

# **Summary**

## **I. Master Plan**

### **1. Backgrounds and Objective of the Study**

The Study commenced in October 1998 in accordance with the Scope of Works (S/W) and the Minutes of Meeting (M/M) agreed between both Laotian and Japanese governments on the 24th of November 1997. The Phase I Study was carried out through two Field Surveys the dry season survey from November 1998 to February 1999 and the rainy season survey from June 1999 to July 1999. The Phase I of the Study also included two months of home office work from July through August 1999. The Phase II of the Study was carried out through another field survey from October 1999 to January 2000 and home office work from January to March 2000.

In the course of the Study, appropriate reports at each stage, e.g. Inception Report, Progress Report (I) and (II), Interim Report, Progress Report (III) and Draft Final Report were submitted and outcomes were discussed with the executing agency. Since the commencement of the Study, six meetings between the advisory committee and study team were held, where Study results were reviewed and directions for further study were discussed. This report presents the results of the Study and all the relevant outputs of the said meetings have been incorporated.

The objectives of the study are originally stated as follows:

- To formulate the Master Plan for the Small Scale Agricultural and Rural Development Program, covering 12 districts in the 3 provinces of Bolikhamsai, Khammouane and Savanakheth, along the Mekong River. The Master Plan will focus particularly on stabilizing dry season agricultural production through the establishment of farmers' organization and revitalizing rural credit system to fund the construction of feasible irrigation structures needed to impel and stabilize dry season rice cultivation and improvement of traditional farming. The study also aims to identify the priority project(s), and conduct feasibility studies on selected priority project(s) and
- To carry out technology transfer to counterpart personnel through on-the-job training.

### **2. The Study Area**

#### **2.1 Natural Conditions**

The study area is administratively divided into 3 provinces, 12 districts (muong), 114 zones (khet) and 1,021 villages (ban). Among the three rice bowls of the country, most of the Sebanghiang plain is located outside the study area, however, the Bolikhamsai and Sebangfai plains are located within the study area with an elevation between 140 ~ 150m MSL. The mean

annual rainfall gathered in these stations showed spatial variation Paksan with 3,270mm, Thakhek 2,137mm and Savanakheth with 1,454mm. In every province, the monthly peak rainfall occurs generally from June to August, which do not match with rice cultivation in the wet season.

The rivers flowing in the Study area are tributaries of the Mekong River. The discharge and water level in these tributaries fluctuate widely in a year as influenced by the Mekong River's hydrological characteristics. Flooding is a part of life and the nutrient-rich silt-laden floodwater is believed to be the source of fertility in the low-lying areas of the study area. Most of the riparian inhabitants consider flood to be helpful as long as it is not too deep and/or does not stay too long. It is difficult to tame and contain the dynamic flow of the Mekong since it swells to over 10 - 20 times in the rainy season. Flooding indeed limits land availability for agriculture and adjourns cropping when water is in abundant supply.

## **2.2 Socio-Economy**

The study area's economy is dominated by rice with some other crops such as tobacco, maize, and vegetable along the Mekong River and its tributaries, and some upland crops (pineapple, sugar cane, and tapioca) in areas with low water resource potential. Upland rice production is also practiced using the traditional slash and burn cultivation.

According to the census of 1995, the population of the provinces related to the study area is 1,107,810 with 181,655 households. The 1992-93 surveys revealed that 46.4% of population in the northern zone of Laos, 40.4% in the central zone, which includes the Study area, and 59.8% in the southern zone are below the poverty line, which is estimated at an annual income of 11,472 Kip. Although the poverty level in the central zone is relatively lower than the other zones, the proportion will definitely become higher in the rural areas.

## **2.3 Governmental/Public Agency**

The main government agencies involved in the Study area are the Ministry of Agriculture and Forestry (MAF) and its related departments, the Bank of the Lao PDR (BOL), the Agriculture Promotion Bank (APB) and the provincial and district authorities of the provinces. The MAF consists of one cabinet office and 6 departments and is presently undertaking its restructuring, including the establishment of the National Agriculture and Forest Research Institute (NAFRI), under which all the existing research centers of the different departments were consolidated. The organization of MAF as a line agency is extended to the province and district through the PAFSO/DAFSO, respectively.

## **3. Understanding of Issues and Constraints**

From macro viewpoints, Laos is still moving towards a market oriented economic system while

its economic and monetary system is not yet matured. Under such situation, foreign exchange generated through border trade including smuggling is not flowing back to Laos. The policy on interest rate does not match with current economic situation, and further, there exist no positive factor to recover from the present government financial position.

From micro viewpoints, most of the existing irrigation schemes are facing difficulties in attaining the planned irrigable area due to the mismatch between the potential irrigable area and capacity of installed pumps as well as poor quality of canal constructed by farmers themselves. In addition, over-pumping of water is daily practiced by the farmers due to lack of proper know-how of O&M. This has also resulted in excessive operation of pump thus shortening the economic life of equipment. On the other hand, supply channel of inputs (fertilizers and pesticides) for dry season paddy cropping, is rather complicated considering that there are two sources such as APB and FSC which adopt different procedures. Consequently, farmers are not able to receive the recommended inputs on time. Under the vulnerability of present farming situation, it is evident that the area might again plunge into poverty if proper countermeasures are not taken.

In order to attain the main objectives of rural development in Laos, namely “improvement of rural environment and upgrading the living standard of villagers”, it must be able to increase food production through the improvement of agricultural productivity. Laotian government has put emphasis on maximum utilization of the limited resources, especially water resources by accelerating the provision of facility measures. However, the pace of the said development exceeded the capacity of the concerned staff at provincial level, while the implementation of facility construction has been promoted without the appropriate examination and analysis.

Consequently, these projects have been implemented without paying proper attention to farmer beneficiaries as well as sufficient justification, thus some problems as mentioned above have emerged. On the other hand, the staffs related to the farmer’s support system do not look towards the demands of the farmers but rather on the directions provided by higher authority, which resulted in services, which are not necessarily required by the farmers’. Since these problems originated from some weaknesses of human resource and their organizations, either from the farmers’ side or supporter (public agency), it is expected that by strengthening these human resources through improvement of training system, positive effects can be obtained.

#### **4. Basic Approach for Development**

##### **4.1 Development Constraints and Potential**

The following are considered as primary causes of poverty in the Study area: (a) Low agricultural productivity, (b) Unstable agricultural production (change in environment, unstable climate), (c) Limited access to resources for agricultural production including land and water, (d) Limited access to information on improved farming technology, (e) Vulnerability of organizations, and (f) Limited access to institutional agricultural credit.

On the other hand, the human and institutional factors which hinder the development of the area are (a) Limitation of Top-Down development approach, (b) Existence of gap between the projects/schemes formulated under the PDM and their realization, (c) Difficulty in achieving sustainability of existing facilities and (d) Low level of technical among PAFSO/DAFSO staff. The natural and physical limiting factors are (a) Limited of access to land and water resources as the base of agricultural production, (b) Occurrence of flood damages, (c) Existence of large number of irrigation systems with harsh geographical condition and (d) Delay in the construction of social infrastructures such as rural road and electrification.

In terms of the development potential of human resource, RRA results obtained in these six areas revealed that a village chief can easily organize the villagers in every area, and they expressed their willingness to bear part of investment cost for irrigation facilities when institutional long-term loan can be made available. Eventually, it can be said that these areas have enough foundation for the establishment and strengthening of farmers' organizations. According to the Team's field investigation, farmers in the Study area seemed to be more hardworking as compared with those in Northeast Thailand. Given these circumstances, it is concluded that the farmers in the Study area possess sufficient potential to implement rural development project when there is a smooth delivery of technical information and when agricultural inputs are made available.

There exist 86,000 ha of land classified as rainfed area. However, water resources as river discharge in the tributaries of Mekong River have certain limitations in their utilization. Looking at the improvement of farmers' income through agricultural production activities, the role of irrigation which utilizes both land and water resources effectively, is considered quite important. The actual area irrigated under the existing small-scale projects is 17,600 ha against the target of 27,600 ha. In this connection, an additional 10,000 ha as can be expected to have development potential with less investment and high return if rehabilitation and improvement of the present irrigation facilities will be pursued.

#### **4.2 Sustainable Growth Scenario and Development Target**

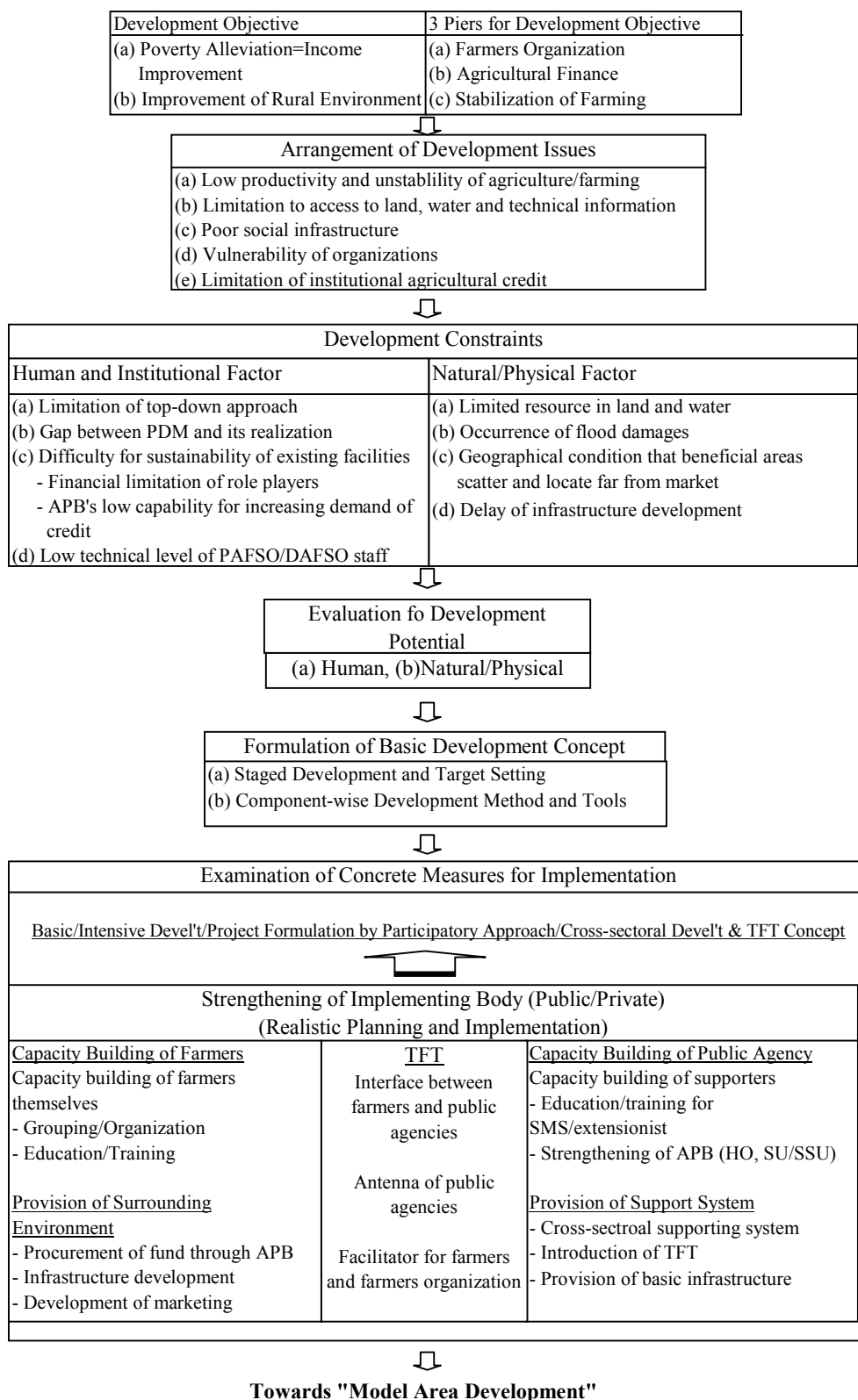
In terms of the macro-economic view on sustainable development of the agricultural sector in Laos, the government believes that by increasing expenditure in investments for the construction and improvement of irrigation facilities as well as in the institutionalization of agricultural finance, (a) it is possible to increase paddy production through promotion of dry season cropping, (b) it is possible to improve trade balance through savings in foreign currency by reducing paddy import, (c) it is possible to attain a stable economic growth through the convergence of hyper-inflation and stabilization of foreign exchange rate, and finally (d) it will be possible for the government to expand her re-investment for the next cycle through achievement of a healthy government finance, over the short- and medium-term perspective. In this cycle, a scenario, which enables foreign exchange earning through introduction of

diversified and integrated farming, can be projected. From micro-economic point of view, the APB can contribute to healthy government finance through efficient collection of repayment from farmers and their organizations. Re-inventing the funds to support production activities can further increase incremental farm incomes due to increased agricultural production.

However, there exist several risks in the said scenario or the process in the cycle, namely, (a) it seems rather difficult to attain the planned figures such as cropping area and target yield under an irrigation development plan, (b) it seems rather uncertain that farmers or their organizations realize the proper operation and maintenance of irrigation facilities towards sustainability due to lack of know-how and recognition on the role of their organizations, (c) there exist uncertainties in establishing and strengthening farmer groups like WUG or agricultural production group (APG), and (d) it seems rather difficult to secure access to markets surplus agricultural products that will bring additional farm income.

In order to overcome the above-mentioned risks to realize eradication of poverty and improvement of rural environment, it is necessary to increase production and improve farm income, and provide know-how on appropriate farm management and extend financial support efficiently (Refer to Figure-1). In this connection, the Master Plan is formulated on the basis of the following three key components: (a) farmers organization: the establishment and strengthening of WUG, APG and ACG is necessary to improve farmers' access to agricultural finance, to increase farmers' bargaining power and to realize proper water management; (b) agricultural finance: the provision of increasing seasonal production loan and the collection of fees to fund the rehabilitation/improvement irrigation of facilities as well as the capacity building of staff in both head and local offices of APB; (c) stabilization of farming and incremental agricultural production: the farmers support system and provision of irrigation facilities to promote the introduction of double cropping of rice as well as diversified and integrated farming, and improvement of access to market to increase farm income. Figure-2 shows the approach to realize poverty eradication through the combination of the three key components mentioned above.

One of the main subjects described in “the agricultural development vision towards 2020” is to increase food production and attainment of self-sufficiency in food, which is recognized as the super target over the Master Plan. According to the simulation study conducted by the Study Team and on balance between demand and supply of rice, it is estimated that self-sufficiency in rice could be attained by the year 2010 on the basis of available population statistics. Therefore, the Master Plan puts emphasis on increasing paddy production by the year of 2010, to be followed by agricultural development which promote diversified and integrated farming (Refer to Figure-3).



**Figreu-1 Basic Flow of Master Plan Formulation**

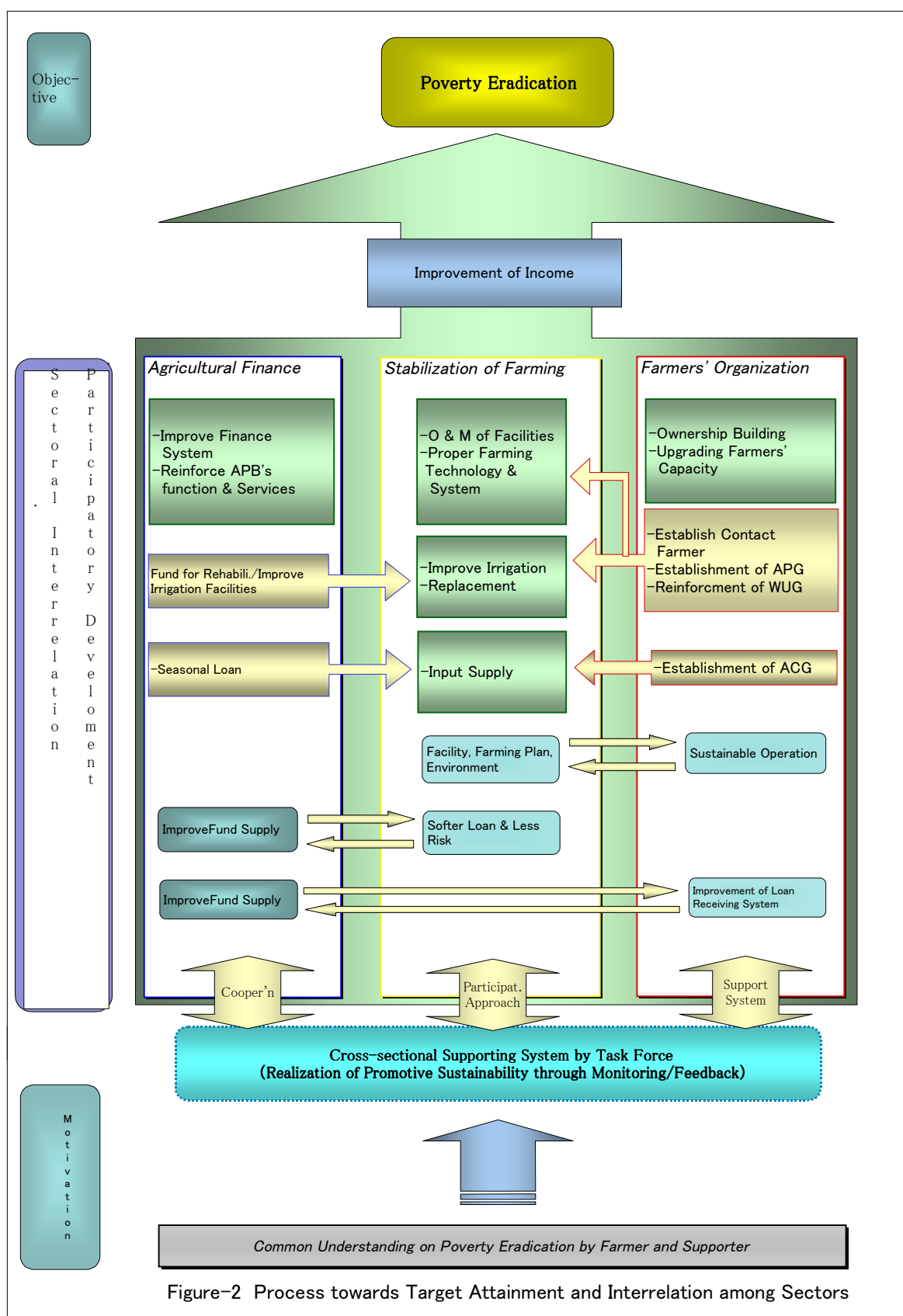


Figure-2 Process towards Target Attainment and Interrelation among Sectors

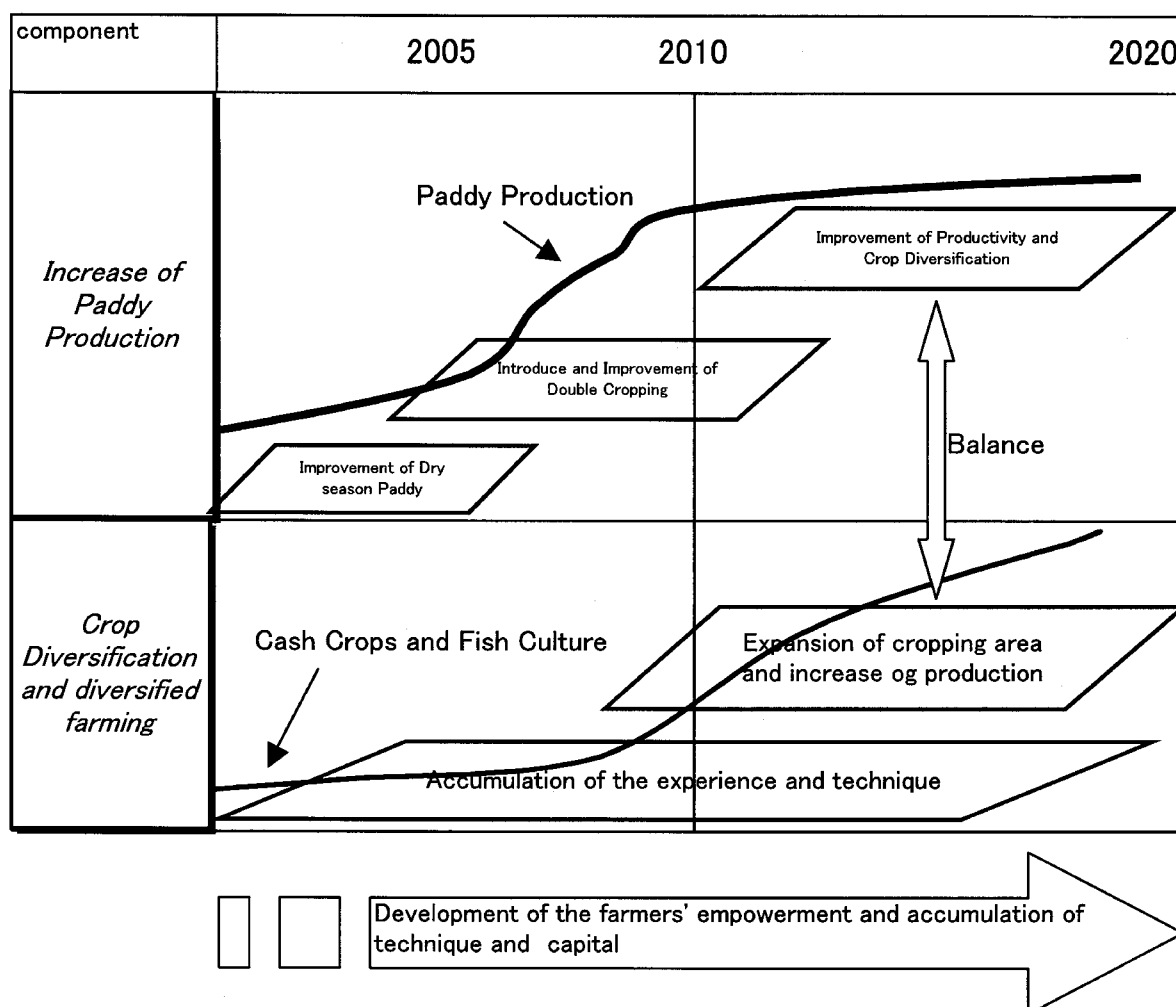


Figure-3 General Idea of Development Strategy



### **4.3 Development Strategy**

The following approach/strategies will be fully examined and reviewed to realize the development targets, which are mentioned above.

#### **4.3.1 Basic/Intensive Development Approach**

In Laos, the density of support services provided by public agencies becomes very little as these services reach the beneficiaries. As such, it is rather difficult to attain the planned benefit set by policy makers through the present support system. On the other hand, excessive reliance of service receivers on public agencies hinders their motivation for independence and self-education. Under such circumstances, the utilization of existing human and natural resources, support services will be basically and intensively focused to specific area (Model Area) with strategic perspective. The development of the Study area will be achieved by applying the best practices experienced in the Model Area.

#### **4.3.2 Project Formulation Using the Participatory Approach**

Considering that the present top-down development approach is no longer functioning, efficiently the Study works have been carried out with the bottom-up approach in mind. More definitely, farmers' participation in every step of project planning is practiced. In Phase I of the Study, Rapid Rural Appraisal (RRA) was conducted in the candidate model areas, and PCM workshop was done in the selected Model Areas during Phase II of the Study. From these series of activities, DAFSO staff could realize the importance of the bottom-up approach.

#### **4.3.3 Cross-sectoral Development and Introduction of TFT Concept**

Since it is observed that the technical capacity of staff in PAFSO/DAFSO is not at a satisfactory level in both the field surveys the TFT activities, the Study confirmed the necessity to develop the human resource capability of the staff. It is recommended, especially for the technical staff in provincial office to assume the role of SMS (Subject Matter Specialist) while the technical staff in district office maybe assigned to more general for general work. This proposal may run counter to the existing bureaucratic system under the Laotian governmental policy, but the Study Team felt that this is a more appropriate arrangement.

As one of measures for practicing the basic and intensive development as well as the participatory development approach mentioned above, the introduction of the concept of Task Force Team (TFT) is planned. The main roles of TFT are (a) to act as intermediary or connection point between farmers and support services providers, (b) collection of information from farmer side as antenna of public agencies, and (c) facilitator of activities of farmers or farmers' organization.

#### **4.3.4 TFT Concept**

The farmers' support system by public agencies in terms of both human and financial resources are limited, hence, it is planned throughout the master plan period that not only a TFT comprising DAFSO and APB's SSU staffs will be formed, but contact farmers will also be nominated to represent the farmers in receiving the support services. Since the number of DAFSO staff is generally limited, it is necessary that every technical staff should take part as an extension agent for farmers and their organizations at the field level, instead of exclusively performing their respective expertise (like farming, irrigation, livestock, forestry).

In order to efficiently develop the basic and intensive support services by the TFT comprising PAFSO/DAFSO staff and other related agencies, it is proposed to set up a project committee at the provincial level which will support the respective TFT. The members of the project committee will include an administrative officer, extension staff, official from DOC in each province, APB staff, representative of farmers' organizations, NGOs, and a consultant if necessary. Moreover, a technology evaluation office will be established in order to assess the potential of proposed projects.

#### **4.3.5 Staged (or Phased) Development**

Due to the wide coverage of this Master Plan, both in term of components and beneficial area, it is realistic to introduce the so-called staged (or phased) development concept from viewpoint of efficient utilization of existing government budget, human resources and supply or delivery means of relevant information. The component-wise development policy is described in the following paragraphs.

##### **(1) Development Direction**

In connection with the targeted increase of paddy production which is the staple food for the Laotian, development shall start from the introduction and improvement of dry season paddy as the short-term target, and then to stabilize the dry season paddy cropping as the medium-term target and finally, to increase yield of paddy cropping. As for the crop diversification and integrated farming proposed in the Master Plan, emphasis will be given to the accumulation of technical know-how and experiences both for extension staff and farmers throughout the Master Plan period (Refer to Figure-3). This approach will be gradually extended in other areas until the target level of paddy production is attained.

##### **(2) Establishment and Strengthening of Farmers' Organization**

In the Study area, WUGs have been established for the promotion of irrigation schemes. In addition, farmers who do not have sufficient collateral for loan are organizing themselves into ACGs (Agricultural Credit Group) to obtain APB's finance. The Master Plan has proposed to

establish an APG (Agricultural Production Group) which is expected to efficiently receive public support services and able to increase its bargaining power for selling products as well as buying agricultural inputs.

In the short-term, the main focus will be on strengthening WUGs and to establish APGs, and later on upgrading the WUGs to WUAs and the APGs will incorporate several ACGs through strengthening activities in the medium-term. The APGs will be the sole conduits for APB's financing. In the long-term, it is planned that several WUAs within the same tributary, will form a federation of WUA (FWUA) and several APGs will be transformed into agricultural cooperatives.

### (3) Agricultural Finance:

In line with the movement towards a market-oriented economy and economic liberalization, the present banking system (SOCB) has been reorganized, including the establishment of New Lane Xang Bank, New Lao May Bank, BCEL (foreign exchange) and APB (agricultural finance). However, BOL's basic policy on APB will not be drastically changed in the near future, and the main issues concerning the entire financing system are summarized below:

#### Improvement of Financial System

*Short-term target:* (a) control of hyperinflation, stabilization of foreign exchange market and provision of domestic market for short-term finance; (b) capital fulfillment of SOCBs and revision of accounting manual; and (c) establishment of savings promotion committee in BOL.

*Medium-term target:* (a) attainment of a stable economic growth and arrangement of market for medium- and long-term national bonds; and (b) establishment of integrated training system for BOL's staff.

*Long-term target:* abolition of foreign exchange control and liberalization of financing policy and interest rate; and (b) privatization of SOCBs.

#### Improvement of Agricultural Finance

*Short-term target:* (a) upgrading and strengthening the function of APB head office (MIS); (b) reinforcement of facilities for field offices in the Study area; (c) increasing the number of staff including liaison staff and strengthening of training system; (d) strikers control for loaned money; (e) effective utilization of KR-2; (f) improvement of accounting system and implementation of external audit with publicizing the results; and (g) effective utilization of external funding (items (a) and (b) are considered manageable using APB's own resources).

*Medium-term target:* (a) strengthening of the committee for agricultural financing policy;

(b) reformulation of policy on interest rate of institutional agricultural finance; (c) improving the absorptive capacities for rural fund; (d) sticker control for loaned money; (f) supporting activities of farmers organizations and establishment of Village Development Fund (VDF); (g) continuation of items (a) and (b) in the short-term target; and (h) expansion of item (b) in the short-term target in the other areas.

*Long-term target:* (a) expansion of self-determination on agricultural financing policy; (b) infusion of private capital into APB; and (c) support activities for the agricultural cooperatives.

#### (4) Improvement of Farm Management and Production Increase

##### Farmer Support Services

In connection with the farmer support system by public agencies in which both human and financial resources are limited, it is planned throughout the master plan period that not only a TFT comprising DAFSO and APB's SSU staffs will be formed but contact farmers shall also be nominated to represent the farmers in receiving the support services.

##### Improvement of Marketing System

It is prerequisite to improve the existing marketing system before increases of farm products can be realized, thereby contributing to increased farm income. It can be expected that commodity flow from the farms to the provincial centers will be improved by providing support services to village middlemen mainly through access to APB's finance as well as the expansion of joint purchase and marketing by the APGs organized by the farmers. On the other hand, commodity flow between the provinces as well as the province and the provincial capital will be improved by providing the necessary budget for FSC to purchase paddy, and strengthening its capacity for transportation, milling and storage.

##### Irrigation Facility

It is necessary to provide and improve the irrigation facilities to increase paddy production and be able to introduce and promote crop diversification and integrated farming schemes as well. Although it entails some fuel cost as operation expense, a simple and portable pump driven by the power of hand tractor is proposed to be introduced over the master plan period. This has a lower investment requirement and can easily be operated given the present technical level of farmers. The food production program (KR-2) supported by foreign donors can be the subject for introducing this type of pump. As to improvement the canal system, extension service and rehabilitation of the existing canals will be the primary component targeted in the short- and medium-term range, while the construction

of secondary canals will be considered in the medium-term target, and finally, further development of canal network to enable proper water management in the long-term. In connection with the gravity irrigation system, rehabilitation of reservoir dikes and appurtenant structures and introduction of small-size fixed weir will be included in the short- and medium-term targets. In the long-term, the construction of movable weir will be taken into consideration.

### Rural Infrastructure

As one of risk items in the sustainable growth scenario of the agricultural sector, it is pointed out that increases in agricultural production could essentially bring about increases in farm income but not without the necessary improvement in road conditions. National Road No. 13 and connecting roads between provincial centers with the Route 13 have been designed to become trafficable throughout the year. However, most of the other roads are trafficable only during dry season, which limits the entry of heavy-duty vehicles like a cargo truck. This condition is further exacerbated by narrow and poorly structured bridges. Without improving the said road condition, farmers are forced to bear additional cost for transporting farm products and agricultural inputs. Therefore, the rehabilitation and/or improvement of several rural roads as access road to Route 13 or the provincial roads will be incorporated in the master plan.

## **5. Formulation of the Master Plan**

### **5.1 Basic Concept of Agricultural Development Plan**

The “Vision on Agricultural-Forestry Development until year 2020” prepared by the Government has outlined three agricultural development programs to include (i) food security and self-sufficiency in food (rice); (ii) promotion of export-oriented crops and livestock; and (iii) farming stabilization and reduction of slash-and-burn cultivation. The basic concept of the agricultural development plan in the Study area has been formulated based on the assessment of development potential of agriculture from the view points of (i) improving the existing agricultural activities, and (ii) promoting and expanding the integrated farming systems including cash crop production.

The ultimate objectives of the integrated agricultural and rural development are to achieve substantial and sustainable improvement of the living conditions of people in the Study area. Thus, the strategies to be adopted should aim to increase farm output through development and improvement of irrigation, drainage and rural infrastructure together with the delivery of appropriate support services.

## **5.2 Component-wise Development Plan**

### **5.2.1 Farmers' Organization Strengthening Plan**

#### Facilitation of the Establishment and Strengthening of Farmers' Organization in Model Areas

- (a) Provision of Legal Framework for Farmers' Group (WUA and APG)
- (b) Strengthening Education and Training for Farmers (Group Leaders) and Supporter (DAFSO staff)
- (c) Deployment of Community Development Organizer at PAFSO level

The primary objective is to organize farmers into groups in order (a) to expedite efficiency of receiving the necessary support services, (b) to equally share the limited local resources and (c) to strengthen the bargaining power in price negotiation for agricultural input as well as agricultural product through joint purchase and sale activities. The recommended activities and processes for the establishment and strengthening of farmers' group and organization will be practiced in the model areas. The area-wide activity will be concerned on common issues extending over the model areas, which includes education and training of the concerned staff on participatory development and community development approaches. In order to efficiently undertake joint procurement of agricultural input, it is desirable to unify the supply sources as well. In this connection, it is necessary to strengthen the coordination between the Ministry of Commerce and APB.

Furthermore, it is an urgent matter for the successful implementation of IMT to ensure the sustainability of the irrigation schemes by organizing farmers into WUO, which is consistent with the agricultural policy of Lao government.

### **5.2.2 Agricultural Finance Strengthening Plan**

#### Concrete Plans for the Improvement of Financial System

- (a) Improvement of Accounting System in the Banking Sector
- (b) Establishment of Financial Market on Short-term Basis
- (c) Liberalization of Interest Rate and Opening of New Branches/Field Offices
- (d) Improvement of BOL's Training Compound

Of the four items, (a) Improvement of Bank Accounting System is an urgent matter, but requires the services of experts. The necessary human input for the improvement is 6

man-months of both international and domestic experts respectively. The preparation of a computerized accounting system also requires the same input level as above, with an estimated total cost of US\$306,000. On the other hand, since the items (b) and (c) are fully related to the basic financial policy of Lao government, countermeasures will have to be considered if ever the Lao side would recognize the necessity of such findings. As for item (d), it is predicted that more banks' staff including APB will have to be trained, and high priority must also be accorded to improving the existing training facilities. These activities would entail as estimated cost of US\$200,000.

#### Strengthening of APB as Source of Two-step Loan

- (a) Improvement of Accounting System
- (b) Restructuring the Head Office
- (c) Training of Staff (Executive, Backbone Staff, Liaison staff)
- (d) Strengthening of MIS and Improving the Mobility of Field Staff

In general, the improvement of the accounting system may be considered as the first concern for the Laotian financial system and APB should follow the BOL's guidance and improve its accounting system promptly. Along with this, it may also be necessary to provide APB with a management system for fixed assets and stocks as a sub-system. Secondly, it is proposed that APB should increase its capital to 6 billion Kip (4% of the total asset in end 1999), and re-structure the accounting division into two divisions, namely accounting and fund divisions to maintain transparency of APB's business. The deployment of more staff to the fund division is also recommended. In addition, external audit and publication of audit results may be required.

In order to carry out such reforms, staff training from executive level to the liaison level is considered as an immediate concern, and in terms of cost effectiveness it is appropriate to implement such training activities in BAAC of Thailand. As an initial plan, 10 executive staff will be sent and trained in BAAC for two months and this will cost US\$86,000. After reviewing the performance of the initial program, further schedules will have to be planned to accommodate more staff.

Under the situation where the demands for seasonal production loan during the dry season is drastically increasing, upgrading the mobility of field staff, becomes the primary concern. Equally important is the building of the capacity of APB for data processing through the strengthening of the MIS and reinforcing the existing communication network among Head Office, branch offices and S.U.

### **5.2.3 Stabilization of Farming and Increase in Agricultural Production**

#### Strengthening the Support System (Linked to some activities in Model Areas)

- (a) Cross-sectoral Unification of Extension System
- (b) Establishment of Staff Database
- (c) Technical Guidance and Training of SMS and TFT Members
- (d) Inventory of Irrigation Schemes

It is desirable to unify the current extension system just like in NAFRI. Items (b), (c) and (d), should be carried out in complementation with similar programs designed for the Model Areas. Over an implementation period of three years and human input of 7, 20 and 10 man-months for international, regional and domestic expertise, respectively, the total cost will be about US\$310,000.

### **5.3 Capacity Building of Implementing Bodies**

Towards the realization of the master plan, it is necessary to build the capacity of concerned stakeholders through the following measures.

#### **5.3.1 Capacity Building of Farmer- Beneficiaries**

It is no doubt that under the participatory approach the farmer-beneficiaries are the main actors in planning and implementing a bottom-up type project. However, valuable information developed in various research agencies do not reach the farmers' under the existing support system. The identified issues and solutions are summarized below:

<u>Issues</u>	<u>Solutions</u>
<ul style="list-style-type: none"><li>- Low or insufficient technical level of farmers</li><li>- Poor system of information transfer</li><li>- Insufficient staff in public agencies</li></ul>	<ul style="list-style-type: none"><li>- Training of farmers</li><li>- Organizing farmers &amp; promoting cooperation among groups</li><li>- Establishment of contract farming system</li></ul>

#### **5.3.2 Capacity Building for Supporting Bodies**

While many Laotian counterparts have been trained along agricultural and rural development, through SIRAP, FIAT and the technical and therefore financial cooperation extended by the Japanese government, the trained staff are not properly mobilized nor they were given the opportunity to extend their technical know-how. In addition, the combination of bureaucratic system and decentralization, has adversely affected staff performance. Similarly, there exist some conflicts in mobilizing human resources including extension staff at field level due to unsystematic and unsynchronized policy directives between central and local governments.

The issues and solutions identified in the public agencies as a support body are summarized



below:

Issues:

- Insufficient or poor technical level of extension staff
- No continuation of foreign assisted cooperation
- Lack of consistency in public administration system
- Improper mobilization of staff

Solutions:

- Training of extension staff
- Preparation of cross-sectoral supporting system
- Provision/reinforcement of office facilities in  
DAFSO and APB

### **5.3.3 Capacity Building through OJT**

On the basis of the project cycle management concept, it is proposed to implement a capacity building program for staff in public agencies farmer-beneficiaries through on-the-job training approach to complement the infrastructure development plan. In the early stage, external assistance may be required (both technical and financial aspect) in the series of project cycle which will be adopted in the identification of projects in Model Areas, as well as in field verification of the respective PDMs. In this case, the project will emanate from the second step as survey/investigation to the monitoring/evaluation step. The final target is for the succeeding projects and schemes to be implemented through accumulation of experience and know-how by SMS and TFT and financed by domestic resources (Refer to Figure-4).

## **6. Selection of Model Area**

One of the specific features of the Master Plan is that the scale of projects and/or schemes is rather small due to the basic development concept of farmers' participation and cost sharing, and they are scattered widely with in the Study area. Under such situation, a model area will be selected, in which the development plan will be implemented on a pilot basis. In the selection of model area(s), due consideration will be given on the possibility of such model to become a showcase (re-productivity and replicability) so that the Lao government will be encourage to promote further expansion of similar schemes through out the country. The specific model areas selected are Thongharb-Nakhua area in Pakkading District of Bolikhamsai Province, Vangkhong area in Hinboun District of Khammouane Province, and Phonthan area in Xayphouthong District of Savanakheth Province.

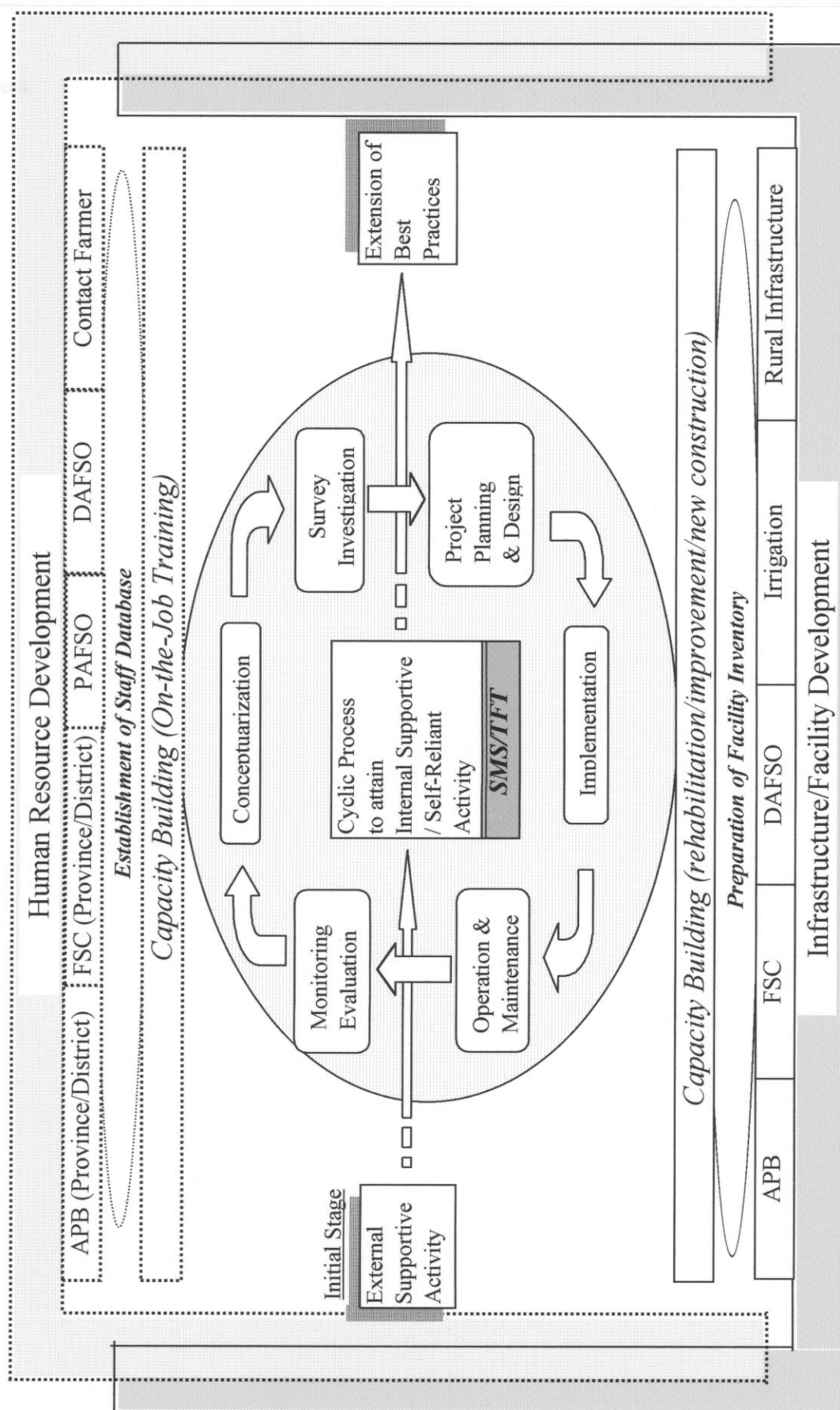


Figure-4 Capacity Building through On-the-Job Training

## **II. Model Area Development**

The proposed development plan formulated in the Study shall be implemented initially as a trial in the three model areas identified and selected during the Phase 1 of the Study. The basic flow of plan formulation for the model areas is described in Figure-5. After identifying the basic policy for model area development as well as describing general conditions and deployment of participatory approach in the model areas, the component-wise development plan is examined and formulated.

Thongharb-Nakhua Area in Pakkading District of Bolikhamsai Province: Basin Water Management Improvement Model with Improvement of Agricultural Finance and Farmers Organization;

Vangkhong Area in Hinboun District of Khammouane Province: Integrated Irrigation Agriculture Model with Poverty Alleviation through Stabilization of Paddy Cropping and Its Self-Sufficiency

Phonthan Area in Xayphouthong District of Savanakheth Province: Small River Basin Conservation Model with Promotion of Advanced Farming

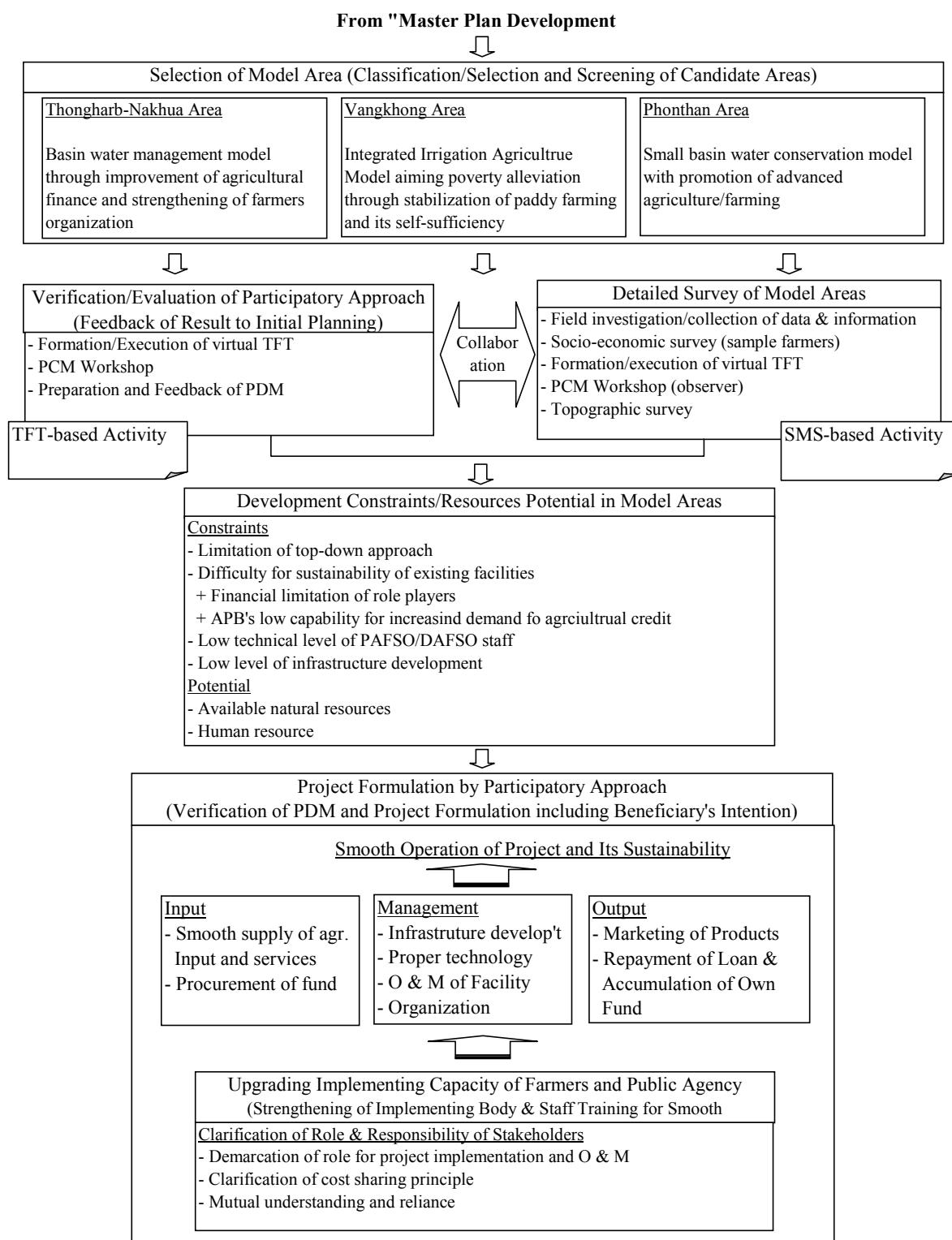
### **1. General Condition of the Model Areas**

#### **1.1 Thongharb-Nakhua Area**

The model area in Bolikhamsai province selected for the study is Thongharb-Nakhua located in Pakkading district which consists of five target villages along Nam Thon and Nam Dua. In this area, pump irrigation is being practiced in each village, and water management seems to be a problem. Therefore, it is necessary to organize the water user groups as an integrated and bigger water management organization. In the area, villagers have a bitter experience when the weir which was constructed using APB loan was destroyed by a flood even before it became operational and they are forced repay the debt to APB even without using the facility.

The total area is 12,000 ha including 728 ha of farmland with potential irrigable area of 150 ha. which mostly extends to Thongharb Village. A total of 453 households reside in the area with an average household size of 5.6. Total population is 2,522 with 35% belonging to age group 14 years old or below, and 26% belonging to age group 14 to 45 years old and considered suitable for labor force. The main source of income is paddy production followed by forestry products (without timber) and animal husbandry. About 36% of total households or 162 households could not purchase or secure their rice requirements throughout the year.

The average income per household is 9,155,757 Kip the highest income reaching 39,194,80 Kip and the lowest at 436,000 Kip. It is noted that the major income source among the wealthier families is livestock raising rather than crop production. However, according to tradition, cattle raising is a capital-intensive investment and the selling of these assets is mainly used for paying



**Figure-5 Basic Flow of Model Area Development**

debt, to fund cultural events (wedding, holy ritual/ceremony etc.), and procurement of farm equipment. The income and expenditure is generally balanced with some surplus. However, after deducting household labor cost, the net income becomes negative as in the case of 18 families while only 10 families can save less than 1 million Kip which is considered as a very negligible amount.

## **1.2 Vangkhong Area**

Vangkhong area is located in Hinboun district, and it is only 10 Km away from National Road 13 with access road. Pak Nam Hinboun, the district's trade port between Laos and Thailand, is only 1.5km away and is a promising alternative outlet for farm produce. The model area is located in the flood plain, close to the mouth of Nam Hinboun, only about 2km from the Mekong. Although inundation due to 'back-swamp' of Mekong occurs in the area, the villagers' enthusiasm for the promotion of irrigated agriculture is quite high. Presently, villagers are forced to practice unstable farming due to lack of irrigation facility. Among the three model areas, poverty level is highest in this area. The participatory development approach will be carried out aiming for self-sufficiency in rice, and it is necessary to extend technology transfer on establishment of farmers' group/organization, appropriate farming practices and water management.

Total land area is about 4,550 ha with only 52 ha of rainfed paddy land. There is no irrigation system in the village. Aside from the rainfed paddy land, there exist 55 ha of bush land which could be reclaimed into paddy land. At present, a floating-type pump station is under construction by the government, and farmers are supposed to dig a section of the main irrigation canal. The village was established around 1944 and has actually 47 households and a total population of 246 with average household size of 5.6. Younger generation aged 1 – 14 years old constitutes 48.4% of total population. The main ethnic group is Lao Kaleung, a branch of the Lao Phouthai ethnic. According to the socio-economic survey on 10 sample farmers, the average yearly income per household is 6,245,170 Kip, the lowest household income is 2,214,800 Kip and the highest 22,556,000 Kip. It is noted that the highest income was generated from the sale of cattle, which is considered as a transfer of home capital into cash. The per capita income of the area is about 993,317 Kip per person.

## **1.3 Phonthan Area**

The model area is located in Xayphouthong district of Savanakheth Province, 35 Km away from KM35 point with fair access. In this area, gravity irrigation is being carried out by using a small reservoir constructed by the farmers themselves, and the technical level of canal construction seems satisfactory. Since annual inflow to the reservoir exceed its storage capacity and by increasing the height of the dike of the reservoir, it is possible to increase irrigable area. The area has potential for fish culture in the reservoir and an integrated farming with vegetables and animal husbandry. Furthermore, it is possible to implement improved water management using gravity irrigation system and a basin water management and

conservation by strengthening the existing WUGs.

There are three target villages in this model area: Nakham Tai, Nakham Nua and Phonthan, all are located about 55km south of the provincial capital. Total land area of the area is about 2,157 ha, having 600 ha of farmland of which 520 ha is rainfed paddy land and 55 ha is irrigated farmland. Phonthan village, which was established in the year 1673, is considered as the ethnic origin of the community. The population of the three villages belongs to the same ethnic minority group. The main economic activity is farming, and about 54% of population are engaged in agricultural activities. There are 412 households and the average household size is 5.9. The main sources of income are paddy cultivation, animal husbandry and cash crops (watermelon, banana and maize). Out of total household, 11% or 46 households are facing difficulty to become self-sufficiency in rice.

## **2. Basic Development Policy**

### **2.1 Agricultural Development Plan**

The basic concepts for the agricultural development in the model areas are summarized as follows:

- The stabilization of the paddy production (to secure the staple food).
- The introduction and promotion of the crop diversification and integrated farming (The prevention of the unmarketable surplus production due to monoculture and risk management. To secure income and to improve the nutritional status. The practice of semi-intensive farming by producing and using home made fertilizer).
- The promotion of household industries and introduction of new crops (Improvement of income and risk management).

### **2.2 Land Use Plan**

The basic policies for the utilization of the existing paddy fields are summarized as follows:

- To respect the present condition of land utilization.
- To realize sustainable and stable agricultural production.
- To produce paddy through efficient use of limited water resources.

In accordance with these basic policies, the typical cropping patterns are presented below. These are based on the assumption that even if the facilities to protect floods will not be constructed the flooded areas can still be utilized by avoiding floods and through the farming practices adoption of measures.

Flood	Irrigation	Wet season	Dry season	F/S Areas
Affected	Available	Upland crop (unused)	Paddy	TN, V
Affected	A Available	Paddy (after flood)	Paddy	TN, V
Affected	No	Upland	-	TN, V
Non-affect.	Available	Paddy	Paddy	P
Non-affect.	No	Paddy	-	P

TN: Thongharb/Nakhua, V: Vangkhong, P: Phongthang

## **2.3 Experimental Implementation of TFT and Verification of Replicability**

The formulation of model area development plan was regarded as a practice of participatory planning which started from the screening of model areas. Since TFT is considered as key factor for future project implementation, TFT team was simulated to participate in the survey activities with the study team. Survey activities have been carried out in order to verify the efficiency of TFT and also to modify dysfunction by expecting that this study can be a basis for the Lao government to undertake future development.

It is expected that the participatory approach adopted in the model areas will be replicated within and outside the Study area. As one of the best practice in rural development cycle is expected to iterate starting from project planning to its implementation.

## **3. Deployment of Participatory Approach – Verification of PDM**

The project design matrix (PDM) formulated as an output of the PCM Workshop activities in the three model areas, is considered as a hope or an expectation of the rural people. Although the study team recognized the PDMs as urgent and earnest need of the people, the PDMs have been fully verified and examined so as to formulate a justifiable development plan including its alternative, taking into consideration availability of physical and human resource, topography, soil condition and water quality, climatic condition, impact on the environment, financial and human capacity of the implementing agencies. The important point in the said verification works is to clearly indicate to the beneficial villagers that their hope or expectation will not be always realized through judgment of experts with transparency who should have appropriate technical level and know-how.

In the verification processes, further examination was carried out from viewpoint that capacity building not only of beneficial farmers but also of governmental officers who are responsible for supporting the farmers is urgent issue and necessity. In relation to development of

infrastructure, it was considered also to educate and train technical staff in PAFSO as SMS. In the series of the said verification works, the following points were basically focused:

- The scope of infrastructure development such as irrigation related facility and road as well as agricultural production facility including storage or warehouse shall be an extent to be covered by the local condition;
- In connection with training of farmers as one of basic supporting activity for increasing paddy productivity and promoting animal husbandry as well as fisheries, priority shall be given to identify and select a contact farmer, taking into consideration that kind of training course and number of trainee is limited under the existing training system;
- In the future on the basis of cost sharing principle for the supporting services by the beneficial farmers, possibility to introduce a combination of an incentive to be given to the support staff and a target-performance management, shall be focused;
- The immediate target to be considered is to simplify supply system and procedure both in APB finance and agricultural input supply by FSC;
- Since the only significance of cattle breeding is decreasing due to introduction of mechanical power in plowing farmland, while the breeding place is also diminishing in the flat land, promotion of small and medium animal husbandry shall be prioritized; and
- In the promotion of fisheries, priority shall be given not to establish new advanced system, but to utilize the existing facilities, and farmers shall produce necessary fingerlings by themselves.

Especially for the plan to develop the irrigation system in each PDM, which is providing a basic infrastructure for paddy farming, the following observations have been carried out:

- In Thongharb-Nakhua area, total capacity of pumps can irrigate 400 ha, which can meet with farmers' demand of 260 ha. However, available water resource during dry season limits the irrigable area to 137 ha in maximum. In order to attain the target irrigable area during the dry season introduction of crops with smaller consumptive water use than paddy is being proposed.



- In Vangkhong area, although the villagers expect to develop an irrigable area of 60 ha, the maximum irrigable area is only 18 ha by the present location of existing pump station, because of availability of paddy land. In order to attain the project goal, alternative study is needed, including transfer of the location of the existing pump station or utilization of booster pumps.
- In Phonthan area, while farmers' irrigation target is 100 ha in dry season, maximum irrigable area is only 90 ha even after increase of reservoir capacity. Furthermore, if supplemental water is released in wet season, dry season irrigable area become smaller. There is a need to properly operate and manage the reservoir by WUG.

#### **4. Formulation of Development Plan**

Under the concept of three development poles, the following projects and schemes are identified and formulated with priority.

##### **4.1 Farmers Organization**

###### Establishment and Strengthening of Farmers' Groups/Organization

(a) Thongharb-Nakhua Area, (b) Vangkhong Area and (c) Phonthan Area

In order to promote the establishment and strengthening of WUGs, and then upgrading the WUGs to WUAs. In paddy-based farming with crop diversification and integrated farming, establishment and strengthening of APGs and ACGs will be carried out taking into consideration the specific conditions in each model area. A group leader as a contract farmer will play the main role to receive the support services provided by PAFSO/DAFSO. In addition, a WUO will also play an important role in the collection of ISF and proper maintenance of irrigation facilities as well as water management, and creation of a Village Development Fund, which are main subject of the IMT (Irrigation Management Transfer). This activity will be undertaken through a combination TFT activities of in each model area.

##### **4.2 Agricultural Finance**

###### Strengthening of APB Branch/SU/SSU (New Staff Mobilization)

(a) Paksan Service Unit, (b) Hinboun Sub-Service Unit and (c) Savanakheth Branch

The level of participation of respective APB staff to various activities of virtual TFT during the field survey in Phase 2 was not satisfactory the reason given was that they were also pre-occupied with the daily job in their original offices. In view of APB's

recruitment of about 50 new staff every year, it is proposed that APB should mobilize one additional staff in each concerned office (Branch/SU/SSU) to reduce the volume of work of the staff designated to TFT. The extensive coverage of APB's field offices has become one of the bottlenecks for APB's financing activities in the rural areas. An alternative for consideration is to introduce a mobile office by using a vehicle in each province, instead of establishing a new office. However, various critical issues like how to ensure security could not be solved in the Study and in view of this, the mobile office concept will be proposed but for further consideration.

### **4.3 Stabilization of Farming and Incremental Production**

#### Strengthening the Support System (Capacity Building with Infrastructure Development)

(a) Thongharb-Nakhua Area, (b) Vangkhong Area and (c) Phonthan Area

It is a prerequisite to upgrade the technical level of SMS as technical support group and DAFSO technical staff for general work. To cope with the said objective, capacity building of the stakeholders will be efficiently and effectively pursued by introducing "on-the-job training" system in the project cycle starting from conceptualization - investigation - planning/designing - implementation of the proposed infrastructure schemes. In the early stage, it may require external assistance of both technical and financial nature, however as the support system grows and becomes independent, it shall serve as model for the other areas. The required inputs are summarized below:

	Human Resource Input (M/M)			Financial Input (US\$)		
	International	Regional	Domestic	Expert	Others	Total
Thongharb-Nakhua	9	26	13	368,500	50,000	418,500
Vangkhong	7	20	10	285,000	50,000	335,000
Phonthan	12	34	17	486,500	50,000	536,500

In the two model areas except Phonthan area, pump irrigation is being practiced using the river flow, however, how to prolong the durability of pump equipment (generally 15 to 20 years with proper maintenance and repairing) is an important issue. Therefore, it is necessary to strengthen the WUO and providing sufficient education and training to farmer beneficiaries on proper allocation of irrigation water as well as water management through.

This scheme will be implemented together with the same items under category, however, for a wider-area of coverage. As such, it is planned to commence project activities from Phonthan area, followed by Thongharb-Nakhua area and then to Vangkhong area.

#### Rehabilitation/Improvement of Small Scale Irrigation Facility

(a) Thongharb-Nakhua Area: Construction of weir in Thongharb and land reclamation-

US\$287,000

- (b) Vangkhong Area: Relocation of existing pumps, canal construction and land reclamation-US\$205,300
- (c) Phonthan Area: Increasing the Height of reservoir dike & canal extension-US\$130,000

The sustainability of the existing irrigation facilities is a must for the development of the Study area, as most of the farmers rely on them for paddy cultivation. In order to attain sustainability, strengthening the farmer's support system as mentioned below, will be given due consideration.

#### Development of Rural/Farm Road (Medium/Long-term)

- (a) Thongharb-Nakhua Area (US\$119,000), (b) Vangkhong Area (US\$112,300) and (c) Phonthan Area (US\$90,000)

The road network connecting each Model Area to the capital of the district or province will be playing a vital role to secure access to market for agricultural input as well as farm products. However, while it is rather difficult to properly identify the benefits of these roads, experiences from the communities (and elsewhere) suggest that the proposed project be given higher priority by the concerned district or provincial office which has a surplus budget.

### **III. Project Prioritization and Recommendations**

#### **1. Project Evaluation and Prioritization**

##### **1.1 Identified/Formulated Project/Schemes**

In order to implement the projects and schemes identified and formulated under the master plan, both the wider-area approach and the strategic/intensive-area approach are required in the whole Laos or the Study area and the model areas, respectively. The projects and schemes identified in the Study are presented according to the basic components in the following (Refer to Table-1) sub-sections.

##### **1.1.1 Wider-area Approach**

###### **(1) Farmers Organization**

The activities to promote the establishment and strengthening of farmers' organizations in the model areas, include (a) formulation of legal framework for WUA and APG, (b) expansion of education and training for farmers (group leaders) and support groups (DAFSO staff) and (c)

Table-1 Outline of Proposed Project and Priority

Three Piers for Development Project Component (Priority)			Farmers Organization		Agricultural Finance		Stabilization of Farming/Production Increase	
Project Component (Priority)			Strengthening of Farmers Group/Organization (3)		Improvement of Financial System (3)		Strengthening of Supporting System (1)	
Wider Area Activity			a. Preparation of legal framework for farmers group b. Training of farmers & support staff c. Establish and mobilization of CDO		d. Improvement of Bank Accounting System c. Establishment of Financial Market for short-term basis f. Liberalization of Interest Rate and Business Branch g. Renovation of BOL Training Center		a. Cross-sectoral unification of extension system b. Preparation of staff database c. Guidance and training of SMS and TFT members	
Develop. Direction			By improvement of public and financing services as well as improvement of water management, bottom-up approach shall be examined and verified.		-		a. Capacity building of SMS for irrigation planning and TFT members with participatory approach b. Capacity building through QUT [2]	
Present Condition			Due to series of failure in irrigation development, farmers tend to not trust public agencies and APB finance.		-		a. Promptly rehabili. destroyed facilities b. Construction of weir in Thongharb [2]	
Thongharb-Nakhua			Due to consecutive flood damages, farmers motivation for attaining stabilization of paddy farming and its self sufficiency		-		a. Capacity building of SMS & DAISO staff for irrigated agriculture b. Capacity building through QUT [3]	
VAngkhong			Paddy self-sufficiency attained. Due to no risk of flood, it is expected to promote advanced farming through crop diversification & integrated farming		-		a. Verify present irrigation planning b. Transfer of existing pump, canal construction and reclamation [1]	
Phonthan			Through efficient supply of materials and farmer organization (WUA/APG), effective farm production and marketing will be aimed		-		a. Capacity building of TFT members including APB & FSC staff b. Capacity building through QUT [1]	
Strategic/Intensive Area (Model Area)			Development of advanced farming by organizing WUA/APG/BSG Arrangement of system to receive public support and financial services [2]		-		a. Proper dam operation for advanced farming b. Heightening dyke and canal extension [3]	

Note : Figures in ( ) are showing priority among project component

Figures in [ ] are showing priority within the project component ("0" means only finding and no relation to priority)

deployment of a community development organizer at PAFSO level.

## **(2) Agricultural Finance**

The concrete plan for the financial system includes (a) improvement of accounting system in the banking sector, (b) establishment of financial market on short-term basis, (c) liberalization of interest rate and opening of new branch/field offices and (d) renovation of BOL's training compound. In addition, the APB strengthening plan includes (a) improvement of accounting system, (b) restructuring of APB head office, (c) staff training and (d) reinforcement of MIS.

## **(3) Stabilization of Farming and Incremental Production**

In order to strengthen the capability of farmer support system that it may efficiently serve its beneficiaries, linkages with similar activities in the model areas are needed: (a) cross-sectoral unification of extension system, (b) establishment of staff database, (c) technical guidance and training of SMS and TFT members and (d) inventory of irrigation schemes.

### **1.1.2 Basic/Intensive Area Approach**

#### **(1) Farmers Organization**

The establishment and strengthening plan of farmers' group/organization essentially starts with organizing work and includes the strengthening of WUO and APG in the three model areas, Thongharb-Nakhua, Vangkhong and Phonthan.

#### **(2) Agricultural Finance**

The agricultural finance strengthening plan include the opening of new APB branches, SU and SSU, and recruitment of new staff to be assigned to Paksan SU, Hinboun SSU and Savanakheth Branch.

#### **(3) Stabilization of Farming and Incremental Production**

In relation to the wider-area approach for the strengthening of farmer support system, human resource development (capacity building) of concerned stakeholders will be carried out simultaneously with the infrastructure development in the three model areas. The improvement and rehabilitation of small scale irrigation facilities include (a) construction of a weir in Thongharb Village and reclamation of new farm lands in Thongharb-Nakhua area, (b) re-location of the existing pumping station, construction of new canals and reclamation of new paddy field in Vangkhong area and (c) increasing the height of reservoir dike and canal extension in Phonthan area.

## **1.2 Project Evaluation**

The projects and schemes identified and formulated in both the wider-area and

strategic/intensive-area approach are comprehensively evaluated by applying the following parameters: (a) Economic Aspect (EIRR); (b) Financial Aspect (Affordability of Investment Cost by Farmers and Public Agency); (c) Environmental Aspect (Impacts on Natural Environment and on Rural Community); (d) Organizational Aspect (Maturity of Existing Farmers' Group/Organization and Acceptability of Cross-sectoral Approach); (e) Social Aspect (Extent of Poverty Alleviation and Extent of Understanding of Participatory Development Approach); and (f) Institutional Aspect (Acceptance Base for Basic Development Principle and Potential for replication in Other Areas)

The evaluation results of the wider-area and the strategic/intensive-area activities are shown below and the smaller aggregated figures (simple average) for these parameters mean the higher priority.

Overall Evaluation of Priority Projects/Schemes (Summary)

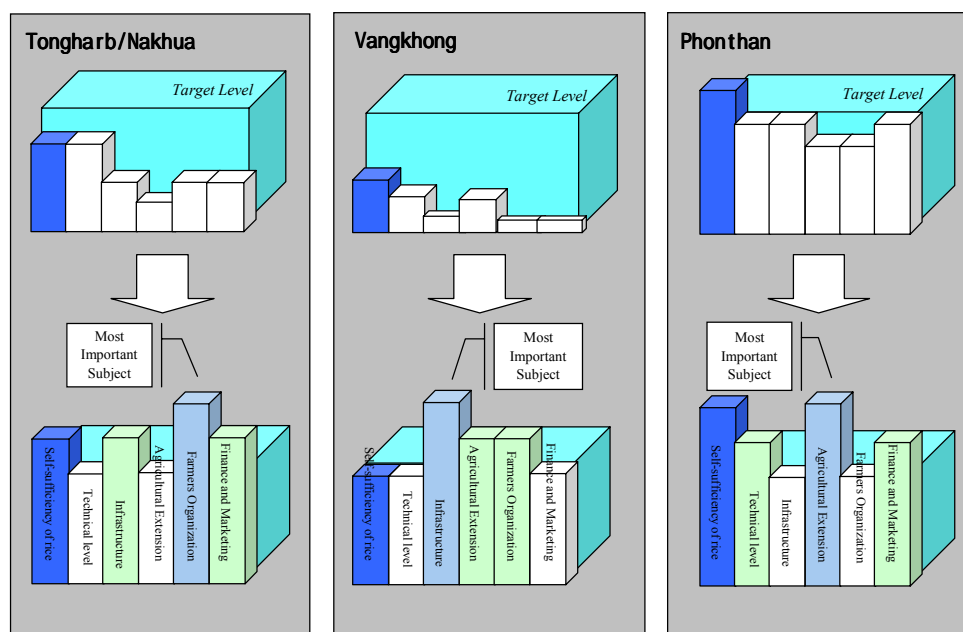
Main Component	Sub-component	Overall Evaluation		
Wider Area Approach		Whole Laos & 3 Model Areas		
Farmers Organization	Establish groups/organization	2.00		
Agricultural Finance	Improve financial system	2.13		
	Strengthening of APB	1.88		
Stabilize Farming	Strengthen support system	1.89		
Basic/Intensive Area Approach		Model Area		
		Thonharb-Nakhua	Vangkhong	Phonthan
Farmers Organization	Establish/strengthen groups	1.75	2.00	1.63
Agricultural Finance	Strengthen field offices	1.89	2.00	1.56
Stabilize Farming & Increase Production	Strengthen support system	2.00	2.10	1.50
	Improve/rehab. irrigation	1.91	2.00	1.64
	Rural/farm road construction	1.71	1.71	1.43

### 1.3 Prioritization

In connection with the short-term targets identified above, priority of each model area is selected taking into consideration the present conditions and the future prospects of the model areas (Refer to Figure-6). The target level for the development of priority projects/schemes is described as:

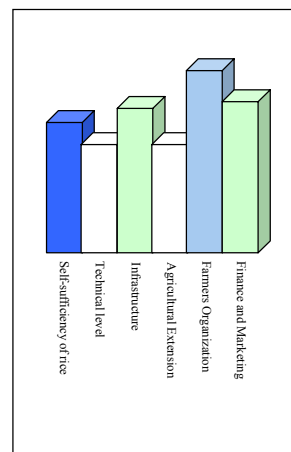
- Self-sufficiency in rice: it means to produce adequate volume for home consumption and attaining marketable surplus of rice, and for the area to become a major grain granary in Laos;
- Farmers technical level: farmers do not only understand the recommended paddy cultivation practices, but also adopt and implement them and to further increase their income, diversified farming and integrated farming is widely pursued;
- Infrastructure: existence of the facility (new or rehabilitation) which has been carefully planned, verified and supervised by an engineer with reliable technology;

Figure-6 Present Condition and Priority Development Target for Model Area



Present Condition of Each Model Area

Model Area	Rice Self-sufficiency	Technical Level	Infrastructure	Agricultural Extension	Farmers Organization	Finance and Marketing
Thongharb/Nakhua	not achieved	low	not functioned	weak	only Thongharb	only Thongharb
Vangkhang	extremely low	extremely low	under installation	weak	non	non
Phonthan	surplus	ordinary	deteriorated	fair understanding TFT	existing	existing



Priority Development of Each Model Area

Model Area	Rice Self-sufficiency	Technical Level	Infrastructure	Agricultural Extension	Farmers Organization	Finance and Marketing
Thongharb/Nakhua	surplus	general level-up	rehabilitation and improvement	strengthening of SMS	establish of water users organization	fund for rehabilitation improvement
Vangkhang	achieving self-sufficiency	general level-up	installation, participatory construction	strengthening of DAFSO	participatory construction, organization	financing for construction
Phonthan	surplus	rank-up	operation and maintenance by WUG	strengthening of TFT activity	strengthening of farmers organization	improving seasonal loan

High Priority Project

Priority Project

- (d) Agricultural extension: undertaken to train and upgrade the technical capability of SMS and provision of technical support under a participatory approach with TFT to play the major support role;
- (e) Farmers organizations: WUG and other organizations exist, where the roles and responsibilities of members is clarified resulting to positive acceptance and active participation in the aspects of water management, agricultural finance and marketing of farm products, and cooperation with the support system; and
- (f) Agricultural finance/marketing: it is possible for farmers to receive institutional loan and then agricultural inputs in adequate amounts and proper timing, and alternative marketing channels for farm products is exploited, and furthermore these activities are carried out without any constraints by the farmers organization.

Priority targets should address the strategic problems and constraints in the village and as such project component must be carefully planned considering the distinct characteristics of each area. Each model area selected as a basic/intensive-area activity has its own development pattern and the evaluation in terms of priority is likewise based on the present conditions and the future prospects as mentioned below:

**Evaluation of Model Areas' Priority (Ranking)**

Name	Development Model	Farmers Organization			Agric. Finance	Stabilizing Farming			Overall Evalu'n
		WUG	APG	Evalu'n		Soft	Hard	Eva'n	
Thongharb-Nakhua	Basin water management & improve agricultural finance	1	2	1	2	2	2	2	2
Vangkhang	Integrated Irrigation Farming & Poverty Alleviation	3	3	3	3	3	1	3	3
Phonthanon	Advanced Farming & Basin Conservation	2	1	2	1	1	3	1	1

Note) Priority : 1=High, 2=Middle, 3=Low

## **2. Recommendations**

### **2.1 Implementation of Human Resource Development as the Highest Priority**

As a realistic and concrete method to build up capacity of human resource in the central level, it is necessary (as the wider-area activity) (a) to unify the existing extension system, (b) to prepare a database of concerned staff, (c) to provide technical lecture and training for PAFSO



technical staff as SMS and DAFSO technical staff for general work, and (d) to prepare an inventory of existing irrigation facilities. On the other hand, it is planned within the strategic/intensive-area activity (a) to establish and strengthen water management related farmer organization (WUG/WUA), (b) to establish and strengthen farmer group relating to agricultural production (ACG/APG) and (c) to provide on-the-job training for planning and implementation of rehabilitation and construction of irrigation facilities by using the immediate scheme as a teaching material.

It is strongly recommended that the various stakeholders should take the following roles and responsibilities:

Beneficiary Farmers

- To establish organization/group (ACG, APG, BSG, WUG/WUA) and systematize these organizations
- To provide local resources for the construction of infrastructure, including labor and materials
- To bear part of cost for support activities
- To approach and coordinate with public agencies and to express their demands

DAFSO

- To receive SMS' s training and to independently upgrade its capacity for general work
- To participate and cooperate with TFT activities

PAFSO

- To prepare staff database relating to farmer support system
- To independently upgrade its capacity as SMS (technical staff)
- To provide technical support to TFT activities
- To prepare an inventory of existing pump irrigation schemes

Central Office/Staff

- To resolve or facilitate the resolution of political issues
- To unify the current extension system
- To prepare and manage the staff database relating to farmers support systems

### APB

- To dispatch own staff and cooperate with TFT activities

## **2.2 Strengthening of APB as Receiver of Two-step Loan**

Since the Study area is enjoying a favorable location along the Mekong River, it has higher potential to introduce development approach which can mobilize agricultural finance than in the other areas in Laos. The APB will continue to play an important role for rural finance as before, which can exclusively extend financing business in rural areas, but it is rather difficult to expect that BOL will continue to provide increasing funds for institutional loans due to tight financial position of the government. Therefore, it has become an urgent theme to restructure and strengthen the capability of APB to receive external finance (two-step-loan). In the context of the improvement of the financial system for Lao as a whole, the following are recommended:

### BOL

- To establish and promote a domestic market for short-term finance
- To promptly improve the bank accounting system
- To continue financial support to APB in terms providing fund for institutional loan at the present level until the APB become capable to receive a two-step-loan.

### APB

- To allocate institutional loan for long-term lending: In the model area, APB shall continue to provide ordinary loans for seasonal farming expenses after completion of the irrigation scheme
- To implement external auditing and publish such documents
- To promote the absorption of surplus rural fund through expansion of savings
- Training in third countries for executives and back-bone staff

### Farmer-Beneficiaries

- To cooperate with APB in simplifying the requirement in accessing institutional loan by organizing the ACG and APG

## **2.3 Implementation of Phonthan Area Development as the Highest Priority**

It is observed that the responses to and understanding of TFT activities by people in Savanakheth is more advanced than the other two provinces. In the arrangement of overall structure of TFT,

while Bolikhamsai and Khammouane provinces proposed a committee type structure, Savanakheth province will adopt a simple office type structure. Furthermore, it is remarkable that TFT members in Phonthan area show higher appreciation of TFT concept than the other two areas. In addition, in the Team's prioritization of the three model areas, Phonthan area was ranked first, obtaining highest priority in three out of the five sub-components.

From the view point of effective and efficient utilization of limited resources available in Laos, the Study follows the basic principle that best practices and experiences to be accumulated through the basic/intensive-area development approach, will be extended to other areas. In this connection, it is recommended not to commence the proposed project in the three model areas all at once, but shall start from Phonthan area first and then later expanding in the two model areas.

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**Abbreviation**

1	ACG	Agricultural Credit Group
2	AEA	Agricultural Extension Agency
3	APB	Agricultural Promotion Bank
4	APG	Agricultural Production Group
5	BAAC	Bank for Agriculture and Agricultural Cooperative (of Thailand)
6	BCEL	Banque Commerciale pour Exterior de Laos
7	BOL	Bank of Lao
8	BSG	Buying Selling Group
9	CAB	Current Account Balance
10	CDO	Community Development Officer
11	C/P	Counterpart
12	CPI	Consumer Price Index
13	CWG	Central Working Group
14	DAE	Department of Agricultural Extension
15	DAFSO	District Agricultural and Forestry Service Office
16	DCTPC	District Communication, Transport, Post and Construction
17	DOC	Department of Commerce
18	DOI	Department of Irrigation
19	DOMH	Department of Meteorology and Hydrology
20	EIA	Environmental Impact Assessment
21	E/S	Engineering Service
22	FAO	Food and Agriculture Organization
23	FIAT	Farmers Irrigated Agriculture Training Project
24	F/S	Feasibility Study
25	FSC	Food Supply Company
26	FWUA	Federation of Water Users Association
27	GDP	Gross Domestic Product
28	GIS	Geographic Information System
29	GNP	Gross National Product
30	GOL	Government of Lao PDR
31	HYV	High Yielding Variety
32	IBN	Impregnated Bed Net Program
33	IEE	Initial Environmental Evaluation
34	IMT	Irrigation Management Transfer
35	IPM	Integrated Pest Management
36	IRAP	Integrated Rural Accessibility Project of UNDP
37	ISF	Irrigation Service Fee
38	ISP	Irrigation Scheme Plan
39	JICA	Japan International Cooperation Agency
40	KR-II	Kennedy Round II
41	Lao PDR	Lao People's Democratic Republic
42	Lao-IRRI	Lao-International Rice Research Institute
43	L/C	Letter of Credit
44	LLDC	Least Less Development Country
45	LNFC	Lao Front for National Construction
46	LWU	Lao Women Union
47	LYRU	Lao Youth Revolutionary Union
48	MAF	Ministry of Agriculture and Forestry
49	MCTPC	Ministry of Communication, Transport, Post and Construction
50	MIS	Management Information System
51	M/M	Minutes of Meeting
52	MOF	Ministry of Finance
53	M/P	Master Plan

54	NAFRI	National Agriculture and Forestry Research Institute
55	NARC	National Agricultural Research Center
56	NBCA	National Biodiversity Conservation Area
57	NEM	New Economic Mechanism
58	NGO	Non Government Organization
59	NPL	Non Performing Loan
60	ODA	Official Development Assistance
61	OJT	On-the-Job Training
62	PADETC	Participatory Development Training Center
63	PAFSO	Provincial Agricultural and Forestry Service Office
64	PCM	Project Cycle Management
65	PDM	Project Design Matrix
66	PIS	Provincial Irrigation Section
67	PMO	Prime Minister's Office
68	PRA	Participatory Rural Appraisal
69	PSC	Project Steering Committee
70	RDF	Revolving Drug Fund Program
71	RRA	Rapid Rural Appraisal
72	SEDP	Socio-Economic Development Plan
73	SIRAP	Sustainable Irrigated Agriculture Project
74	SOCB	State Owned Commercial Bank
75	SPC	State Planning Commission
76	SU/SSU	Service Unit/Sub-service Unit (of APB)
77	STENO	Science, Technology and Environmental Organization
78	S/W	Scope of Works
79	TFT	Task Force Team
80	TOT	Trainer of Training
81	UNDP	United Nation Development Program
82	UP	University of Philippines
83	USDA	United States Department of Agriculture
84	VARDP	Vientiane Agricultural and Rural Development Project
85	VDF	Village Development Fund (under IMT)
86	VHW	Village Health Worker
87	VVW	Village Veterinary Worker
88	WB	World Bank
89	WHO	World Health Organization
90	WUA	Water Users Association
91	WUG	Water Users Group
92	WUO	Water Users Organization