lao PDR must obtain technical skills and export approvals with experience accumulated in the export business through Thai companies.

**Proposed Menu-2: Cattle and Chicken Raising** (See Attachment I)

Cattle raising is one of the promising businesses in rural areas and many farmers are willing to undertake this business. However due to the lack of capital and technical support for animal health care, the majority of farmers have been unable to start this business. Cattle raising needs a certain time period to achieve profitable production. Therefore, it is planned for the NVI farmers that cattle raising will be combined with a relatively short term chicken raising business to compensate for the initial waiting period.

***Proposed Cattle Raising:***

A cattle raising unit, consisting of 3 cows and one bull is proposed for the NVI farmers, taking into account a reasonable initial investment cost. A cattle pen/shed is proposed to locate near a water trough for a nighttime rest and undertaking

animal health care, as well as for collecting manure. The proposed cattle shed is simple, equipped with grass roofs and an earth floor with open sides. The predicted production of cattle with 3 cows and 1 bull is estimated to be:

- 4~5 adult cows, 1~2 adult bulls and 4~5 calves by the end of 5th year;
- 9~10 adult cows, 2~3 adult bulls and 8~9 calves by the end of 10th year; and
- Selling one adult bull each year from the 4th year.

***Proposed Chicken Raising:***

Thirty chickens, 25 hens and 5 roosters, will constitute a free range unit. A simple chicken house with a total floor area of 72 m<sup>2</sup> and a playground of 48 m<sup>2</sup> is required for the chicken raising. It is proposed that only locally available materials will be used for the chicken house. The chicken house will be built on porous soil and on a gently sloping terrain for good drainage. The shed type roof is ideal for a one-story chicken house with some or all of the sides open. The number of chickens to be placed in earth floor depends on the age of chicks. About 0.4 m<sup>2</sup> to 0.9 m<sup>2</sup> of floor space for each chicken is required to avoid overcrowding. A native chicken needs 4 to 5 months to reach adulthood (1.2 kg live-weight). Feed requirement for 5 months is estimated to be about 7.4 kg of agricultural products such as maize, rice bran and other farm by-products. With 25 hens, normal yields of 5 large-size eggs daily and 250 chickens each year are expected as incomes from this chicken raising business proposed for the NVI farmers.

**3) Fisheries**

The future fish demand in Lao PDR is estimated to be 20 kg/capita/year, or 162,000 tons in 2020. It is equivalent to an increase of 2 kg every 5 years. In Savannakhet and Khammouan, the total demands will be increased by 17,680 and 9,400 tons, respectively. The NVI villages should focus on increasing fish production in two provinces by about 27,000 tons.

To meet this target, there are two approaches for development; i.e., captured fish and aquaculture. However, the number of natural fish is not expected to increase in such a pace. Contrary, development of fish farming in ponds and rice fields can be accomplished through the establishment of primary breeding and aquaculture facilities based on the sustainable exploitation of both indigenous and selected suitable exotic fish species. Opportunities to increase fish production are increase in the number of ponds, introduction of better fish species, increased fingerling production and distribution, and improved feeding management practices. Aquaculture development will be dependent on increased number of fish hatcheries and management improvements.

**Proposed Menu-3: Fishculture and Chicken** (See Attachment I)

Fishculture is a promising farm activity for NVI. However, the funds for fishpond construction and technical support by the government are required for undertaking fishculture business. Compared with cattle raising, fishculture can generate income in a shorter period. However, it is planned for the NVI farmers to combine it with chicken raising in order to shorten the repayment period for a loan.

***Proposed Fishculture:***

A fishpond with a size of 40m x 50m (0.2 ha) is proposed as a standard for the NVI villagers. The location of the pond will be carefully determined, since it is important to have clean flowing water to irrigate the pond. Flowing water prevents the breeding of bacteria that attack the fish. The proposed pond is a dug-out excavated type with a depth of 1 to 1.5 m. A 2m high perimeter dike around the pond will be constructed using the soil removed from the excavation. The inner sides of the pond will be firmed up by pressing with a board or heavy log. Two pipes with control valves or gates are to be installed; one serves as an inlet pipe and the other serves as an overflow. The fishpond will be fenced around with paling and any available local materials. Living fence of legume trees or fruit trees such as banana, papaya and coconut is also desirable in terms of integrated farming.

An integrated system using self grown products of maize, rice bran and chicken manure is proposed for feeding fish to minimize raising cost and to maximize the use of farm by-products. Low cost inputs are proposed so that farmers can undertake this program themselves. Supplemental feeding is only necessary for two weeks before harvest to fatten the stock and to improve its taste. A total of 2,000 fingerlings with a size of 5 to 10 cm (about 1 month old) are required for 0.2 ha pond. If such a size of fingerlings is unavailable, about 1 week old fingerlings with a size of 2 to 3 cm will be reared in a nursery pond or in a caging net in the rearing pond. It is estimated that the live-weight of each fish will increase to 500 g with about a 65% survival ratio. Thus, the total annual production of fish from the proposed 0.2 ha pond is estimated to be 650 kg (1,300 fishes x 500 g).

***Proposed Chicken Raising:***

*(This is the same as mentioned in the Proposed Menu-2)*

**4) Tree Crops**

The future fruit demand in Lao PDR is estimated to be 80 kg/capita/year by the year 2020. To meet this target and future export potential, fruit production should be promoted more actively. However, presently, fruit trees are usually planted only at the edge of house lots or around the village. The largest constraint on fruit tree

development is the low input and low technology production system. Considerable scope exists to significantly increase production through the adoption of greatly improved cultural and production techniques. The introduction of agro-processing technologies is also a key factor for fruit trees development.

Khammouan province is considered to be highly suitable for commercial fruit production judging from the land availability and its soil, water and climate. However, fruit and vegetable processing is underdeveloped due to little industrial knowledge. On the other hand, food/fruit processing industries are well developed in Thailand. Major Thai companies are producing either under licensing agreements, production contracts or joint ventures with foreign food companies. For the Thai food processing companies, fruit and vegetable as raw materials must be secured at the appropriate quality and quantity levels for their business expansion. In consideration of market-oriented agriculture in SKR and the projection of future demand for fruit, there is considerable possibilities to promote fruit tree crops.

**Proposed Menu-4: Fruit Tree and Field Crops** (See Attachment I)

Fruit tree planting of mango, rambutan, tamarind, jack fruits and longan will be a promising business for the NVI villagers in terms of fresh products as well as future agro-processing. However, this business needs a certain amount of investment and time to achieve financial viability. As a NVI program, intercropping of field crops is recommended for three years in order to secure income during the initial period.

***Proposed Fruit Tree Planting:***

Among various kinds of promising fruit trees, mango is taken as an example, even though a final determination will be made based on soil condition, elevation, and targeted market situation. A 1.0 ha of fruit tree orchard is proposed as a unit for the NVI program. Specific facilities are not required for fruit tree planting. The land will be thoroughly prepared during the dry season. Since the seedling cost is somewhat high, 10 m x 10 m of spacing (a total of 100 trees) is recommended at the initial stage. Between the rows of fruit trees, field crops will be intercropped during the initial 3 years to secure some incomes. After 3 years of intercropping, another 100 seedlings will be planted between the trees along the rows, which makes a final tree spacing of 10 m x 5 m. At least, 5 tons of organic manure every 5 years are required to maintain the humus level of the soil. An estimated yield of 3.0 ton/ha is applied under practical application of organic manures. Such fruit tree planting will be profitable but it requires 4 to 5 years for the first production and 7 to 10 years for full production.

***Proposed Intercropping of Field Crops:***

Between the rows of tree crops, field crops will be intercropped during initial three years to secure some incomes. Rotated crops with peanuts in the 1st wet season, maize in the 2nd wet season, and again peanuts in the 3rd years are recommended. A total cropped area is estimated to be 0.65 ha per 1.0 ha orchard (8 m x 90 m x 9 strips). Seeding rates will be 60 kg/ha for peanut and 30 kg/ha for maize. Only organic manure is recommended for field crops aiming at more sustainable and practical farming system. After the intercropping period, cover cropping with leguminous crops can be done, which will not only prevent soil erosion but also the growth of weeds. This could supply additional feed for animals. Under-planting with cardamon could also provide additional income.

**Proposed Menu-5: Coffee and Field Crops (See Attachment I)**

Coffee farming is promoted by the government particularly in the mountainous areas. However, this business also needs a certain amount of investment and some period until achieving profitable conditions. Therefore, as in the case of fruit tree planting, intercropping of field crops is recommended to secure income during the initial period.

***Proposed Coffee Planting:***

A 1.0 ha coffee farm is proposed as the unit for the NVI villagers. The land will be thoroughly prepared during the dry season. For coffee seedlings, a spacing of 10 m x 3 m (a total of 330 trees) is recommended at the initial stage in order to provide intercropping areas between the rows of trees. After the 3 years intercropping period, another 330 seedlings will be planted between the rows at 3 m intervals, which makes the final spacing of 5m x 3m. Introduction of intercropping will be done in the same manner as the fruit tree orchard. Inputs of about 1.0 ton/ha of organic manure is recommended aiming at a more sustainable and practical farming system. Estimated yield of 0.6 tons/ha is assumed with application of organic manure. Such coffee farming will be profitable, but it needs 3 to 4 years until first production and 7 years for full production.

***Proposed Intercropping of Field Crops:***

*(This is the same as mentioned in the Proposed Menu-4)*

**I-5 Technical Plan for Local Industry Promotion**

It is planned to promote local industries at the village level and they will be integrated into the New Village Initiative (NVI). Through the Mater Plan for SKR,

about 100 potential products were identified and eleven (11) are recommended for promotion. The proposed products are:

- |                          |        |                          |
|--------------------------|--------|--------------------------|
| Bio-diversity products:  | (i)    | bio-compost              |
|                          | (ii)   | non-wood products        |
|                          | (iii)  | natural dye material     |
|                          | (iv)   | medical herbs            |
|                          | (v)    | bee culture (apiculture) |
| Forestry-based products: | (vi)   | charcoal                 |
|                          | (vii)  | bamboo                   |
|                          | (viii) | wood handicraft          |
| Textile products:        | (ix)   | sericulture              |
|                          | (x)    | cotton                   |
|                          | (xi)   | natural fibers           |

Out of these local products, bio-compost will not directly enhance rural household income, but indirectly will contribute to rural development by maintaining or improving soil fertility. The products from trees, namely non-wood products, charcoal and wood handicraft are already well established and mainly need help in marketing and market intelligence: this will be provided by the Local Product Promotion Center, proposed to be established in Savannakhet. Consequently, the above 4 local products are precluded from the proposed menus. The remaining 7 products will be promoted for possible implementation through the NVI.

### **1) Proposed Menu of Local Products**

To implement a pilot NVI program in SKR, seven local industry menus have been prepared and are given in Attachment II. These menus are outlined below.

#### ***Natural Dye Material***

SKR has a variety of natural dye materials, and some have already been developed for domestic use and export. For instance, naturally dyed cotton is processed in Savannakhet and exported to a niche market in Japan. To further promote exports, it is planned to take the following actions:

- Step-1: Identify quantity and quality of different dye materials.
- Step-2: Collect dye materials from natural forests.
- Step-3: Develop technology for the cultivation of dye materials.
- Step-4: Promote linkages with agro-forestry/home gardens.
- Step-5: Develop specific dyes and by-products.

Natural dyes are “eco-products.” To promote product design and marketing, it is planned to classify natural dyes by color, dyeing method and quality in neighboring county markets. To expand exports, it is suggested that other niche markets be found in Europe and higher value-added products developed with dyes in the form of powders and concentrates. It is also planned that producers/suppliers of natural dye materials are organized into associations to take the step-wise actions proposed above and to receive advice from potential importers worldwide.

### ***Medical Herbs***

SKR has a variety of herbs and local people use them widely. Some medical herbs are exported to China, Thailand and Vietnam. The Traditional Medicine Research Center in Vientiane is responsible for research and development of medical herbs. For medical herb development, the follow steps are proposed for NVI villagers.

- Step-1: Identify areas for herb collection and collect naturally grown herbs. For quality control, it should be clearly stated what, by whom, and from where herbs have been taken.
- Step-2: Develop herb cultivation. This should be based on chemical analysis and research on effectiveness under joint research programs with international research institutions.
- Step-3: Promote linkages with agro-forestry/home gardens to diversify and stabilize production.
- Step-4: Develop specific medical herbs for cultivation.

As noted in the Master Plan (refer to Sector Report, Chapter V, 2), some Thai enterprises are interested in importing medical herbs from SKR. It is not recommended that individual NVI villagers sell such products to buyers, but it is suggested that they organize associations, initially with guidelines drawn up by the proposed Local Product Promotion Center, to enhance their bargaining power. In general, medical herbs have promising markets as “eco-products” if a stable supply system is established.

### ***Bee-culture (apiculture)***

Currently, honey is mostly produced from wild beehives and the apiculture business is not common in SKR. Unfortunately, the quality of honey is not guaranteed having neither a recognized name nor the source of flowers. In view of the marketability of the product and abundance of by-products, it is recommended that apiculture be promoted particularly in the central and eastern zones. The development of bee-culture will be promoted in the following manner:

- Step-1: Identify suitable sites to establish beehives, establish hives and train people in bee keeping.
- Step-2: Collect honey, securing quality control (describe producer's name, location and time of collection) and establishing producers' associations.
- Step-3: Develop apiculture technology in breeding the most suitable bees in SKR.
- Step-4: Promote linkages with agriculture and forestry (e.g., fruit tree flowers, eucalyptus plantations) particularly through hybridization.
- Step-5: Develop by-products (e.g. royal jelly, beeswax, propolis, flavonoid).

Product and by-products of bee-culture are "eco-products." If the quality of products is adequately controlled, the market prices will be elevated in local and export markets. It is expected that the environment conditions in SKR will produce high-grade propolis with specific properties.

### ***Bamboo Products***

SKR has a wide area of bamboo forests, and bamboo is broadly used for foodstuff, materials for handicrafts (e.g., rice baskets and food containers), housing materials and for charcoal. The development of bamboo products should be planned in both traditional and modernized ways.

- Step-1: Inventory of bamboo by species and potential end uses.
- Step-2: Promotion of bamboo in home gardens, round fields etc.
- Step-3: Development of traditional handicrafts, indicating producers' name on products, and integration with other traditional products (e.g., textiles).
- Step-4: Development of new high-value added bamboo products (e.g., bamboo tar liquid for sterilization, activated charcoal for purification and removal of poisonous chemicals).
- Step-5: Promotion of these new products and market development.

To develop new bamboo products, the proposed Local Product Promotion Center would obtain suggestions and open channels for technical assistance and marketing. Bamboo products are also eco-products.

### ***Sericulture***

Sericulture will be promoted through the development of mulberry-fed silkworms, locally cultivated yellow cocoon silkworms, Eri silkworms and wild silkworms. The collection of wild silkworms has some potential for specific local products for niche market with high competitiveness, but it should be promoted with due

consideration to ecology of the region. Recently, Eri silkworms have been developed in Vietnam with cassava leaves as the feedstock. Locally cultivated yellow cocoon silkworms are promising, and its yarned silk is marketable in niche Japanese markets. Under the pilot NVI program in SKR, it is proposed that yellow cocoon silkworms and Eri silkworms would be specifically promoted in line with the following steps:

- Step-1: Disseminate yellow cocoon and Eri silkworm cultivation in target NVI villages, supported by micro-finance and technical assistance by volunteers.
- Step-2: Establish sericulture technology (e.g., supply system of eggs, technology in insect control, quality control and testing).
- Step-3: Develop processing technology and utilization of by-products
- Step-4: Develop product design and mechanization.
- Step-5: Develop silk powder for medical and cosmetic purposes.

The promotion of sericulture in target NVI villages will receive technical support from the proposed Local Product Promotion Center, as well as by JICA volunteers. Also, it will be supported by micro-finance. Provisionally, it is estimated that individual initial investment loans of about US\$ 200 will be repaid over a period of three years (see Attachment II). It is encouraging to know that a Japanese buyer has shown interest in importing 3,600 kg of yarned silk, based on samples brought by the JICA Study Team.

### **Cotton**

Natural cotton is cultivated in SKR and other regions. Traditionally, cotton has been processed for local consumption and domestic use. Weaving has been a traditional source of income for women and households. Some cotton from SKR is processed with natural dyes and exported to a niche market in Japan. This is a good example of local industry development and it is expected that the markets will expand to other part of the world, increasing cotton production and expanding processing capacities. The cultivation of cotton and its processing will be promoted in the following manner:

- Step-1: Expansion of cultivated areas through technical and financial support to farmers.
- Step-2: Increased production of cotton fibers, combined with natural dye production and improved weaving technology.
- Step-3: Development of product design and linkage with other local industries to produce higher value-added products.
- Step-4: Development of by-products and the production of high quality organic cotton fibers.

It is envisaged that the expansion of cotton cultivation and the weaving of naturally dyed cotton products in the target NVI villages will be promoted through the expansion of markets in Europe. For this, support will be made available from the proposed Local Product Promotion Center.

### ***Natural Fibers***

Natural fibers are not well utilized in SKR, except for cotton, silk and some reeds for matting. For instance, banana and pineapple are cultivated, but their fibers are discarded. (Pineapple fibers are marketed in Japan for as much as US\$ 250/kg and are used for a variety of products including kimonos). Natural fibers can be developed in the following manner:

- Step-1: Identification, quantification and collection of naturally grown fibers, and development of their markets for export.
- Step-2: Development of processing technologies and integration with other natural products.
- Step-3: Promotion with linkage to agriculture and agro-based businesses (e.g. production and processing of pineapple, banana, mulberry, bamboo and flax).
- Step-4: Development of high value added natural fiber products.

The development of natural fiber products will be promoted through the proposed Local Product Production Center, along with the marketing of cotton and silk products.

## **2) Proposed Local Product Promotion Center**

In order to support the development of local industries in SKR, both new and existing, it is proposed that a Local Product Promotion Center (LPPC) be set up in Savannakhet. The Center will have the following objectives:

- (i) Prepare menus of local industries and disseminate them to villagers under the auspices of the NVI.
- (ii) Organize associations of producers for the respective local products to promote and ensure stable supply, processing and marketing of local products.
- (iii) Coordinate assistance in production technologies and provide financial support.
- (iv) Explore domestic and international markets and assist producers/villagers in business transactions.
- (v) Support the creation of small and medium sized enterprises related to production, processing and marketing of local products.
- (vi) Train local people to improve production and marketing of their products.

More specifically, it is proposed that the LPPC will incorporate the following activities/programs:

- (i) Establish a database for locally available materials for local industries.
- (ii) List existing cottage industries and existing skills.
- (iii) Open a home page on the Internet and make the database and development ideas public in order to widely obtain suggestion and supports.
- (iv) Organize producers' associations and set up a system to react to the suggestions and support.
- (v) Initiate marketing of local products, both on domestic and international markets.
- (vi) Publish data on commodity prices and producer prices.
- (vii) Obtain technical assistance and disseminate it to local producers.
- (viii) Actively market existing and new products, establish a marketing system and provide marketing facilities.
- (ix) Set up a qualitative system for product testing and verification for exports.
- (x) Work out programs for local processing to enhance value added.
- (xi) Exhibit local products in the LPPC and other exhibition centers.
- (xii) Expand the functions for production technology transfer, quality testing and marketing of eco-products.

The Local Product Promotion Center will be implemented in three stages as follows:

- ◆ Phase-I (2001-2003). A provisional office is set up, and a database and menus prepared. Promotion of sericulture will be undertaken as a pioneer product. Existing local industries will be categorized and appropriate ones promoted.
- ◆ Phase-II (2004-2006). The Center's activities and operations of the Center will be expanded so that it will actually be a local industry' promotion center. A permanent office will be set up in the Savannakhet Special Economic Zone.
- ◆ Phase-III (2007-2010). After the Center is fully functional with several local products exported to world markets, the Center will be privatized.

Further details of the proposed LPPC are presented in Attachment III.

## **I-6 Financial Plan for NVI**

### **1) Required Financial Support**

For implementing plans for integrated farming promotion and local industry promotion as proposed above, as well as to improve village infrastructure of target NVI villages, some financial support will be extended to farmers and villagers.

#### **(1) Finance for Integrated Farming Promotion**

Though farmers might have certain savings in cash or precious metals, these are insufficient to initiate and promote integrated farming. Undoubtedly, some financial support is required. The magnitude of required finance is estimated for each Menu as follows:

(i) Menu-1 (Diversified crops)	US\$320
(ii) Menu-2 (Cattle and chicken raising)	730
(iii) Menu-3 (Fishculture and chicken)	1,280
(iv) Menu-4 (Fruit tree and field crops)	490
(v) Menu-5 (Coffee and field crops)	470

The target number of villages for the NVI in SKR is proposed to be around 570 villages in the 10-year planned period, including a dozen pilot villages to be executed at the initial stage. The total finance required for promotion of NVI integrated farming will amount to about US\$2.8 million in 10 years.

#### **(2) Finance for Local Industry Promotion**

Basically, local industries are promoted making use of the available natural resources and unused/waste materials. For active promotion of local industries, however, some financial support is required. For instance, promotion of sericulture will require a fund of about US\$200 per household for preparation of mulberry trees, purchase of silkworm eggs, installation of silkworm shelves and spinning tools. Such an investment would be repayable in about three years.

#### **(3) Finance for Commercial Activities**

In order to enhance productivity in integrated farming and value added at the village level, some additional funds are required. They are used for (i) procurement of farming machinery, (ii) provision of agro-processing facilities, (iii) establishment of small enterprises, and (iv) larger-scaled operation of livestock raising, fishculture and tree crop cultivation. Currently farmers and villagers do not have access to commercial banks and some measures should be taken to effectively implement the proposed NVI.

#### (4) Finance for Village Infrastructure Improvement

Most rural villages have a poor social and economic infrastructure. It is necessary to improve (i) village water supply system (deep wells), (ii) village roads and village access roads/bridges, (iii) village nurseries for reforestation, (iv) village electrification, and (v) small irrigation facilities and water works. Basically, such infrastructure is provided as a public service, but the provincial budget is insufficient to meet such a demand. A kind of Social Investment Fund is required to improve such infrastructure. The beneficiaries would partially repay such an investment and assume responsibility for operation and maintenance.

## 2) Alternative Measures for Finance

Applicability of the currently available financial schemes and possible alternative measures for finance have been examined as follows:

### (1) Applicability of Current Financial Schemes

Currently available financial schemes for rural development in Lao PDR are (i) formal financial system through the Agricultural Promotion Bank (APB) and the State-owned Commercial Banks (SOCBs), (ii) semi-formal financial system through various village revolving funds (VRFs), and (iii) microfinance sponsored by UNDP/CDF. APB loans have limited availability in SKR, and SOCBs are inaccessible to farmers. The reform of the APB and SOCBs is under review, but it will take a couple of years for their normalization under the market interest rate policy. VRFs, on the other hand, are generally financed from resources of donors or NGOs and are project-based. Several VRFs operated by NGOs are available in SKR, but they are insufficient in the scale and the amount of funds required to promote the proposed NVI. UNDP/CDF sponsored microfinance is currently operated in Sayaboury and Oudomxay provinces. This microfinance, even if it is expanded to SKR, is not adaptable in its current form to the specific objective to promote integrated farming and local industries, because its credit amount is small (up to around US\$120), the repayment terms is short (a repayment cycle of 6 months) and the interest rate is high (4% per month). In conclusion, it is not feasible to apply the current financial schemes to implement the proposed NVI. (Refer to Attachment IV for further detail)

### (2) Microfinance for NVI

Microfinance will be one of the schemes to be introduced for implementation of NVI. Various lessons have been learned from the operations of UNDP/CDF microfinance in Sayaboury and Oudomxay provinces. The basic principles of saving/deposits should be followed and training of accredited agents, credit officers and villagers should be prioritized. For implementation of NVI, however,

a new microfinance operation system should be elaborated and introduced based on the following:

- (i) Preferential targets should be clearly indicated (e.g., finance for crop diversification, livestock, fishculture, tree crops, and local industries),
- (ii) The amount of credit should be sufficient for the target activities,
- (iii) Financial terms should be determined in line with the government policy directives.
- (iv) Appraisal for credit should be introduced, and
- (v) Monitoring and evaluation should be conducted periodically.

### (3) Regional Development Fund for NVI

Microfinance is not sufficient to cover all financial requirements for NVI implementation. Funds are additionally required for (i) medium-term commercial credits, and (ii) finance for implementation of village infrastructure. The medium-term commercial credits are required to finance procurement of farm machinery, facilities for agro-processing, local industry, and establishment of small enterprises. Until the time when APB and SOCBs are normalized and capable of extending credits in the rural area, it is planned that a Regional Development Fund (RDF) will be set up to serve these purposes. At the same time, the RDF will finance improvement of village infrastructure such as village water supply, village access roads/bridges, village nurseries, and village electrification, as a social-based financial scheme for poverty alleviation.

### **3) Possible Arrangement for NVI Finance**

In the light of available schemes for funding, possible financial systems are worked out for implementing NVI in the short-term (within 3 years) and in the medium-term (3 to 10 years) as proposed below.

#### (1) Short-term NVI Finance

During the initial probation period of three years, it is planned that NVI implementation would be financed in the following manner:

- (i) Project: New Village Initiative Models in Savannakhet and Khammouan provinces
- (ii) Programs:
  - 1) Microfinance to promote integrated farming and local industries
  - 2) Village infrastructure (e.g., village water supply) and road improvement)
- (iii) Operation Criteria:
  - 1) Microfinance practices already established in Lao PDR in other provinces should be followed (including the savings/deposits practice).

- 2) Financial terms should be determined in line with the government policy directives.
- 3) Training of accredits agents, credit officers and villagers should be prioritized.
- 4) Project account should be separately maintained in Savannakhet and Khammouan.
- 5) Consultant should be retained for loan appraisal and monitoring. Operations should be evaluated before its termination in three years.
- 6) Beneficiaries should not be limited to women, and should be selected without any political intervention.
- 7) Executing agency should liaise closely with other microfinance developments to coordinate activities and ensure development of a coordinated microfinance system in Lao PDR.

(2) Medium-term NVI Finance through Regional Development Fund

Within three years from the commencement of the NVI operations, the Regional Development Funds (RDFs) will be set up respectively in Savannakhet and Khammouan. RDFs might be funded by the counterpart funds (local currency) raised under the Sector Program Grant Aid, if and when it is extended, as well as by allocating the budget of the provincial governments. RDFs will finance the NVI operations in three categories; i.e., (i) microfinance, (ii) medium-term commercial credits, and (iii) village infrastructure development fund. Microfinance will be operated through UNDP/CDF, depending on the results of probation during the short-term operations and the adaptability of UNDP/CDF microfinance to the NVI operations. The medium-term commercial credits are extended by RDFs until the time when APB and SOCBs are normalized and their credits are expanded to rural villages. The village infrastructure development fund will expand its activities to cover all the target villages (about 570 villages) in Savannakhet and Khammouan. For RDFs management, accounting practices should follow internationally acceptable standards. Annual audits should be undertaken by reputable auditors acceptable to both the Lao government and the donor. (Refer to Attachment IV for further detail)

## **I-7 Initial Stage Implementation**

### **1) Stage-wise Implementation**

In view of the area-based development approach, the whole area of SKR is classified into three zones; namely, lowland, central and eastern regions based on geographical features, accessibility to markets, and composition of ethnic groups. The agricultural transformation is underway in the lowland Mekong zone, where market forces are starting to commercially deliver agricultural inputs and farm

households are marketing part of their farm production. The central and eastern zones, however, present a different picture. Here, agriculture is basically subsistence and farm households are locked in an acute poverty trap due to remoteness, inaccessibility, poor credit accessibility and other factors. In view of these situations, target villages for NVI implementation will be selected to represent 30% of the total number of villages in the lowland and central zones and 10% in the eastern zone.

The NVI implementation, aiming to double household income in 10 years, will be divided into two stages, i.e., (i) 3-years initial stage implementation, and (ii) 7-years full-scale implementation. After the 3-years initial implementation, an evaluation will be undertaken in order to incorporate the lessons learned and to make the best use of them for the design of the full-implementation stage. The number of model villages for the initial stage implementation will be one in each province for the 1st year, 2 each for the 2nd year and 3 each for the 3rd year respectively according to the regional situation and the learning-by-doing approach.

**Table I-1 Number of Target NVI Villages**

	Total Villages	Target Villages	Initial Stage Implementation			Full-scale Implementation
			Year 1	Year 2	Year 3	Year 4 to 10
Khammouan						
Lowland	260	78	0	1	0	77
Central	320	96	1	0	3	92
Eastern	220	22	0	1	0	21
(sub-total)	(800)	(196)	(1)	(2)	(3)	(190)
Savannakhet						
Lowland	558	167	0	2	0	165
Central	528	158	1	0	1	156
Eastern	457	46	0	0	2	44
(sub-total)	(1,543)	(371)	(1)	(2)	(3)	(365)
Total	2,347	567	2	4	6	555

## 2) Model Villages for Initial Stage Implementation

Model villages for initial stage implementation for 3 years are selected primarily on the basis of the farmers' intentions. In addition, the following factors have been taken into account:

- district authority's recommendation;
- no other existing projects;
- mid level economic development;
- mid level village population;
- accessibility to the village; and
- villages selected for primary education expansion.

Based on the interview survey conducted by the study team in March 2001, as well as the criteria as noted above, the model villages have been selected as tabulated below. Features of the selected villages are presented in Attachment V.

**Table I-2 Model Villages**

Village	Year	District	Region	HH, 1/	Pop.,2/	Remarks
<b>Khammouan</b>						
1. Ban Mouangkhai	1	Hinboun	Central	550	1,989	,3/
2. Ban Dongkhouang	2	Nongbok	Lowland	195	1,150	
3. Ban Phathong	2	Nhommarad	Eastern	68	357	
4. Ban Nathan	3	Xebangfai	Central	86	485	
5. Ban Panam-Mai	3	Mahaxay	Central	83	430	
6. Ban Pakouai-Tong	3	Xaybouathong	Central	133	747	
<b>Savannakhet</b>						
1. Ban Nongpaksong	1	Atsaphangthong	Central	101	619	
2. Ban Donthamungeun	2	Xayphouthong	Lowland	26	169	
3. Ban Mouangkhai	2	Xayphouthong	Lowland	494	2,743	,4/
4. Ban Palanxay	3	Palanxay	Central	109	726	,5/
5. Ban Khamsaii	3	Phin	Eastern	129	816	
6. Ban Xepon	3	Xepon	Eastern	48	n.a.	

Note: 1/ No. of households, 2/ Population, 3/ A group of 5 villages

4/ Mouangkhai-Tai, Neua, 5/ Palanxay-Kan, Neua

### 3) Preparatory Works for Initial Stage Implementation

#### (1) Training on Microfinance

Initially, it is planned that some selected members of the executing agency will be trained in microfinance management at the UNDP/CDF sponsored Microfinance Training Center in Vientiane. It is also proposed that some of the members will be trained in Bangladesh, where microfinance systems have been successfully developed since 1980s.

Presently the Microfinance Training Center in Vientiane provides orientation, sensitization and technical training on Microfinance. The general objectives of training are: (i) to learn best practices of micro finance; (ii) to understand viable microfinance methodologies in the context of Lao PDR; and (iii) to assist credit and microfinance practitioners to develop sustainable microfinance institutions. The main topics covered are:

- Concept and role of Microfinance in poverty alleviation;
- Present status of Microfinance in Lao PDR;
- Sustainability of Microfinance project;
- Savings mobilization;
- Account/record keeping; and
- Monitoring and evaluation.

(2) Pamphlet of Proposed Menu

It is planned that pamphlets of each proposed menu will be prepared for the use of farmers. These include:

- Basic knowledge and techniques for farming, livestock raising and fishculture;
- Proposed farming practices, livestock and fishery management;
- Cooperation with the district staff for technical support;
- Proposed farmer's organization activities, particularly establishing a production and marketing group; and
- Basic knowledge for accounting, credit and farm economy.

**4) Institutional and Other Arrangements**

(1) Executing agency

The Lao Women's Union (LWU) is proposed to be the executing agency for the initial stage implementation of NVI. LWU has abundant experience in rural development. Established in 1995, LWU is a mass organization with a reported membership of about 650,000. Its main mission is to implement programs of assistance to women, generally in areas of health, nutrition, and family planning, as well as community development, income generation, and the provision of training, information, and extension services. LWU represents the largest single body of organizational experience in credit or credit-like projects in Lao PDR. Both the provincial offices of LWU will be responsible for monitoring of each program and coordinating with concerned organizations such as PAFOs, and provincial handicraft offices, for technical support of the relevant programs.

After 3 years initial stage implementation, the project management capability of LWU will be assessed for the future full-scale NVI implementation.

(2) Technical support:

Technical support for training/guidance before starting on each menu, and regular visits for advice on farming practices, animal health control, and vaccination for animals will be extended by technical staff of the relevant provincial departments, i.e., PAFO and the Handicraft office in cooperation with the staff of the provincial LWUs.

(3) Marketing support

Formation of the farmers' associations will be coordinated jointly by LWUs and the concerned technical staff. It is also expected that the proposed local product

promotion center will collaborate in organizing such associations for production and marketing.

(4) Monitoring

Each program will be monitored by the staff of the district LWUs during their regular site visits and findings will be reported to the provincial LWUs regularly. The monitoring sheet for each program will be prepared by a supervisory consultant of the project at the commencement of the initial stage of implementation.

(5) Supervision of initial stage implementation

The supervisory consultant will be retained for supervising all the activities of the initial stage implementation in cooperation with the central and provincial offices of LWU.

(6) Implementation schedule

The initial stage implementation program will be prepared through discussions among villagers, the LWUs, and supervisory consultant. Provisionally, an overall schedule for the initial stage implementation is prepared as presented in Attachment VII.

## **5) Financial Viability of Each Activity**

The proposed menus for the initial stage implementation have been prepared as outlined above, but it should be clarified before starting each menu that the ownership of the NVI implementation rests on villagers themselves. The responsibilities of the NVI beneficiaries include the repayment to the loans. Therefore, financial viability of each Menu has been reviewed as outlined below.

### **Menu –1: Diversified Crop**

A rotated mixed cropping with peanuts, maize and cassava is proposed in view of the importance of maintenance of soil fertility and protection from soil erosion. A standard size of 0.6 ha cropping area is proposed as the unit based on family labor availability.

For newly opened land, clearing will be done before planting. The proposed land will be fenced around with paling and land clearing is made manually if trees are not dense and/or income can be obtained from the sale of trees. A total of \$300 is a ceiling amount for land preparation. In addition a total of \$14 is required for the seeds of peanuts, maize and cassava stems. As for annual operation and

maintenance cost, a total of \$ 14 is required for seeds, tools, fencing materials and transportation.

The yields of these crops are estimated to be 1.0 ton/ha for peanuts, 1.6 ton/ha for maize, 4.0 ton/ha for cassava based on practical application of organic manure. With the estimated farmgate prices of \$0.43/kg for peanut, \$0.1/kg for maize and \$0.064/kg for cassava, the annual gross income from 0.6 ha farming is estimated to be \$169.

The loan amount for this menu is presumed to be \$ 314. If all the net income (\$161 in the 1st year and \$155 in the 2nd and 3rd years) is used for loan and interest repayment, farmers will have a \$120 surplus in the 3rd year.

### **Menu-2: Cattle and Chicken Raising**

It is proposed that the cattle raising business will be combined with a rather quick term business of chicken raising. A cattle raising unit (3 cows and one bull) is proposed as a minimum size for financial viability. The initial investment cost for 4 heads of cattle is estimated at \$ 440 and annual operation cost (vaccination and maintenance of the facilities) is estimated at \$ 20.

Thirty chickens (25 hens and 5 roosters) are considered to be a viable unit. The initial investment cost is estimated to be \$150 for chicken and \$134 for the wire netting for the playground fencing, totaling \$284. The total annual operation and maintenance cost is estimated to be \$113, which consists of:

- Feed costs for 250 chickens raising for selling: \$66;
- Feed costs for 30 chickens raising to adults: \$24;
- Breeding, vaccination, etc. (5% of gross income): \$20; and
- Maintenance of the facilities (2% of initial investment cost): \$3.

For cattle raising, it is estimated that the number of cattle will increase from 3 cows and one bull to 11~12 adult cattle and 8~9 calves by the end of the 10th year. One adult bull sold each year from the 4th year. Thus, no income will generate until the 4th year. On the other hand, chicken raising (25 hens and 5 roosters) is estimated to produce 250 chickens with 1.2 kg live-weight and 5 large-size eggs daily (1,800 eggs a year), equivalent to gross income of \$409 per year ( $\$1.42 \times 250 + \$0.03 \times 1,800$ ). Since the total annual operation and maintenance cost is estimated to be \$113, annual net income will amount to \$ 276.

The loan amount for this menu is \$ 724, of which \$ 440 is for cattle raising and \$284 is for chicken raising. If all the net income of \$276 is used for loan and

interest repayment, the loan will be totally repaid in three years. In the 4th year, the sale of bull should bring in an income.

### **Menu-3: Fishculture and Chicken**

Fishculture in combination with chicken raising is proposed in order to minimize the loan repayment period. One fishpond with a size of 40m x 50m (0.2 ha) is proposed. The initial investment cost for fishculture is estimated to be \$994, composed of \$ 857 for fishpond construction, \$80 for materials of caging nets and \$57 for fingerlings for the 1<sup>st</sup> year culture (2,000 fingerlings). Annual operation and maintenance cost is estimated to be \$90.

It is estimated that the live-weight of each fish will increase to 500 g per fish with a survival ratio of 65%. Thus, the total annual production of fish from the proposed 0.2 ha pond is estimated to be 650 kg. Based on \$0.43 per kg of the fresh fish farmgate price, the annual gross income can be estimated at \$279. With the total annual operation and maintenance cost estimated at \$ 90, annual net income will be \$189.

The loan amount for this menu will be \$1,278, of which \$994 is for fishculture and \$284 is for chicken raising. If all the net income of \$542 in the first year and \$ 485 in the 2nd and 3rd year are used for repayment, a surplus of \$58 in the 3rd year is expectable.

### **Menu-4: Fruit Tree and Field Crops**

For fruit tree planting, intercropping of field crops is recommended for three years in order to bring in returns while the trees mature. A standard size of 1.0 ha of fruit tree orchard is proposed. A total loan of \$ 300 for the capital cost of fruit tree orchard is applied. In addition, a total of 100 seedlings (\$150) are initially required. As for operation and maintenance cost, 5% of the gross income in full production (\$21) for 1st to 4th year and a 10% (\$42) for 5th year onward are applied for tools, fencing materials and transportation.

Between the rows of fruit trees, field crops will be intercropped during initial three years. Thus the costs of 39 kg of peanuts seeds (\$17) for the 1st and 3rd years and 20 kg of maize seeds (\$2) for the 2nd year are needed as investment costs. As for operation and maintenance costs, 5% of gross incomes (\$14 for peanuts and \$5 for maize) are taken into account for tools and transportation.

For fruit tree crops, the farmgate prices vary seasonally and according to the locations, but an average farmgate price of \$ 0.15 per kg is assumed. Thus, annual gross income will amount to \$428. Due to a small input cost, such fruit tree

planting appears to be profitable, but it needs 4 to 5 years until the first production is realized and 7 to 10 years for full production.

For field crop production, the estimated yield of 1.0 ton/ha for peanuts and 1.6 ton/ha for maize is applied assuming only inputs of organic manure. Base on the present farmgate prices (\$0.1 per kg of maize and \$0.43 per kg of peanuts), the annual gross income is estimated to be \$279 for 0.65 ha of peanut and \$ 104 for 0.65 ha of maize.

The loan amount for this menu will be \$486, of which \$450 is for fruit tree planting and \$36 is for field crops. If all the net incomes of \$244 in the first and the 3rd years and \$ 78 in the 2nd year is used for repayment, a surplus of \$11 is expected in the 3rd year.

#### **Menu-5: Coffee and Field Crops**

For coffee planting, intercropping of field crops is recommended for three years in order to bring in returns while the coffee trees mature. A size of 1.0 ha of coffee farm is proposed as the unit. A total loan of \$400 for coffee farm is applied. In addition, a total of 330 seedlings (\$33) are initially required. As for operation and maintenance cost, 5% of the gross income in full production (\$17) for 1st to 3rd year and 10% of the above (\$33) for 4th year onward are applied for tools, fencing materials and transportation. For intercropped field crops, the same set-up is required as applied for the fruit tree orchard.

Estimated yield of 0.6 tons/ha is applied for the coffee bushes. Based on an average farmgate price of \$0.56 per kg, an annual gross income of \$334 is expected. Due to a small input cost, such coffee farming seems to be profitable, but it needs 3 to 4 years until the first production is realized and 7 years before full production. For field crop production, the annual gross income is estimated to be \$ 279 for 0.65 ha of peanut and \$ 104 for 0.65 ha of maize.

The loan amount for this menu will be \$469, of which \$433 is for coffee planting and \$36 is for field crops. If all the net income of \$248 in the first and the 3rd years and \$82 in the 2nd year is used for repayment, a surplus of \$46 is expected in the 3rd year.

#### **Menu-6: Sericulture**

Sericulture for production of raw silk, pupas and silk weaving is one promising local industry in the rural areas, particularly for women. For starting this business, some capital is needed for preparation of mulberry tree field including seedlings, purchasing of silkworm eggs, spinning tools, and silkworm tools such as shelves,

net cover, bamboo tray and baskets. A total loan of \$200 will be required to cover the capital cost of sericulture business. As for operation and maintenance cost, \$24 for the cost of silkworm eggs and \$20 for maintenance of the facilities (10% of initial investment cost) are taken into account each year.

Two kinds of products are expected from sericulture, one is raw silk and the other is pupas. Based on the estimated capacity for spinning per person and sericulture period a year, the annual production of raw silk is estimated at 16.8 kg per person, equivalent to \$168. As for pupas, production will be 67 kg per year, equivalent to \$125. Therefore, annual gross income is estimated to be \$293 in full production (3rd year). If all the net income of \$44 in the first year, \$103 in the 2nd year and \$249 in the 3rd year is used for repayment, a surplus of \$164 is expected in the 3rd year.

## **6) Total Cost of Initial Stage Implementation**

An estimate of total cost is based on the estimate of following costs: (i) institutional training, (ii) participatory consultation in the model villages, (iii) financial support, (iv) technical/market support, (v) village infrastructure, and (vi) monitoring and project management.

### **(1) Institutional Training:**

The staff of LWUs will be trained on microfinance management at the Microfinance Training Center in Vientiane. It is also planned that some members will be trained in Bangladesh, where microfinance systems have been successfully developed. The investment in offices is estimated for 2 sets of computers, one telephone/fax machine, one copy machine and office furniture in each province.

### **(2) Participatory Consultation in the Model Villages:**

Before starting NVI implementation, the staff will visit targeted villages several times for consultation with the villagers. The consultations will include:

- Information meeting with villagers to explain the project;
- Confirmation of participants for each program menu;
- Formation of the group for each program menu;
- Training of the farmer's group on credit; and
- Establishing a village committee for NVI.

### **(3) Financial Support**

In order to initiate and promote integrated farming and local industry, financial support is necessary for each menus:

**New Village Initiative**

- Menu-1: Diversified crops;
- Menu-2: Cattle and chicken raising;
- Menu-3: Fishculture and chicken;
- Menu-4: Fruit tree and field crops;
- Menu-5: Coffee and field crops; and
- Menu-6: Sericulture.

(4) Technical/Marketing Support

Technical/Marketing support will be done in the form of guidance/training and regular visits to the villages by the concerned provincial/district staff. It is planned that one training and 4 visits will be done by the concerned staff for each menu. In addition, 5 farmers in each village will be trained in livestock raising, animal health care and fisheries as village veterinary workers or their assistants at the village level.

(5) Village Infrastructure

A type of the Social Investment Fund (SIF) funded by World Bank will be introduced for improvement of village infrastructures such as water supply, village roads, etc.

(6) Monitoring and Project Management

Project management will be done by provincial LWUs under the supervision of central LWU. Follow-up and monitoring will be done by a local consultant.

Based on the above, the total cost for the Initial Stage Implementation of NVI is estimated to be \$162,000. A breakdown is presented in Attachment VI and summarized below.

**Table I-3 Estimated Cost for Initial Stage Implementation**

(Unit: \$)

Category	1st Year	2nd year	3rd Year	Sub-total
Institutional Training	19,000	4,300	1,300	24,600
Participatory Consultation	672	1,344	2,016	4,032
Financial Support	15,640	27,310	27,310	70,260
Technical/Market Support	2,674	5,264	7,854	15,792
Village Infrastructure	2,000	4,000	6,000	12,000
Monitoring/Project Management	11,400	11,400	11,400	34,200
Miscellaneous	614	382	120	1,116
<b>Total</b>	<b>52,000</b>	<b>54,000</b>	<b>56,000</b>	<b>162,000</b>

## I-8 Indicative Plan for Full-scale Implementation

### 1) Target Villages

As presented in Table I-1 of Chapter I-7, a total of 567 villages will be targeted for NVI during the 10 years implementation period, of which 196 villages are in Khammouan and 371 are in Savannakhet. After the 3 years initial stage, the full-scale NVI activities will start from year 4 in 20 villages in both the lowland and central zones. The initiative will be extended to the eastern zone from year 5 and the number of villages increased as the project gains experience. In years 7 to 9, more than 100 villages will be added annually. For the last year, the remaining 58 villages will be incorporated into the program. The target villages by zone are summarized below.

**Table I-4 Target Villages during Full-scale Implementation**

Region	Total Villages	Target Villages	Initial Stage			Full-scale Implementation						
			Y-1	Y-2	Y-3	Y-4	Y-5	Y-6	Y-7	Y-8	Y-9	Y-10
Khammouan												
Lowland	260	78	0	1	0	5	10	15	15	15	15	2
Central	320	96	1	0	3	5	10	15	20	20	15	7
Eastern	220	22	0	1	0	0	2	3	5	5	5	1
(sub-total)	(800)	(196)	(1)	(2)	(3)	(10)	(22)	(33)	(40)	(40)	(35)	(10)
Savannakhet												
Lowland	558	167	0	2	0	5	15	30	30	30	30	25
Central	528	158	1	0	1	5	15	30	30	30	30	16
Eastern	457	46	0	0	2	0	2	5	10	10	10	7
(sub-total)	(1,543)	(371)	(1)	(2)	(3)	(10)	(32)	(65)	(70)	(70)	(70)	(48)
Total	2,347	567	2	4	6	20	54	98	110	110	105	58

### 2) Estimated Production of Integrated Farming

Menus for integrated farming and local industries will be selected by farmers for their implementation. For full-scale implementation, the number of units per each menu will be flexible and adjusted according to the requirements of the farmers. However, provisionally it is assumed that an equal number of units applied in the initial stage (11 units per menu) will be applied to full-scale implementation. It is also assumed that about 20% of households per village (calculated to be 15 households per village) will be targeted with any of these menus, namely 15 units per village, based on the following number of village in SKR.

**Table I-5 Target Household for NVI**

Province	No. of Villages	No. of Households	Average HH/village	Target HH/village
Khammouan	800	53,662	67	15
Savannakhet	1,543	120,552	78	15
Total/average	2,343	174,214	74	15

Based on the above assumptions, the target number of the units in 567 model villages is estimated to be 8,463 as summarized below.

**Table I-6 Target Number Menus for NVI**

Year	Y-1	Y-2	Y-3	Y-4	Y-5	Y-6	Y-7	Y-8	Y-9	Y-10	Total
Target Villages for NVI	2	4	6	20	54	98	110	110	105	58	567
Menu											
Menu-1 (Diversified Crop)	5	8	8	50	135	245	275	275	263	145	1,409
Menu-2 (Cattle/Chicken)	4	7	7	50	135	245	275	275	263	145	1,406
Menu-3 (Fishculture/Chicken)	4	7	7	50	135	245	275	275	263	145	1,406
Menu-4 (Fruit tree/Field Crop)	5	8	8	50	135	245	275	275	263	145	1,409
Menu-5 (Coffee/Field Crop)	5	8	8	50	135	245	275	275	263	145	1,409
Menu-6 (Sericulture)	6	15	15	50	135	245	275	275	263	145	1,424
Total No.of Menus	29	53	53	300	810	1,470	1,650	1,650	1,578	850	8,463

The followings are brief descriptions about the expected increase in production from each menu for 10 years.

***Menu-1 (Diversified Crops):***

A total of 1,409 units in this menu will be undertaken over 10 years. The cropped area will increase by 845 ha during that time, and 282 tons of peanuts, 451 tons of maize and 1,127 tons of cassava will be produced in year 10.

***Menu-2 (Cattle and Chicken raising):***

Cattle raising is combined with chicken raising in this menu. It is estimated that a total of 1,406 units in this menu will be provided to the farmers during the 10 years. With an assumption of 60% delivery ratio and 10% mortality, the total number of cattle will increase by 5,704 cows, 2,171 bulls, 5,312 calves by the 10th year, and 1,475 adult cattle will be sold for cash over 10 years. As for chicken raising, they will increase to 42,180 heads by the 10th year and 422 tons of chicken and 38 tons of eggs will be produced in year 10.

***Menu-3 (Fishculture and Chicken raising):***

Fishculture is also combined with chicken raising in order to mitigate the financial burden. A total of 1,406 units in this menu will be provided to the farmers over 10 years. With an assumption of 65% survival rate, the total production in year 10 will be 914 tons of fish in 281 ha of fishpond area. The chicken raising portion is the same as for Menu-2.

***Menu-4 (Fruit tree and Field crops):***

Intercropping with field crops is undertaken to compensate for the initial waiting period of fruit tree production. A total of 1,409 units in this menu will be

undertaken over 10 years. With this menu, fruit tree orchard area will increase by 1,409 ha. However, it requires 4 to 5 years for the first fruit production and 7 to 10 years for full production. It is estimated that a total of 4,227 tons of fruit will be produced annually at full production. In addition, a total of 1,831 tons of peanuts and 1,465 tons of maize will be produced through intercropping.

***Menu-5 (Coffee and Field crops):***

As required for fruit tree planting, intercropping of field crops is recommended in order to provide income during the initial 3 years after planting. A total of 1,409 units in this menu will be undertaken over 10 years. With this menu, coffee planting area will increase to 1,409 ha. However, it needs 3 to 4 year for the first crop and 7 years for full production. It is estimated that a total of 854 tons of coffee will be harvested annually at full production. In addition, a total of 1,831 tons of peanuts and 1,465 tons of maize will be produced through intercropping.

***Menu-6 (Sericulture):***

A total of 1,424 units in this menu will be undertaken over 10 years. With this menu, the annual production of raw silk and pupas will increase by 24 tons and 95 tons, respectively in the 10th year.

The estimated production through integrated farming at the stage of full-scale implementation are summarized below.

**New Village Initiative**

**Table I-7 Estimated Production during Full-scale Implementation**

Menu	No. of units	Components	Production in Year 10	Remarks
Menu-1	1,409			
		Field crops		
		- Cropped area, cumulative	845 ha	
		- Peanuts production, annually	282 tons	
		- Maize production, annually	451 tons	
		- Cassava production, annually	1,127 tons	
Menu-2	1,406			
		(I) Cattle		
		- Raising cows	5,704 heads	
		- Raising bulls	2,171 heads	
		- Raising calves	5,312 heads	
		- Cattle production, cumulative	1,475 heads	Year 4 to 10
		(II) Chicken		
		- Raising chickens	42,180 heads	
		- Chicken production, annually	421 tons	
		- Egg production, annually	38 tons	
Menu-3	1,406			
		(I) Fishculture		
		- Fishpond area, cumulative	281 ha	
		- Production	914 tons	
		(II) Chicken		
		- Raising chickens	42,180 heads	
		- Chicken production, annually	421 tons	
		- Egg production, annually	38 tons	
Menu-4	1,409			
		(I) Fruit tree		
		- Orchard area, cumulative	1,409 ha	
		- Fruit production annually	(4,227 tons)	In full production
		(II) Intercropping		
		- Peanuts, cumulative	1,831 tons	Initial stage only
		- Maize, cumulative	1,465 tons	Initial stage only
Menu-4	1,409			
		(I) Coffee		
		- Coffee area, cumulative	1,409 ha	
		- Coffee production, annually	(845 tons)	In full production
		(II) Intercropping		
		- Peanuts, cumulative	1,831 tons	Initial stage only
		- Maize, cumulative	1,465 tons	Initial stage only
Menu-5	1,424			
		Sericulture		
		- Raw silk production, annually	24 tons	
		- Pupas production, annually	95 tons	

### 3) Financial Requirements and Evaluation

For implementation of the full-scale pilot NVI program, financial arrangements are required to cover the estimated costs as tabulated below.

**Table I-8 Indicative Financial Requirements**

(Unit: \$)

Implementation Category	Initial Stage Year 1 to 3	Full-Scale Year 4 to 10	Total Year 1 to 10
I. Institutional Training	24,600	0	24,600
II. Participatory Consultation	4,032	186,480	190,512
III. Financial Support	70,260	2,753,335	2,829,595
IV. Technical/Market Support	15,792	730,380	746,172
V. Village Infrastructure	12,000	555,000	567,000
VI. Monitoring/Project Management	34,200	1,394,400	1,428,600
VII. Miscellaneous	1,116	18,405	19,521
<b>Total</b>	<b>162,000</b>	<b>5,638,000</b>	<b>5,800,000</b>

It is premature to financially evaluate the proposed pilot NVI program in SKR because the pilot activities and their financial estimates are based on various assumptions at this stage of the study. However, at the farmers' level, it is examined if they can attain the NVI target to double the household income in 10 years. The following observations are presented for reference purpose:

- (i) In case that the farmers apply Menu-1 (diversified crops), the annual net income (\$155 in the 4th year and after) will not be sufficient to double the household income in 10 years. Therefore, some additional activities (e.g., horticulture and/or livestock) should be introduced to attain the target.
- (ii) Farmers who apply Menu-2 (cattle and chicken raising) will additionally get the annual net income (\$383 in the 4th year and after) that is sufficient to double the household income.
- (iii) Farmers who apply Menu-3 (fishculture and chicken) will additionally get the annual net income (\$465 in the 4th year) that is sufficient to double the household income.
- (iv) Farmers who apply Menu-4 (fruit tree and field crops) and Menu-5 (coffee and field crops) will additionally obtain the annual net income sufficient to double the household income (\$386 for Menu-4 and \$301 for Menu-5).
- (v) Farmers who will introduce sericulture (Menu-6) also will additionally get the annual income (\$294) that is sufficient to double the household income. If the production scale is expanded, farmers will get more income from sericulture.

## **PERSPECTIVES FOR INTEGRATED FARMING**

For implementation of a pilot NVI program at the initial stage, five Menus are proposed for promotion of integrated farming.

These Menus are:

- Menu-1 : Diversified Crop
- Menu-2 : Cattle and Chicken Raising
- Menu-3 : Fishculture and Chicken
- Menu-4 : Fruit Tree and Field Crops
- Menu-5 : Coffee and Field Crops

Perspectives for each Menu are presented in the following pages.

**Proposed Menu-1 (Diversified Crop)**

**Recommended Integrated Farming:**

Recommended cash crops should have a stable local demand and/or an export demand. For sustainable upland crop farming, maintenance of soil fertility and protection of soil erosion should also be considered. Consequently, a rotated mixed cropping with peanuts, maize and cassava is proposed for NVI.

**Peanuts:**

Peanuts are a rich source of oil and protein. Peanuts grow best on soils that are well drained, loose, light (coarse textures), with enough organic matter, but not too damp. The soil should be slightly to moderately acidic. If the soil is too acidic, application of limestone is required. The yield of peanuts is estimated to be 1.0 ton/ha under rainfed conditions. This will gradually increase with gained farmer's experience. Demands for peanuts are acute in SKR, as a vegetable oil factory (Savan Advanced Agriculture Co.) in Savannakhet is in great need of raw materials.

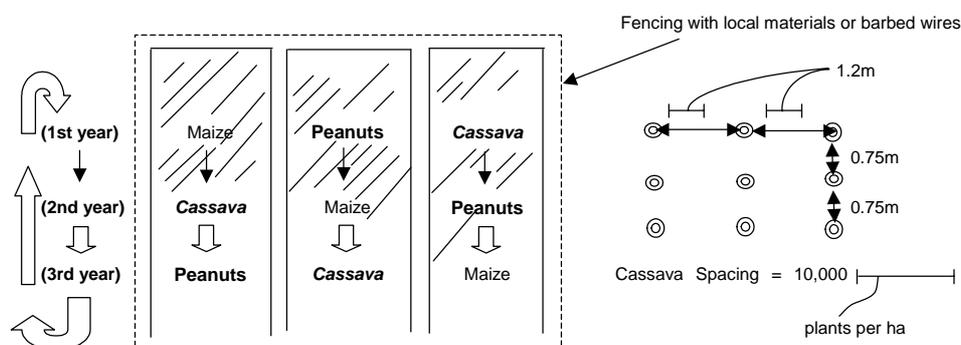
**Maize:**

The demands for feed crops, particularly maize, are considerable to meet the increased demand in livestock raising. Maize is grown under a wide range of ecological conditions in SKR. Maize requires well-structured, permeable soils with a high organic matter content. Maize is seriously affected by water-logging and is fairly sensitive to salinity. Estimated yields of maize are 1.6 ton/ha for rainfed conditions with no chemical fertilizer input and with maximum input of organic manure.

**Cassava:**

Cassava is grown mainly for its tubers, a source of carbohydrates. It can also be used as source of starch, flour and feed. In addition, its leaves can be used for Eri-silk culture, which is a potential local industry in SKR. For better root development, deep, well-drained, friable sandy loam to loamy soils are ideal. For direct consumption, cassava is usually harvested after about 12 months. The estimated yield of cassava is 4.0 ton/ha in SKR.

**Rotated Field Crops**



### Proposed Menu-1 (Diversified Crop)

#### I. Proposed Field: 0.6 ha

##### (1) Investment Cost for Crop Diversification = Loan Amount

i) Land clearing (0.6 ha) = \$0.03~\$0.07/m <sup>2</sup> x 6,000m <sup>2</sup> =	\$300	(\$180~\$420), **/
ii) Barbed wires (5 lines) for 0.6 ha = \$0.15 x 1,600 m =	(*)	(\$240), ***/
iii) Logs for the palings for fencing	\$0	(local materials)
iv) Peanuts seeds (60 kg/ha x 0.2 ha = 12 kg)	\$5	
v) Maize seeds (30 kg/ha x 0.2 ha = 6 kg)	\$1	
vi) Cassava stems (10,000 stems/ha x 0.2 ha = 2,000 stems)	\$8	
<b>Total of Loan Amount (I)</b>	<b>\$314</b>	

Note: \*/ The costs for i) Land clearing, and ii) Fencing materials can be reduced by maximum use of manual labor and local materials, and a total of \$300 of ceiling loan amount is applied for these items as an option.

\*\*/ The cost by hired heavy equipment, depending on the present land conditions. The cost can be reduced by maximum use of manual labor.

\*\*\*/ The cost can be reduced by maximum use of local materials.

##### (2) Predicted Production of Field Crops

i) Gross income: peanuts per 0.2 ha =	\$86
ii) Gross income: maize per 0.2 ha =	\$32
iii) Gross income: cassava per 0.2 ha =	\$51
	<b>\$169</b>

##### (3) Operation and Maintenance Cost

i) Fertilizer cost =	\$0	(Organic manure)
ii) Peanuts seed cost per 0.2 ha (12 kg) =	\$5	(2nd and 3rd year)
iii) Maize seed cost per 0.2 ha (6 kg) =	\$1	(2nd and 3rd year)
iv) Cassava seedling cost per 0.2 ha (2,000 stems) =	\$0	(Self-production)
v) Others (tools, transport, etc.) for peanuts per 0.2 ha =	\$4	(5% of gross income)
vi) Others (tools, transport, etc.) for maize per 0.2 ha =	\$2	(5% of gross income)
vii) Others (tools, transport, etc.) for cassava per 0.2 ha =	\$3	(5% of gross income)
	<b>\$14</b>	

## II Financial Plan

(unit: \$)

Period	Loan Repayment					Farming Account			
	Previous balance	Interest	Loan amount	Repayment	Loan balance	Gross income	O&M cost	Net income	Remain after repayment
Initial Loan	314								
after 1 year	314	22	336	161	175	169	8	161	0
2 years	175	12	188	155	33	169	14	155	0
3 years	33	2	35	35	0	169	14	155	120

**Proposed Menu-2 (Cattle and Chicken Raising)*****Recommended Integrated Farming:***

Cattle raising is one of the promising businesses in rural areas and many farmers are willing to undertake this business. However due to the lack of capital and technical support for animal health care, the majority of farmers have been unable to start this business. Cattle raising needs a certain time period to achieve profitable production. Therefore, it is proposed that cattle raising will be combined with a relatively short term chicken raising business to compensate for the initial waiting period.

***Cattle Raising:***

A cattle raising unit, consisting of 3 cows and one bull is proposed for NVI, taking into account a reasonable initial investment cost. In the initial period, the cattle will be raised in an extensive manner, benefited from natural resources in the forest and by using such farm by-products as rice straw and maize stalk in order to minimize actual input costs. However, in the long run, a semi-intensive raising system with improved pasture can be applied to increase the number of cattle in view of feed nutrient value, animal health care and limited expandable grazing land. A cattle pen/shed is proposed near the water trough for nighttime rest and undertaking animal health care as well as collecting animal manure. The predicted production of cattle is estimated to be:

- 4~5 adult cows, 1~2 adult bulls and 4~5 calves by the end of 5th year;
- 9~10 adult cows, 2~3 adult bulls and 8~9 calves by the end of 10th year; and
- Selling one adult bull each year from the 4th year.

***Chicken Raising:***

Thirty chickens, 25 hens and 5 roosters, will constitute a raising unit of free range unit. A simple chicken house with a total floor area of 72 m<sup>2</sup> and a playground of 48 m<sup>2</sup> is required for the chicken raising. It is proposed that only locally available materials will be used for the chicken house construction. The number of chickens to be place in earth floor depends on the age of chicks. About 0.4 m<sup>2</sup> to 0.9 m<sup>2</sup> of floor space for each chicken is required to avoid overcrowding. A native chicken needs 4 to 5 months to reach adulthood (1.2 kg live-weight). Feed requirement for 5 months is estimated to be about 7.4 kg of agricultural products such as maize, rice bran and other farm by-products. With 25 hens, normal yield of 5 large-size eggs daily and 250 chickens each year are expected as income from this chicken raising business.

### Proposed Menu-2 (Cattle and Chicken Raising)

#### I. Proposed Cattle Raising Unit: 3 cows and one bull per household

(1) Investment Cost for Cattle Raising = Loan Amount (I)	
i) 3 cows and one bull (\$110 x 4 heads)	\$440
ii) Grazing land (forest, natural grass land)	\$0 */
Total of Loan Amount (I)	\$440

Note: \*/ extensive cattle raising during initial period.

#### (2) Predicted Production of Cattle Raising (see details in the following table) (Delivery ratio = 60%, Mortality = 10%)

i) 3 cows and 1 bull will increase to 4.7 adult cows, 1.5 adult bulls and 4.4 calves by the end of 5th year; 9.0 adult cows, 2.6 adult bulls and 8.4 calves by the end of 10th year; and Selling one adult bull each year from 4th year	
ii) Gross income by selling adult cattle from 4th year onward	\$107

#### (3) Operation and Maintenance Cost

i) Feeding costs for cattle (forest, natural grass land)	\$
ii) Annual vaccination, etc. 6 - 12 heads x \$ 0.25 x 2 times + \$ 10 =	\$15 */
iii) Maintenance of the facilities	\$5 **/
Total of (3)	\$20

Note: \*/ Average annual vaccination cost of \$15 is applied.  
\*\*/ Cattle shed, low cost with local materials.

Projection of Cattle Increase : (Delivery Ratio = 60%, Mortality = 10%)

Year	Female (Cow)										Raising/Selling Plan			
	Adult	Calves									sub-total	Raising		Selling
Initial, */	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th		Adult	Calves	Adult
After 1 year	2.7	0.9									3.6	2.7	0.9	0.0
2 years	3.2	0.8	0.8								4.9	3.2	1.6	0.0
3 years	3.6		0.7	1.0							5.3	3.6	1.7	0.0
4 years	4.2			0.9	1.1						6.1	4.2	2.0	0.0
5 years	4.7				1.0	1.2					7.0	4.7	2.2	0.0
6 years	5.4					1.1	1.4				7.9	5.4	2.5	0.0
7 years	6.1						1.3	1.6			9.0	6.1	2.9	0.0
8 years	7.0							1.5	1.8		10.2	7.0	3.3	0.0
9 years	7.9								1.7	2.1	11.6	7.9	3.7	0.0
10 years	9.0									1.9	13.2	9.0	4.2	0.0

Year	Male (Bull)										Raising/Selling Plan			
	Adult	Calves									sub-total	Raising		Selling
Initial, */	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th		Adult	Calves	Adult
After 1 year	0.9	0.9									1.8	1.0	0.9	0.0
2 years	1.6	0.8	0.8								3.2	1.0	1.6	0.0
3 years	2.2		0.7	1.0							3.9	2.2	1.7	0.0
4 years	2.8			0.9	1.1						4.8	1.8	2.0	1.0
5 years	2.5				1.0	1.2					4.8	1.5	2.2	1.0
6 years	2.4					1.1	1.4				4.9	1.4	2.5	1.0
7 years	2.4						1.3	1.6			5.3	1.4	2.9	1.0
8 years	2.7							1.5	1.8		5.9	1.7	3.3	1.0
9 years	3.0								1.7	2.1	6.8	2.0	3.7	1.0
10 years	3.6									1.9	7.9	2.6	4.2	1.0

Note: \*/ Initial Investment

#### II. Proposed Chicken Raising Unit: 25 hens and 5 roosters per household

(1) Investment Cost = Loan Amount (II)	
i) 25 hens and 5 roosters	\$150
ii) One chicken house (72 m <sup>2</sup> )	\$0 (local materials with own labor)
iii) Wire netting for fencing of the playground (78 m <sup>2</sup> )	\$134
Total of Loan Amount (II)	\$284

#### (2) Predicted Production of Chicken Raising

i) Annual production of 1.2 kg live-weight	250 chickens
ii) Annual production of eggs	1,800 eggs (5 eggs of daily production)
iii) Annual gross income per raising unit (25hens + 5roosters)	\$409

#### (3) Operation and Maintenance Cost

i) Feeding costs for 250 chickens raising (for selling)	\$66
ii) Feeding costs for 30 chickens raising (initial adults)	\$24
iii) Breeding, Vaccination, etc. (5% of gross income)	\$20
iv) Maintenance of the facilities (2% of initial investment cost)	\$3
Total of (3)	\$113

#### III. Financial Plan

(unit: \$)

Period	Loan Repayment					Farming Account			
	Previous balance	Interest	Loan amount	Repayment	Loan balance	Gross income	O&M cost	Net income	Remain after repayment
Initial Loan */	724								
after 1 year	724	51	775	276	499	409	133	276	0
2 years	499	35	534	276	258	409	133	276	0
3 years	258	18	276	276	0	409	133	276	0

Note: \*/ Loan amount (I)+(II)

**Proposed Menu-3 (Fishculture and Chicken)*****Recommended Integrated Farming:***

Fishculture is a promising farm activity in view of the increase in local demand for fish. However, some funds are required for fishpond construction. In addition, provision of fingerlings and technical support are essential for undertaking fishculture business. Fishculture can generate income in a shorter period. However, it is proposed to combine it with chicken raising in order to shorten the loan repayment period.

***Fishculture:***

A fishpond with a size of 40m x 50m (0.2 ha) is proposed for NVI. The location of the pond will be carefully determined, since it is important to have clean flowing water to irrigate the pond. Flowing water prevents the breeding of bacteria that attack the fish. The proposed pond is a dug-out excavated type with a depth of 1 to 1.5 m. A two meter high perimeter dike around the pond will be constructed using the soil removed from the excavation. Two pipes are to be installed; one serves as an inlet pipe and the other serves as an overflow. The fishpond will be fenced around with paling and any available local materials. Living fence of legume trees or fruit trees such as banana, papaya, jackfruit and coconut is also desirable in terms of integrated farming.

An integrated system using self grown products of maize, rice bran and chicken manures for feeding fish is proposed to minimize raising cost and to maximize the use of farm by-products. Chicken manure also fertilizes aqua plants in the fishpond. Supplemental feeding is only necessary for two weeks before harvest to fatten the stock and to improve its taste. A total of 2,000 fingerlings with a size of 5 to 10 cm (about 1 month old) are required for 0.2 ha pond. Alternatively, about 1 week old fingerlings with a size of 2 to 3 cm will be reared in a nursery pond or in a caging net in the rearing pond. It is estimated that the live-weight of each fish will increase to 500 g with about a 65% survival ratio. Thus, the total annual production of fish from the proposed 0.2 ha pond is estimated to be 650 kg (1,300 fishes x 500 g).

***Chicken Raising:***

(This is the same as mentioned in the proposed Menu-2.)

**Proposed Menu-3 (Fishculture and Chicken)**

**I. Proposed Fishpond: One fishpond with a size of 40m x 50m (= 0.2 ha) per household**

(1) Investment Cost for Fishculture = Loan Amount (I)

i)	Construction of fishpond (0.2 ha/pond)	\$857
ii)	Materials for caging nets (0.9 m x 80 m)	\$80
iii)	Fingerlings for the 1st culture (2,000 fingerlings)	\$57
iv)	Fencing (paling fence or living fence)	\$0 ,*/
Total Loan Amount (I)		\$994

Note: \*/ on his own account with local materials.

(2) Predicted Production of Fishculture

i)	Number of fingerlings per 0.2 ha	2,000 fingerlings
ii)	Number of fish for selling per year	1,300 fishes, */
iii)	Total increase of weight for 1 year	650 kg
iv)	Annual gross income per 0.2 ha	\$279

Note: \*/ Survival rate = 65%

(3) Operation and Maintenance Cost

i)	Feeding costs	\$4
ii)	Fingerling	\$57 (from second year)
iii)	Maintenance of fishpond (routine management, etc.)	\$29
Total of (3)		\$90

**II. Proposed Chicken Raising Unit: 25 hens and 5 roosters per household**

(1) Investment Cost = Loan Amount (II)

i)	25 hens and 5 roosters	\$150
ii)	One chicken house (72 m <sup>2</sup> )	\$0 (local materials with own labor)
iii)	Wire netting for fencing of the playground (78 m <sup>2</sup> )	\$134
Total Loan Amount (I)		\$284

(2) Predicted Production of Chicken Raising

i)	Annual production of 1.2 kg live-weight	250 chickens
ii)	Annual production of eggs	1,800 eggs (5 eggs of daily production)
iii)	Annual gross income per unit (25 hens + 5 roosters)	\$409

(3) Operation and Maintenance Cost

i)	Feeding costs for 250 chickens raising (for selling)	\$66
ii)	Feeding costs for 30 chickens raising (initial adults)	\$24
iii)	Breeding, Vaccination, etc. (5% of gross income)	\$20
iv)	Maintenance of the facilities (2% of initial invest cost)	\$3
Total of (3)		\$113

**III. Financial Plan**

(unit: \$)

Period	Loan Repayment					Farming Account			
	Previous balance	Interest	Loan amount	Repayment	Loan balance	Gross income	O&M cost	Net income	Remain after repayment
Initial Loan */	1,278								
after 1 year	1,278	89	1,367	542	826	688	146	542	0
2 years	826	58	884	485	399	688	203	485	0
3 years	399	28	427	427	0	688	203	485	58

Note: \*/ Loan amount (I)+(II)

**Proposed Menu-4 (Fruit Tree and Field Crops)**

**Recommended Integrated Farming:**

Fruit tree planting of mango, rambutan, tamarind, jackfruit and longan is a promising business in terms of fresh products as well as future agro-processing. However, this business needs a certain amount of investment and time to achieve fundamental viability. In this program, intercropping of field crops is recommended for three years in order to secure income during the initial period.

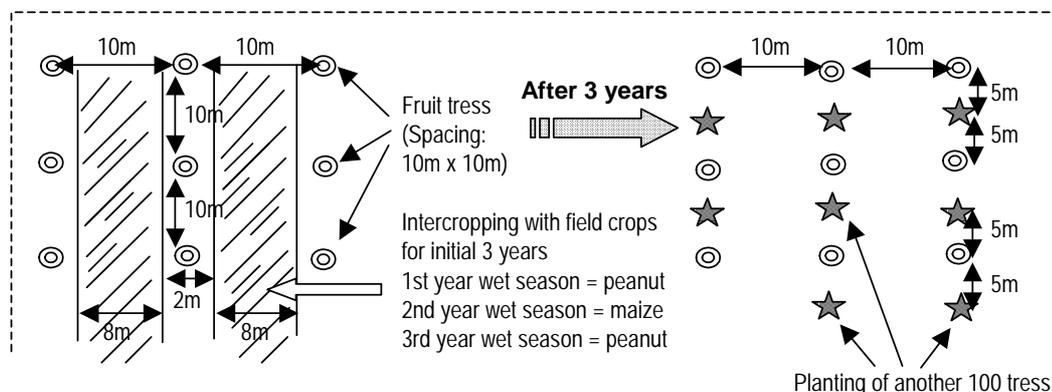
**Fruit Trees:**

Among various promising fruit trees, mango is taken as an example, even though a final determination will be made based on soil condition, elevation, and targeted market situation. A 1.0 ha of fruit tree orchard is proposed as a unit for NVI. Specific facilities are not required for fruit tree planting. The land will be thoroughly prepared during the dry season. Since the seedling cost is relatively high, 10 m x 10 m of spacing (a total of 100 trees) is recommended at the initial stage. Between the rows of fruit trees, field crops will be intercropped during the initial 3 years to secure income. After 3 years of intercropping, another 100 seedlings will be planted between the trees along the rows, which makes a final tree spacing to be 10 m x 5 m. Planting will end at the start of the rainy season. Pruning will be done occasionally during the rainy season. No chemical fertilizers are required but at least, 5 tons of organic manures are required every 5 years to maintain the humus level of the soil. An estimated yield of 3.0 ton/ha is applied, which seems to be reasonable under practical application of organic manures. Due to the small input cost, such fruit tree planting appears to be profitable but it requires 4 to 5 years for the first production and 7 to 10 years for full production.

**Intercropping of Field Crops:**

(Refer to the next program, Coffee and Field Crops in Menu-5)

**Spacing of Trees and Intercropping**



### Proposed Menu-4 (Fruit Tree and Field Crops)

#### I. Proposed Orchard: 1.0 ha of fruit tree orchard (example: mango)

(1) Investment Cost for Orchard = Loan Amount (I)

i)	Land clearing (1.0 ha) = $\$0.03\text{--}\$0.07/\text{m}^2 \times 10,000\text{m}^2 =$	\$300	(\$300~\$700), **/
ii)	Barbed wires (5 lines) with nails for 1.0 ha = $\$0.15 \times 2,000 \text{ m} =$	(*)	(\$300), ***/
iii)	Logs for the palings for fencing	\$0	(local materials)
iv)	Digging holes and tree planting	\$0	(manual labor)
v)	Seedlings (Spacing = 10m x 10m, 100 trees in total)	\$150	(\$1.5/seedling), ****/
Total of Loan Amount (I)		\$450	

Note: \*/ The costs for i) Land clearing, and ii) Fencing materials can be reduced by maximum use of manual labor and local materials, and a total of \$300 of ceiling loan amount is applied for these items as an option.  
 \*\*/ The cost by hired heavy equipment, depending on the present land conditions. The cost can be reduced by maximum use of manual labor.  
 \*\*\*/ The cost can be reduced by maximum use of local materials.  
 \*\*\*\*/ After repayment of the loan in three years, another 100 fruit tree seedlings will be planted between planted trees.

(2) Predicted Production of Fruit Tree

i)	Start of production after planting	3rd to 4th year
ii)	Start of full production	10th year
iii)	Yield	3.0 ton/ha, */
iv)	Gross income after full production in 10th year onwards	\$428

Note: \*/ Estimated based on the conditions with minimal inputs of chemical fertilizer and applying higher inputs of organic manure such as farmyard manure, animal manure and legume cover crops.

(3) Operation and Maintenance Cost

i)	Chemical fertilizer	\$0
iii)	Maintenance cost (10% of gross income) from 5th year	\$42, */
Total of (3)		\$42

Note: A 5% of the gross income for tools, fencing materials and transportation, etc. for 1st to 4th year (\$21) and a 10% of the above (\$42) for 5th year onward.

#### II. Proposed Intercropping of Field Crops

(1) Investment Cost = Loan Amount (II)

i)	Peanut seed cost per 0.65 ha (1st year) =	\$17
ii)	Maize seed cost per 0.65 ha (2nd year) =	\$2
iii)	Peanut seed cost per 0.65 ha (3rd year) =	\$17
Total of Loan Amount (II)		\$36

(2) Predicted Production of Intercropping

i)	Intercropping area per ha = $8\text{ m} \times 90\text{ m} \times 9 \text{ strips} = 6,480 \text{ m}^2 =$	0.65 ha (see the following illustration)
ii)	Rotated crops with peanuts (1st year) and maize (2nd year) and peanuts (3rd year)	
iii)	Gross income: peanuts per 0.65 ha =	\$279
iv)	Gross income: maize per 0.65 ha =	\$104

(3) Operation and Maintenance Cost

i)	Fertilizer cost =	\$0	(Organic manure)
ii)	Others (tools, transportation, etc.) for peanuts per 0.65 ha =	\$14	(5% of gross income)
iii)	Others (tools, transportation, etc.) for maize per 0.65 ha =	\$5	(5% of gross income)

#### III. Financial Plan

(unit: \$)

Period	Loan Repayment					Farming Account			
	Previous balance	Interest	Loan amount	Repayment	Loan balance	Gross income	O&M cost	Net income	Remain after repayment
Initial Loan */	486								
after 1 year	486	34	520	244	276	279	35	244	0
2 years	276	19	296	78	218	104	26	78	0
3 years	218	15	233	233	0	279	35	244	11

Note: \*/ Loan amount (I)+(II)

**Proposed Menu-5 (Coffee and Field Crops)**

**Recommended Integrated Farming:**

Coffee farming is promoted by the government particularly in mountainous areas. However, this business needs a certain amount of investment and some period until achieving profitable conditions. Therefore, intercropping with field crops is planned for three years in order to secure income during this initial period.

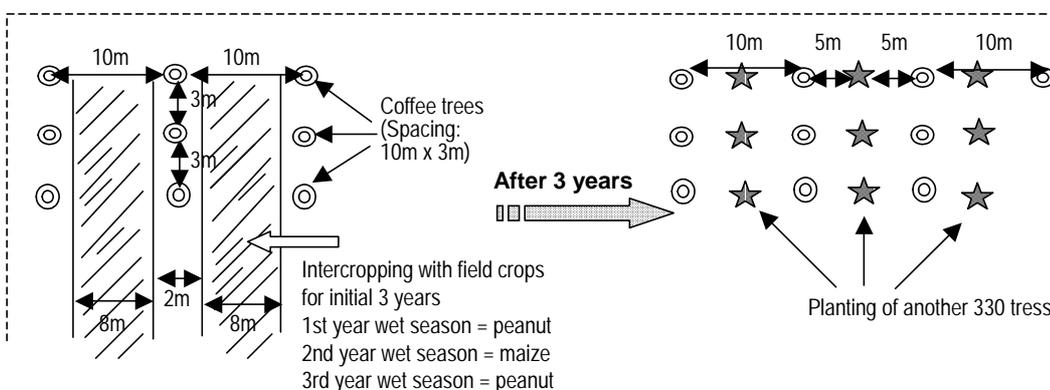
**Coffee Planting:**

A 1.0 ha coffee farm is proposed as a standard unit for NVI. The land will be thoroughly prepared during the dry season. Coffee seedlings with a spacing of 10 m x 3 m (a total of 330 trees) are recommended for the initial stage to provide intercropping areas between the rows of trees. After the 3 years intercropping period, another 330 seedlings will be planted between the rows at 3 m intervals, which makes the final spacing of 5 m x 3 m. No chemical fertilizers will be used but inputs of about 1.0 ton/ha of organic manure is recommended. Estimated yield of 0.6 tons/ha is assumed, which is reasonable with application of organic manure. Such coffee farming appears to be profitable, but it needs 3 to 4 years for the first production and 7 years for full production.

**Intercropping of Field Crops:**

Between the rows of coffee trees, field crops will be intercropped during initial three years to secure incomes. Rotated crops with peanuts in the 1st wet season, maize in the 2nd wet season, and again peanuts in the 3rd years are recommended in strips of 8 m width between 10 m interval of trees. A total cropped area is estimated at 0.65 ha per 1.0 ha orchard (8 m x 90 m x 9 strips). Seeding rates will be 60 kg/ha for peanuts and 30 kg/ha for maize growing. After the intercropping period, cover cropping with leguminous crops can be done, which will not only prevent soil erosion but also the growth of weeds. This could supply additional feed for animals. Under-planting with cardamon could provide additional income.

**Spacing of Trees and Intercropping:**



### Proposed Menu-5 (Coffee and Field Crops)

#### I. Proposed Orchard: 1.0 ha of coffee plantation

##### (1) Investment Cost for Orchard = Loan Amount (I)

i)	Land clearing (1.0 ha) = $\$0.03\text{--}\$0.07/\text{m}^2 \times 10,000\text{m}^2 =$	\$400	(\$300~\$700), **/
ii)	Barbed wires (5 lines) with nails for 1.0 ha = $\$0.15 \times 2,000 \text{ m} =$	(*)	(\$300), ***/
iii)	Logs for the palings for fencing	\$0	(local materials)
iv)	Digging holes and tree planting	\$0	(manual labor)
v)	Seedlings (Spacing = 10m x 3m, 330 trees in total)	\$33	(\$0.1/seedling), ****/
Total of Loan Amount (I)		\$433	

Note: \*/ The costs for i) Land clearing, and ii) Fencing materials can be reduced by maximum use of manual labor and local materials, and a total of \$400 of ceiling loan amount is applied for these items as an option.  
 \*\*/ The cost by hired heavy equipment, depending on the present land conditions. The cost can be reduced by maximum use of manual labor.  
 \*\*\*/ The cost can be reduced by maximum use of local materials.  
 \*\*\*\*/ After repayment of the loan in three years, another 330 coffee seedlings will be planted between the rows.

##### (2) Predicted Production of Coffee

i)	Start of production after planting	3rd to 4th year
ii)	Start of full production	7th year
iii)	Yield	0.6 ton/ha, */
iv)	Gross income after full production in 7th year onwards	\$334 (1,000 trees per ha)

Note: \*/ Estimated based on the conditions with minimal inputs of chemical fertilizer and applying higher inputs of organic manure such as farmyard manure, animal manure and legume cover crops.

##### (3) Operation and Maintenance Cost

i)	Chemical fertilizer	\$0
iii)	Maintenance cost (10% of gross income) from 4th year	\$33, */
Total of (3)		\$33

Note: A 5% of the gross income for tools, fencing materials and transportation, etc. for 1st to 3rd year (\$17) and a 10% of the above (\$33) for 4th year onward.

#### II. Proposed Intercropping of Field Crops

##### (1) Investment Cost = Loan Amount (II)

i)	Peanut seed cost per 0.65 ha (1st year) =	\$17
ii)	Maize seed cost per 0.65 ha (2nd year) =	\$2
iii)	Peanut seed cost per 0.65 ha (3rd year) =	\$17
Total of Loan Amount (II)		\$36

##### (2) Predicted Production of Intercropping

i)	Intercropping area per ha = $8\text{m} \times 90\text{m} \times 9 \text{ strips} = 6,480 \text{ m}^2 =$	0.65 ha (see the following illustration)
ii)	Rotated crops with peanuts (1st year) and maize (2nd year) and peanuts (3rd year)	
iii)	Gross income: peanuts per 0.65 ha =	\$279
iv)	Gross income: maize per 0.65 ha =	\$104

##### (3) Operation and Maintenance Cost

i)	Fertilizer cost =	\$0 (Organic manure)
ii)	Others (tools, transportation, etc.) for peanuts per 0.65 ha =	\$14 (5% of gross income)
iii)	Others (tools, transportation, etc.) for maize per 0.65 ha =	\$5 (5% of gross income)

#### III. Financial Plan

(unit: \$)

Period	Loan Repayment					Farming Account			
	Previous balance	Interest	Loan amount	Repayment	Loan balance	Gross income	O&M cost	Net income	Remain after repayment
Initial Loan */	469								
after 1 year	469	33	502	248	254	279	30	248	0
2 years	254	18	271	82	189	104	22	82	0
3 years	189	13	202	202	0	279	30	248	46

Note: \*/ Loan amount (I)+(II)



## **LOCAL INDUSTRY PROMOTION**

For implementation of a pilot NVI program in SKR, eight local industry menus are proposed for promotion of integrated farming.

These Menus are:

- Menu-1 : Natural Dye Materials
- Menu-2 : Medical Harb
- Menu-3 : Bee-culture (Apriculture)
- Menu-4 : Bamboo
- Menu-5 : Sericulture (Wild Silk)
- Menu-6 : Sericulture (Mulberry Silk)
- Menu-7 : Cotton Textiles
- Menu-8 : Natural Fibers

**Local Industry Promotion 1 : 【Natural Dye Materials】**

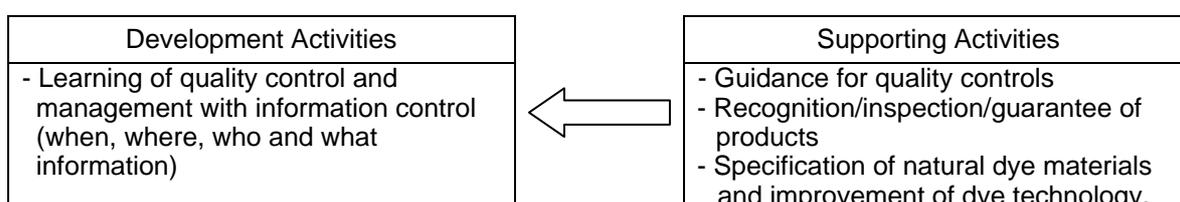
<b>1. Appropriate Location and Requirements</b>	
Availability of appropriate knowledge and experiences for cotton textiles and natural dye works. Availability of linkage with promotion of agriculture and forestry industries.	

<b>2. Present Situation ( Issues and Countermeasures )</b>
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<b>1) SWOT Analysis of Natural Dye Projects</b>	
Strength	Wider availability of traditional knowledge and technologies for natural dye materials Stable market demand as a natural products (non-chemical/hypo-allergic products) Increasing of demand preference to natural fibers and natural dye materials rather than chemical ones in an overseas market
Weakness	The colors will fade out of the fabric. Resources of natural dyeing materials in the market Higher price compare to the chemical fabric.
Opportunities	Natural dyeing materials will be sold more with natural fabric textile Natural dyeing materials will be sold better in the form of dry powder or condensed
Threat	Sweeping away of traditional technologies in local textile and dye works caused by spreading of cheaper chemical textile and dye methods.
<b>2) Present Situation in SKR</b>	
Popular activities on cotton fabric works with natural dye materials in the villages (for self-consumption) Rapid increasing of cheap chemical fiber textiles and chemical dye materials in urban areas Successful expansion of natural fibers and natural dye industries to Japanese market.	
<b>3) Issues and Countermeasures</b>	
Issues	Countermeasures
<ul style="list-style-type: none"> <li>- Need to create new natural dye products to market</li> <li>- Need to reduce color fade out from the fabric and coloring to other textiles</li> </ul>	<ul style="list-style-type: none"> <li>- Specification of natural dyeing materials and improvement of dyeing technology.</li> <li>- Development of R&amp;D (Power and Condense Technology)</li> <li>- Guarantee of product qualities by offering the certification, inspection labels and guidance works</li> <li>- Introduction and guidance of dyeing and textile technologies</li> </ul>

<b>3. Development and Supporting Activities</b>
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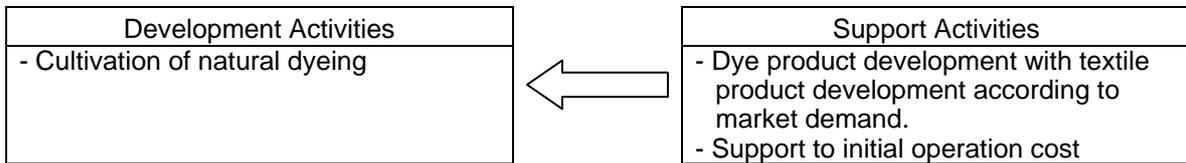
<b>Phase I : Field Study</b>
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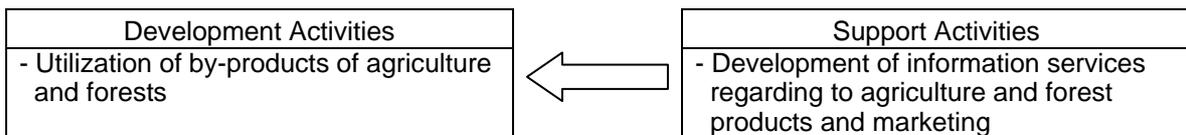
**New Village Initiative**

**Attachment II**

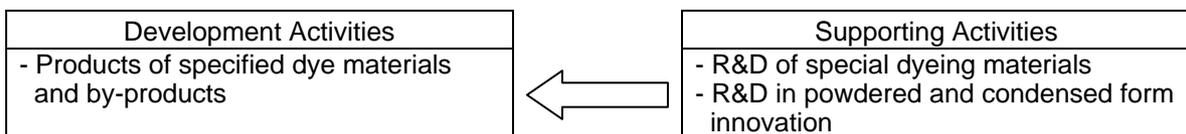
**Phase II : Improvement of Growing Technology**



**Phase III : Establishment of Linkage with Agriculture and Forestry**



**Phase IV : Development of Dye Materials**



**4. Marketing Development**

Market	Product Development	Marketing
Domestic	- Put labels on types of dye materials, color, dye method and quality	- Development activities with textile industries.
Neighboring Countries	- Put labels on types of dye materials, color, dyeing method, and quality	- Development activities with textile industries
Tourists	- Development of unique products (combination with textile products)	
Export	- Development of value-added products ( Dried powder/ Condensed form ) - Export promotion	- Market situation in Japan - Export Guidance Book

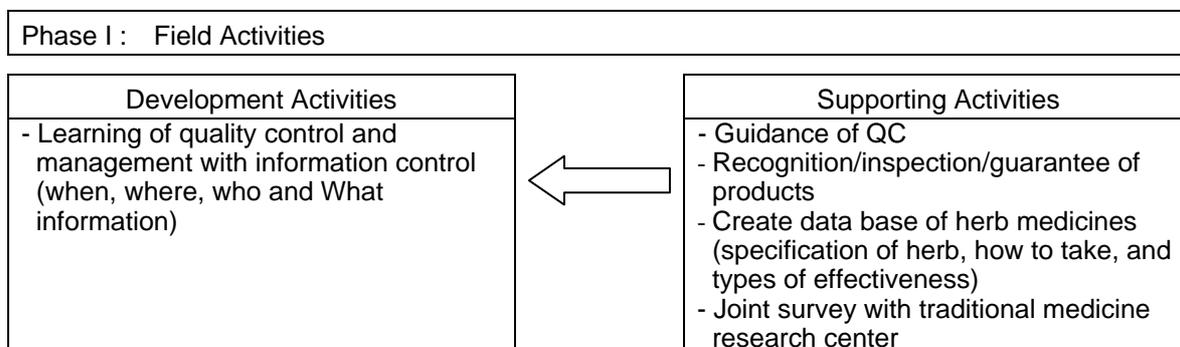


**Local Industry Promotion 2 : 【Medical Herb】**

<b>1. Appropriate Location and Requirements</b>
Availability of knowledge and experiences about medical herb products Availability of linkage with promotion of agriculture and forestry industries

<b>2. Present Situation ( Issues and Countermeasures )</b>	
1) SWOT Analysis of Medical Herb Industry	
Strength	Wider availability of rich resource, traditional technology and knowledge of medical herbs Higher reputation of medical herbs for markets in neighboring countries Recognition of herbal medicines as natural ingredients because of less allergic reaction comparing to the chemical medicines
Weakness	Limited public recognition(approval) on herbal medicines due to partially including inscrutable ingredients
Opportunities	High demand of herb medicines in world market Development of herb medicines will be accelerated by the Bio-technology. Anti-cancer medicine will be expected due to the R&D of medical herb
Threat	Cheap chemical medicines from Thailand
2) Present Situation in SKR	
Traditional use of medical herbs in rural areas Small demand of medical herbs in local markets Widely use of chemical medicine in urban areas	
3) Issues and Countermeasure	
Issues	Countermeasures
- Utilization of traditional herb medicines in the society	- Create data base of herb medicines (specification of herb, how to take, and types of effectiveness) - R&D of chemical effectiveness ( joint survey of foreign institutions) - R&D of medicine(powder form, condensed form) - Guarantee of product qualities by offering the certification, inspection labels and guidance works

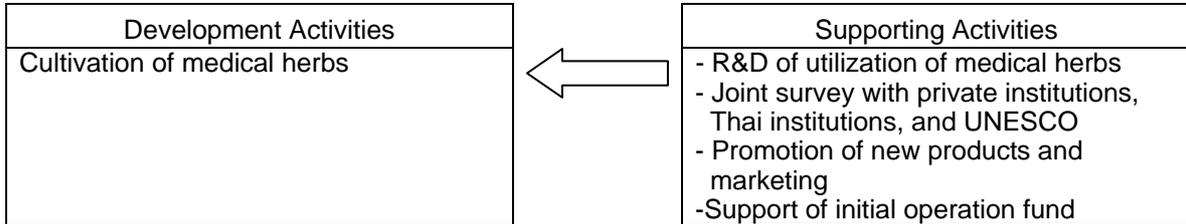
**3. Development and Supporting Activities**



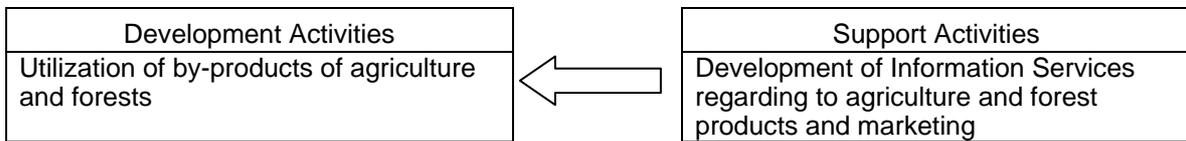
**New Village Initiative**

**Attachment II**

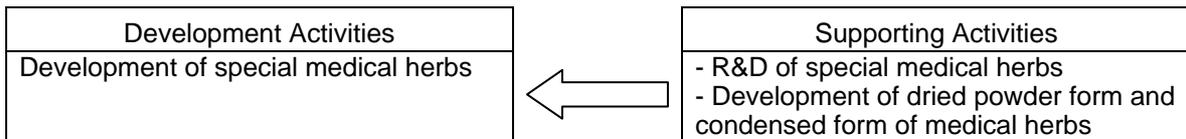
**Phase II : Establishment of technical know-how (herb cultivation method)**



**Phase III : Establishment of Linkages with Agriculture and Forestry**



**Phase IV : Special herb development**



**4. Marketing Development**

Market	Product Development	Marketing
Domestic	Indication of herb specification, how to take, and types of effectiveness	
Neighboring Countries	Indication of herb specification, how to take, and types of effectiveness	
Tourists	Development of new products (for diet, for beauty-treatment clinic)	
Export	New product developments (Dried powder and condensed liquid forms)	



**Local Industry Promotion 3 : 【Bee-Culture (Apiculture)】**

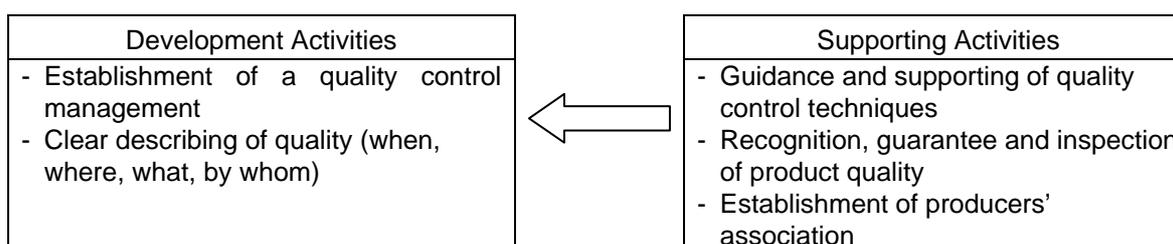
<b>1. Appropriate Location and Requirements</b>
Availability of forest where the bee can inhabit Availability of linkage with agro-based local industries

**2. Present Situation (Issues and Countermeasures)**

<b>1) SWOT Analysis for Natural Fibers</b>	
Strength	Pure honey be typical as a preservative product Honey has a high reputation as a healthy product (high market value). Various and high value-added by-products of apiculture (Beeswax, royal jelly, propolis, flavonoid)
Weakness	Limited locations in apiculture business outside of agriculture and forestry areas
Opportunities	Synergistic effect being expected in agriculture and forestry businesses (pollen hybridization and honey)
Threat	High competitiveness in the world market (cheaper supply of honeys from China)
<b>2) Present Situation in SKR</b>	
No apiculture business in SKR (only collection from the beehive of nature) Wide use of beeswax as a candle with flower smell (Especially at temple) Unstable supply and no quality control (no descriptions of contents and no appropriate container) in the market Wide spread of adulterated honey products with additives in the market	
<b>3) Issues and Countermeasures</b>	
Issues	Counter measure
Improvement of product quality in the market	<ul style="list-style-type: none"> <li>- Clear describing of product quality</li> <li>- Product quality by offering the guarantee, certification and inspection labels</li> <li>- Establishment of supporting organization and introduction of technology development for higher quality.</li> <li>- Expansion of technical guidance service</li> </ul>

**3. Development and Supporting Activities**

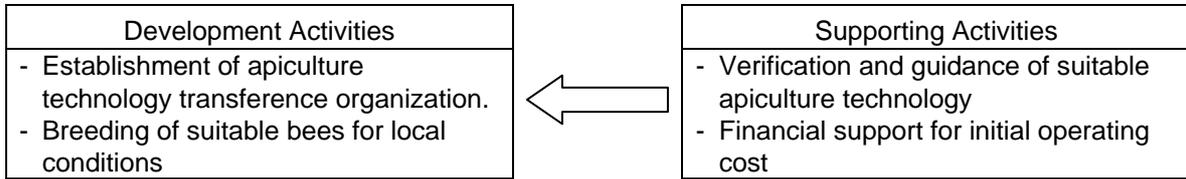
**Phase I : Field Activities**



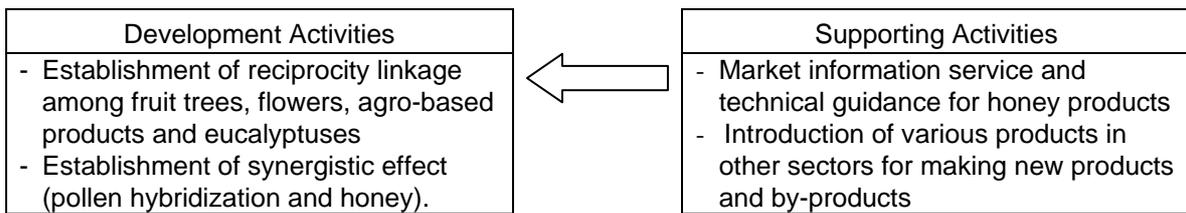
**New Village Initiative**

**Attachment II**

**Phase II : Establishment of Apiculture technology**



**Phase III: Link with agro-based industries (Agriculture and Forestry )**



**Phase IV: Development of By-products and New Products**



**4. Marketing Development**

Market	Product Development	Market
Domestic	Stable product development aimed at cheap and high quality	About 20,000kip/800cc(Local market)
Neighboring countries	Stable product development aimed at cheap and high quality	180-320B/800cc (Bangkok)
Tourism	Development of attractive products (special honey & unique container)	Several kinds of honeys: Set in a small container - about 5-10\$/set.
Export	Development of high added-value products (special honeys and propolis)	Sales price in Japan(example) Honey: 950V/300g Royal jelly: 6,000V/30g Propolis: 5,000V/30cc(10w/v%)



**Local Industry Promotion 4 : 【Bamboo】**

<b>1. Appropriate Location and Requirements</b>
Availability of Bamboo groves Possibility of linkage with agro-processing industries

<b>2. Present Situation (Issues and Countermeasures)</b>
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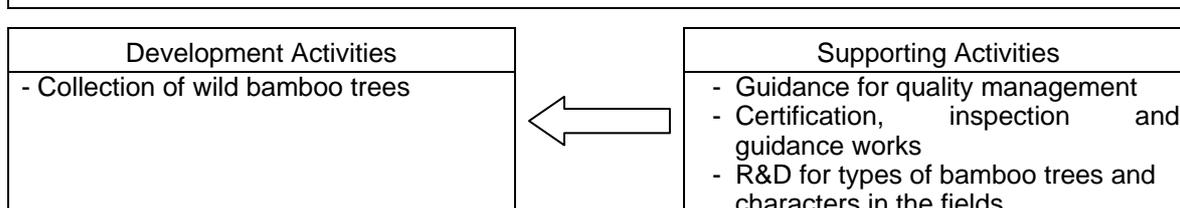
<b>1) SWOT Analysis for Bamboo Products</b>	
Strength	Affluent bamboo groves in rural areas Wide applications of bamboo products, such as for food, handicrafts, daily items, charcoals and construction materials. Traditional experiences and technologies for bamboo utilization in rural areas (Ex. a paper making from bamboo fibers) Easy grow and easy handling items (sustainable resources)
Weakness	Competitive market price (low price) Lack of information for market demand (no information for new product ideas)
Opportunities	Creating of new products with natural fibers and traditional textiles Creating of cheap charcoals and bamboo wines Wide application by bamboo carbonization (bamboo charcoal, bamboo vinegar, and fertilizers, soil conditioner) in agriculture and forestry sector New marketing field as a purification material (bamboo carbonization) for waste liquids
Threat	Availability of bamboo products in neighboring countries

<b>2) Present Status in SKR</b>
Rich bamboo resources in rural areas Bamboo products for construction, handicraft and basket items

<b>3) Issues and Countermeasures</b>	
Issues	Countermeasures
- Limited utilization of bamboo products - No value-added effort for bamboo products	- Inventory survey of types and characters of Bamboo trees - R&D for new bamboo utilization - Guarantee of product qualities by offering the certification and inspection labels - Improvement of product quality through information service and institutional guidance - Introduction of advanced technical know-how and guidance from overseas markets

<b>3. Development and Supporting Activities</b>
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<b>Phase I : Collection of Bamboo Trees</b>
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**New Village Initiative**

**Attachment II**

**Phase II : Establishment of Product Development Technologies**

Development Activities	Supporting Activities
<ul style="list-style-type: none"> <li>- Bamboo cultivation</li> <li>- Bamboo handicraft development</li> <li>- Charcoal production</li> <li>- Production of bamboo paper &amp; fibers</li> </ul>	<ul style="list-style-type: none"> <li>- Marketing support for bamboo products</li> <li>- Subsidy for initial operation cost</li> <li>- Guidance for bamboo processing technology</li> </ul>

**Phase III : Linkage with Agriculture and Forestry Sector**

Development Activities	Supporting Activities
<ul style="list-style-type: none"> <li>- Utilization of bamboo by-products</li> <li>- Production of soil fertilization and soil conditioner for agriculture and forestry sector</li> </ul>	<ul style="list-style-type: none"> <li>- Introduction of bamboo-related products and marketing</li> </ul>

**Phase IV : Development of New By-products**

Development Activities	Supporting Activities
<ul style="list-style-type: none"> <li>- Development of unique by-products (bamboo charcoal powder, bamboo vinegar liquid)</li> </ul>	<ul style="list-style-type: none"> <li>- R&amp;D for new products</li> <li>- R&amp;D for dry liquid processing technologies</li> </ul>

**4. Commodity Development and Marketing Support**

Market	Product Development	Marketing
Domestic	- Supplemental materials for agricultural activities (fertilizers and soil conditioner)	
Neighboring Countries	- Improvement of traditional bamboo handicrafts (basket) - New textile products used by bamboo fibers and bamboo papers	Marketing with textile industries
Tourism	- Development of unique products (Joint development with textile industries)	
Export	- Development of value-added commodity products (pulverizing and/or liquefied form of timber fibers) - Development of new types of bamboo processing products (purification materials)	

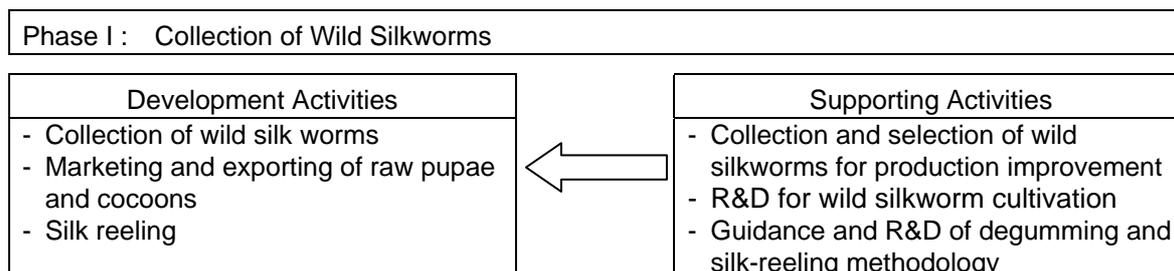


**Local Industry Promotion 5 : 【Sericulture : Wild Silk】**

<b>1. Appropriate Location and Requirements</b>
Availability of sound environment for wild silkworm habitat Experience of sericulture works or silkworm breeding Existing of agro-based industries

<b>2. Present Situation (Issues and Countermeasures)</b>	
1) SWOT Analysis for Sericulture (wild silkworm) Projects	
Strength	Relatively less perishable products (easy handling products) Stable market demand as a natural product (non-chemical/hypo-allergic products) High competitiveness on the overseas market (availability of precious species) No special requirement of host trees for wild silks breeding in rural areas
Weakness	Underdeveloped technology for wild silkworm breeding by insufficient R&D practices Limited cocoon production by a wild silk worm (One to three times/year)
Opportunities	New market with new types of the wild silkworms. New types of silk fibers for export by new wild silkworm Expectation of better environment for wild silkworm breeding resulted by various forest reservation and plantation projects. Possibilities of new textile forms in combination with existing wild silk fibers. Wide application of silk-based by-products such as medicines and cosmetics.
Threat	Insufficient number of biologists/researchers
2) Present Status in SKR	
Limited practice of wild silkworm cultivation Rich fodder host plants in major rural areas	
3 ) Issues and Countermeasures	
Issues /Targets	Countermeasures
- Unique and high value-added products by wild silk worms	- Cooperation with foreign research institutions - Establishment of stable logistics of silkworm eggs and products - Guarantee of product qualities by offering the certification, inspection labels and guidance works - Improvement of product quality through institutional guidance - Introduction of advanced technical know-how

**3. Development and Supporting Activities**



**New Village Initiative**

**Attachment II**

**Phase II : Establishment of Sericulture Technology**

Development Activities	Supporting Activities
<ul style="list-style-type: none"> <li>- Establishment of sericulture technical service center</li> <li>- Marketing of pupae, silk fibers and textiles</li> </ul>	<ul style="list-style-type: none"> <li>- Support of initial operation cost</li> <li>- Technical guidance for land reclamation</li> <li>- Recognition/inspection/guarantee of product quality</li> <li>- Product development of traditional textile industries</li> </ul>

**Phase III : Linkage with Agriculture and Forestry Promotion**

Development Activities	Supporting Activities
<ul style="list-style-type: none"> <li>- Linkage with Agro-based development and industries</li> </ul>	<ul style="list-style-type: none"> <li>- Promotion of agriculture and forestry industries</li> <li>- Information services of overall local products</li> <li>- Introduction and guidance of production of the by-products</li> </ul>

**Phase IV : Development of By-products**

Development Activities	Supporting Activities
<ul style="list-style-type: none"> <li>- Pulverizing of silk fibers in the fields of medical and cosmetics items</li> </ul>	<ul style="list-style-type: none"> <li>- Subsidy for machine purchasing</li> <li>- Technical guidance for machine operation</li> <li>- R&amp;D of by-products</li> </ul>

**4. Commodity Development and Marketing Support**

Market	Product Development	Marketing
Domestic	- Commodity development of wild silk fibers	- No marketing experience for selling silk fibers and silk cocoons
Neighboring Countries	- Commodity development of wild silk fibers	- No marketing experience for selling silk fibers and silk cocoons - Selling price for butterfly: ¥1,500/piece
Tourism	- Textile development by wild silk fibers - Commodity development as a butterfly sample	- Selling price for butterfly: ¥1,500/piece
Export	- R&D for high quality and low prices silk - Pulverizing of silk fibers	- Selling price for butterfly in Japan: Imported wild silk fibers ¥20,000 ~ 30,000/kg

	
Sample Figure of Wild Silkworm	Product Samples by Wild Silkworm (Textile & Silk Fibers)

**Local Industry Promotion 6 : 【 Sericulture : Mulberry Silk ( Multivoltine ) 】**

<b>1. Appropriate Location and Requirements</b>
Suitable soil conditions for mulberry plantation Experience of sericulture works or silkworm breeding

<b>2. Present Situation (Issues and Countermeasures)</b>				
1) Present Status in SKR				
No popularity of mulberry silkworm cultivation Yellow cocoon silkworms (Kanboju) is practiced as a silkworm cultivation in SKR Products of sericulture for making textiles, not for selling silk fibers to the market. Limited accessibility to silkworm eggs (presently available only along NR No.13) High marketability of pupas				
2) Issues and Countermeasures				
<table border="1"> <thead> <tr> <th>Issues</th> <th>Countermeasures</th> </tr> </thead> <tbody> <tr> <td>- To produce high quality and low prices of silk cocoons toward the world market</td> <td>- Cooperation with foreign research institutions - Establishment of stable logistics of silkworm eggs and products - Guarantee of product qualities with certification and inspection labels - Improvement of product quality through institutional guidance - Introduction of advanced technical know-how and QC techniques</td> </tr> </tbody> </table>	Issues	Countermeasures	- To produce high quality and low prices of silk cocoons toward the world market	- Cooperation with foreign research institutions - Establishment of stable logistics of silkworm eggs and products - Guarantee of product qualities with certification and inspection labels - Improvement of product quality through institutional guidance - Introduction of advanced technical know-how and QC techniques
Issues	Countermeasures			
- To produce high quality and low prices of silk cocoons toward the world market	- Cooperation with foreign research institutions - Establishment of stable logistics of silkworm eggs and products - Guarantee of product qualities with certification and inspection labels - Improvement of product quality through institutional guidance - Introduction of advanced technical know-how and QC techniques			

**3. Production of By-products and Processing products**

Phase I : Land Arrangement for Mulberry Trees

Development Activities	Supporting Activities
- Purchase of mulberry trees from Sericulture Experimental Center - Land arrangement for mulberry cultivation	- Support of initial operation fund - Subsidy for purchase of mulberry nursery trees - Engineering services for land arrangement

Phase II: Establishment of Sericulture Development Technology

Development Activities	Support Activities
- Purchase of silkworm eggs from Vientiane Sericulture Experimental Center - To bring cocoons and silk into production	- Subsidy for egg purchase - Guidance of sericulture breeding technology - Guarantee of product qualities with certification, etc

Phase III : Production of By-products and Processing products

Development Activities	Support Activities
- Marketing of textile product and pupae - Production of mulberry tea and fruit liquor	- Technical guidance of by-products - Recognition/inspection/guarantee of product quality

Phase IV : Development of By-products

Development Activities	Supporting Activities
- New product development with natural dyes - Pulverizing of silk for marketing of medical and cosmetics fields	- R&D of by-products

**4. Commodity Development and Marketing Support**

Market	Product Development	Marketing
Domestic	- Product development aimed at stable and high quality	- Selling price: About 10,000kip/kg
Neighboring Countries	- Product development aimed at stable and high quality	-----
Tourism	- Production of textiles, mulberry tea and fruit liquor	- Textile: 10\$ ~ 700\$
Export	- To produce high quality and low prices of silk cocoons toward the world market	- Imported silks (Japan) 4,000 ~ 6,000V/kg

Attachment II



Proposed Menu (Sericulture)

I. Proposed Size of Sericulture Farming per household

(1) Investment Cost for Sericulture = Loan Amount (I)	
i) Preparation of mulberry tree field including seedlings	
ii) Purchase of silkworm eggs	
iii) Facilities and tools for sericulture such as silkworm raising shelves, net cover, basket and trays made of bamboo, etc.	
iv) Tools for spinning such as pan, spinning tools, etc.	
(Total)	\$200

(2) Predicted Production of Row Silk	
i) Capacity for spinning per day per person:	3 - 5 kg of Cocoon /day/person
ii) One cycle of sericulture:	23 days
iii) Spinning period per month :	7 days/month
iv) Sericulture period per year :	6 months, */
v) Raw silk production from cocoon:	10 % of cocoon weight
vi) Annual production of raw silk:	16.8 kg, **/
vi) Annual gross income by selling raw silk:	\$168 , ***/

Note: \*/ Poor production of mulberry leaves in the dry season.  
 \*\*/ 4 kg cocoon/day x 7 days x 6 cycles/year x 10% = 16.8 kg  
 \*\*\*/ 16.8 kg x 80,000 Kip/kg / 8,000 Kip/\$ = \$168 (80,000 Kip-100,000 Kip/ 1 kg of Raw Silk)

(3) Predicted Production of Pupas	
i) Annual production of cocoon:	168 kg, */
ii) Weight ratio of pupa in raw cocoon:	80 %
iii) Drying ration of pupa:	50 %
iv) Annual production of pupas:	67 kg, **/
v) Annual gross income by selling pupas:	\$125 , ***/

Note: \*/ 4 kg cocoon/day x 7 days x 6 cycles/year = 168 kg, \*\*/ 168 kg/year x 80% x 50 % = 67 kg  
 \*\*\*/ 67 kg/year x 15,000 Kip/kg / 8,000 Kip/\$ = \$125 (Farmgate price of pupa = 15,000 Kip/kg)

(4) Operation and Maintenance Cost	
i) Eggs of cocoon:	\$24 , */
ii) Feeding of cocoon:	\$0 (mulberry leaves)
iii) Maintenance of the facilities (10% of initial investment cost)	\$20
	\$44

Note: \*/ Annual cocoon production = 30 kg/cycle x 6 cycle = 180 kg  
 33,000 silkworm eggs (30,000 Kip = \$4.0) for 30 kg cocoon x 6 cycle = \$24

II. Financial Plan

(unit: \$)

Period	Loan Repayment				Farming Account				
	Previous Balance	Interest (7%)	Loan Amount	Repayment	Loan Balance	Gross income, **/	O&M cost	Net income	Remain after repayment
Initial Loan, */	200								
after 1 year	200	14	214	44	170	88	44	44	0
2 years	170	12	182	103	80	147	44	103	0
3 years	80	6	85	85	0	293	44	249	164

Note: \*/ Loan amount (I)  
 \*\*/ 30% of annual gross income for the 1st year and 50% of that for the 2nd year are applied according to the growth of mulberry trees.

**Local Industry Promotion 7 : 【 Cotton Textiles 】**

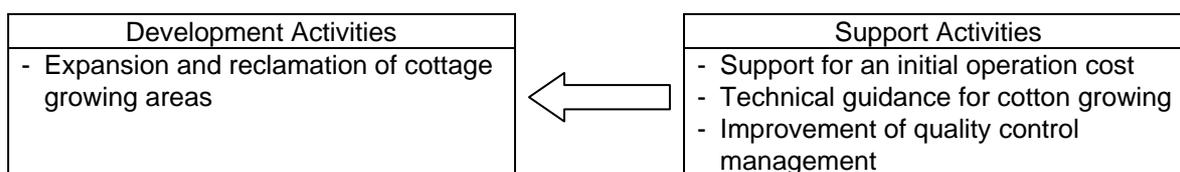
<b>1. Appropriate Location and Requirements</b>
Suitable soil conditions for cotton cultivation Availability of appropriate knowledge and experiences for cotton textiles and natural dye materials

**2. Present Situation ( Issues and Countermeasures )**

<b>1) SWOT Analysis for Cotton Industries</b>	
Strength	Relatively less perishable products (easy handling products) Stable market demand as a natural product (non-chemical /hypo-allergic products) Wider availability of traditional textile technology and natural dye materials Higher reputation for cotton textiles technology in an overseas market
Weakness	Poor marketing activities caused by limited variety of products and limited access to overseas demand information
Opportunities	Increase of demand preference to natural fibers and natural dye materials rather than chemical ones in an overseas market Strong demand of natural fibers in Thai textile market Improvement of cotton textile products in combination with natural dye materials and natural silk
Threat	Sweeping away of domestic textile technologies and dye works caused by spreading of cheaper chemical textile and dye methods
<b>2) Present Status in SKR</b>	
Popular activities on cotton growing and cotton textile works for self-consumption in the villages. Cotton growing activities for textile making, not for market Rapid increase of cheap chemical textiles and chemical dye materials in urban areas Successful expansion of natural textile industries (natural fibers and dyes) to Japanese market	
<b>3) Issues and Countermeasures</b>	
Issues	Countermeasures
- Lack of advertisement for a natural product development and technologies - Lack of marketing information and development of new products	- Guarantee of product qualities by offering the certification, inspection labels and guidance works - Improvement of product quality through institutional support and guidance - Introduction of advanced technical know-how and guidance from other areas

**3. Development and Supporting Activities**

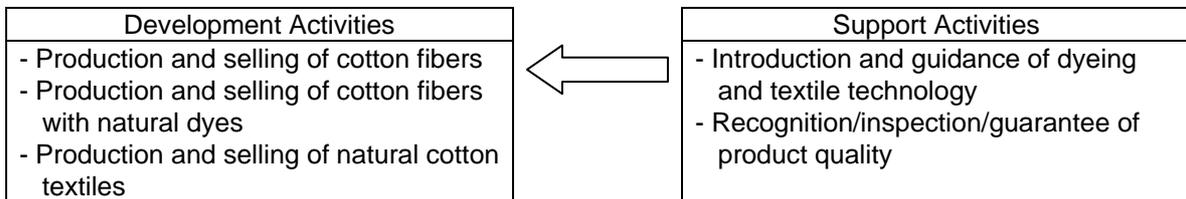
**Phase I : Cotton Growing**



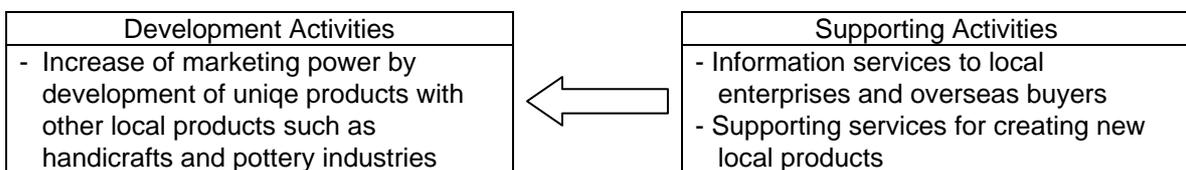
**New Village Initiative**

**Attachment II**

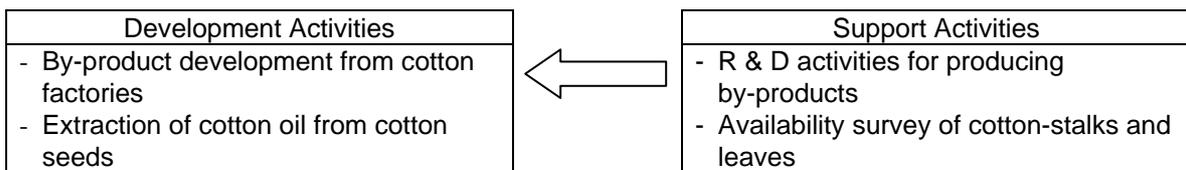
**Phase II : Production of Cotton Fibers and Cotton Textiles**



**Phase III : Establishment of Linkage with Other Local Industries**



**Phase IV : Development of By-products**



**4. Marketing Development**

Market	Product Development	Marketing
Domestic	- Development of high quality products	Selling price: kip/kg
Neighboring Countries	- Development of high quality products	Bangkok price: kip/kg
Tourists	- Development of high value-added textiles - Creating of new products with other local industries	
Export	- Development of high quality cotton fibers	Selling price in Japan: Imported cotton price: ¥ /kg



**Local Industry Promotion 8 : 【Natural Fibers】**

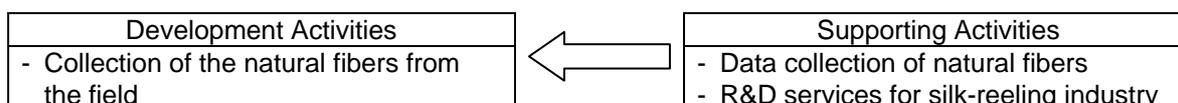
<b>1. Appropriate Location and Requirements</b>
Availability of linkage with promotion of agro-based industries Availability of knowledge and experiences about cotton textile products and natural dye materials

**2. Present Situation ( Issues and Countermeasures )**

<b>1) SWOT Analysis for Natural Fibers</b>	
Strength	Relatively less perishable products (easy handling products) Wider availability of traditional technology for cotton textile works and natural dye materials Higher reputation of cotton textiles technologies in the outside market Increase of demand preference to natural fibers and natural dye materials in the overseas market (better preference than chemical fibers)
Weakness	Poor R&D activities for natural fiber products No significant linkage with agro-based industries
Opportunities	Increasing of demand preference to natural fibers and natural dyeing materials in the overseas market rather than the demand of chemical fibers Strong demand of natural fibers in Thai textile industries Improvement of natural fibers products with the combination of natural dye materials and natural silk
Threat	Sweeping away of domestic technologies for local textile and dye works influenced by expansion of cheaper chemical textile and dye method
<b>2) Present Situation in SKR</b>	
Limited availability of natural fibers, such as silk and cotton fibers in rural areas Insufficient utilization of natural fibers from pineapple and banana No utilization of Bamboo trees as a natural fiber. Rapid increase of cheaper chemical fiber and dye materials in urban areas	
<b>3) Issues and Countermeasures</b>	
Issues	Countermeasures
- Necessity of R&D activities for creating high value-added natural fibers	- R&D support of natural fiber textiles and related products - Guarantee of product quality by offering the certification, inspection labels and guidance works - Establishment of supporting organization and introduction of technology development for higher quality. - Expansion of technical guidance service

**3. Development and Supporting Activities**

**Phase I : Field Activities**



**New Village Initiative**

**Attachment II**

**Phase II : Production of Natural Fibers**

Development Activities	Supporting Activities
<ul style="list-style-type: none"> <li>- Production and selling of natural fibers</li> <li>- Selling of natural dyeing textiles and natural silk .</li> <li>- Production and selling of natural textiles</li> </ul>	<ul style="list-style-type: none"> <li>- Support of initial operation cost</li> <li>- Technical guidance for land reclamation</li> <li>- Recognition/inspection/guarantee of product quality</li> <li>- Product development of traditional textile industries</li> </ul>

**Phase III : Establishment of Linkage with Agriculture and Forestry**

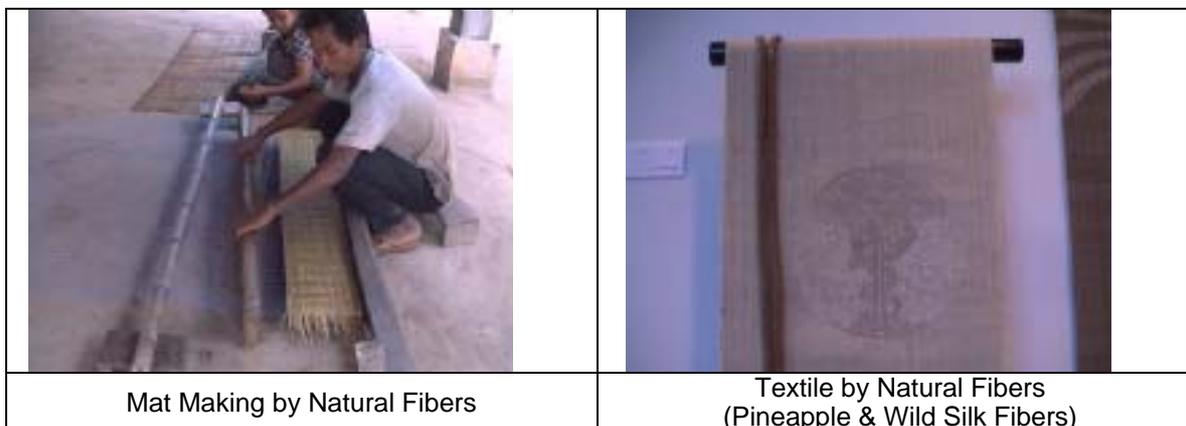
Development Activities	Support Activities
<ul style="list-style-type: none"> <li>- Linkage with Agro-based development and industries (Fibers of Pineapple, Banana, Sugar Canes, Mulberry, Hemp and Bamboo)</li> </ul>	<ul style="list-style-type: none"> <li>- Promotion of agriculture and forestry industries</li> <li>- Information services of overall local products</li> <li>- Introduction and guidance of by-products</li> </ul>

**Phase IV : Development of By-products and New Products**

Development Activities	Supporting Activities
<ul style="list-style-type: none"> <li>- R&amp;D of by-products and new products</li> <li>- Utilization of agricultural by-products and products</li> </ul>	<ul style="list-style-type: none"> <li>- R&amp;D of new products</li> <li>- R&amp;D of by-products</li> </ul>

**4. Marketing Development**

Market	Product Development	Marketing
Domestic	- Put guaranty labels on natural fibers	- Joint commodity development activities with textile industries
Neighboring Countries	- Put guaranty labels on natural fibers	- -Joint commodity development activities with textile industries
Tourism	- Creation of attractive textile products including attractive design and packages	- Hotels, restaurants and airport exhibition
Export	- R&D support for creating high value-added natural textile	- Ex. Selling price in Japan - Fibers of pineapple 30,000V/kg





## **PRELIMINARY PLAN FOR LOCAL PRODUCT PROMOTION CENTER**

### **1. Background**

Through the master plan for Integrated Regional Development for Savannakhet and Khammouan Region (SKR), 100 local industry potential products have been identified, and 11 products are recommended for promotion. The promotion of these local products aims at enhancing village household income, creating employment opportunities particularly during the paddy cultivation off-season, preventing emigration to urban areas, more active participation of women in development, and the resultant reduction of poverty in rural areas. To promoted local industries, it is advisable to organize the producers of respective products, to support them both technically and financially, and to assist in the marketing of such products. To this end, it is proposed to set up a Local Product Promotion Center (LPPC) in Savannakhet.

As most local industries are executed at the village level, the promotion of local products is integrated into the New Village Initiative (NVI) under the proposed master plan. Although the function of marketing local products, which is the most crucial issue in product promotion, is categorized under the Market Promotion Initiative (MPI), this marketing function is actually programmed for implementation in combination with NVI.

### **2. Issues to be Addressed**

The current status of local industries and major issues to be addressed to promote them in SKR is summarized as follows:

- (i) A majority of local products are currently produced for local consumption even though there exist export possibilities if they meet the requirements of the markets. The producers should understand such international market requirements.
- (ii) Some local products are exported in the form of raw material. The producers should be organized first to ensure a stable supply of such raw material and then to start their processing in order to enhance the value added.

### Attachment III

- (iii) Intermediaries are currently marketing local products, and producers are in a passive position. The producers should obtain/receive market information and actively explore markets, understanding the requirements of each market.
- (iv) Producers market their products sporadically. There is a regional imbalance in market prices, and producers are offered higher prices for larger volume deals. They should understand the basic systems of the market economy and marketing practices.
- (v) Producers are not organized and they are individually marketing their products. Producers should be organized in the form of associations by product.
- (vi) Traditional technologies are used for processing. Technologies to meet the market demands should be introduced and disseminated to producers.
- (vii) The quality of products can be improved considerably. Producers have no comprehension of product quality. Besides, there is no institute to test and verify the quality of local products. The quality of products should be improved by knowledge dissemination through associations. It is also required to have facilities for testing and verification of local products.

To break through these constraints on production and marketing, the establishment of a Local Product Promotion Center is proposed with the objectives and strategies as proposed below.

### 3. Objectives of Local Product Promotion Center

It is proposed to set up the Local Product Promotion Center in Savannakhet with the following objectives:

- (i) To prepare menus of local products and disseminate them to villagers in combination with the promotion of NVI,
- (ii) To organize associations of producers for respective local products and to promote and ensure stable supply, processing and marketing of local products,
- (iii) To coordinate assistance in improving production technologies and financial support,
- (iv) To explore domestic and international markets and to assist producers/villagers in business transactions, and

**Attachment III**

- (v) To support the creation of small and medium enterprises (SMEs) related to production, processing and marketing of local products.

The proposed Local Product Promotion Center in Savannakhet will serve as a model for promotion of local industries in other regions in Lao PDR.

**4. Proposed Activities/Programs of Local Product Promotion Center**

It is proposed that the Local Product Promotion Center (LPPC) in Savannakhet will incorporate the following activities/programs. The LPPC will:

- (i) Establish a database of locally available materials for local industries by referring to the 100 potential products identified in the Master Plan study.
- (ii) Open a home page on the Internet and make the database and ideas public to obtain suggestions and support of specialists and enterprises worldwide. The home page may be opened either in Lao PDR, Thailand, Japan or any other countries.
- (iii) Organize producers' associations by product and set up a system to react to the suggestions and support of specialists and enterprises worldwide.
- (iv) Then initiate marketing of local products. Local products could be raw materials at the initial stage but the LPPC will gradually promote local processing.
- (v) Set up a system to obtain domestic and international technical assistance and to disseminate it to local producers.
- (vi) Actively promote marketing of local products, including establishing collection and storage systems, facilitate export procedures, establish systems for settlement of account, and arrange financial support for production and exports.
- (vii) Set up a system for testing and verification of local products for exports.
- (viii) Work out programs to enhance value added, and to promote local processing activities.
- (ix) Exhibit local products in the center and in other exhibition centers in Lao PDR and abroad.
- (x) Expand its functions as a center for production technology transfer, quality testing and marketing of ecology-friendly local products (eco-products), as well as a center for dissemination of an image of SKR and Lao PDR that produces eco-products for global markets.

## 5. Stage-wise Implementation Program

In line with the promotion of NVI, the Local Product Promotion Center will be programmed for implementation step-wise.

### ***Phase-1 (2001-2003)***

During the initial implementation stage, the LPPC will be operated in the following manner:

- (i) A provisional office for the LPPC will be set up in an office of the Savannakhet provincial government.
- (ii) A database of local products will be designed and a home page on the Internet will be opened to widely obtain suggestions of international specialists and enterprises worldwide.
- (iii) Sericulture will be selected as a pioneer local product, and the LCCP will cooperate in ensuring a stable supply of silk fiber, including a system of microfinance to producers, and promoting its export.
- (iv) A system and procedure for export of local products will be established, and if necessary improved, through the export of silk fiber.
- (v) Markets for a few other local products will be explored in Japan and other countries.

### ***Phase-II (2004-2006)***

During the second phase, LPPC activities and operations will be expanded and the LPPC will actually function as a center for promotion of local industries.

- (i) In line with the promotion of the NVI, local products will be expanded and stabilized. The products would cover most of menus prepared for NVI promotion.
- (ii) Associations of producers will be expanded and consolidated, together with a system for technology transfer for production and processing.
- (iii) A marketing system will be gradually established and consolidated for most of the NVI envisaged menus, as well as for other products to be newly identified in the region.

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- (iv) The LPPC will continue to be a public center supported by the provincial government. The LPPC will be relocated in the Savannakhet Special Economic Zone (SEZ) when it is opened.
- (v) Along with the LPPC consolidation, the LPPC will assist in establishing private enterprises to promote local industries, e.g., processing enterprises, transport and storage enterprises, and export agents.

***Phase-III (2007-2010)***

When the LPPC operations become stabilized with several local products exported world wide, the LPPC will be privatized as an enterprise. A target of the LPPC revenues as a private enterprise would be more than US\$ 1 million by 2010.

**6. Initial Stage Operations**

During the Phase-I operations, sericulture (silk products) will be selected as a pioneer local product for the NVI. For promotion of this product, the following activities are programmed:

Preparatory Activities Conducted So-far by JICA Study Team

- (i) Samples of local cocoon and silk yarn in SKR have been distributed to the interested parties in Japan.
- (ii) An artist in silk products has produced “kimono” with samples. He also visited production sites and was interested to increase production and improve the technology of production.
- (iii) Another manufacturer in silk products manifested its interest in importing 3,600 kg of silk yarn from SKR (this volume being equivalent to about 100 villagers production).

Programs to be Followed

- (iv) Villagers interested in sericulture are to be identified, preferably those experienced in its production and those living in the model villages selected for promotion of the NVI (see Appendix V).
- (v) A system of microfinancing for sericulture (individual loan of about US\$200 with a repayment period of 3 years) is to be established.

### Attachment III

- (vi) These villagers will be organized into association(s) and trained to produce and yarn silk in their respective villages. (Technical assistance might be extended by a Japanese volunteer dispatched by JICA and stationed in Savannakhet.)
- (vii) Production technology may be disseminated to those associations. (Technical guidance might be extended by a Japanese senior volunteer dispatched by JICA and stationed in the Silk Production Promotion Center.)
- (viii) A system for the collection and storage of products will be established, and a system for settlement of account (bank account) established.
- (ix) Export procedures are improved, preferably with the introduction of some incentives for export of local products.
- (x) Further improvement in production and processing technologies are promoted, including stabilization and quality control of production.

In addition to promotion of sericulture in SKR, the LPPC will promote a few other products for export during the initial stage of NVI operations. To this end, LPPC will carry out the following activities at the provisional office in Savannakhet:

- (i) The database of local products will be designed and a home page on the Internet will be opened to obtain suggestions on production and marketing.
- (ii) Markets of local products will be further explored in Japan and other countries by sending samples and inviting buyers and manufacturers to SKR.
- (iii) Associations of producers will be organized by product and technical support to these associations will be sought from domestic and international institutions.
- (iv) A logo mark (trademark), product identification mark and testing system will be determined to disseminate an image of "eco-product" in global markets.

In this context, it is suggested that technical assistance be sought to set a milestone for promotion of the pioneer local products in SKR.

**FINANCIAL ARRANGEMENTS FOR  
NEW VILLAGE INITIATIVE  
(Regional Development Fund and Microfinance)**

**1. Current Financial System for Rural Development**

**1.1 General**

The New Village Initiative (NVI) is one of the programs proposed for rural development in Savannakhet and Khammouan Region (SKR). The NVI focuses mainly on enhancement of households income through the introduction of integrated farming and local industries, but it also incorporate programs to improve the village infrastructure. In Lao PDR, the currently available financial systems for rural development are:

- (i) Formal financial system,
- (ii) Semi-formal financial system,
- (iii) Microfinance, and
- (iv) Informal financial system.

The informal financial system consists of rotating fund groups, household-to-household loans, moneylenders, and supplier's credits. This informal system is not evenly or systematically applicable for rural development and the NVI. Therefore, the three financial systems (i.e., formal, semi-formal and microfinance) are briefly reviewed in relation to financial arrangements for the NVI.

**1.2 Formal Financial System**

The formal financial systems in Lao PDR are (i) the Bank of Lao PDR, (ii) Agricultural Promotion Bank (APB), (iii) State Owned Commercial Banks (SOCBs), and (iv) branches of several foreign banks.

The APB is the key actor in current rural finance, endowed with rural credit portfolios. Since its establishment in 1993, the APB has been providing short-term credits (3 to 12 months), medium-term credits (1 to 3 years) and long-term credits (over 3 years). It offers subsidized loans for agriculture and rural development, both in cash and in kind. However, the financial resources of APB are quite limited and is reliant on Government for injection of new capital. It is reported that only 5% of rural households have access to APB loans. In 1999, APB loans amounted to 10.4 billion Kip (approx. US\$1.3 million)

**Attachment IV**

in Savannakhet and 5.3 billion Kip (US\$0.7 million) in Khammouan. Over 80% of loans were short-term loans for agricultural production, and of a quite limited amount (less than 2%) was extended for rural development. A low deposit base of the APB entails a large dependence on the Bank of Lao PDR and donor credit lines for its refinancing. The APB has an opaque credit allocation policy and interest policy. Under such circumstances, the Asian Development Bank (ADB) is about to initiate a study to normalize the APB as a sound financial institution under the market economy. It is noted, however, that the rural population may not have access to APB loans if it is made into a commercially viable operation changing market interest rates on loans.

The SOCBs are composed of three state commercial banks and seven branches of foreign commercial banks, and they provide loan delivery services. Currently they are inaccessible to farmers. At present, the “prudential regulations of commercial banks” are under study to allow commercial banks to accept deposits/loans and to provide insurance services. After restructuring, the SOCBs would be able to extend short and medium term loans to SMEs at market rates.

In conclusion, the formal financial system is not at present serviceable for rural poverty alleviation and rural infrastructure improvement. After the APB is restructured, its loans will have limited coverage.

**1.3 Semi-formal Financial System: Village Revolving Funds**

The Village Revolving Funds (VRFs) are typical semi-formal financial schemes in Lao PDR. Reportedly, there were about 1,650 VRFs for rural/village development in 1997, including more than 1,000 so-called “rice banks”. VRFs are generally financed from resources of donors or NGOs. VRF loans are characterized by their small size (Kip.5,000 to 120,000) and by a relatively short term loan repayment period (generally less than one year or linked to harvest), with interest rates ranging from 0 to 25% (most often, below commercial lending rates). Generally, VRFs do not mobilize domestic resources/savings.

The “cattle bank” operated by the Lao Women’s Union (LWU) in Savannakhet and Khammouan (under sponsorship of UNICEF) is an example of VRFs. Farmers are provided with 2-3 cows and the first calf is for the farmers, and the second and third

## **Attachment IV**

calves are for repayment. The cattle banks of this type have been operated mainly for social purposes.

The Village Investment Fund (VIF) planned under the World Bank's Agricultural Development Project in Khammouan and three other provinces is another example of VRFs. The VIF, with a grant fund of US\$20,000-40,000 for each district per year, will finance sub-projects proposed by communities with a minimum cost of US\$533 and a maximum cost of US\$1,600. The sub-projects eligible under VIF are tree crop nurseries, hatcheries, school gardens, on-farm or village based demonstrations, livestock and poultry raising, community shop, etc. and they are selected under certain economic and financial criteria.

The Village Development Fund (VDF) associated with irrigation projects executed by the Lao government is another type of VRFs. Beneficiaries of irrigation schemes are obliged to repay 100% of the investment costs, 80% of which go into VDF reserves and 20% are repaid to the national treasury. The VDF has been recently promulgated, and there is no actual evidence as to how the beneficiaries are repaying the loans under this system.

It can be summarized that VRFs are generally village-based or project-based, and in most cases VRF credit is a component in broader projects that have a range of social and economic objectives. Most VRFs are lacking a saving component. As a financial system, the lack of savings/deposits and difficulties in ascertaining loan performance make VRFs financially unsustainable in the long run.

### **1.4 Microfinance by UNDP/CDF**

Through households surveys in rural Lao PDR in 1996, UNDP and UN Capital Development Fund (UNCDF) found that the majority of rural villagers had both financial and non-financial savings (most often in the form of livestock and precious metals). Based on this households survey, UNDP/CDF formulated a microfinance system and started its operation in Sayaboury and Oudomxay provinces in July 1999. By the end of 2000, microfinance in Sayaboury province covered 37 villages (216 groups and 1,374 villagers). By April 2001, the total beneficiaries in these two provinces reached approximately 4,200 villagers.

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UNDP/CDF microfinance is operated on the principle of savings/deposits and credits. It is administered by a Project Supervisory Committee (formed by UNDP/CDF, the Bank of Lao PDR, and the Ministry of Finance) and managed in the field under trained Accredited Agents (AAs) and Credit Officers (COs). The credit system in any village is introduced after nine steps are successfully followed; i.e., (i) a planning meeting in AA's office to identify target villages, (ii) collection of secondary data, (iii) a meeting with village leader to explain operations, (iv) an information meeting with villagers to explain the project, (v) a participatory rural appraisal to identify target households, (vi) a group formation, (vii) group training on savings and credit module, (viii) training of group leaders, and (ix) election of chairperson for operation. Credits are extended against a group guarantee, and beneficiaries are mostly women.

UNDP/CDF microfinance to villagers starts with savings/deposits. After a certain amount of savings/deposits is collected, credits are extended for a 6-month cycle; i.e., US\$7-32 in the first 6-month cycle, US\$7-60 in the second cycle, and US\$7-121 in the third cycle. The interest rate is 4% per month. The three cycle operations up to the end of 2000 recorded a high repayment rate of over 95%.

UNDP/CDF retains consultants to train AAs/COs and manage operations in the two provinces. UNDP/CDF also maintains a training center for microfinance in Vientiane. A certain number of LWU staff have been trained at the center and one of the three AAs in Sayaboury is from LWU.

UNDP/CDF microfinance in Sayaboury and Oudomxay provinces has proved to be epoch-making for rural development in the sense that it sticks to banking principles, and that it emphasizes training of staff at the central, provincial and village levels. However, UNDP/CDF microfinance has some deficiencies if it is applied to finance NVI as proposed for SKR. These include:

- (i) Credit is extended for general purposes and is not objective-oriented. The system is not applicable to specific objectives to promote livestock, fisheries, tree crops and local industries, requiring a larger credit amount and a longer repayment period.
- (ii) Credit is not subject to appraisal at the time of lending.
- (iii) Credit is not coupled to technical assistance for farming and other activities.
- (iv) Credit is based on a group guarantee and is less accessible for individual enterprises.

## **Attachment IV**

### **2. Requirement for NVI Finance**

#### **2.1 Targets of NVI Microfinance**

The NVI is proposed to enhance households income through promotion of livestock (cattle, pig and native chicken), fisheries (construction of fishponds and hatcheries), crop diversification, tree crops, local industries, etc. These activities are managed both by men and women, and unlike UNDP/CDF microfinance, the beneficiaries of NVI finance are of both genders.

As discussed in the NVI program outline, the magnitude of finance that is required for a standard loan for NVI activities is larger than UNDP/CDF credits. The loans required for typical activities are estimated as follows:

(i) Diversified crops:	approx. US\$ 320
(ii) Loan for cattle and chicken:	US\$ 730
(iii) Loan for fishculture and chicken:	US\$1,280
(iv) Loan for tree crops and field crops:	US\$ 490
(v) Loan for coffee and field crops:	US\$ 470

Generally, loans for cattle, fishculture and tree crops require longer time periods for repayments, and they are combined with other activities to bring in early returns.

The proposed target number of villages for NVI activities is around 570 villages in SKR during the planned period of 10 years, including a dozen pilot villages to be executed in the initial three years. The total required loans will amount to US\$2.8 million in 10 years.

#### **2.2 Requirement for Commercial Loans**

For implementation of the NVI, loans on commercial terms are required. Such loans will be used for (i) procurement of agricultural machinery, (ii) provision of agro-processing facilities and equipment/facilities for local industries, (iii) establishment of small and medium enterprises (SMEs), and (iv) operation of larger-scaled livestock raising. Basically, these loans should be extended through APB and/or SOCBs. Until APB and SOCBs are normalized and their operations are expanded to the rural areas, some provisional banking systems are required to implement the NVI and rural development.

Financial support to SMEs is indispensable because no financial credit is available except for informal finance. This is one of the reasons why SKR people lack entrepreneurship,

thus there are only a limited number of local entrepreneurs. One of the functions of the proposed Regional Development Fund (see 3.2 hereinafter) is to extend credit to entrepreneurs and to generate businesses in rural areas.

### **2.3 Requirement for Finance to Village Infrastructure**

Most villages lack adequate social and economic infrastructure. Such infrastructure includes, but is not limited to:

- (i) water supply system (deep wells),
- (ii) roads and village access roads/bridges,
- (iii) nurseries for reforestation,
- (iv) electrification,
- (v) small weir and canals for irrigation.

It is noted that, under the SKR development plan, primary schools in villages will be separately programmed for construction or improvement in the light of villages to be selected for the NVI.

Basically such infrastructure is provided as a public service, but the Lao budget is inadequate for such purposes, except for the "focal sites". In the case of the World Bank assistance, a Social Investment Fund (SIF) has been set up with the Bank's finance for such infrastructure. The beneficiaries repay SIF finance partly, not totally, and are responsible for its maintenance and operations. This type of finance for improvement of village infrastructure is required for the NVI.

### **2.4 Requirement for Technical Assistance**

Both NVI microfinance and commercial loans require technical assistance for farming, management and marketing of products. This is because farmers and villagers are unfamiliar with the new crops/activities and new operation systems, except for some traditional local industries. Particularly, technical assistance in marketing is vital to sustain NVI finances.

It is unlikely and not feasible that existing financial institution have the capacity to extend such technical assistance to farmers and villagers. The provision of extension services and other technical support by public institutions is therefore indispensable to make the NVI financially sustainable in SKR. In this context, it is desirable that the proposed financial institution be organized with participation of or in agreement with some offices of the provincial government.

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**3. Alternatives for NVI Finance**

**3.1 Microfinance**

For implementing the NVI, it is necessary to have a system of microfinance. Two alternative systems are conceived, i.e.,

- (i) Microfinance through expansion of the UNDP/CDF system, and
- (ii) Microfinance under a new system to be formed for the NVI.

Under the first alternative, an additional fund should be raised for operations of the NVI in SKR. UNDP/CDF requires that such a fund be secured in foreign currency as the management charges and consultant fee are paid in foreign exchange. If UNDP/CDF microfinance is applied to the NVI, it should be expanded to meet the requirements for NVI finance in such fields and amounts as noted above.

For adoption of the second alternative, a new system should be elaborated and introduced. Such a new system should be designed to meet the following requirements:

- (i) A basic principle of savings/deposits should be followed.
- (ii) Training of AAs, COs and villagers should be prioritized.
- (iii) Preferential targets should be clearly indicated (e.g., finance for livestock, fishculture, tree crops, local industry)
- (iv) Amount of credits should be sufficient for the target activities.
- (v) Terms for repayment should be newly decided among the parties.
- (vi) Appraisal for credit should be introduced.
- (vii) Monitoring and evaluation should be conducted periodically.

Under both alternatives, microfinance should not be operated as a social scheme, but it should be operated and maintained as a financial system to make it sustainable in the long run.

**3.2 Regional Development Fund**

Microfinance is insufficient to cover all financial requirements for NVI implementation. Funds are required for (i) medium-term commercial credits, and (ii) finance for implementation of village infrastructure. Commercial credits are required to finance procurement of agricultural machinery, facilities for agro-processing, local industries, and establishment of SMEs. Until the time when APB and SOCBs are restructured and

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capable of extending credits in the rural areas, it is planned that a Regional Development Fund (RDF) will be set up to work for these purposes.

Finance for improvement of village infrastructure is also planned under the proposed RDF. This finance may be regarded as a social scheme for poverty alleviation. Like the World Bank financed Social Investment Fund, the RDF will finance the improvement of village water supply, village access roads/bridges, village nurseries, village electrification and other socio-economic infrastructure. In this context, it is desirable that the RDF be partly financed by the provincial government. Revenues generated from infrastructure and other activities would be put back into the Fund for replenishment.

The RDF will be established as an autonomous and independent organization, and it will be operated under a Management Committee formed by representatives from the provincial government, the funding agency, villagers' association, and the NVI Promotion Center. A general manager will be recruited from the private sector, and initially the operation and management might be assisted by international consultants.

**4. Possible Arrangements for NVI Finance****4.1 Funding Sources**

It is desired that funding sources for the Regional Development Fund and Microfinance be widely canvassed for. For this study, however, possible sources from ODA schemes in Japan have been examined as follows:

(i) A trust fund to UNDP/CDF:

The Japan trust fund is conceivable under a specific arrangement, as in the case of the trust funds to the World Bank and ADB.

(ii) Grass-Root Grant Aid:

The Embassy of Japan is responsible for its operations. Funding for microfinance is possible if it is proved that such microfinance has been successfully operated in the past 5 years with a repayment rate over 90%.

(iii) Community Empowerment Program:

A grant aid is available for local NGOs or mass-organizations for three years within the maximum annual budget of around US\$50,000.

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(iv) Counterpart Fund:

Counterpart funds of the Non-Project Type Grant Aid, the Sector Program Grant Aid and the KR II may be earmarked in local currency.

Among these sources, the Local Development Project would be the only source to be secured in the short term. Finance through other sources would require a longer period to be secured.

**4.2 Short-term NVI Finance**

During the initial probation period of three years (2001-2003), NVI may be operated with the fund raised by the Local Development Project, as far as it is approved by JICA.

Outline of this operation is as follows:

- (i) Project: New Village Initiative Models in Savannakhet and Khammouan provinces
- (ii) Programs:
  - 1) Microfinance to promote NVI through livestock, fishculture, tree crops and local industry
  - 2) Village infrastructure (e.g., village water supply and road improvement)
- (iii) Operational Criteria:
  - 1) Microfinance practices already established in Lao PDR in other province should be followed (including the savings/deposits practice).
  - 2) Financial terms should be determined in line with the government policy directives.
  - 3) Training of AAs, COs, and villagers should be emphasized.
  - 4) Project account should be separately maintained in Savannakhet and Khammouan.
  - 5) Consultant should be retained for loan appraisal and monitoring. Operations should be evaluated before its termination in three years.
  - 6) Beneficiaries should not be limited to women, and should be selected without any political intervention.
  - 7) The executing agency should liaise closely with other microfinance developments to coordinate activities and ensure development of a coordinated microfinance system in Lao PDR.

During this period, arrangements will be made to raise funds for medium-term NVI finance, particularly for securing the Sector Program Grant Aid and its counterpart fund.

### 4.3 Medium-term NVI Finance through Regional Development Fund

Within three years from the commencement of NVI operations, the Regional Development Funds (RDFs) will be set up respectively in Savannakhet and Khammouan. RDFs will be funded by the counterpart funds (local currency) raised under the Sector Program Grant Aid if and when it is extended to Lao PDR, as well as by allocating the budget of the provincial governments.

RDFs will finance the NVI operations in three categories as follows:

- (i) Microfinance
- (ii) Medium-term commercial credits, and
- (iii) Village infrastructure development fund.

Microfinance will not be directly operated by RDFs, but it will be operated through UNDP/CDF (Option-1) or LWU (Option-2). The Option-1 is selected if UNDP/CDF accepts funding in local currency and finance for NVI operations to meet the requirements in such fields and amounts as noted above. Unless these conditions are acceptable to UNDP/CDF, the Option-2 will be selected and LWU will be in charge of operations of microfinance for NVI. Technical assistance, training and provision of office facilities for microfinance operations may be granted under RDFs.

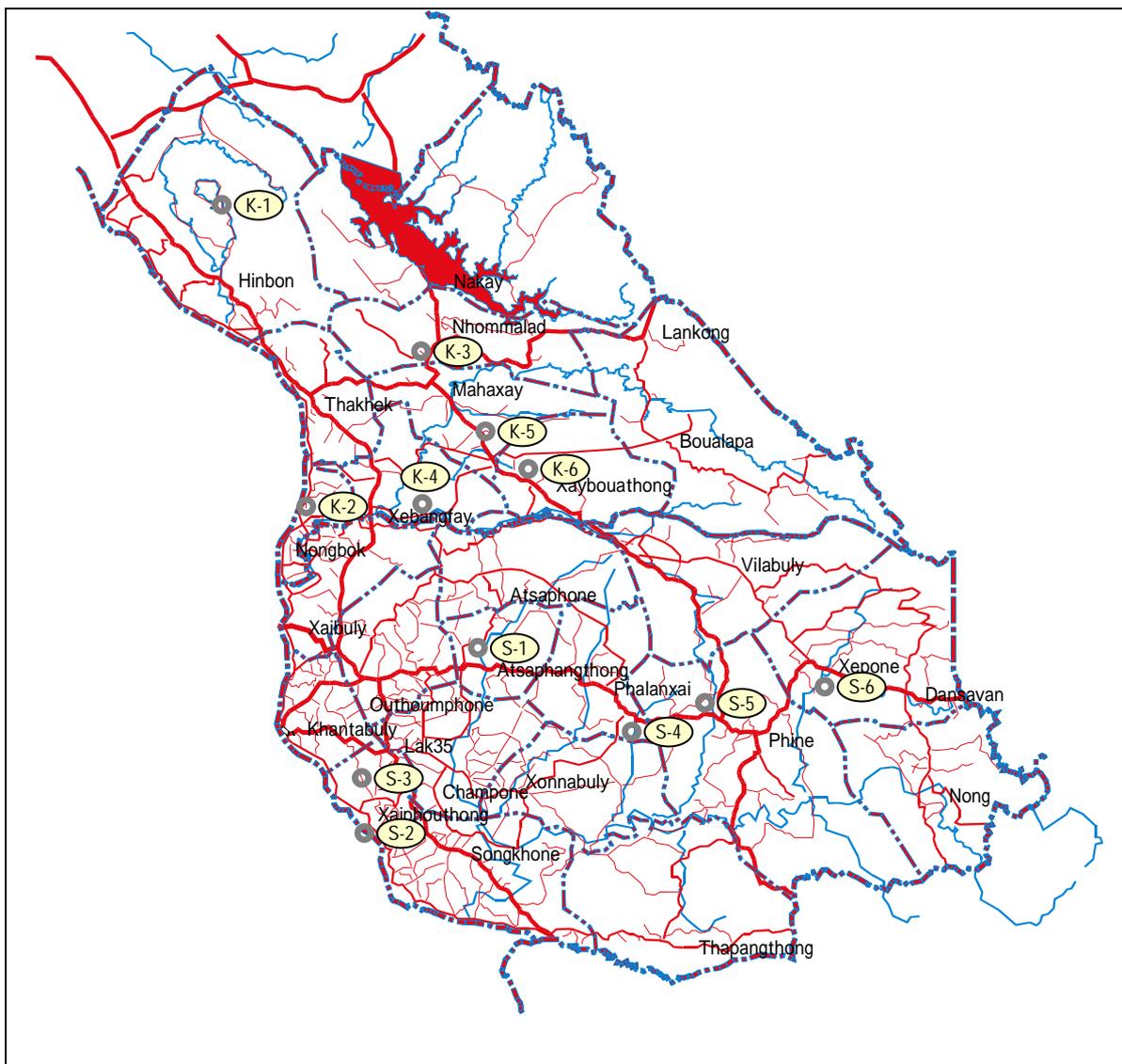
Medium-term commercial credits are extended by RDFs until the time when APB and SOCBs are restructured and their credits are expanded to rural villages. RDF's village infrastructure development fund will expand its activities to the remaining 550 villages in Savannakhet and Khammouan. When commercial loans are made available in rural villages through APB and SOCBs, the function of RDFs for medium-term commercial credits may be terminated.

For RDFs management, accounting practices should follow internationally acceptable standards. Annual audit should be undertaken by reputable auditors acceptable both to the Lao government and the donor.

Attachment V

Feature of Model Villages (1)

Khammouan Province		Savannakhet Province	
Village	District	Village	District
1. Ban Mouangkhai	Hinboun	1. Ban Nongpaksong	Atsaphangthong
2. Ban Dongkhoaung	Nongbok	2. Ban Donthamungeun	Xayphouthong
3. Ban Phathong	Nhommarad	3. Ban Mouangkhai	Xayphouthong
4. Ban Nathan	Xebangfai	4. Ban Palanxay	Phalanxay
5. Ban Panam-Mai	Mahaxay	5. Ban Khamsai	Phin
6. Ban Pakouai-Tong	Xaybouathong	6. Ban Xepon	Xepon



## Feature of Model Villages (2) (Khammouan Province)

<b>1. B. Mouangkhai</b>		District: Hinboun		Province: Khammouane	
<b>(5 villages: B. Mouangkhai, B. Noy, B. Phontiou, B. Nadon, B. Nakham)</b>					
Social Information			Economic Information		
- No. of HHs	HH	550	- Paddy field	ha	
- No. of families	no.	587	- Dry season irrigated paddy	ha	
- Total population	prs.	1,989	- Slash and burn farming field	ha	
- Women's population	prs.	974	- No. of buffalos	no.	
- Lao Lum	%	100	- No. of cattle	no.	
- Lao Teung	%	0			
<b>I. Rice deficiency and Major cash income:</b>					
1) Self-sufficiency of rice:					
Not sufficient in rice.					
2) Cash income:					
- Workers in the tin exploitation company (about 200 workers)					
- Individual tin exploitation					
- Small garden (vegetable, poultry, etc.) for the company and the region					
<b>II. Villagers' intention/Issues:</b>					
1) Intention:					
- Development of garden, industrial & fruit tree (coffee, others), livestock					
- Financial support with 2% (if possible) annual interest:					
Livestock (3-5 years return period )					
Coffee (5-10 years), 2-3 ha for coffee plantation (the loan for the fencing materials and clearing the land)					
Short period credit (poultry, fishpond, market is available in this region)					
- Experience of the Loan from APB:					
In 1996, 200,000 Kip for one buffalo with 7% of annual interest.					
<b>III. Remarks:</b>					
- Lao-North Korean Tin Exploitation Company = 320 workers					
- Average salary of the tin company workers= 500,000-800,000 Kip/month					

<b>2. B. Dongkhouang</b>		District: Nongbok		Province: Khammouane	
Social Information			Economic Information		
- No. of HHs	HH	195	- Paddy field	ha	128
- No. of families	no.	202	- Dry season irrigated paddy	ha	0
- Total population	prs.	1,150	- Slash and burn farming field	ha	0
- Women's population	prs.	550	- No. of buffalos	no.	85
- Lao Lum	%	100	- No. of cattle	no.	200
- Lao Teung	%				
<b>I. Rice deficiency and Major cash income:</b>					
1) Self-sufficiency of rice:					
Some families are not sufficient in rice.					
2) Cash income:					
- Rice					
- Handicraft (ceramics)					
- labor					
<b>II. Villagers' intention/Issues:</b>					
1) Intention:					
- Irrigation water for rice production					
- Fishculture					
- Poultry (financial support and technical support particularly for diseases control, training)					
- Handicraft (ceramics, weaving) for marketing					
<b>III. Remarks:</b>					
- The villagers collected a total of 4,818,000 Kip for pillars of the primary school					

### Feature of Model Villages (3) (Khammouan Province)

<b>3. B. Phathong</b>		District: Nhommarad		Province: Khammouane		
Social Information					Economic Information	
- No.of HHs	HH	68		- Paddy field	ha	115
- No.of families	no.	71		- Dry season irrigated paddy	ha	0
- Total population	prs.	357		- Slash and burn farming field	ha	n.a.
- Women's population	prs.	205		- No.of buffalos	no.	70
- Lao Lum	%	100		- No. of cattle	no.	280
- Lao Teung	%	0		- No. of goats	no.	
I. Rice deficiency and Major cash income:						
1) Deficient in rice:						
Rice sufficient totally in the village. (1.8 ton/ha)						
2) Cash income:						
- Surplus rice, cattle, cash crops such as vegetables, watermelon for the contractor of the road construction.						
II. Villagers' intention/Issues:						
1) Intention:						
- Cattle raising:						
- Goat, duck, etc.						
- Fish culture (Fishpond in paddy field)						
2) Financial support:						
- Rental excavator for fish pond construction						
(22 existing ponds will be enlarged to a size of 10m x 20m x 4m) (\$500-600 per pond)						
- 10-15 heads of cattle per HE with 6 years return period, 2-3% of annual interest, 2 years grace period.						
- 40-50 chicks of duck per HH						

<b>4. B. Nathan</b>		District: Xebangfai		Province: Khammouane		
Social Information					Economic Information	
- No.of HHs	HH	87		- Paddy field	ha	100
- No.of families	no.	n.a.		- Dry season irrigated paddy	ha	0
- Total population	prs.	485		- Slash and burn farming field	ha	n.a.
- Women's population	prs.	266		- No.of buffalos	no.	n.a.
I. Rice deficiency and Major cash income:						
1) Deficient in rice:						
Credit (fertilizer) from APB for the dry season rice with 12% of interest						
II. Villagers' intention/Issues:						
1) Intention: Cattle raising						
- Available land (more than 4,000 ha of forest) for cattle raising						
- About 70 HHs have no cattle and 50 HHs want to raise cattle, but no finance assistance						
- 10 female cattle per HH with less than 7% annual interest and 7 years return period, 2 years grace period.						

### Feature of Model Villages (4) (Khammouan Province)

<b>5. B. Panam-Mai</b>		District: Mahaxay		Province: Khammouane		
Social Information					Economic Information	
- No. of HHs	HH	83		- Paddy field	ha	116
- No. of families	no.	88		- Dry season irrigated paddy	ha	0
- Total population	prs.	430		- Slash and burn farming field	ha	
- Women's population	prs.	213		- No. of buffalos	no.	116
- Lao Lum	%	70		- No. of cattle	no.	96
- Lao Teung	%	30		- No. of goats	no.	n.a.
				- No. of pigs	no.	200
				- No. of poultry	no.	1,000
<b>I. Rice deficiency and Major cash income:</b>						
1) Deficient in rice:						
Rice sufficient totally in the village in normal year.						
2) Cash income:						
- Surplus rice, poultry, labor, wood						
<b>II. Villagers' intention/Issues:</b>						
1) Intention:						
- Cattle raising: financial and technical (disease control) support are needed.						
- About 500 ha of available land for cattle raising						
- Fish culture (Fishpond in paddy field) (no experience)						
2) Financial support:						
- 15 heads of cattle per HH with 5 years return period, 2% of annual interest, 2 years grace period.						

<b>6. B. Pakouai-Thong</b>		District: Xaybouathong		Province: Khammouane		
Social Information					Economic Information	
- No. of HHs	HH	133		- Paddy field	ha	n.a.
- No. of families	no.	147		- Dry season irrigated paddy	ha	n.a.
- Total population	prs.	747		- Slash and burn farming field	ha	n.a.
- Women's population	prs.	360		- No. of buffalos	no.	300
- Lao Lum	%	100		- No. of cattle	no.	280
- Lao Teung	%	0		- No. of goats	no.	
<b>I. Rice deficiency and Major cash income:</b>						
1) Self-sufficiency of rice:						
Only 30% of the villagers have sufficient in rice.						
2) Cash income:						
- Surplus rice, cattle, buffalo, poultry, cash crops (sugarcane, banana, pineapple)						
<b>II. Villagers' intention/Issues:</b>						
1) Intention:						
- Expansion of paddy field						
- Livestock (enough area for cattle raising)						
- Fish culture (Fishpond in paddy field) (8 existing ponds)						
2) Financial support:						
- 15 heads of cattle per HE with 5 years return period, 2~3% of annual interest, 2 years grace period.						
- No experience of APB loan						
3) Technical support:						
- Training of Village Veterinary Volunteer, Disease control						
- Vaccine storage (refrigerator)						

Attachment V

**Feature of Model Villages (5)  
(Savannakhet Province)**

<b>1. B. Nongpaksong</b>		District: Atsaphangthong		Province: Savannakhet	
Social Information			Economic Information		
- No. of HHs	HH	101	- Paddy field	ha	274
- No. of families	no.	106	- Dry season irrigated paddy	ha	n.a.
- Total population	prs.	619	- Slash and burn farming field	ha	n.a.
- Women's population	prs.	319	- No. of buffalos	no.	363
			- No. of cattle	no.	500
			- No. of goats	no.	27
			- No. of pigs	no.	300
			- No. of poultry	no.	800
I. Rice deficiency and Major cash income:					
1) Deficient in rice: 2 HHs are surplus of rice, 7 HHs are sufficient of rice, 30 HHs are 5 months deficient.					
2) Cash income other than rice:					
- Forest products, poultry, pig, vegetable, watermelon, etc.					
- Among 500 heads of cattle, 60% belong to the villagers and the remaining 40% are under contract raising system belonging to the people who have insufficient labor or land.					
II. Villagers' intention/Issues:					
1) Intention: Livestock and Fishculture					
- Cattle raising: available land for 500 heads more of cattle raising.					
- Poultry					
- Fishpond for individual farmers					
2) Constraint: Finance and animal disease					
III. NVI (Revolving system):					
1) Willing to receive a loan: Less than 5% of annual interest, after 2 years grace period, 3 years payment					
2) Risk for raising animals: The Project will take a risk for disease control during the initial period.					
3) Handicraft:					
- They stopped breeding silk worms due to the war, old age generation and cheap industrial products at present.					
IV. Education (primary school):					
1) The idea of attached farm or fishpond managed by the community:					
Fishpond management					

<b>2. B. Donthamungeun</b>		District: Xayphouthong		Province: Savannakhet	
Social Information			Economic Information		
- No. of HHs	HH	26	- Paddy field	ha	75
- No. of families	no.	36	- Dry season irrigated paddy	ha	10
- Total population	prs.	169	- Slash and burn farming field	ha	0
- Women's population	prs.	74	- No. of buffalos	no.	16
			- No. of cattle	no.	13
I. Rice deficiency and Major cash income:					
1) Deficient in rice: Totally sufficient in rice in normal year.					
2) Cash income other than rice:					
- Field crops such as chili, maize, banana, cucumber, etc.					
II. On-going Promotion Program by Dept. of Industry and Handicraft					
- Started in March 2000					
- Financial support for sericulture promotion					
- Kip 1,500,000 Kip/family for 5 families with 5% annual interest, 6 years return period.					
- Production (silk yarn price= 120,000 ~ 80,000 Kip/kg), Quality is very low.					
III. Villagers' intention/Issues:					
1) Intention: Livestock					
- Cattle raising: 5 heads of female cattle per family					
- Main canal construction (500 m) for dry season field crops and fishpond					
2) Constraint: Finance and animal disease					
III. NVI (Revolving system):					
1) Willing to receive a loan: about 2% of annual interest, after 2 years grace period, 5 years payment					
2) Risk for raising animals: The Project will take a risk for disease control during the initial period.					

### Feature of Model Villages (6) (Savannakhet Province)

<b>3. B. Mouangkhai-Tai</b>		District: Xayphouthong		Province: Savannakhet		
Social Information			Economic Information			
- No. of HHs	HH	284	- Paddy field	ha	500	
- No. of families	no.	333	- Dry season irrigated paddy	ha	0	
- Total population	prs.	1,543	- Slash and burn farming field	ha	n.a.	
- Women's population	prs.	773	- No. of buffalos	no.	100	
			- No. of cattle	no.	120	
<b>B. Mouangkhai-Neua</b>		District: Xayphouthong		Province: Savannakhet		
Social Information			Economic Information			
- No. of HHs	HH	210	- Paddy field	ha	500	
- No. of families	no.	272	- Dry season irrigated paddy	ha	0	
- Total population	prs.	1,200	- Slash and burn farming field	ha	n.a.	
- Women's population	prs.	n.a.	- No. of buffalos	no.	n.a.	
			- No. of cattle	no.	n.a.	
I. Rice deficiency and Major cash income:						
1) Deficient in rice: sufficient in rice, some surplus rice for selling						
2) Cash income other than rice:						
- Field crops such as peanut, sugar palm, cotton, cucumber, chili, etc.						
- Pig, poultry, fish						
II. Villagers' intention/Issues:						
1) Intention: Livestock						
- Experience of maize cultivation, but marketing problem (interesting in contract production system)						
- Experience of peanut cultivation, but difficulty of contract production with the factory (contract production) in 1999						
- Much interesting in fishculture (some families earned 4~5 million Kip /year by fishculture)						
- Marketing support such as contract farming system of maize, peanut						
- Technical support for quality						
2) Others:						
- Existing marketing system (traders): hand spinning cotton yarn = 25,000 Kip/kg						

<b>4. B. Palanxay-Kan</b>		District: Palanxay		Province: Savannakhet		
Social Information			Economic Information			
- No. of HHs	HH	58	- Paddy field	ha	85	
- No. of families	no.	61	- Dry season irrigated paddy	ha	25	
- Total population	prs.	424	- Slash and burn farming field	ha	0	
- Women's population	prs.	214	- No. of buffalos	no.	114	
			- No. of cattle	no.	78	
<b>B. Palanxay-Neua</b>		District: Palanxay		Province: Savannakhet		
- No. of HHs	HH	51	- Paddy field	ha	48	
- No. of families	no.	62	- Dry season irrigated paddy	ha	25	
- Total population	prs.	302	- Slash and burn farming field	ha	0	
- Women's population	prs.	156	- No. of buffalos	no.	72	
			- No. of cattle	no.	22	
I. Rice deficiency and Major cash income:						
1) Sufficient in rice in normal year within the village. (13 HHs in Kan, and 10 HHs in Neua have surplus rice.)						
It will be more stable in rice production after completion of irrigation facilities.						
2) Cash income other than rice:						
Buffalo (2 million Kip/head) and Cattle (1 million Kip/head), poultry, vegetable, labor						
II. Villagers' intention/Issues:						
1) Intention: Livestock and Fishculture						
2) Constraint: Finance and animal disease						
III. NVI (Revolving system):						
1) Willing to receive a loan:						
2) Risk for raising animals: The Project will take a risk for disease control during the initial period.						
3) Handicraft:						
- They stopped breeding silk worms due to the war, old age generation and cheap industrial products at present.						
IV. Education (primary school):						
1) The idea of attached farm or fishpond managed by the community:						
Presently they collect some share of expenses depending on the income level of each families.						

Attachment V

**Feature of Model Villages (7)  
(Savannakhet Province)**

<b>5. Ban Khamsai</b>		District: Phin		Province: Savannakhet		
Social Information					Economic Information	
- No.of HHs	HH	129		- Paddy field	ha	90
- No.of families	no.	150		- Slash and burn farming field	ha	n.a.
- Total population	prs.	816		- No.of buffalos	no.	673
- Women's population	prs.	400		- No. of cattle	no.	339
- Labor force	prs.	380		- No.of goats	no.	60
- Women labor force	prs.	147		- No.of pigs	no.	520
- No.of classes of primary S.	no.	5		- No.of horses	no.	38
- Location: (12 km from B.Xethamouak in front of Xethamouak river)				- No.of HHs with paddy field+	HH	85
				- No.of HHs with paddy field+SB fie	HH	35
				- No.of HHs with only S&B field	HH	9
I. Rice deficiency and Major cash income:						
1) Sufficient in rice in normal year within the village. (10% are surplus in rice, 60% are sufficient and 30% are deficient)						
II. Villagers' intention/Issues:						
1) Irrigation facilities for dry season						
2) School						
3) Dispensary						
4) Road and electricity						
III. NVI (Revolving system):						
1) Peanuts:						
- They have experience in peanuts growing for self consumption.						
- No body knows about the oil extracting company in Savannakhet.						
- The villagers have interest in trying peanuts growing with financial and technical support by the Project.						
2) Livestock:						
- Providing 5 female cattle with the farmers who have no cattle for increasing cattle.						
- Problem for available of grass for feeding.						
- The Project will owe the risk in case that the animals die due to an infectious diseases.						
3) Handicraft:						
- They are growing cotton for self-use, but stopped sericulture (breeding silk worms) due to the war, old generation and cheap industrial products at present.						
- Mulberry trees are still remaining.						
- They have interest in sericulture if market is available.						
IV. Reason of selection of the village:						
1) Leadership of the village leader						
2) No experience with other Project						
3) Middle level of economy (They can afford to challenge for the Project)						
4) Access road will be improved by the province in near future.						

<b>6. Ban Xepon</b>		District: Xepon		Province: Savannakhet		
Social Information					Economic Information	
- No.of HHs	HH	48		- Paddy field	ha	n.a.
- No.of Families	no.	n.a.		- Dry season irrigation paddy	ha	n.a.
- Total population	prs.	n.a..		- No.of cattle+ buffalos	no.	37
- Women's population	prs.	n.a..				
I. Villagers' priority & issues:						
1) Expansion of paddy field:						
- Among 48 HHs, only 14 HHs have paddy fields, others are doing slash and burn cultivation.						
2) Increase of cattle:						
- They had 2 to 3 buffalos/cattle per HH before, however due to diseases the number of cattle has decreased.						
- Lack of vaccine, insufficient technical services for diseases control.						
II. Villagers' intention:						
1) Financial support for :						
- Land clearing for paddy field (about 4 million Kip/ha in 2000)						
- Material for fencing for upland cash crops such as peanuts. (the farmers have the experience of peanut growing)						
- Investment for cattle with technical support						
2) Probable Return period:						
- 3 to 5 years with less than 5% of annual interest						
III. Villagers' major cash income in the dry season:						
- Silk waving by women						
- Bamboo works by men						
IV. Primary school						
- School garden with fence for vegetable growing						



New Village Initiative

Attachment VI

Estimated Cost for Initial Stage Implementation Program

Program	Unit	Unit Cost (\$)	Initial Stage Implementation						Sub-total (\$)
			1st Year		2nd Year		3rd Year		
			Qty	Amount (\$)	Qty	Amount (\$)	Qty	Amount (\$)	
<b>I. Institutional Training</b>				(19,000)		(4,300)		(1,300)	(24,600)
1) Training of LWU's staff in Microfinance Center in Vientiane, 1/	prs.	260	10	2,600	5	1,300	5	1,300	
2) Overseas Training of LWU key staff in Bangladesh, 2/	prs.	1,200	7	8,400	0	0	0	0	
3) Establishment of Project Office, 3/	Office	4,000	2	8,000	0	0	0	0	
4) Local Product Promotion Center Office, 4/	Office	3,000	0	0	1	3,000	0	0	
<b>II. No. of Model Villages</b>			(2)		(4)		(6)		
Khammouan Province	no.		1		2		3		
Savannakhet Province	no.		1		2		3		
<b>III. Participatory Consultation in Model Villages</b>				(672)		(1,344)		(2,016)	(4,032)
1) Perdiem for the Accredited Agents and Credit Officers	prs-day	5	32	160	64	320	96	480	
2) Transportation cost (car rental)	unit-day	50	8	400	16	800	24	1,200	
3) Miscellaneous cost for training	day	14	8	112	16	224	24	336	
<b>IV. Financial Support</b>				(15,640)		(27,310)		(27,310)	(70,260)
1) Menu-1 (Diversified Crop)	prs.	320	5	1,600	8	2,560	8	2,560	
2) Menu-2 (Cattle and Chicken Raising)	prs.	730	4	2,920	7	5,110	7	5,110	
3) Menu-3 (Fishculture and Chicken)	prs.	1,280	4	5,120	7	8,960	7	8,960	
4) Menu-4 (Fruit Tree and Field Crops)	prs.	490	5	2,450	8	3,920	8	3,920	
5) Menu-5 (Coffee and Field Crops)	prs.	470	5	2,350	8	3,760	8	3,760	
6) Menu-6 (Sericulture)	prs.	200	6	1,200	15	3,000	15	3,000	
<b>V. Technical/ Marketing Support</b>				(2,674)		(5,264)		(7,854)	(15,792)
1) Field Crops/Tree Crops									
i) Training on Menus before starting the activities									
- Perdiem for technical staff	prs-day	5	6	30	12	60	18	90	
- Transportation cost (car rental)	unit-day	50	2	100	4	200	6	300	
- Training materials/others	day	14	2	28	4	56	6	84	
ii) Periodical visits for technical/marketing advice and monitoring									
- Perdiem for technical staff	prs-day	5	24	120	48	240	72	360	
- Transportation cost (car rental)	unit-day	50	8	400	16	800	24	1,200	
- Training materials/others	day	14	8	112	16	224	24	336	
2) Livestock (Cattle, Chicken, Fishery)									
i) Training of Village Veterinary Workers in the provinces									
- Perdiem, transportation, lodging for trainees	prs-day	22	10	220	20	440	30	660	
- Perdiem for government technical specialists	unit-day	7	6	42	6	42	6	42	
- Training materials/others	day	7	6	42	6	42	6	42	
ii) Training on Menus before starting the activities									
- Perdiem for technical staff	prs-day	5	6	30	12	60	18	90	
- Transportation cost (car rental)	unit-day	50	2	100	4	200	6	300	
- Training materials/others	day	14	2	28	4	56	6	84	
iii) Periodical visits for technical/marketing advice and monitoring									
- Perdiem for technical staff	prs-day	5	24	120	48	240	72	360	
- Transportation cost (car rental)	unit-day	50	8	400	16	800	24	1,200	
- Training materials/others	day	14	8	112	16	224	24	336	
3) Sericulture/Local Industry									
i) Training on Menus before starting the activities									
- Perdiem for technical staff	prs-day	5	6	30	12	60	18	90	
- Transportation cost (car rental)	unit-day	50	2	100	4	200	6	300	
- Training materials/others	day	14	2	28	4	56	6	84	
ii) Periodical visits for technical/marketing advice and monitoring									
- Perdiem for technical staff	prs-day	5	24	120	48	240	72	360	
- Transportation cost (car rental)	unit-day	50	8	400	16	800	24	1,200	
- Training materials/others	day	14	8	112	16	224	24	336	
<b>VI. Village Infrastructure, 5/</b>	L.s.	1,000	(2)	(2,000)	(4)	(4,000)	(6)	(6,000)	(12,000)
<b>VII. Monitoring and Project Management</b>				(11,400)		(11,400)		(11,400)	(34,200)
1) Central LWU									
- Administration	month	200	12	2,400	12	2,400	12	2,400	
2) Provincial LWU (Khammouan)									
- Administration	month	100	12	1,200	12	1,200	12	1,200	
- Staff	month	150	12	1,800	12	1,800	12	1,800	
3) Provincial LWU (Savannakhet)									
- Administration	month	100	12	1,200	12	1,200	12	1,200	
- Staff	month	150	12	1,800	12	1,800	12	1,800	
4) Follow-up									
- Local consultant	month	1,500	2	3,000	2	3,000	2	3,000	
<b>VII. Miscellaneous</b>				(614)		(382)		(120)	(1,116)
<b>Total</b>				<b>52,000</b>		<b>54,000</b>		<b>56,000</b>	<b>(162,000)</b>

Note: 1/ including perdiem, lodging cost, transportation cost for 5 days training course in Vientiane.  
2/ including perdiem for 10 days, air ticket and transportation cost in Bangladesh.  
3/ including 2 computers, 1 tel/fax machine, 1 copy machine and office furniture for each province  
4/ including 2 computers, 1 tel/fax machine and office furniture for each province  
5/ estimated to be \$ 1,000 for each village for water supply, road improvement, etc.



**New Village Initiative**

**Attachment VII**

**Schedule for Initial Stage Implementation Program**

Program	Initial Stage Implementation											
	1st year				2nd year				3rd year			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
<b>I. Institutional Training</b>												
1) Training of LWU's staff in Microfinance Center in Vientiane												
2) Overseas Training of LWU key staff in Bangladesh												
3) Establishment of Project Office												
<b>II. Model Villages</b>												
Khammouan Province (District)												
1) Ban Mouangkhai (Hinboun)												
2) Ban Dongkhouan (Nongbok)												
3) Ban Phathong (Nhommarad)												
4) Ban Nathan (Xebangfai)												
5) Ban Panam-Mai (Mahaxay)												
6) Ban Pakouai-Tong (Xaybouathong)												
Savannakhet Province												
1) Ban Nongpaksong (Atsaphangthong)												
2) Ban Donthamungeun (Xayphouthong)												
3) Ban Mouangkhai (Xayphouthong)												
4) Ban Palanxay (Palanxay)												
5) Ban Khamsai (Phin)												
6) Ban Xepon (Xepon)												
<b>III. Participatory Consultation in Model Villages</b>												
1) Information meeting with villagers to explain the project												
2) Confirmation of participants for each program menu												
3) Formation of the group for each program menu												
4) Training of the farmer's group on credit												
5) Preparation of implementation program of each menu												
6) Establishment of the village committee for the project												
<b>IV. Financial Support</b>												
1) Menu-1 (Diversified Crop)												
2) Menu-2 (Cattle and Chicken Raising)												
3) Menu-3 (Fishculture and Chicken)												
4) Menu-4 (Fruit Tree and Field Crops)												
5) Menu-5 (Coffee and Field Crops)												
6) Menu-6 (Sericulture)												
<b>V. Technical Support</b>												
1) Field Crops : technical training (*)												
: periodical visits (**)												
2) Tree Crops (*)												
(**)												
3) Cattle and Chiken (*)												
(**)												
4) Fishery (*)												
(**)												
5) Sericulture (*)												
(**)												
<b>VI. Marketing Support</b>												
1) Promotion of Farmers Production Group												
2) Cooperation with Local Product Market Promotion Center												
<b>VII. Monitoring and Project Management</b>												
1) Central LWU												
2) Provincial LWU (Khammouan)												
3) Provincial LWU (Khammouan)												
4) Follow-up by Local Consultant												
<b>VIII. Evaluation</b>												
1) Annual Report												
2) Project Evaluation for Initial Stage Implementation Program												

Note: (\*) technical training before starting each menu.  
(\*\*) periodical visits for technical advice.