

Part 1: Master Plan Study

CHAPTER 3 MASTER PLAN FORMULATION

CHAPTER 3 MASTER PLAN FORMULATION

3.1 Basic Approach

3.3.1 Sustainable Growth Scenario and Risks in Agricultural Sector

The agricultural sector is playing a vital role in Laotian Economy, on which her economic growth is definitely depending. Figure 3-1 illustrates a sustainable growth scenario of the agricultural sector in Laos. In macro-economic view, through government expenditure such as investment in the construction and improvement works of irrigation facilities as well as in the institutionalization of agricultural finance, (a) it is possible to increase paddy production through the promotion of dry season cropping, (b) it is possible to improve trade balance through savings in foreign currency by reduction of paddy import, (c) it is possible to stabilize economic growth realized by converging 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 the achievement of healthy government finance, over the short- and medium-term perspective. In this cycle, a scenario can be projected which enables foreign exchange earnings through introduction of diversified and integrated farming. In micro-economic view, these investments may lead to incremental agricultural production and consequently, incremental farm income. With this situation, APB can contribute to healthy government finance through an efficient collection of repayment from farmers and their organizations.

However, there exist several potential risk items in the said scenario or the process in the cycle, namely, (a) it seems rather difficult to attain the targeted figures such as cropping area and target yield set under an irrigation development plan, (b) it seems rather uncertain whether the farmers or their organizations would acquire the proper skills operation and maintenance of irrigation facilities towards their sustainability due to lack of know-how and recognition of the organizations, (c) there exist some uncertainties in establishing and strengthening a farmer group like WUG or agricultural production group (APG), and (d) it seems rather difficult to secure accessibility to the market from which increased agricultural products will bring increased farm income.

Through two field surveys conducted in the dry and wet seasons, the above risk items identified were more or less prevalent in the whole country and these resulted in her economic stagnation under the vicious cycle. In other words, the progress of hyperinflation and unstable foreign currency market coupled with the devaluation of Kip, are adversely affecting the Lao economy in general. In the Study Area, there seems to be limited room to cope with these risks which resulted to the present in poverty situation. In this connection, due attention should be given to risk management in the formulation of the master plan.

In addition, to increasing production and self-sufficiency of food, the promotion of dry season irrigation schemes is also recognized as one of the basic agricultural policies of Laos, and has progressively been implemented. By the end of 1998, the Lao government has launched the IMT (Irrigation Management Transfer), where the following key points are emphasized (a) either existing or new irrigation scheme

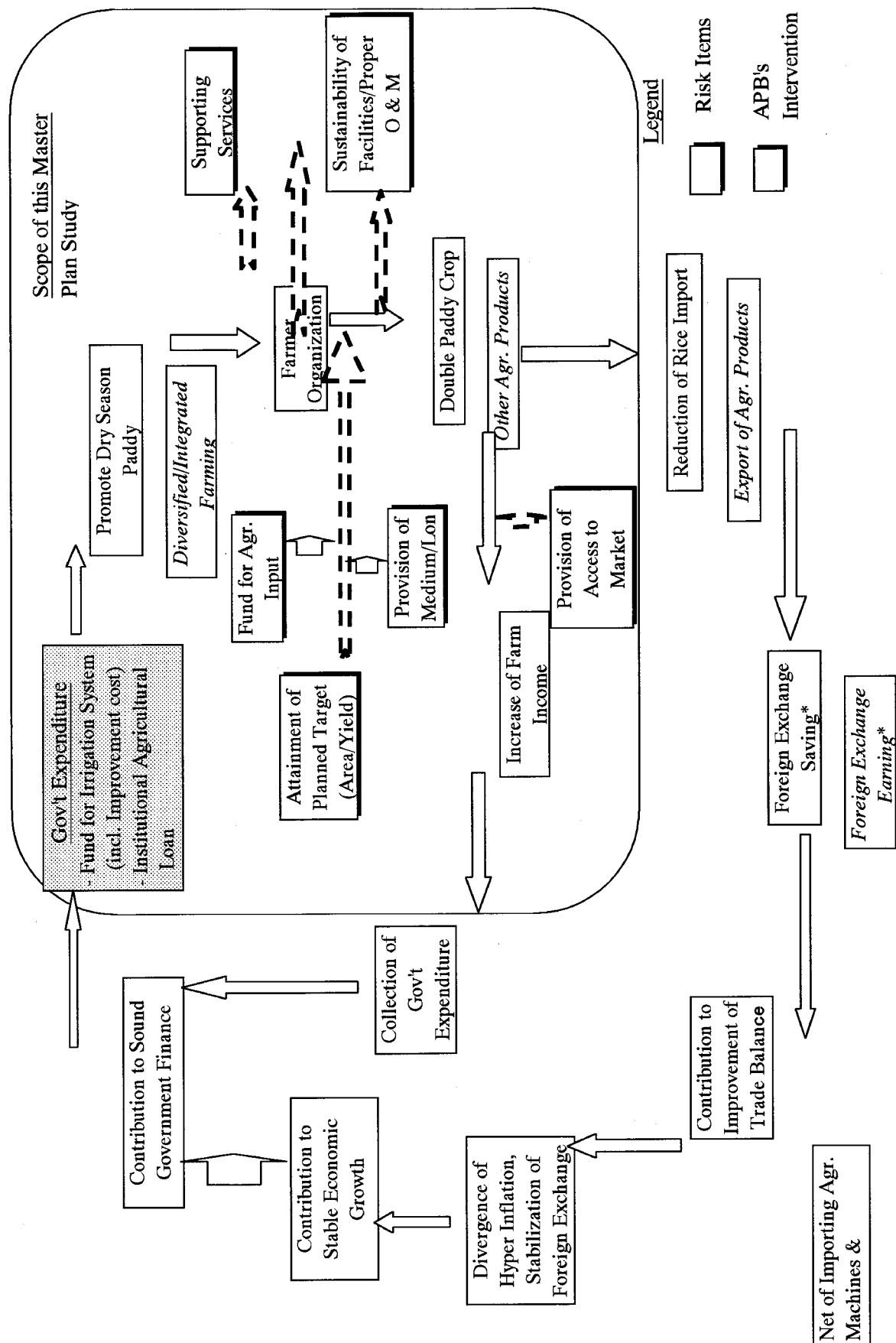


Figure 3-1 Sustainable Economic Growth and Risks in Agricultural Sector

shall attain the planned target, (b) farmer-beneficiaries shall properly operate and maintain the facilities through establishing Water Users Organization (WUO), and (c) farmers and WUO shall maintain sound financial condition. However, in most of existing pump irrigation schemes it is observed that the technical level among of the farmers and extension staff is still far from satisfactory. When this situation remains unchanged, it cannot be denied that they cannot perform IMT successfully and the area as a consequence, may back slide to its previous poverty condition prior to the introduction of an irrigation scheme.

3.1.2 Development Objective and Three-poles Support

Under the basic concept for agricultural and rural development, the eradication of poverty and improvement of rural environment shall be the primary goals in the Study area. In order to alleviate the poverty condition, it is necessary to increase and improve farm income, and provide know-how for farm management and efficient financial support. The Master Plan shall be formulated on the basis of the following three key components: (a) farmers organization: establishment and strengthening of WUO, 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: provision of seasonal production loans and increasing collection efficiency for rehabilitation/improvement fund for irrigation facilities and capacity development in both head and local offices of APB; (c) stabilization of farming and incremental agricultural production: farmers support system and provision of irrigation facilities for the introduction of double cropping of rice as well as diversified and integrated farming, and improvement of accessibility to market to increase farm income (See Figure 3-2).

One of the main subjects described in “the agricultural development vision towards 2020” is to increase food production and attainment of self-sufficiency of food, which is recognized as a super target over the Master Plan. According to the study on balance between demand and supply of rice simulated by the Study team, on the basis of the available population statistics it is estimated that self-sufficiency of rice would be attained by the year 2010. Therefore, the Master Plan puts emphasis on increase of paddy production by the year 2010 and sets an agricultural development target which promotes diversified and integrated farming.

(3) Development Issues

On the basis of a simple PCM workshop conducted by the Study team with CWG members and the results of RRA survey, the following factors are considered as primary causes of poverty in the Study area:

- Low agricultural productivity
- Unstable agricultural production (change in environment, unstable climate)
- Limited access to necessary resources for agricultural production including land and water

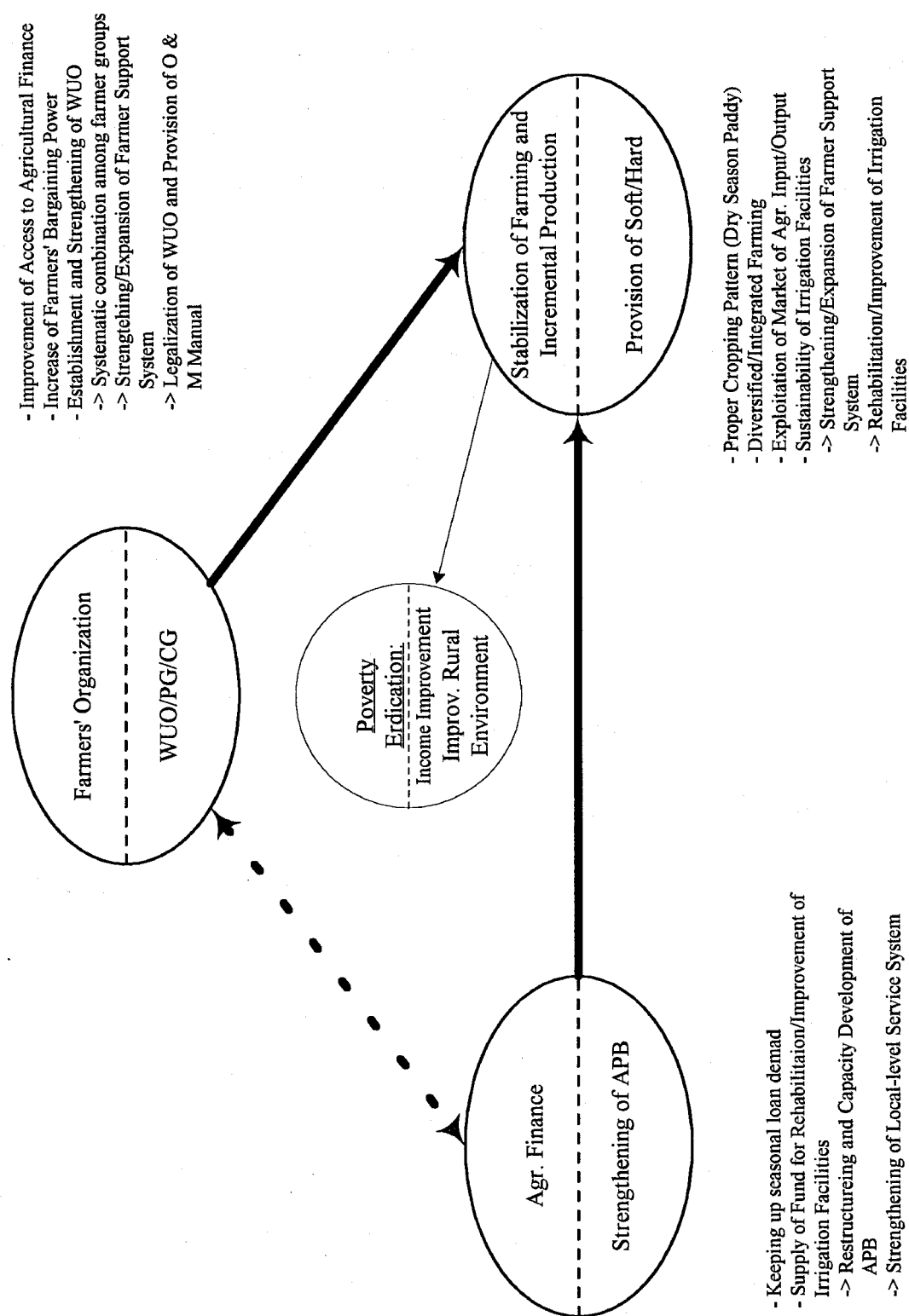


Figure 3-2 Basic Development Concept for M/P

- Limited access to information on farming technology
- Limited job opportunity (low off-farm income)
- Low education level
- Poor facilities for public health
- Poor social infrastructure
- Vulnerability of organizations
- Limited access to institutional agricultural credit

Of these issues, the six items underlined relate directly to agricultural production and improvement of farm income which suggests that poverty situation could be addressed. In addition, the construction or improvement of roads as a category of social infrastructure is also one of important issues to ensure farmers' access to market for selling agricultural products. The other three items relate to the improvement of rural environment, and a Master Plan covering these items will be formulated taking into consideration the available financial support.

The target group in this Master Plan will be a small village (or community) which satisfies two conditions, namely, (a) it is possible to establish farmers' organization aiming at promotion of farmers' empowerment (participatory approach) and (b) it is possible to maintain a sustainable agricultural production by utilizing small-scale irrigation facilities (pump and/or gravity system) through support from the agricultural finance. Figure 3-3 shows the process to attain poverty eradication as well as inter-relationship among the related sectors. The "interface" mentioned in Figure 3-3 shall be defined as the connection point in which the triangle consisting of stabilization of farm management, farmer organization and agricultural finance converge towards income improvement and the poverty eradication.

3.2 Development Constraints

(1) Human and Institutional Factors

(a) Limitation of Top-Down Approach

In Lao PDR, most development projects including irrigation development have been carried out under a top-down approach following the socialist planning system. Most of pumping irrigation schemes after the 1995/96 floods has been implemented using this approach. The advantage of the approach is that, it is easy to attain the development target under a condition of abundant available resources and a quicker decision-making.

In order to attain the target set by the higher authorities, each PAFSO who is the responsible implementing body for the pumping irrigation schemes tend to plan and execute the project without paying due attention on the natural/physical conditions (topography, available resources in quantity, present land use, etc) as well as the prevailing social conditions (rural economy, technical level of beneficiaries, etc). On the other hand, beneficiary farmers demanded PAFSO for the quick realization

Figure 3-3

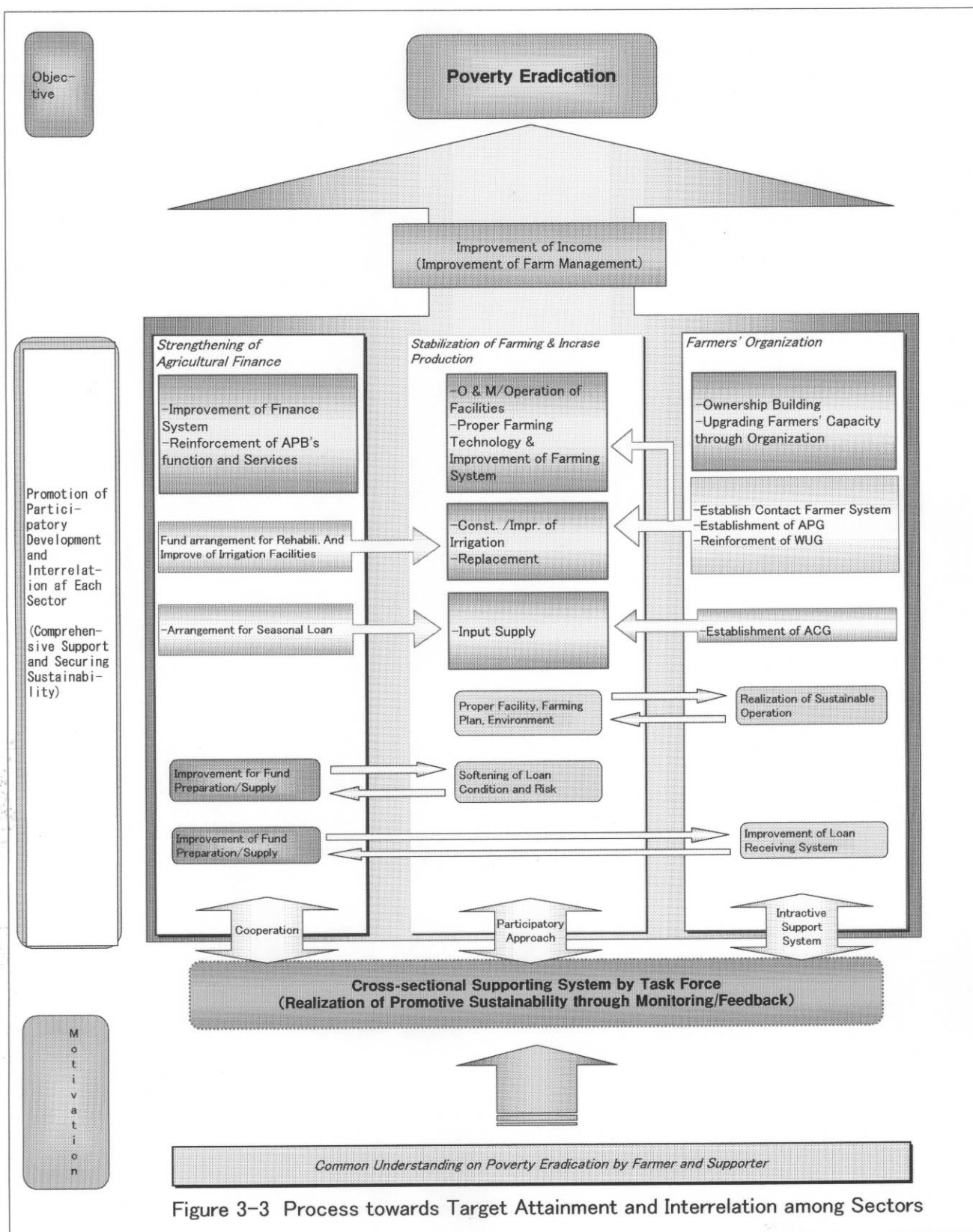


Figure 3-3 Process towards Target Attainment and Interrelation among Sectors

and implementation of the project even without sufficient discussion and coordination among concerned farmers, thereby resulting in delays in the establishment of WUG, who is responsible for the operation and maintenance of the facilities after completion of the construction works.

For example, one scheme will have two units of pump equipment with capacity of 75 Kw for an irrigable area of about 20 ha. These are evidently over-capacity which consequently resulted in high burden of O & M expenses. In another scheme, weirs designed and constructed for the purpose of storing dry season water in the rivers, were destroyed and/or became useless due to change river course or underestimation of river flood during the rainy season. Under such situations, it is urgent and prerequisite to develop and upgrade capacity of technical staff in provincial and district levels as well as farmers.

(b) Gap between PDM and its realization

The PDM, as an output of the PCM workshop conducted with the collaboration of TFT and Study Team members in the three Model Areas, perfectly reflects the intentions of farmer-beneficiaries. However, the development target and planned figures designed in PDM are considered as expressions of farmers' expectations. Therefore, there exist a big gap between the scale of project and its realization, taking into consideration the availability of natural/physical resources, topographical limitations, soil and climatic conditions, financial capability of implementing agencies, environmental impact and so on.

(c) Difficulty for sustainability of existing facilities

Almost all of existing pumping irrigation schemes are facing difficulty in meeting the target area for irrigation. This is mainly due to unsystematic planning of the canal network and poor quality of canal construction by the farmers. Especially in flood prone areas, embanked canal system is easily damaged by flooding, causing the necessity for recurrent expenses for their maintenance, and farmers are not willing to construct elevated canals.

(d) Low level of technical skills of PAFSO/DAFSO

In the field survey conducted during the Phase II Study, a virtual TFT was formed. The concerned staff, joined the Study Team in the socio-economic survey for the sample farmers, and participated in the PCM workshop as well as in the preparation of PDM and its feedback. According to information given by the farmers, the staff's performance and technical capability is far below their expectations. The Study Team shared the same observation. In addition, communication with the farmers is not satisfactorily maintained.

The extension workers in DAFSO are administered under a complete bureaucratic system. In terms of education, members who participated in the virtual TFT attained high-school level but lack the basic educational foundation, including language facility.

(2) Natural and Physical Factors

(a) Water and Land Resources

Out of the seven major plains in Laos, the Study area covers the plains of Bolikhamsai, Sebangfai and Sebanghiang. The plains in the Study area are located mainly along the Mekong River and its tributaries consisting of about 86,000 ha of rainfed paddy fields. Due to high fluctuations of water level and discharge volume of Mekong River, it is difficult to use the water resources of the tributaries. During the wet season, floods occur and damage paddy crops. On the other hand, the low water level as well as low river discharge during the dry season hinders the introduction of a gravity irrigation system which is easier to maintain and entails lower O & M costs. Under such situations, the Laotian government has been promoting the floating type pump irrigation schemes as the best alternative.

(b) Flood

While the flood improves the soil fertility of cultivated area, crop productivity remained at low level because of the direct flood damage as well as farmers' traditional farming practice of using very minimal agricultural input considering the flood risk. Hence, the flood is considered as one of the biggest causes of poverty incidence especially in areas where dry season cropping is limited.

(c) Geographical condition

There are many small cultivated plots suitable for irrigation in the Study area. However, the road network between these plots and the market for farm products (which is generally located in capital of province or district) are not or insufficiently developed, thus traffic and transportation during the wet season has been hampered very badly. Similarly, information about farming practices and marketing of farm products by extension workers and village middlemen do not flow smoothly into these remote villages.

(d) Delay of infrastructure development

Along route-13, which connects the north and south of the study area, infrastructure development like electrification and telephone lines are being provided from the capital town in province and district. Taking into account the affordability of such infrastructure services in remote places, very few villagers have the financial capability to pay for such services while majority of them cannot bear the cost. Under such situation, the central and the local governments are forced to implement the infrastructure development under the basic policy of cost-effectiveness.

3.3 Development Potential and Perspective

(1) Human Resources

In the past, various donors have devoted to support the development of institutional capacity of related agencies and staff through the provision of necessary facilities and equipment as well as training. However, these human and physical resources are not always fully utilized. The activities of DAFSO staff in charge of extension and who are responsible to establish direct contract with farmers and farmers' organizations are limited or constrained by work mobility. On the other hand, out of six candidate model areas, five areas (except Vangkhong have organized) have already organized their WUGs. In addition, RRA results for these six areas revealed that the village chief organizes the villagers in every area, and they express their motivation to bear investment cost for irrigation facilities when an institutional/ long-term loan is available. Eventually, it can be said that these areas have enough foundation for establishing and strengthening farmers' organizations.

(2) Natural/Physical Resources

As mentioned, there is available land resources represented by 86,000 ha of rainfed area and water resources with river discharge in the tributaries of Mekong River but with certain limitations in their utilization. Looking at improvement of farmers' income through agricultural productive activities, the role of irrigation which utilizes both land and water resources effectively, is considered quite important.

In the Study area, small-scale irrigation schemes including pump irrigation are constructed in the Mekong River and its tributaries, and has helped to promote dry season paddy cropping very quickly. At present, total of 283 small-scale irrigation schemes have already been constructed, of which 156 schemes are operated by electrical pumps, 78 by diesel pumps and 49 by weir or small reservoirs. In addition, 58 new pumping projects (with target irrigable area of about 8,500 ha) are scheduled for implementation within the year 2000.

In addition, there are 25 medium and large-scale irrigation schemes in the study area. Some are in the planning stage and certain schemes are under implementation. After completion of these schemes, another 14,000 ha will be irrigated. While these schemes are being promoted as a governmental project, they may be incorporated into the long-term perspective of the Master Plan.

Although the possibility of exploring new small scale pumping projects is relatively small, most of the candidate areas have been included in the existing plan of DOI. On the other hand, there exists a high potential for increase of irrigation area by reservoirs and weirs. At present, the actual irrigation service area under these small-scale projects reached 17,600 ha against the target of 27,600 ha, resulting in the under utilization of such facilities. In this connection, it can be expected that more than 10,000 ha has potential for development with less investment through rehabilitation and improvement of the present irrigation facilities.