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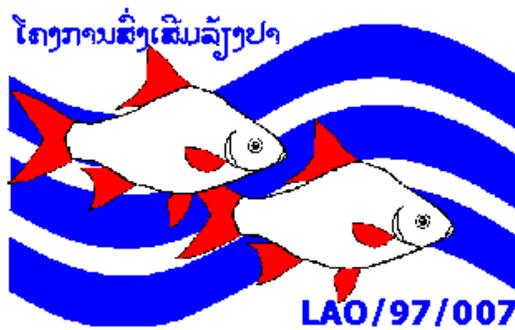


DEPARTMENT OF LIVESTOCK AND FISHERIES

FISHERIES DIVISION



PROVINCIAL AQUACULTURE DEVELOPMENT PROJECT (LAO/97/007)



**MID TERM EVALUATION REPORT
MAIN REPORT**

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BY

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Executive summary

The introduction of fish culture has great potential for the improvement of nutrition and increased income for the rural farmers in Lao PDR. The Project builds on the lessons learnt from the previous aquaculture development project and focuses in five target provinces with the inclusion of institutional capacity strengthening and human resource development of both the government staff and the village community.

The Project, nationally executed, utilises existing government mechanism and emphasises effective extension interface between the district technicians and selected fish farmers. It has been successful in its pragmatic people-centred consultative approach in responding to their perceived needs, instead of applying strict scientific solutions. The provincial capacity in providing technical and management supports to the district has been the Project major priority item. Examples of concrete and potential accomplishment at the national level include:

- successful try-out of a transferable aquaculture development technology that is within the capability of the fish farmers to adopt,
- substantial increase in awareness in the target and adjacent provinces through the development and dissemination of aquaculture extension materials,
- first-time establishment of a comprehensive aquaculture training programme that forms the basis of the aquaculture extension appropriate to the unique condition of rural Lao PDR,
- establishment of a linked process of fry production, fingerling distribution and table-fish production through providing supports to state hatcheries and private smallholders.

The Project, however, suffers from inadequate clarity and lack of focus in the Project Document on the “process” approach to be adopted. The main inadequacy has been a lack of a cohesive implementation framework with clear and concise goal, objectives, purposes, indicators and expected outputs that the Project team can rely on. Instead, the Project team was forced to follow a set of pre-defined activities.

With the aquaculture technology proven, the Project now has the opportunity to focus more on the capacity building of the government staff and strengthening the management of the farmers groups by analysing and sharing the experiences with other active projects in the region. Mission’s recommendations stress this aspect and also urge to:

- further develop and support a self-sustaining farmers group network specialising in fry production and nursing,
- provide further intensive training in project management to the provincial and district staff,
- study the specific aspects of the national natural resource and water resource legislation and the land allocation policy,
- explore the prospect of utilising aquaculture as the entry point for integrated rural development activities,
- develop documentation in the form of notes or guides from stakeholder analysis and consultative approaches at the field level, as part of the national aquaculture extension programme.

The Project will enter the last year of implementation without the in-house technical backstopping of the ADA and UNV's, the mission recommends an arrangement of a periodic technical/management backstopping mission and an establishment of a participatory impact monitoring and evaluation system based on RRA and development of a concise logical framework matrix (suggested in Annex D) to be put in place by the end of 1999.

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ABBREVIATIONS

ADA	Aquaculture Development Advisor
APB	Agriculture Promotion Bank
DAFSO	District Agriculture & Forestry Service Office
DLF	Department of Livestock & Fishery
DNPD	Deputy National Project Director
FAO	Food and Agriculture Organisation
FG	Farmer Group
FIAT	Farmers Irrigated Agriculture Training
GOL	Government of Lao PDR
IGA	Income Generation Activities
LFS	Livestock & Fishery Section
MAF	Ministry of Agriculture & Forestry
Nex	National Execution
NPD	National Project Director
ODX	Oudomxay Province
PAFSO	Provincial Agriculture & Forestry Service Office
PPER	Project Performance Evaluation Report
RDC	Regional Development Committee
SBL	Sayabouly Province
SESMAC	Strengthening of Economic and Social Management Capacity
SK	Sekong Province
SRF	Strategic Results Framework
STS	Support to Technical Services
SVK	Savannakhet Province
TOR	Terms of Reference
TPR	Tri-Partite Review
UNDP	United Nations Development Programme
UNV	United Nations Volunteers
VDC	Village Development Co-ordinator
VVW	Village Veterinary Worker
XK	Xieng Khouang Province

I. INTRODUCTION

The Provincial Aquaculture Development Project (LAO/97/007) is funded as part of a UNDP country programme¹ for rural development that responds to the Government's Rural Development initiative, one of the eight national priorities under the National Socio-Economic Development Plan. It is one of the first fully national-execution (Nex) projects under the Department of Livestock and Fisheries (DLF), with technical assistance supported by Food and Agriculture Organisation (FAO). The Project duration is three years. Since its inception in November 1997, LAO/97/007 has expanded on the experiences gained from previous UNDP/FAO aquaculture development projects that had rehabilitated a number of hatchery stations, established model fish farmers and started fish culture at the village level. LAO/97/007 operates in five provinces: Xieng Khouang, Oudomxay, Sayabouly, Savannakhet and Sekong covering 14 districts and including 52 farmer groups with a total number of 567 families.

The Project aims to improve the income and nutrition of low-income farmers with special consideration towards gender and ethnic groups through the introduction of fish culture. The ultimate objective of the Project is to facilitate a self-sustaining aquaculture development programme that is within the capabilities of the executing agency to replicate within provinces that are not included in this Project.

The mid-term evaluation, scheduled to take place 22 months after the start of the Project and before the second Tri-Partite Review (TPR), was intended to provide guidance for the remaining period of the Project. The evaluation team consists of Dr. Hanh Choundara from DLF, Mr. Hans Guttman, FAO Aquaculture Specialist and Mr. Brett Tan, UNDP Rural Development/Evaluation Specialist.

The mid-term evaluation mission took place from September 1 to October 2, 1999. During this period, the evaluation teams visited all 5 provinces. The evaluation team undertook a full review of the Project activities and outputs, and discussed with the government staff, project counterparts, farmer groups and small holders at length to form a view on the future direction and project orientation. To ensure transparency, at least two farmer groups were selected at random per one district in each province for intensive interviews. If the road was inaccessible, consultation was made with the district counterpart for a substitute village. The Team visited at least two districts in all five provinces. In order to secure their full participation, an orientation was conducted at the beginning of the interview to make sure that the farmers understand that the project was not evaluating their performance, but it is them who were to evaluate the project.

The evaluation team wishes to thank all the Project staff for their assistance during the mission. The team wishes to express its gratitude to DLF, the provincial staff, the district staff, the ADA, the UNVs and the UNDP Liaison Officers for their co-operation during the field visits. The team also appreciates the free and open way in which the fish farmers discussed the Project and its potential impacts during the interviews.

¹ Throughout the report the terms programme and program are used interchangeably.

II. MAJOR FINDINGS & RECOMMENDATIONS

II.1 Project

II.1.1 Technology

The type of aquaculture technology provided by LAO/97/007 is well received by the selected farmers and appears to be suitable for rural Lao villagers in general. The approach taken by the Project seeking to enhance farmers existing aquaculture practices through local government supports contributes to this success. The project accomplishments appear to have exceeded the specified quantitative criteria suggested in the Project Document within the first half of the implementation. Certain levels of informal technology exchange that may lead to project replication in adjacent provinces have been reported.

Recommendation: It will take the farmers a variable period of time to experiment with the new technology before they proceed to the next step of intensification and diversification. The Project should utilise this period to strengthen the group management until the demand for the next level of technology is apparent.

II.1.2 Design

The formulation of the Project suggests that LAO/97/007 is a part of a continuing effort among GOL, FAO and UNDP to streamline aquaculture extension programme in Lao PDR. A farmer group approach to extension was employed. This approach, although having been endorsed by GOL, is still relatively new to the provincial and district staff. However, the Project Document, instead of providing implementation guidelines together with clear and verifiable objectives that would encourage the innovativeness necessary for this type of project, gives an activity checklist and sequence of expected outputs for the Project to follow. This orientation renders a supposedly process-oriented project to be activity-oriented and reduces its effectiveness.

Recommendation: The Project, based on its one and a half years experience, may revise a new set of goal, purposes and outcomes appropriate to the rural Lao context. The development of a logical framework matrix is recommended (a sample of what this could look like is presented in Annex D). It should be noted the contents of the logical framework must result from a combined effort among the 'stakeholders' in the form of a facilitated workshop approach to obtain full ownership. The adaptation of this matrix would also orient the Project to be in-line with UNDP's Strategic Results Framework initiative.

II.1.3 Entry Point for Integrated Rural Development

Due to its quick set-up and fast turnover of outputs, aquaculture provides an attractive entry point for other development activities such as irrigation, agriculture or livestock. It can also be incorporated in a multi-sectoral project such as health and education as already occurred in some project sites in Oudomxay and Savannakhet. The pre-condition of this collaboration seems to be a good public relation programme by the Project to publicise its activities and available services.

Recommendation: LAO/97/007 has been circulating extension materials and documents to other projects. With a relatively successful fish harvest in the first season, the Project may publicise some of its village case studies, emphasising the fact that fish culture has the

potential to satisfy some of the basic needs, allowing the farmers to commit to other medium and long-term development activities.

II.1.4 Project Implementation

In many project sites, fish farmers and hatcheries share their water with adjacent irrigation schemes, for example, in Xieng Khouang, Oudomxay and Sayabouly. Water user groups that implement strict irrigation schedules manage some of the schemes. In most cases, the schedule responds to crop requirements and overlook the water needed for seed production. Lack of cross-sectoral cooperation sometimes causes conflicts in water management. Fish farmers cited drought and flash flood as their main problems that may require irrigation solution, particularly in the upland areas where the villagers tried to start aquaculture on their own. It is foreseeable that in the near future, aquaculture may need to merge in with other PAFSO activities such as irrigation, agriculture and forestry as part of a multi-sectoral approach under the national natural resource and water legislation, and the government's land allocation initiative.

Recommendation: In the later half of the Project, LAO/97/007 may seek collaboration with DOI, DoAE, DOF and other agencies in designing a joint approach to rural development. At the same time, the administrative structure of the multi-province, multi-disciplined RDC based in Savannakhet should be observed.

II.1.5 Process Documentation

It is said in the Project Document that the ultimate goal of LAO/97/007 is to devise a 'self-sustaining' aquaculture extension programme appropriate for DLF to replicate in other provinces. The Project has acquire a substantial body-of-knowledge in its first half of the Project. However, this body-of-knowledge has not been systematised, particularly with respect to process issues.

Recommendation: LAO/97/007 may start documenting its experiment with aquaculture extension with its impact and outcomes for future process replication. Although a number of technical reports have been prepared, the process in which these techniques were applied has not been fully documented. It is recommended that the process documentation be prepared in Lao language to be of greater use to provincial staff. Considering the limited human resources available in DLF, external help may be required in this preparation.

II.1.6 Target Group

The project development objective states that the 'rural low-income people' are the ultimate beneficiaries of the Project. While it is understandable that the selected farmers in the first-round intensive groups must possess ponds or rice field suitable for aquaculture and, therefore, their low-income status, compared to others in the village may be questionable. The Project should make an earnest effort to reach the lower stratum of the villagers. Self selection with set criteria is fine as a starting point, however, the Project must try to ensure to reach the rural poor as stated in the Project Document.

Recommendation: In the target districts, the Project may start applying RRA/PRA techniques to identify the farmers groups and then facilitate group selection or expansion. This starting point can be a good time to initiate collaboration with other projects or NGO's active in the area. The same recommendation applies to the selection of another intensive

sites in new districts or provinces. At this instance, IRAP data², if exist, may be consulted to identified appropriate villages for interventions.

II.2 National Execution (Nex)

II.2.1 Ownership

Although LAO/97/007 is a Nex project and as such should be in control by the government, the level of ownership assumed by the provincial administration varies from province to province. In the provinces where PAFSO views LAO/97/007 as supplementing the work under their responsibility such as Oudomxay, Sekong and Savannakhet, aquaculture activities seem to progress rapidly and the sustainability of the post-project activities seems assured.

Recommendation: It will be to the project's advantage to collaborate with UNDP Nex Support Unit in launching another Nex awareness campaign in the remaining provinces in order to encourage them to take charge of the implementation and assume more

II.2.2 Procurement

UNDP Nex Support Unit assists the Project in procurement, recruitment and financial administration. Nex Support Unit has procured a number of items that do not match field specification such as off-road motorcycles and nylon net. Some items were slow in delivery such as the inlet pipe for Pak Bo hatchery.

Recommendation: The Project and Nex Support Unit need to improve its communication channel so that technical specification can be discussed and final purchase consulted.

II.3 Central Government

II.3.1 Post-ADA/UNV Technical Support

The two-year contracts of the ADA in the Vientiane office and the UNV's in the provincial offices are ending successively within the next six months (except for Mr. M. Fujino in Sekong). The general comment among the Project staff is that the basic aquaculture technology has been established to a certain level. It is now time to monitor its progress and strengthen the extension capacity. The national staff expressed a desire to run the Project on their own. However, they requested that a mechanism of 'stand-by' backstopping be provided, particularly for extension and management issues.

Recommendation: UNDP/FAO Programme Officer may attend the Project monthly staff meeting to identify the immediate needs for technical and/or management supports and arrange specific mission to respond to the needs. UNDP/FAO may retain some services of the departing expatriate staff as part of the backstopping mechanism. It is recommended that, in order to do so, a detailed Project monitoring and evaluation system must be established. The logical framework matrix provided in Annex D provides an idea of work in this direction.

II.3.2 Post-Project Commitment

At the moment, aquaculture has been demonstrated to have the potential to be an income generating activity that provides necessary nutrition to the rural families. The technology can

² The best sets of this data are kept at provincial level.

be readily adopted by the farmers. However, aquaculture extension demands more than technology. It needs committed extension workers who can provide technical advice as well as market and credit information, a seed production system that can meet the demand and a nurser network that can distribute high quality fish seed. Furthermore, national aquaculture extension programme implies a central government commitment to replicate the lesson learnt from LAO/97/007 nation-wide.

Recommendation: The government has approximately fifteen months to prepare the groundwork for endorsing aquaculture extension programme. Preparatory works include personnel assignment at all levels, budget allocation, state hatchery operation and management and support to the private smallholders. If there is an area that needs upgrading or where existing financial resources are clearly inadequate, negotiation for a succeeding project addressing these particular areas **must** start now. So far, DLF has indicated extensions programme formulation, planning and management strengthening as potential areas for further support.

II.3.3 Staff

The recent re-organisation within MAF resulted in a re-assignment of over half of DLF technicians. Most of them are now working for LARREC, a new agency specialising in aquatic resources research. MAF has since assigned three new graduates to DLF, though they have not yet reported to their duty station. Some confusion still exist in terms of roles and responsibilities and the mode of interface between LARREC and DLF, particularly in aquaculture related technology and extension methodology.

Recommendation: The chronic problem of human resource shortage needs a long-term solution that is not within the scope of this Project. However, the central government may communicate its priority and display its commitment to have the project retain its staff at least throughout the project life time to cultivate maximum professional experience and assure project continuation.

II.4 Provincial Government

II.4.1 Attitude

The policy orientation of the provincial administration plays a key role in the project interface and is normally reflected in the attitude of the provincial counterparts. If the province actively take up the active role of being the prime-mover in the province's development affairs, the counterparts will lead the Project in implementing the province's own activities. Otherwise, the counterparts will see themselves as escorting the Project personnel. It is interesting to notice that the three intensive provinces of Oudomxay, Sayabouly and Sekong where UNDP has championed Nex initiative during the last two years, the staff has adopted the attitude of them exploiting the Project resources to carry out their work. But in Xieng Khouang, where the preceding LAO/89/003 used to operate in, the staff still perceive LAO/97/007 as doing its own thing in their perimeter. The situation is opposite in Savannakhet where there is a long history of interventions from several projects. The provincial administration certainly takes a managerial role in co-ordinating development activities.

Recommendation: In the last half of the Project, it will become more necessary for LAO/97/007 to encourage even a more active role in carrying out extension activities. With limited staff, the Vientiane office will no longer be able to supervise field activities in details. In addition, the cultural condition for extension work differs from province to province and the process will need to be fine-tune by the local staff. It is recommended that the Project

communicate very clearly its expectation of the role shifting, the goal/objective for the remaining half of the Project (per logical framework matrix) and the services to be expected from the Vientiane office to the provinces, probably during the upcoming TPR meeting.

II.4.2 Project Management

The second half of the Project represents a somewhat radical shift of the strategy from technology try-out to management strengthening. While the district staff focus on improving their extension capacity (see Section II.5.1), the provincial staff must emphasise project management skills. It is the objective of the Project that the government staffs can spot a potential aquaculture site, mobilise a study and prepare a development plan. Planning, scheduling, monitoring and evaluation skills must be taught and learnt during this phase.

Recommendation: The Project organises project management training that includes objective and scope formulation, work breakdown structure, logic diagram analysis, barcharting technique, resource allocation, cost control, schedule update, progress report, indicator set-up, impact measurement, participatory monitoring and evaluation techniques. Training must be coupled by post-training follow-up sessions.

II.5 District Level

II.5.1 Extension

The district extension workers form the crucial linkage between the Project and the target farmers. Although most of them are technicians by training, they must go beyond technical boundary. They work with people and need basic people skills such as communication, facilitation, group dynamics, etc. They must have a clear understanding of rural development, socio-economic assessment and village system analysis. None of these topics are presently taught in the universities.

Recommendation: A successful extension programme starts with human resource development programme in which on-the-job training is the most basic element. The Project can try to streamline an extension training programme for the district staff. However, a thorough training needs assessment programme must be carried out prior to the programme establishment. Some projects such as FIAT has carried out a comprehensive TNA in certain provinces. The information may be readily available by contacting the project directly.

II.5.2 Innovativeness

It has been found that the attitude of the district counterparts plays a significant role in aquaculture extension. The core technology is not difficult. However, the adaptation to the unique environment of rural areas of Laos is not fully known. To be successful, the counterparts will have to be daring in experimenting with new techniques, new feeds, etc.. They must be willing to go beyond what they learnt from the Project. It is the mission's impression that some rural farmers are open to experiments. One farmer in Oudomxay used an unorthodox technique of pushing down his fully-grown rice stalks to feed his fish with apparently good results.

Recommendation: The Project can be instrumental in creating a forum for exchange the results of such experimentation. Incentives for successful innovations will encourage participation.

II.6 Farmer Groups

II.6.1 Group Development

The current bond among the farmers within the group is their common interest in receiving training and other support such as fry and equipment from LAO/97/007. The training at this stage focuses on technical aspect of aquaculture. Innovativeness and extension obligations have not yet been encouraged. In due time, there may be a need for some groups to develop into 'Production Groups³' for access to credit and market. Fish farmers groups in irrigated agriculture area may need higher level of management skills.

Recommendation: LAO/97/007, for the remaining period of the Project, may emphasise group management strengthening, leadership training, financial and accounting training for both the district staff and the farmers groups.

II.6.2 Group Strengthening

At the moment, most target farmers view aquaculture as an activity for home consumption and supplementary income generation. A few expressed their interest in replacing their rice field with fishpond and make aquaculture their main occupation. If this occurs, the farmers would have to deal with issues such as transportation cost, middleman, market, etc. They may have to divide up into production unit, nursing unit, tablefish farming unit, etc. The Project needs to prepare another class of extension workers in anticipation of such occurrence. There may also be a need for streamlining with CMT, IFAD, NGO. Group mechanism, unit division, and internal cohesion for market, credit, whole cycle approach.

Recommendation: LAO/97/007 may study the needs for developing such extension capacity and derive an appropriate training programme.

II.6.3 Small Equipment

Most farmers groups complaint of lacking small equipment such as fish harvesting tools, spawning nets, etc.. Some spawners request the Project to supply oxygen tanks and transporting vehicles.

Recommendation: Project can facilitate the purchase of the items that are not available in local market. However, this activity should be collective and reflect an attitude of community self-help. It should, in turn, reinforce the group administrative function. No recommendation outside current support levels should be given and free giving away is not encouraged. Larger equipment such as oxygen tanks, vehicles should not be handled at this stage.

II.6.4 Public Relation

During the interview, some fish farmers reported that other farmers outside the target area are reluctant to form groups, thinking that the Project may request membership fee. Selling of fry at half price after a free give-away in the first season was also misinterpreted as deliberated charge by the district staff and that the price for next year will be even more.

Recommendation: The Project should rectify this misunderstanding by launching a public relation programme, possibly through the community loud speaker system, followed up by an announcement in a public meeting.

³ See Annex G for definitions of Groups.

II.6.5 Central Emergency Fund

In many cases particularly in the northern provinces, the fishponds or paddy fields of some farmers group members were completely wiped out due to flash flood, causing irrecoverable damage to their fish farming. One suggested idea is the creation of a central emergency fund to assist in the recovery of family fish farming.

Recommendation: Central fund may be promoted by the Project, with extreme caution. It should start small. It is better if the individual farmers contribute with cash or in kind after their first fish harvest. If handled properly, the administration of this fund can be used to strengthen group management.

II.6.6 Credit & Loan

It is the general impression of the mission that, although in need of hard currency, the rural farmers are afraid of credit. The borrowing process with the intimidating paperwork and the idea of being in debt can appear to be quite frightening to them. Many times, the farmers and the government staff requested the Project to provide credit or revolving funds for pond excavation or expansion.

Recommendation: The mission is of the view that credit should be made available as an option. However, clear information should be given. The interested farmers should be walked through different scenarios before they make decision. This is considered a part of the extension scope of responsibility. The Project can also launch a study to assess the credit needs for aquaculture in the rural areas. Considering the limited lending capability and the lack of personnel of the Agriculture Promotion Bank, the Project may co-ordinate with the Micro-Finance Project to make small loans possible with an affordable interest rate.

II.7 Gender and Ethnic issues

II.7.1 Sharing of Responsibility

In February 1998, the Project supported a Socio-Economic and Gender Study in Aquaculture that provides recommendations for a gender balance responsibility and benefit sharing. It appears that several women farmers initiated fish farming in their households. These women, after seeking training from the Project, take up the bulk of work. In some cases, they become the farmers group leaders and serve as centres for disseminating advice. These cases are unusual. In most households, the workload has been shared in a reasonable manner.

Recommendation: It should be understood that aquaculture is still in its experimental phase. During this formation period, curiosity and intrigue overrides work aversion. At the same time, profit and other benefit may not fully materialised. The Project should still keep close watch on the development of responsibility and benefit sharing until aquaculture reaches a mature stage.

II.7.2 Exclusion

In most cases when farmers groups were formed, only male representatives from the households joined to the session. Although it is understood that the view of the male partner normally includes a consultation with his wife, this exclusion automatically prevents the female partner to join the rank of management, unless she is nominated in her absence as has happened in some areas.

Recommendation: The Project can try to overcome this problem by insisting on providing two votes per family, one each for husband and wife. It can also suggest the creation of a deputy function for each position in the hierarchy so that if a male member occupies the main position, a female member can be chosen for the deputy position or vice-versa. This measure will encourage women advancement in the rank typically dominated by men.

II.7.3 Ethnicity

In many areas, multiple ethnic tribes form a community. Each tribe maintains their own unique language and culture. As aquaculture develops, interaction among tribes is expected to increase. Measures to guarantee harmonious relationships must be taken.

Recommendation: The Project should make sure that the farmers groups have a balance representation of ethnic tribes in its administration, and that a mechanism for internal conflict resolution exists. Group formation and group activities should be promoted with the encouragement of inter-ethnic integration as a whole towards resource management without favouritism towards one single ethnic tribe.

II.8 Inter-Project Co-ordination

II.8.1 Multi-disciplinary Approach

Aquaculture is a water resource-based activity, along with irrigation, agriculture, livestock and forestry. In some intensive areas, the farmers are already competing for water with other better established groups. In addition, from the farmers' perspective, aquaculture is not a stand-alone undertaking, it is a part of an integrated farming system for their livelihood. With more and more projects implementing in Lao PDR, a unified approach is needed, particularly a holistic agriculture extension programme that aquaculture is a part of.

Recommendation: The Project must recognise that its implementation is a part of an larger extension process that eventually lead to a multi-disciplinary approach. The Project, having gained a foothold in the village, is in a perfect position to offer aquaculture as an entry point for other project interventions. The pre-condition is a unified extension strategy and a joint effort in institutional capacity building and village community organisation to support the common provincial and district goals. It appears that this co-ordination has already taken place in some provinces.

II.8.2 RDC

The experimentation of inter-project co-ordination in the form of a Regional Co-ordinating Committee (RDC) based in Savannakhet is an interesting case study. RDC is considered a multi-provincial government body authorised by the central government and jointly supported by several funders (more details of RDC is discussed in Annex H). So far, RDC has been active in 3 southern provinces with plan to cover all 6 provinces in the near future.

Recommendation: With what appears to be a diminishing role of SESMAC in the northern provinces, a similar co-ordinating body with focus on government capacity building might be needed in the provinces of Sayabouly and Xieng Khaouang and Oudomxay. If the government decides such a move, the Project being the only one concurrently active in 3 northern provinces, is in a good position to help facilitate its establishment.

III. Background to the Project

III.1 Description of sub-sector

III.1.1 Description in the project document

Fish production in Lao People's Democratic Republic (Lao PDR) originates from the Mekong river and its tributaries, wetlands including reservoirs, swamps and flood plains and aquaculture. There are no reliable estimates of total fish production, but on the basis of per capita consumption of 6.5 kg per annum and a population of 4.6 million it would be about 28,000 tons per year, less imports of fresh fish and fish products from neighbouring countries. The largest capture fishery is probably subsistence fishing in wetlands.

Aquaculture development in Lao PDR started with construction of several fish farms during 1956-75 under the USAID programme. It was further supported by the Mekong Committee through the upgrading of existing fish farm at Nong Teng (Vientiane) and construction of a commercial fish farm at Thangone (Vientiane prefecture). This was followed by two UNDP/FAO projects which gave a big boost to the sub-sector through the rehabilitation of the existing fish farms and training of the much needed manpower. Aquaculture is slowly becoming an integral part of most of the rural development programmes. Fish ponds are considered useful not only for fish production, but also as water reservoirs for fighting drought conditions. A government decree encouraging each household to dig a pond of its own for the above purposes has recently been promulgated.

Despite good progress achieved in the sector, modern fish farming is still in its development stage in Laos. There are [was estimated to be] approximately 2400 fish farmers⁴ employing some variation of composite fish culture in ponds and paddy fields. The average production is about 1200 kg/ha, which is still far below potential. In addition, there is an unknown number of farmers who impound natural water bodies from which they harvest wild fish.

At present, there are twelve fish seed production centres operating in different provinces under the Department of Livestock and Fisheries (DLF). In addition to these twelve centres, two private hatcheries and some individual farmers produce fry on a small scale using very simple technology. Total fry production by the fish seed production centres and private hatcheries was about 9.5 million in the 1993-94 season, which is still short of the demand in the country and the expansion of fish farming is often hindered by shortages of fry and fingerlings.

III.1.2 Notes on the sub-sector

However, since the background of the sub-sector was described in the project document additional information has added to the picture. It is apparent that the current actual consumption of aquatic animals⁵ is rather higher than the per caput 6.5 kg per annum as estimated from reported production divided by reported population. The actual consumption is in the order of 13.5 – 47.8 kg per person per year (average 22 kg) in much of Lao PDR⁶ (Funge-Smith 1999, Garaway 1999). This "automatically" increases the estimated consumption of aquatic animals from less than 30 000 tonnes to over 100 000 tonnes. It is not possible to estimate what

⁴ Though not explicitly stating this, the figure seems to be taken from the estimated impact of the project LAO/89/003. As there is no reference to how this was estimated it is not possible if this is an realistic estimate this was.

⁵ It should be noted that fish may make up between 60-80% of aquatic animals consumed by a rural household.

⁶ This is consistent with much of findings in rural Northeast Thailand.

proportion of this consumption is actually produced in Lao PDR, but it is assumed that the bulk of the consumption is generated in the country. Aquatic animals form a major staple of animal protein for much of rural Lao PDR.

It is unknown how much aquaculture is contributing to the total production of aquatic animals in Laos but the formal estimate is likely to be an underestimate. Many thousands of households in rural Laos do have a pond and the potential impact of aquaculture as a source of income and/or as a complement to catch of fish in natural waterbodies is of great importance.

According to recent estimates by DLF the current (1998) production of fish⁷ in Lao PDR is in the order of 44 000 tonnes (S. Phonvisay, personal communication), of which about half is considered stemming from aquaculture. This is likely to be an underestimate on both behalf of aquaculture and fisheries.

III.2 Government of Lao PDR sector policy

The National Agriculture and Fisheries policy has five objectives: 1) achieving food security, 2) preservation and sustainable management of indigenous natural resources, 3) promotion of diversified production of cash crops for local consumption and export, 4) water resource development, and 5) rural development. As it relates to aquaculture, the national strategy is to gradually upgrade the subsistence level aquaculture to commercial level to meet the demands of the domestic markets and later for export purposes as far as possible.

The Department of Livestock and Fisheries (DLF) - reorganised in 1996 to emphasise the important role of fisheries - is the lead agency for the formulation and implementation of fisheries policy⁸. As such, its policies are designed to support the development of demand driven livestock and fisheries production. Also, emphasis is placed on establishing and strengthening technical support services in the more rural and remote areas of the country with the aim of increasing employment opportunities and income levels of small farmers. Similarly, the private sector, including small holders, are to be encouraged to participate in the development of aquaculture through the provision of core support services and active monitoring.

There are four programme areas in support of the development policy and strategy. These are aquaculture, wetlands and reservoir management, aquatic resource identification and genetics and postharvest technology and regulations. Of these, aquaculture is given top priority as it has high potential; there is a large number of existing ponds that can be improved. It is also hoped that aquaculture production can compensate for declining yields from capture fisheries, thus contributing to food security.

Overall the policy of the Lao Government has not changed significantly since the development of the project document. There has however been a drastic reorganisation within the Ministry of Agriculture and Forestry which is impacting on project activities and impact. The main change is the establishment of the Living Aquatic Resources REsearch Centre (LARREC) under the National Agriculture and Forestry Research Institute (NAFRI) which is a separate department in the Ministry. This has meant that the size of the staff in the Fisheries Development Division (FDD) has been more than halved. It also means that that research into

⁷ It is noteworthy that the Government statistics is still not including other aquatic animals apart from fish which form an important part of the rural households animal protein intake (Meusch 1996, Funge-Smith 1999, Garaway 1999).

⁸ It is here noteworthy that the decree PM/85 of 1993 vests the responsibility for aquatic resources management to the Department of Livestock and Fisheries (formerly Department of Livestock and Veterinary Services).

fisheries⁹ is not under the auspices of the DLF, which may have long term implications on how research results feeds into the fisheries development activities.

III.3 Project Description

III.3.1 Description in the project document

The Provincial Aquaculture Development Project - LAO/97/007 was signed between the Government of Lao PDR and UNDP Country Office on 26 June 1997. Project activities started October 1997. The project is a nationally executed project, Nex, executed by the Department of Livestock and Fisheries, Ministry of Agriculture and Forestry and builds on the achievements of the earlier UNDP supported and FAO-executed aquaculture development project (LAO/89/003).

The current project is working in 14 districts in Oudomxay, Sayaboury, Xieng Khouang, Savannakhet and Sekong Provinces. Technical assistance and training is also provided to government Livestock and Fisheries staff, NGOs and interested Development Organizations in other provinces. The project objectives are to:

- Improve fish fry production from government hatcheries through structural improvements and training.
- Encourage fish fry production by farmers/entrepreneurs through extension of simple appropriate techniques.
- Develop the capacity of Department of Livestock and Fisheries staff to plan and conduct extension of fish culture techniques to farmers.
- Form farmers groups and introduce them to fish culture as part of Department of Livestock and Fisheries extension process.
- Assist farmers and hatchery entrepreneurs in starting their activities through provision of fish fry, broodstock and simple equipment items.

The ultimate output of the project is expected to be a sustainable aquaculture development approach, which the executing agency can replicate in provinces not covered by this project.

III.3.2 Notes on the project description

There are several assumptions in the project description that are worthy to investigate. Firstly the description of the objectives are (again) rather incomplete. It really states three objectives:

- increase fish seed supply/availability to farmers,
- build capacity in relevant government departments to plan and implement extension of aquaculture techniques to farmers, and
- assist the farmers to get started by provision of an "one-off" set of basic inputs (fry, some materials).

From these objectives the "ultimate objective", in the form of a sustainable aquaculture development approach, is to be reached. This is an oversimplification of realities and a risky assumption. The outputs are clearly going to lead towards the development of aquaculture in the targeted areas and will spread into other areas in the targeted provinces, but here is no

⁹ Including aquaculture.

guarantee that reaching the stated objectives will result in a sustainable aquaculture development *approach*. To reach such an objective a more process oriented project is needed.

It should also be mentioned that the actual implementation of the project has followed a more process oriented working methodology and there are progress towards the stated "ultimate objective", these aspects are discussed in more detail in Sections VIII.3.

III.4 Project justification

III.4.1 Description in project document

Around 1.9 million out of a total of 2.1 million people who are under the poverty line¹⁰, live in the rural areas. Nutritional status and income level are generally low among these people and these factors add to the cause of poverty. It has been demonstrated in the previous project LAO/89/003 that fish culture is a viable activity for the enhancement of food security and income generation among the rural communities. However, it has been observed that among those who benefited, only a handful of low income farmers have been able to take up fish farming. They have not had adequate training, extension services have not reached them and their access to credit is limited.

Capture fisheries appear to be stagnating or declining. Major causes include overfishing and deforestation. The planned construction of a number of dams for hydroelectric power generation with large reservoirs may alter river flows and affect fisheries of the Mekong and its tributaries and seriously impact fish migration patterns. Thus the country faces a crisis in fish supply in the face of growing demand.

Projected demand is based on the assumption that 50% of animal protein requirements will be met by fish consumption (the average for the Mekong Basin countries). In this scenario, the *minimum* required production for the actual population of Lao PDR was 91,000 tons in 1990, or 3.3 times the estimated production¹¹. In the year 2000, this has risen to 112,000 tons, or 4.2 times 1990 production. By 2025, this minimum requirement will have risen to 177,000 tons, nearly **7 times** the 1990 catch. In the face of declining or stagnant capture fisheries, aquaculture production will have to increase significantly if the population's minimum protein requirements are to be fulfilled.

Fry and fingerling production is already insufficient to meet the requirements of farmers and cannot support expansion without significant increases in outputs from existing seed centres in different provinces. Some of these seed centres require major repair to enhance their production capacities. In Sekong province, a new centre has to be built. Similarly, private sector investment in hatcheries remains minuscule in relation to actual and potential demands.

The previous UNDP/FAO projects have achieved impressive results in terms of fish production, aquaculture technology adaptation and dissemination and fish culture extension. However, these projects have not given due attention to gender considerations *vis a vis* the role of women in aquaculture development, e.g. from fish production to extension and use of credit, marketing and processing. The recent assessment of LAO/89/003 has revealed that women play a pivotal role in fish production as well as in marketing - women dominate the fish marketing system, acting as both brokers and retailers. A further detailed analysis of the role of women in aquaculture has to be carried out to ensure that the project is more gender sensitive.

¹⁰ This poverty line is not described or referenced to in the project document.

¹¹ Note that current estimates from actual rather than apparent consumption is suggesting that this level is already achieved.

The direct target beneficiaries of the project are the DLF staff from central, provincial and district levels. The ultimate beneficiaries are low income fish farmers' groups, including women farmers, in rural areas. Another level of beneficiaries recognised by the project are the individuals or organisations targeted for hatchery and fingerling production.

III.4.2 Notes on the project justification

The justification of the project can be condensed into the following points:

- Demand for animal protein from fish is high and rising due to population growth¹² among the rural population in Lao PDR. Estimated current demand¹³ is in the order of 3 to 4 times the supply.
- Limited scope of expanding production from current capture fisheries.
- Limited fish seed availability is limiting the scope for aquaculture development.

To mitigate this trends and to help Lao PDR to avert the impending "crises in fish supply in the face of growing demand", the project promotion of aquaculture to produce fish to fill the gap between supply and demand. Aquaculture, through the project LAO/89/003, has been shown to have potential to provide needed protein and scope for income generation for rural households.

There are a few flaws in this argument. Firstly, current production (including importation of fish) is likely to satisfy estimated minimum requirement, as estimated in the Mekong Secretariat (1992) report, as recent studies have shown that actual consumption¹⁴ is estimated at around 22 kg. There is a problem in rising animal protein demand and small scale rural aquaculture is one good intervention to address this issue, but there is not a crisis of the proportions described in the proposal. Secondly, small scale aquaculture should not be seen as the solution to produce massive amounts of fish protein as this is better addressed through improved fisheries management and larger scale semi-intensive or intensive aquaculture¹⁵. The role of small scale rural aquaculture is its ability to deal with equity and distribution, issues the larger scale operations cannot adequately deal with without additional improved infrastructure and market channels.

Although the project justification is somewhat misleading the project is easily justified in its conception addressing important issues. The main justifications are in that the project is addressing relevant food security issues, potentially providing income generation, adds to the diversification of the farming system, and can be seen as a significant inroad into other rural development initiatives. These aspects are deliberated in more detail in Section IX.

¹² Which is alarming with one of the highest population growths in the region and with 50% of the population being 15 years or below.

¹³ This is based rather loosely on that 50% of animal protein requirement supposed to be coming from fish. This in turn seems to be taken from the Mekong Secretariat 1992 report on the review of fisheries in the Lower Mekong Basin, which is a hypothetical estimate based on limited data (Mekong Secretariat 1992)

¹⁴ As opposed to "apparent" consumption estimated from food balance sheets.

¹⁵ For small scale aquaculture to produce 100 000 tonnes of fish some 100 000 ha producing 1 tonne/ha is needed, if average household pond size is around 2000 m² some 500 000 households needs to get involved in aquaculture, this is likely to be over half of the current population!

III.5 End of project situation

III.5.1 Description in the project document

However, as stated earlier, the majority of the target farmers who benefited from earlier projects were not necessarily the poorer ones. The recent assessment of the project LAO/89/003 has recommended that the new project follow 'group' approach as opposed to the individual 'target' or 'model farmer' approach. The 'group' approach is expected to facilitate gaining easier access to institutional credit for initial investment and give an opportunity to help out each other on technical aspects of aquaculture and technology adaptation, mutual support in inputs provision, marketing and pricing. Farmers in some provinces have formed groups at the suggestion of the staff from previous project, but these groups have not yet begun to function collectively.

In the above context, the expected end of project situation will be:

- a) a 'trainers' pool' at central, provincial and district levels who are well skilled in group formation, aquaculture technology and extension technique;
- b) a shift in extension methodology small scale fish culture from targeting 'individual farmers' to 'farmers' groups' also including women fish farmers. With groups of 80-100 households per target province engaged in fish culture. A proper technology package will have been developed for transfer to them, utilizing the skill bases developed among the individual farmers targeted in the previous project;
- c) increased fry and fingerling production, particularly through the mini-hatchery operators in private sector; at least 25 hatcheries will be established in 5 target provinces by the end of the project period. Fry production will also be increased at existing provincial fish seed farms and one new centre constructed in Sekong province;
- d) easier and simpler access to institutional credit for the benefit of the low income fish farmers' groups also including women fish farmers; and
- e) self-sustaining aquaculture development programme in target provinces and one which the DLF could replicate in other provinces not covered by the project without external assistance.

III.5.2 Notes on the end of project situation

This section overall is relatively clear though many terms used are lacking definition, and it is also lacking in indicators or quantitative/qualitative goals. The new project is to follow the 'group' approach, as recommended by Angell (1996) in his assessment of LAO/89/003. There is however no description in Angell's report nor in the project document of the 'group' approach. The (lack of) definition on this matter is discussed in detail in Annex G.

The group approach is to facilitate access to credit, although no assessment of the credit need in small scale aquaculture was performed prior to the project.

The trainers pool are to be 'well skilled', though there is no indication in the project document in how this is to be assessed apart from staff attending/participating in training.

Under point b) there is a contradiction in that on the one hand the project will start with extending an 'proper technology package' to the farmers in the groups using skill bases and experiences from the previous projects (i.e. LAO/89/003) although the technology and skill bases in the previous project was targeted at middle income farmers. There is no assurance that the experiences and technologies in that project is appropriate for the target group in LAO/97/007, which are the rural poor.

Point e) has elements of being what in a logical framework matrix would be called a killer assumption. It is suggesting that the project will be capable to develop a aquaculture development program that could be replicated and implemented in other provinces by the DLF without external assistance! There is clearly not enough budget under the current situation for DLF to do so as the project budget covers an input of US\$ 150 000-200 000 to cover the operational costs of the government involvement in the project activities. There are no mention in the document of getting a formal government assurance of sufficient budget allocation to cover these costs of implementation¹⁶, thus no guarantee that DLF will have the financial capability to implement such a program.

Having pointed out these weaknesses in the description of the end of project situation it should be said that overall the scenario seems realistic and worthwhile.

¹⁶ There is a non specific prerequisite in section 7.2 of the project document where the government is asked to provide funds in cash to project activities.

IV. Project Objectives and their relevance

IV.1 Objectives and Indicators

IV.1.1 Development objective

The project's long-term objective is to attain '*enhanced food self-sufficiency and increased income and [improved] nutrition among low income rural people in the targeted provinces through the expansion of fish culture*'. This development objective¹⁷ is determining the scope of the project's involvement in that it should aim to affect the poor in rural areas (as opposed to urban), and that it should build on initiation of and/or increased production of fish for poor rural households. It is based on the assumption that fish culture has potential to provide improved nutrition and increased income for the rural poor. These are assumptions that are of interest as they are the foundation of the project. Although the lack of concrete evidence for these assumptions (however reasonable and logical they may seem) is a weakness of the initial project design, however, these have recently been supported by a detailed assessment of the role of aquaculture for rural poverty alleviation (Wysocki and Friend 1998). They found that low input aquaculture was the most viable system for rural poverty alleviation in the Lao PDR.

In the project document there is no indicator for this goal and neither any definition of low income rural people¹⁸. This makes it difficult to assess how the project is impacting on the group of ultimate beneficiaries, as well as how substantial this impact is. Measuring the impact on households with respect to food self-sufficiency, increased income and nutritional improvements is very difficult and costly (such as longitudinal detailed monitoring of beneficiary households as compared with control groups). It is therefore suggested that a proxy indicator is used, such as measuring change (increase) in fish availability to participating households, and monitoring of household perception of fish culture as well as what resources are used, purchased or diverted to the fish culture operation.

IV.1.2 Immediate objectives

The project document has four immediate objectives being:

1. Strengthened capacity of the staff of the Department of Livestock and Fisheries (DLF) staff at all levels to design and implement a feasible plan of project activities that would address the needs of fish farmers groups and extension workers; ensure sustainability of these activities within the DLF, fish farming communities and private sector; and enhance linkages/co-ordination with other related/relevant projects.
2. Increased capability in group organising, fish culture extension and aquaculture technology within DLF.
3. Increase the supply of quality fish fry and fingerlings produced by the public and private sectors.
4. Improve income and nutrition of low income farmers with special consideration towards gender and ethnic groups through the introduction of fish culture.

¹⁷ The terminology used is the one used in the project document where development objective is equivalent to goal and immediate objective is equivalent to purpose.

¹⁸ Using the description of middle income farmers which was the target group in LAO/89/003, the poor farmers would in 1994-95(?) have an income of less than Kip 500 000 per household per year.

These objectives are not coherently contributing towards the stated development objective where immediate objective number 2 is a sub-set, or component, of immediate objective number 1, immediate objective number 3 is a creating a pre-condition for aquaculture development, and immediate objective 4 is restating the development objective.

It should be noted that the project document is not in the format of a logical framework matrix, and the hierarchy of objectives are not clearly established. The success criteria (or indicators) for the immediate objectives are not always measuring the level of achievement. This is particularly true for the immediate objective number 4, where none of the success criteria are measuring the level of achievement of the objective.

The project has worked along the outlined set of activities in the project document and have made necessary modifications as required. However, the lack of precision in terms of indicators and lack of coherence between the various levels of objectives (and outputs) has made the project somewhat activity (performance) driven rather than directed by the achievement of measurable milestones towards reaching a stated set of objectives. In short, the lack of indicators of quality and quantity has resulted in activity orientation rather than one focusing on achieved change.

The **recommendation** would be to attempt to rationalise the current project in a logical framework matrix with attention paid to indicators and means of verification (bearing in mind that these should be cheap and easy to implement). This process should involve staff at all levels but is particular relevant for central and provincial level staff, a brief outline that can be used as a starting point and suggestions on how to initiate the necessary process are presented in Annex D.

IV.2 Strategy and Approach

IV.2.1 Project strategy

The project strategy taken is stated in the project document to:

- extend composite fish culture to low income farmers through the formation of farmers' groups¹⁹ including women farmers;
- develop a trainers' pool at central, provincial and district levels well skilled in group formation and aquaculture technology;
- improve technical and managerial capabilities of extension personnel at provincial and district levels;
- increase supply of fish fry and fingerlings by improving production at provincial fish seed centres and expanding the involvement of private sector; and
- work towards creating an enabling environment to make institutional credit more accessible to low income fish farmers including women farmers.

To achieve first point listed above, the emphasis of the project was to be two-fold:

- a) to extend the proven technologies²⁰ to the members of the fish farmers groups, and
- b) to continue follow-up monitoring of 'target' and 'model' farmers, although on a less intensive basis.

¹⁹ Note that there is no definition of the term group in the project document.

²⁰ This is mainly to be have developed during the LAO/89/003 aquaculture project.

The second point was to be addressed through cooperation with LAO/92/007 in the areas of group formation and management, and the attachment of an Aquaculture Development Advisor (ADA) from FAO is implicitly suggesting that the training needs in aquaculture technology would be co-ordinated by the advisor.

There is no stated strategy for achieving the third point (technical and managerial capacity), apart from Output 4.2.1 where staff are to be trained in, among other things, project management skills. Detailed activities under that output are, however, not addressing this point explicitly. Neither is training in managerial aspects part of the proposed training programme presented in Annex VI in the project document.

The fourth point (seed supply) was to be addressed through the upgrading of the provincial hatcheries as well as promoting the private sector to produce more fish seed. For the latter (private sector) three groups would be targeted:

- a) Small businesses or small scale entrepreneurs;
- b) (I)NGO's supporting rural development or income generating activities and interested in promoting/supporting fish culture among their target groups; and
- c) Model farmers (identified under LAO/89/003) who took up fry and/or fingerling production.

The last point dealing with credit provides the way to address this through cooperation with the UNDP projects Income Generating Activities (IGA) and Micro-finance and Sustainable Livelihoods (Micro-finance). It is interesting that there is no reference in the project document to where and how credit is needed for aquaculture development. In a preceding document evaluating the project LAO/89/003 by Angell (1996) it was suggested that one activity of a new fish culture extension project was to conduct a credit needs analysis for aquaculture in Lao PDR. This suggestion is carried on in the project proposal for LAO/97/007 in activity 4.4.1.5 (p. 17) though it is unclear in which way and what aspects are to be analysed. Furthermore, the activity 4.3.2.3 is to facilitate credit for establishment of mini-hatcheries with no reference to any needs analysis. Interestingly one of the success criteria for the fourth immediate objective is; "Credit needs of fish farmers identified and communicated to credit institutions." Overall, this aspect of the project is not clearly defined in the project document.

IV.2.2 Project approach

The project approach in terms of implementation is reported on here as to provide comments on the preceding section. Other aspects of implementation are described in Section VI.

The approach the project has taken in the implementation of has been to develop the listing of activities in the project document into a set of detailed activities, 101 in total for 1998, which was later rationalised into a set of 16 activities with sub-activities as appropriate. This approach is successful in organising the activities to be undertaken by the project and rationalise the type of work to be done. It is still lacking in measurable indicators against which progress can be measured. Only percentage completion of the activity is measured and a qualitative summary is presented in the progress reports.

While this is sufficient to get a good overview of the activities undertaken and information on problems and constraints it does not provide a objective way of measuring the progress of the project. It has, however, helped in streamlining the implementation of the project and is in part the reason for the success in achievements at activity level. The weakness is that

although the project intentions are clarified the structure is still deficient²¹ in logical and practical realities (such as the possibility of credit, cooperation with other projects, etc.).

The result is a project that has adopted a pragmatic approach to which activities were suitable for implementation and put more vague and inappropriate²² activities on hold, or they were cancelled. In each case when there were modifications to the activity plan this was reported in the progress reports.

IV.3 Relevance to realities

The project is clearly addressing important issues with respect to the rural livelihoods in Lao PDR; food security and income generation. It is also in line with current government policies in the Agricultural sector. In these aspects it is a relevant and timely project. Focusing on capacity building also addresses the issue of poorly trained government staff, and this is also an issue that is high on the agenda for the government of Lao PDR.

However, it should be remembered that aquaculture is only one of several components of rural livelihoods, being part of the livestock system. For most rural households crop production forms the basic backbone, the livestock system adds draught animal power for ploughing etc., and much needed animal protein and income²³ (including fish culture). Fishing and foraging in nearby waters and forests is still an important aspect of Lao rural life and provide much needed supplements to the farmed production. Catching fish and other aquatic animals which naturally occurs in relatively high abundance in many areas is seen as an activity within the farming household geared towards reaping the productivity of the surrounding environment. It is clear that aquatic animals form the main animal protein source for much of the rural population in Lao PDR, and the all of the interviewed households that were asked about the importance of aquatic animals as the main animal protein source²⁴.

As outlined in the previous sections in this chapter the project is suffering from some design limitations, but the pragmatic implementation has overcome some of these limitations. All in all the project is addressing a pressing need of provision of animal protein for vulnerable sections²⁵ of the rural population

It is clear that raising fish is a favoured activity for many farmers and that aquaculture is suitable for many rural households. It was generally viewed as easier than other livestock raising activities, and seemed to be an added component to the household as there was no evidence of reduced effort in other crucial farming activities²⁶. As fish prices has increased dramatically in the last years it is a potential source of additional revenue for the household.

Laos has in the wake of the Asian economic crisis suffered a weakened balance of payments and the currency (kip) has virtually "crashed" against foreign currencies (both Asian and western). This makes the agricultural sector increasingly important for the well being of the country especially the use of resources available within the country.

²¹ UNDP may consider the use of inception report, after 6 months of implementation, as a means to adjust the project to implementation realities.

²² Perhaps seen as difficult to implement at the beginning of the project.

²³ Or in some cases pigs and cattle provides a savings fund that can be used when needed, e.g. weddings, emergencies, etc.

²⁴ This is subject to bias as the households visited were all members of the fish culture groups formed by the project.

²⁵ The limitations of the projects poverty focus is discussed in section V.4 and VII.9.

²⁶ It was generally seen as taking limited amount of time and cutting into non-essential activities.

The aquaculture technology promoted by the project primarily uses on-farm inputs is thus a cost effective way of producing protein for household consumption²⁷ an/or as an income generating activity. Thus the project is relevant in addressing the issues of food security and income generation in rural livelihoods.

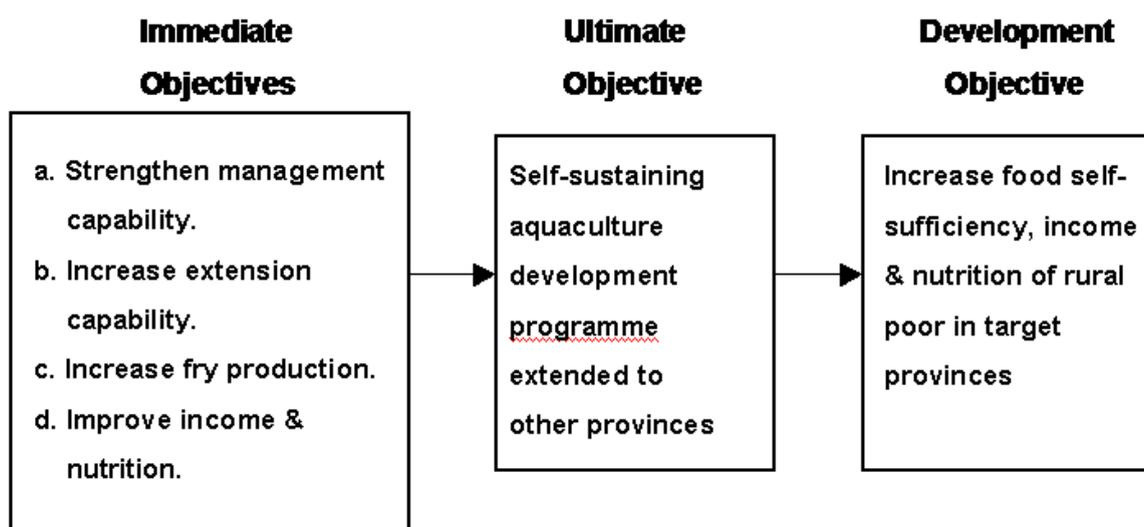
²⁷ Either through direct consumption of replacing fish that would have been bought using cash.

V. PROJECT DESIGN

V.1 Inputs and Outputs

Although this is not reflected explicitly in the Project document, it appears that LAO/97/007 is designed primarily as a process experimentation, rather than as a precise implementing workplan. The intended process aims to achieve the ultimate objective of ‘*a self-sustaining aquaculture development programme that is within the capabilities of the executing agency to replicate in the provinces outside those covered in LAO/97/007*’. It would appear that the Project is instrumental to the institutionalisation of a comprehensive aquaculture extension programme at the national level that addresses the existing capacity of the provincial/district government staff and the current needs of the farmers.

The stated development objective of LAO/97/007 (refer to Section IV.1 for detailed discussion) is to attain enhanced “food self-sufficiency and increased income and nutrition among low income rural people in the targeted provinces through the expansion of fish culture”. To support this objective, four immediate objectives (see Section IV.1.2) were given in the Project Document: (a) Strengthen management capacity of government staff; (b) Increase extension capability of government staff; (c) Increase fish fry and fingerlings production; and (d) Improve income and nutrition of low income farmers. Some quantitative success criteria, a list of outputs and a comprehensive activity list that supports each objective were also provided.



Designed Sequence of Objectives as appeared in the Project Document

However, a close study reveals that the provision of the success criteria, the outputs and activity list were not entirely in harmony with the long-term development objective nor the ultimate objective. There was to be an initial ‘current system assessment’ (including Rapid Rural Appraisal or RRA) to study the existing community fish raising in different parts of the country and to assess the technical assistance needs of fish farmers. At the same time, the training needs of the government staff at the central, provincial and district levels were to be analysed to formulate a ‘comprehensive training programme’ that would include technical, management and farmer group facilitation supports. This current system assessment, if carried out properly, would provide a general overview of the aquaculture development

scenario that would be a basis for co-operation with other projects, and serve as a base-line for planning 'result-oriented activities' that could respond to the actual situation. This approach would have been more appropriate for LAO/97/007 than a check-list of pre-defined activities.

A closer look also reveals that the specified outputs have varying degree of direct causal relationship with the immediate objectives. In addition, the four immediate objectives are not mutually exclusive with heavy overlap between them. For example, as stated in Section IV.1.2, immediate objective number 4 coincides with the development objective.

Immediate Objective	Success Criteria	Specified Quantity	Achieved Amount (as of September 1999)
1	Farmer Groups formed	at least 45	52
	Hatcheries established	at least 25	71 fry producers recorded
	Training programme established	NA	Noted as having been Implemented
	Co-ordination with other projects	NA	Noted as having been Implemented
2	Training video produced	at least 1	1 produced, 1 under production and 1 planned.
	Extension pamphlets distributed	at least 10,000	More than 3,500 copies have been distributed. The rest is being processed.
3	Fry production in Provincial hatcheries	4 hatcheries	Exists with varied degree of success
	New hatchery in Sekong	1 hatchery	Under construction in SK
	Mini-hatcheries in private sector	NA	Increased production from 768,000 to 1,114,000 for the first 8 months of 1999
	GOL O&M budget for hatchery	NA	Allocated in ODX, SBL, SVK and SK, but not in XK for 1998/99
4	Rice-cum-fish culture	NA	Increase from 109,689 in 1998 to 584,513 in 1999

Source: Project Progress Reports

Project Accomplishments Compared to Specified Criteria

It is evident that, at the end of the first half of LAO/97/007, its accomplishments already exceed the specified quantitative criteria. However, there was not a clear picture of the needs for the government staff or the farmers in technical/management training, credit requirements or farmer group facilitation that would form the basis of a 'comprehensive extension strategy'. A more process-oriented approach where the needs were gradually identified as work was undertaken would have been more appropriate for LAO/97/007 than checking out activity list. Therefore, it is **recommended** that, for the remaining period of LAO/97/007, the Project pays more attention to the sequencing of outputs in order to arrive at the specified development objective.

V.2 Institutional Arrangements

In contrast to its predecessor, Project LAO/97/007 is designed to be a national execution project. It was intended that the management and decision-making authority were to delegate to the government staff. Instead of employing a Chief Technical Advisor (CTA) who traditionally runs the project, an Aquaculture Development Advisor (ADA) was appointed to provide technical backstopping, leaving day-to-day management including budget decision in the hands of the NPD and his deputy. Project administration such as procurement,

recruitment and payment request follow UNDP Nex administrative procedures. The Project was also designed to utilise existing government mechanism by appointing counterparts in the provinces and districts. These counterparts were selected from government technicians. In the provinces, one technician from the state hatchery was to serve as deputy to the counterpart from PAFSO or PLFS. In effect, the Vientiane Office provides management and technical supports to the provincial counterparts, who then facilitate the interface between the district staff and the farmers. In this way, the Project strengthens the government institutions through aquaculture activity implementation. Although some problems in national execution exist, it is compensated by a sense of ownership, accountability and capacity building. In general, this has worked well.

V.3 Trainers and Training Programme

For training purpose, the Project Document specified that DLF is responsible for providing a pool of two 'Aquaculture Trainers' in farmer group organisation and fish breeding to impart up-to-date techniques to the provincial and district trainers. A team of three provincial trainers specialised in group organisation, fry and fingerling production and fish farming system was to be appointed to receive training from the Aquaculture Trainers and impart training to the district trainers. They were also responsible for post-training monitoring. A team of two district trainers with one concentrating in 'group organisation and fish farming system', the other on 'livestock' was to impart training to farmers group in integrated fish farming. This training model is in line with the on-going FIAT irrigated agriculture extension approach and, therefore, co-operation with this project was recommended. Due to a severe shortage of livestock and fishery personnel at all levels, the concept of Aquaculture Trainers was never implemented.

During its first half of implementation, LAO/97/007 chose to concentrate on demonstrating aquaculture technology and the farmer group formation has not evolved beyond being an 'Interest Group' (see Annex F for definition). It is anticipated that as the groups gain confidence and become more mature in the second half of the Project, they will develop into functioning 'Production Groups' and group management strengthening would be needed. Therefore, it is **recommended** that LAO/97/007 take active action in collaborating with other projects active in farmer groups formation such as FIAT to define a multi-disciplinary extension approach that encompasses irrigation, agriculture, livestock and fish farming activities.

The Project was also advised to co-ordinate with the Income Generating Activities (IGA) Project, and the Micro-finance and Sustainable Livelihoods Project. Although co-ordination would seem to enhance implementation efficiency, the fact that these projects work in different geographical areas under different timeframes makes field co-ordination very difficult.

At the village level, in addition to seeking support from the village heads in group organisation, other village mass organisations such as Lao Women Union, Lao Youth Union, Village Senior Council, etc. could also provide assistance during the group formation process. For training and activity implementation, it is **recommended** that other village staff such as Village Veterinary Workers (VWV), Village Development Co-ordinator (VDC), etc. be invited to participate, if they exist. This practice will benefit the Project in terms of involving a relatively stable mass organisation structure in implementing project activities, particularly in participatory monitoring and evaluation.

A training component aimed at upgrading the capacity of the provincial and district staff in facilitating fish farming technology to farmer groups was designed using short-term courses

and study tours. Short-term courses were divided into three categories: group organisation, project management and technical matters. Group organisation includes Training of Trainers, participatory development techniques, extension techniques, etc. It was recommended that training in this category be designed and implemented in consultation with FIAT Project. Project management training includes planning, reporting, monitoring and evaluation. Technical matters include integrated fish farming system, hatchery technology, credit administration, etc. Study tours include both in-country and neighbouring countries such as Vietnam and Thailand. So far, the Project has involved itself mainly in providing short-term technical training and study tours. Extension techniques particularly for the district staff and project management skills for the provincial staff should be organised in the remaining period (see Section VII.1 for details).

In addition, two workshops were to be convened to review the functioning of the fish farmers groups, extension methodology and assess the effectiveness of technology transfer to low income farmers. The first of these workshops was organised in February 1999. Another national workshop will be held to review the achievements of the project at the end of year 2000.

V.4 Appropriateness to Rural Livelihoods

The inclusion of the phrase 'low-income rural people' in the development objective determines that the rural poor are the ultimate beneficiaries of the Project. This approach may be possible in an intervention that does not require a certain level of initial capital investment from the villagers. In the context of aquaculture, fish pond or suitable rice field is a basic requirement for fish farming. Excavating a fish pond is a labour intensive activity. It is doubtful that a typical poor family could spare efforts from their daily chores to excavate a fish pond. Those who can afford prefer to hire heavy equipment to dig the pond. Therefore, people who already own a pond are typically better off than their neighbours.

In its first half of implementation, the strategy of LAO/97/007 is to demonstrate that the aquaculture technology promoted actually works²⁸. The first batch of farmers were selected on the basis of expressed interest and the possession of a pond or rice field. Therefore, the selection criteria of 'low income' was necessarily compromised. This decision so far has proven to be appropriate in terms of creating 'success stories' that stimulate general awareness of the new techniques. In short, the second batch of farmers should be the real target groups for project interventions. In its second half of implementation, the Project appears to be ready to launch another round of farmers selection in the adjacent areas. It is **recommended** by the mission that low-income farmers be targeted this time.

V.5 Rural Logistics for Fry Distribution

The current approach of LAO/97/007 assumes that the provincial hatcheries will be able to increase fry and fingerling production to the farmer groups in the districts, and that the small holders in the private sector will be able to develop skills in seed production to catch up with the rising demands. However, the logistic of the fry transportation may be an issue for remote districts, even if the state hatcheries are fully supported by the provincial government²⁹. Without a good system of fry distribution, aquaculture will not realise its full potential.

²⁸ Note that this development may be seen as a pragmatic attempt to deal with the problems of being a project seen as building on the previous project LAO/89/003, which had a very different target group.

²⁹ Distributed production and nursing networks in Savannakhet under RDC supervision seems to address this issue.

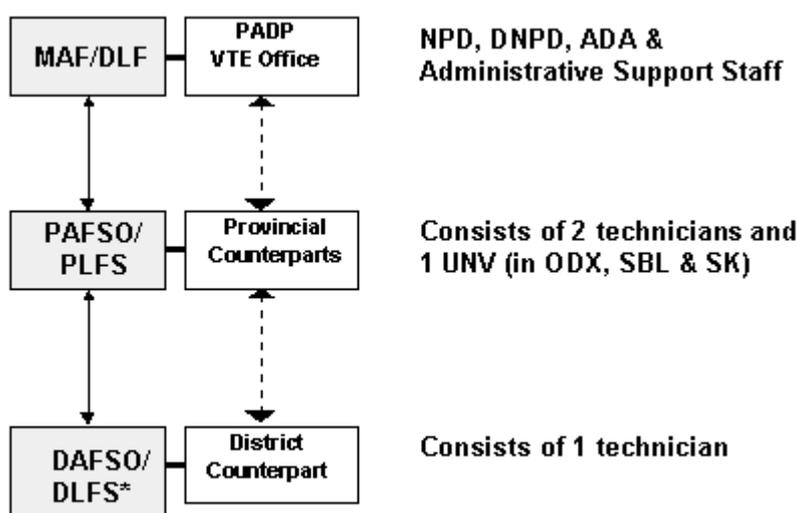
VI. PROJECT IMPLEMENTATION

VI.1 Staffing

The project utilises existing government mechanism in implementing its activities. At the central level, Mr. Bounthong Saphakdy, (NPD) and his deputy Mr. Soukhine Keomanivane maintain an office attached to the old DLF compound in Vientiane. Dr. Simon Funge-Smith serves as the Aquaculture Development Advisor. Two technical staff were appointed to be the project's provincial counterparts in each province. Besides serving as the main contact persons for the project, they are also the key persons to receive training and other technology transfer. In most cases, one counterpart is the head of the provincial hatchery and the other is appointed by PAFSO. At the district level, one technician is designated the project counterpart. He or she normally interfaces with the farmer groups in the villages. Three UNVs were recruited to station in Oudomxay, Sayabouly and Sekong. Occasionally, consultants have been employed to carry out special studies, for example, Ms. Una Murray as Gender & Socio-Economic consultant with Ms. Kesone Sayasane. Due to government staff shortage, the Aquaculture Trainers, Provincial and District Trainers have not been appointed to LAO/97/007. This lack of appointment understandably affected the Project training needs assessment and the formulation of extension training programme, although it was understood that the existing trainers at the central, provincial and district levels can be shared with FIAT Project. Every province, except Savannakhet requested additional staff for aquaculture activities.

VI.2 Organisational Arrangement

LAO/97/007 is one of the few projects that maintains offices at the central, provincial and district levels. It attempts to utilise existing government mechanism in implementing project activities.



** In some districts, DLFS may merge in with DAFSO and may not exist as a separate section due to lack of personnel.*

Organisation Arrangement for LAO/97/007

This type of arrangement allows the provincial/district counterparts to continue to work under PAFSO/DAFSO supervision, and yet receive technical backstopping from the Project. It maintains the existing line-of-command, strengthens the communication channel and promotes local accountability. Four out of five provinces positively identify aquaculture as a part of their work with LAO/97/007 providing assistance. Only one province (Xieng Khouang) views the Project as a separate entity operating on its own with assistance from the province. It is speculated that this view was a remnant of the previous project, LAO/89/003, that was implemented before Nex initiative. Weak communication linkage between PLFS and the state hatchery has been identified in Xieng Khouang and Sayabouly, mainly due to the distance and consequent difficulties in communication between the two offices.

VI.3 Technical Backstopping

The District Counterparts serve as the extension officers to the designated farmer groups in the target villages. The Provincial Counterparts provide technical support to the District Counterparts. The Vientiane Office provides both technical and management supports to the provinces and districts. The ADA and the UNV's in the provinces represent the main technical backstopping network from the central office to the target farmer groups. The immediate objective of the project is to develop a transferable aquaculture model at the village level. Therefore, the project efforts up to now have been put into enhancing existing aquaculture practices of fish culture in small ponds and rice fish farming among selected farmers, and the introduction of fry production and nursing fingerlings in cages. Technical backstopping has been timely in the sense that the farmers have either recently acquired new ponds, a by-product of the adjacent road construction (as in Sayabouly and Sekong) or have access to imported fingerlings from neighbouring countries (as in Xieng Khouang, Oudomxay and Savannakhet). The quality of the imported fingerlings from China, Vietnam and Thailand have been questionable. Fish farming techniques, particularly seed production is in high demand. The overall technical backstopping appears to be satisfactory.

VI.4 Planning and Implementation Reporting

The first immediate objective of the Project is to establish an aquaculture planning and implementation capacity within the DLF staff at all levels. The stated outcome is that the government staff can identify potential fish farmers to form groups, assess their training needs, design a feasible activity plan and execute an approved implementation plan. In short, the district staff with support from the provincial staff can carry out project management functions on their own.

Interview results consistently cited planning and reporting weakness at the district level and assessment at the provincial level also reveals that project management capability is also lacking in most provinces. In most cases these issues are being addressed or at least identified. Although the Project annual and quarterly workplans have been in good order with detailed discussion of activity, improvement can be made on a more analytical of quality and results, for example, the outcomes of training/workshop, its duration, contents and the breakdown of participants.

The current practice of planning in the Project involves elaborating on the selected items from the activity list in the Project Document such as select fish farmers, implement training, etc. and space them out in the Project time span. The provincial and district technicians keep up with the time-lines and focus on the activity in hands. Their immediate objective is that the productivity is up and the farmers are satisfied. The mission finds that this method is

appropriate at this time when the Project seeks to demonstrate aquaculture techniques that are new to both the farmers and the technicians.

The Project's aim is not merely to transfer aquaculture technology, it is also to nurture 'aquaculture project managers' who can spot potential sites, work with the target farmers, envision a common goal, establish localised objectives and, based on each objective, derive a workplan with sound activity compatible to the level of the farmers capability. The aquaculture project manager listens to the needs of the farmers, analyses them and facilitates assistance from bottom-up. It would be wrong to assume that every technician can be trained into 'aquaculture project manager'. It requires an attitude change from being a technician waiting for instructions to a self-motivator looking for action. It also requires appropriate knowledge and skill training. The presence of the aquaculture project managers will prolong the impact of LAO/97/007 after its ending in year 2000.

For the remaining period, it is **recommended** that the Project provide project management training to key technicians who are involved in the aquaculture planning and implementation, and encourage the government staff to run their own project management cycle starting with new farmer groups selection, planning, scheduling, monitoring and evaluation. The Project may take a step back and provide supervision from a distance. It may stress on reporting format and analyse the contents together with DLF staff. In addition to serving as a technical backstopping, the Project should also assume the role of information and management backstopping when needed.

VI.5 Budget

Many provinces reported a government budget cut of up to 70% of the requested operation budget. Furthermore, the local banks adopted a practice of limiting the maximum withdrawal to prevent currency exchange speculation, forcing them to further limit their budget access. State hatcheries have been encouraged by the government to be self-sustaining, though they are also expected to feed any surplus/profit into the government system. Xieng Khouang Hatchery in Kham District did not receive any budget at all in fiscal year 1998/99. In Sayabouly, field operation relies on transaction from Nex Support Unit. A delay in fund transfer puts off activity implementation. Multi-province project financial administration system as practised by the Regional Development Committee (RDC) based in Savannakhet seems to regulate cashflow and provide a transparent method of disbursement monitoring.

VI.6 Co-ordination with Other Projects

Co-ordination with other projects is limited so far, probably due to the technology try-out in this phase. Examples of co-ordination includes joint training in fish farming with the Eco-Development and Irrigation Project (EDI) in Beng District, Oudomxay and the sharing of aquaculture staff and equipment with SIDA and World Vision in Phalanxay District in Savannakhet. Despite the regular attendance of project personnel in the province-based Aid Co-ordination Working Group (ACWG) and the Technical Advisory Group (TAG, stopped since March 1999), integration at the programme level could have been stronger. There would appear to have a certain amount of duplication of efforts in group organisation or methodology development such as the approach to extension and credit, site selection process, etc. with projects such as FIAT, IPM, IRAP, CMI, Micro-Finance.

Co-ordination at the field level appears to be most realistic with integrated rural development project such as IFAD (Sayabouly), SIP-Dev and CFD (Sekong) and EDI (Oudomxay). Collaboration with NGO's is also feasible, particularly with those active in agriculture-forestry sector such as QSL (Xieng Khouang), CAA and SCF Australia (Sayabouly), The

Project appears to have started dialogue with many of these NGO's in the Sustainable Agriculture Forum.

There is also scope for closer working relationships and joint activities with other regional bodies such as the Regional Development Committee of southern provinces (RDC) based in Savannakhet. One of the avenues for collaboration is the support of the Nurser Network.

Although the potential to improve nutrition and generate income has been demonstrated, aquaculture development at this stage can only supplement a part of the farmers family food intake. The fry availability and its distribution chain are limited and the size of ponds or paddy fields is still relatively small. Although some farmers have become entrepreneurs specialised in fish farming, the majority of them still regard aquaculture as a part of their integrated farming system centred around rice production. To reach its full potential, aquaculture that has been treated so far as a separate and stand-alone undertaking, must be presented as a viable agriculture option supporting the national Food Security Programme. As an entry point to other village-level interventions, aquaculture can also play a key role in the Rural Development Programme. In the northern part of the country, it has been reported that some Lao Soung farmers constructed fish ponds and started fish farming, signifying an inspiration to stay in one place. Although it is premature to conclude that aquaculture has the potential to reduce shifting cultivation, the fact that it supports the national Land Allocation Programme cannot be denied.

What the Project has developed is the technical expertise that is available right now in selected provinces. It has been used by a few bi-lateral projects and NGO's in Savannakhet and Oudomxay. The common factors in these two provinces that facilitate cross-project co-ordination and distinguish them from the remaining provinces are the fact that PAFSO in these two provinces take strong leadership role in directing agriculture development in their provinces and consciously utilise project resources to their optimum. They promote a holistic approach to agriculture extension and encourage their district personnel to develop a multi-disciplinary approach. This scenario fits in with GOL motto of 'Co-ordination occurs at top level and efforts merge in at grassroots level in order to support local initiatives'

To promote a full-fledge aquaculture extension programme, the Project may need to go beyond its technical obligations and focus on questions such as:

- How to develop and strengthen the institution responsible for aquaculture implementation? Does joint collaboration among projects and donors in establishing a forum such as RDC in the southern provinces work in the northern provinces as well? If so, what is the role of LAO/97/007 in facilitating this? How can SESMAC assist LAO/97/007 in this process?
- What is the best way to improve the provincial and district project management capability? Can joint training with other projects or NGO's with special expertise be developed?
- How can a holistic agriculture extension programme be established? Can LAO/97/007 collaborate with other projects such as FIAT, PEP (in Champasak), IPM (in Vientiane) and a number of NGO's such as Sustainable Agriculture Forum (CUSO), etc.?
- Is there a need for an aquaculture database, an information system or a resource centre to hold all the extension materials produced?
- Can aquaculture work with the Ministry of Communication, Transport, Post and Construction? Can it work with UXO? Whenever a road is built, many fish

ponds are excavated on the road side. At the same time, fish ponds have been firmly established in many bomb craters all over the country.

- Is there a way aquaculture share with IRAP's approach to acquire local ownership in data gathering and analysis, prioritisation and bottom-up planning process, particularly in target group selection?

VI.7 National Execution

LAO/97/007 is one of the first national execution projects in Lao PDR. It is one of a few projects that involves the whole vertical hierarchy of national, provincial, district and village institutions. On the horizontal plane, it covers multiple provinces and in each provinces, involves at least 3 districts. National execution is not merely represented by the decision making authority by the national staff, but also by the ownership displayed in day-to-day management and the accountability assumed by the national staff. It can be said that such attitude is apparent in the provinces of Oudomxay, Savannakhet and Sekong. It is also gaining momentum in Sayabouly and Xieng Khouang.

VI.8 Cost Efficiency of Implementation

From the staff travel records, the ADA, NPD and DNPD take turn visiting the project sites in 5 provinces regularly. Their visits normally coincide with scheduled events such as training or workshops. It is hoped that, in the second half of the project, PAFSO would take more active role in the management of aquaculture development and that there could be less reliance on travel by the PMU to stimulate work at the provincial level, particularly with the departure of the ADA. At the moment, the UNVs in the three provinces that are relatively new to aquaculture appears to be well-placed in facilitating the promotion of local fish farming. As the input of the ADA and the UNVs gradually reduces in the last half of the Project, it is important that a new format of technical backstopping exist. It is **recommended** that a technical/management support mission be established, and a participatory impact monitoring and evaluation system, with farmer group involvement be set up before the end of 1999. One proposed method is the development of a logical framework matrix similar to the example presented in Annex D. Periodic missions and the impact monitoring & evaluation system should keep the Project progress in line with the agreed objectives and further enhance national ownership. Cost-efficiency could be further achieve through greater co-operation with other projects and organisations, as mentioned above.

VII. Project Activities and Outputs

VII.1 Activities and outputs

Overall the progress is more than satisfactory, where all types of activities has been initiated.

VII.2 Training Program

The training program has 11 components outlined in Annex VI of the project document. The descriptions provided are detailed enough to devise activities to fulfil the aims of the training components. As there are no indicators of how to assess the quality or impact of the training it can only be measured in terms of training performed. Below is a assessment of the training conducted the training program outlined in the project document and relevant comments on the activities.

Since October 1997, the Project has conducted 146 training sessions (days), the workshops and study tours accounts for a total of 4548 person-days. The total number of participants amounts to 1346 persons. A total of 114 female participants or 8% has been included. A list of training, workshops and study tours conducted by LAO/97/007 is included in Annex F. A breakdown according to the main training category is shown below.

	Category	Topics	Person-days	Percentage
1	Management	Project Management	80	
		TOTAL	80	2%
2	Technical	Integrated Fish Farming	180	
		Mini Hatchery	1230	
		Farmer Group	1350	
		Broodstock & Hatchery	231	
		Farmer Group Training in Fish Culture	792	
		TOTAL	3783	83%
3	Extension	Extension & Group Formation	144	
		FAO Aquaculture Extension	84	
		TOTAL	228	5%
4	Others	In-country Study Tour	183	
		Video Production	40	
		Study tour in Thailand	234	
		TOTAL	456	10%
		GRAND-TOTAL	4548	100%

Training Breakdown by Category

According to the table, LAO/97/007 has focused on the training of the provincial staff and every province reports satisfaction with the current technical training inputs. However, poor reporting and planning skills at the district level were pointed out repeatedly.

VII.2.1 Training of Trainers

This activity has not started yet but some initial work on establishing contacts with agencies willing to assist in designing and implement the training course has been made. This activity has been based on the assumption that FIAT project would be able assist in implementing this as it has capacity in the area of Training of Trainers (TOT).

In fact there the project counterparts have been used by FIAT in Oudomxay as a resource in their TOT activities.

It is a strong **recommendation** from the mission that efforts are made to undertake this type of training during 2000, using FIAT or other resources to assist in the development of a relevant training course.

VII.2.2 Training farmers in group organisation, etc.

This is a planned training to be followed after the TOT. As the TOT has not yet been undertaken this activity has not been initiated. It should be mentioned that farmer groups have been formed and there are certain elements of group organisation that has been addressed, but there are no clear direction on this matter presented in the planning of activities. It is here noteworthy to mention that the purpose and definition of the groups and their organisation and management are clarified as the terminology is somewhat vague. More details on the issue of groups are presented in Annex G.

Again it was expected that this would be done in collaboration with FIAT using the existing capacity in that project to implement this component of the training program.

It is a strong **recommendation** from the mission that efforts are made to undertake this type of training during 2000, using FIAT or other resources to assist in the development of a relevant training course.

VII.2.3 Training on fish farming systems to farmers

This component has been fully implemented where participating households have received several types of training. The main components are well structured in a logical sequence that is (as far as possible) timed with the appropriate season³⁰. The training components include fish culture, nursing and spawning.

The plan is to continue this type of training as needed for new groups (and in some cases as a 'refresher' for older groups).

VII.2.4 In-country study tours to existing groups and 'model farmers'

This activity was successfully implemented in 1998 for representatives of the groups. It is not clear however of the value of visiting the model farmers of LAO/89/003 as these households are likely to possess resources that the main target groups of LAO/97/007 does not have. The only argument would be to visit sites of established aquaculture operations. In all the activity seems to produce desired results in stimulating interest. A second study tour is planned for late 1999.

³⁰ The training is conducted before the beginning of the fish growing season.

VII.2.5 In-country training on hatchery technology for private hatchery operators

This activity has been successfully implementing stimulating several farmers to get into seed production. It is expected that this training will have a great impact on the stimulation of private mini-hatcheries producing fry and fingerlings.

VII.2.6 Study tour to Thailand on private hatchery operation

The tour was undertaken in July 1999, involving farmers and government staff, and seem to have generated some additional interest in hatchery operations.

VII.2.7 Study visit to Thailand and/or Vietnam on fisheries management for project staff.

This activity was not undertaken, however, a visit to Bangladesh on sustainable aquaculture and rural development by some selected staff have served to provide some of the intentions of this training activity. The activity would benefit from getting a clearer definition as the field of fisheries management is rather broad and different aspects would suit staff at different levels.

VII.2.8 Training/extension technique

This activity has been delayed and is currently scheduled for late 1999, where there is still a need to identify a suitable resource to help with the training. As this is seen as a component of great importance the mission is **recommending** that this activity receives high priority.

VII.2.9 Training on institutional credit procedures

This type of training has not been undertaken and seems to be viewed as of being of less importance. This assessment is probably valid as the issue of credit as a whole needs to be addressed before the procedures are investigated. As discussed in Chapter ?? the need for credit (for what? how much? how?) needs to be explored and may in the initial stages of aquaculture development be less of a critical concern, and may need to be developed as/if the groups are becoming more formalised.

The mission **recommends** that the issue is attended to, but not necessarily given highest priority in the short term.

VII.2.10 Provincial workshops on extension methodologies

This activity has not been undertaken and may not be of great urgency until the activity under VII.2.8 is addressed. It is however **recommended** that this activity is undertaken before the end of the project as to discuss and document the experiences of extension in the different provinces.

VII.2.11 National workshop on results of the fish farmers groups

A national workshop was held in 1998, and a set of two sub-national workshops are planned for 1999. The reason for trying sub-national workshops are that there seems to be of benefit to the participants and easier in terms of logistics.

VII.3 Baseline study and monitoring and evaluation mechanisms established

The project document is a bit unclear on the subject of baseline study and RRA³¹. In the strategy an RRA is to be done prior to selection of target districts and formation of farmer groups, but there are no such activities (planning and implementing an RRA) indicated under the activities in the project document.

A baseline study was to be undertaken in cooperation with UNDP projects in the provinces concerned (Activity 4.1.4.1) and such a study was undertaken in late 1997 to early 1998 and interviewed a total 430 households in 45 villages (14 districts) in the 5 target provinces. The information has been compiled in the form of a database and the data collected was analysed and is presented in Field Document 11. This report contains important baseline information of households and fisheries related issues. There are some reservations however in that the survey was based on a single visit using a questionnaire type data collection form, and quality of the returned information varies. Interpretation of results and conclusions drawn needs to be done with this in mind. Having said that the survey fills an very important function as the type of information collected is rare in Lao PDR.

There was no RRA undertaken prior to the selection of the districts. In fact, the baseline survey is often referred to as the RRA in progress reporting.

Under Activities 4.1.4.1 and 4.1.4.3 there were to be established a set of indicators of achievements and monitoring and evaluation mechanisms. These activities were initially addressed but met with difficulties in involving other players, and the fact that one of the proposed basis of the indicators, the UNDP SRF for agriculture sector, is too vague to be useful for this purpose. Thus verifiable indicators for the project achievement are not evident. Moreover, the lack of clear indicators and an in-house database programmer make the query of the database difficult and the design of a participatory Monitoring and Evaluation system impossible.

However, the mission is of the view that only certain provinces have both the need and capability to benefit from enhanced monitoring and evaluation systems at the present time and that, although the capacity to assess impact can be built up, the impact assessments are generally best carried out as separate studies by specialist institutions (such as research centres or universities). As no specific budget line is designated to monitoring and evaluation activities, further suggests that the mechanisms are to be developed on-site utilising the local resources including studies from other provincial projects.

It is the mission's **recommendation** that the development of indicators and ways of measuring these is addressed through a participatory process of creating a logical framework matrix for the project. Opinions should be drawn from the provinces and to be endorsed by DLF. This could signify a turning point for the remaining half of the project and assist in the implementation when national execution paves way for provincial execution. This may serve as a useful starting point for any possible further support in this area. As the objectives stated in the project document are not mutually exclusive, the example of how a logical framework matrix for the project may look is provided in Annex D.

VII.4 Target sites identification and co-ordination

The project document states that target areas should be selected on the basis of the results from the RRA and in collaboration with provincial authorities. Lacking the RRA the actual

³¹ It is assumed that this is meant to mean Rapid Rural Appraisal/Assessment, which is one way of collecting data from the field using a flexible approach.

procedure for target sites identification has been done mainly in close dialogue with the provincial authorities and in general the province has decided where the effort is to be focussed. This can be considered generally satisfactory though the poverty orientation can not be cross checked against RRA information.

Co-ordination with other organisation has been variable. Where there are other projects involved in the same sector (such as in Savannakhet) the co-ordination has been good. In other areas there is less evidence of regular contact and co-ordination efforts. It is clear that there has been several and continuous efforts to initiate dialogue with other projects (sending reports and other materials) but being based in Vientiane (the project with NPD, DNPD and ADA) attending fora and other regular meetings in the provinces is a logistical constraint that should not be underestimated. UNDP initiatives in Oudomxay and Sekong have very frequent planning and co-ordination meetings that are near impossible to attend by senior project staff (though provincial counterparts are attending some of these meetings).

The main **recommendations** from the mission is to continue the effort to attend information exchange and co-ordination meeting as often as is logistically possible.

VII.5 Group formation

The actual group formation activities are not very well established. As there has been no specific training in group formation and management most groups were formed on the basic principles of having a resource (pond or suitable ricefield) and interest (coming to the meeting when groups were formed and information about training, etc. were given). There are no evidence of any active promotion of including poorer farmers in groups (no wealth ranking, etc.), neither is there evidence for continued work with the groups in terms of solidarity building and other group dynamics aspects. It can justifiably be argued that this was not needed at the initial stages and it was important that the project 'proved itself' both to provincial and district staff as well as to farmers.

It is however the mission's opinion that the time is now right for more attention being paid to the groups. The impression is that in the future more effort should be put at trying to get poorer households involved (recognising the limits of aquaculture to reach the poorest of the poor) in the aquaculture groups. It is also time to try to determine the role of the group. As discussed in Annex G groups are of many types and for many purposes. Whether the cohesiveness and interest of the group members is such as to lead to a more general community development role or to credit access, or joint marketing or purchasing of inputs will have to be worked out with the different groups as there is clearly different needs in different areas.

To address the issue mentioned above the mission **recommends** to initiate the training of government staff in group management issues as described briefly in Annex VI of the project document (see Section VII.2.2).

VII.6 Gender and ethnic balance

The ethnic and gender balance of the project is generally satisfactory though some attention to the role of women and the type of extension advice provided may required.

VII.6.1 Gender

In February 1998, a study of Gender and Aquaculture in Lao PDR was carried out through the Support for Technical Services (Murray and Sayasane 1998). Its objectives were to analyse the socio-economic and gender issues in aquaculture and provide recommendations

for project design and implementation. The study generally confirms results from studies elsewhere in much of Southeast Asia. Concluding that both women and men actively involved in aquaculture with different roles at different stages of fish production cycle and much of the work is shared (with the heavy jobs such as pond digging is done by men and feeding is done by women and children). Women are often in charge of the marketing of the fish and has generally control of the day to day expenditures (in control of money). Any larger decisions (with money or time) are usually done in consultation between the partners. Other factors such as economic household position, investment capability and age also contribute to variations in aquaculture involvement. There are some stricter division of labour among the smaller ethnic groups (Lao Theung and Lao Soong).

The study recommends more involvement of women farmers in group formation and aquaculture training. Gender sensitivity training in aquaculture for government staff was also recommended. The study encouraged the Project to link up with other institutions, such as the Lao Women's Union.

From observation, the mission confirms that women take an active role in aquaculture. Often, the fish pond or the rice-cum-fish practice was initiated by women. One mini-hatchery was started and managed by the wife of a farmer. In fact, the hatcheries were referred to by the women's names. A number of woman group leaders appear to be elected in various farmer groups. However, it is also true that in public meeting including training, women tend to abstain their presence, or if they attend, withhold their opinions. If this trend continues, men will take over the farmer group. It is a common practice now to have one vote per family in the group and the male partner often attend the voting session. Unless the women is outstanding in her management skills and somebody nominated her in her absence, she will not have the chance to join the rank of the management team.

It is **recommended** that, on a trial basis, two votes per family (one per adult member), instead of one, be allowed in the next round of group leader election. This could encourage women to participate and provide a more balance gender impact.

Of all the districts visited, the mission encountered only one woman district counterpart (Ms. Khambang in Xieng Khouang). In a traditionally male-dominated discipline, a woman extension worker can induce many positive changes concerning gender issues. Although it is outside the scope of this Project, whenever possible, the Project personnel should encourage more woman applicants to higher education in this specialised field.

VII.6.2 Ethnic balance

The issues of ethnic balance in the groups has been addressed in a pragmatic manner where different provinces has found different ways of addressing it. in some cases the groups are generally village based and the villages uniform in terms of ethnic makeup, in other areas groups are made up from many villages and the groups rather mixed in terms of ethnic composition. In the provinces where ethnic groups are intact, it appears that the government staff supervised the groups formation so that all groups are present. In Sekong, ethnic conflict have been unheard of for 20 years. In Sayabouly, tribal tradition and culture were recognised and honoured by the government staff. In general the issues related to the ethnic balance has been addressed and the project staff and counterparts were all aware of the issues and had had no issues of conflict with regards to ethnicity.

It appears that most of the ethnic minority engaged in aquaculture in the current intensive sites have made a conscious effort to move down from the upland areas and assimilate with the Lao Loum majority. The fish ponds and rice fields that situated along the road side or

irrigation canal dictate such movement. It should be noted that the farmer groups are still operating as a medium between the project and the fish-farmers for technology transfer. As the groups production expands, issues such as personal profits, market share, land and water allocation, etc. will emerge. The mission **recommends** that the project strengthens the group management and take measures to install mechanism to be able to resolve future internal conflicts that may occur.

VII.7 Extension materials disseminated

The extension materials prepared and distributed are to be used in conjunction with visits to the groups they also help in assisting other organisations in addressing fish culture issues constrained by culture techniques. The materials are rather visual and contains limited amounts of written text (and important aspect with respect to levels of literacy). Materials from LAO/89/003 are not suitable for dissemination to the intended target groups of the project and the focus should be on the materials produced by the project.

The current materials, however, are rather prescriptive and so does the extension methodology seem. As indicated in Section VII.2.8 training in extension methodology (which is intimately coupled with the extension materials used to support it) should receive highest priority (as is probably already doing so). In terms of the content of the training the mission **recommends** that attention is paid to the role of participatory action learning (PAL³²) approaches to further stimulate farmers to do their own 'experimentation' with fish culture and foster an inquiring approach to aquaculture.

VII.8 Hatchery facilities and fish seed production

VII.8.1 Government hatcheries

The provincial hatcheries in Savannakhet, Oudomxay and Sayabouly are close to completion and are expected to lead to an increase in fry and fingerling output. The construction of the hatchery in Sekong is nearing completion and is expected to be operational before the beginning of the 1999-2000 fish growing season.

All in all the activities in this area have been implemented successfully and are expected to give good results. It is however difficult to say how an important role the hatcheries will play in the future as private sector seed production gains momentum. Pak Bo hatchery in Savannakhet has already plans to slowly shift emphasis to providing high quality broodstock to private spawners and running 'mobile hatcheries' to deliver seed to nursers in the nursing network.

VII.8.2 Private sector hatcheries

The private sector is rapidly picking up speed in fingerling production as this is a highly profitable enterprise. The support the project has been giving, through provision of training and some basic equipment, has been instrumental in this development and should be viewed as a very successful achievement. The development is apparent in all the provinces though more so in some than others. It should be mentioned that the support to private hatchery

³² This is a technique extensively used in IPM and other crop oriented extension programs. It lends itself to aquaculture as it has a short turn-over period and the individual units are divisible (loosing a few fish is not the same as loosing a cow). For further information on the types of activities one can look at what FAO IPM program, IRRI, CARE, and other field implemented IPM programs have done. There are also certain ideas in place particularly for aquaculture.

operators is somewhat of a dilemma for a development project with a poverty focus as the successful cases should be left to their own as soon as possible as they often quickly fall outside the target group (becoming richer), and unsuccessful cases should be abandoned as they should not draw on project resources (as they do not contribute to the production of seed).

VII.8.3 Provincial seed production

It is expected that the private production will in the near future exceed the production from the government hatcheries and it would be timely to initiate a process to review the roles of the government hatcheries in the medium term, this has already begun in Savannakhet and as appropriate this should be considered for the other stations as well. The mission would **recommend** that attention is paid to upgrading the capacity of broodstock management in the long term (post project effects) for the government hatcheries.

VII.9 Farmers involved in rice-fish farming, pond culture and integrated aquaculture

Farmers are generally receptive to the aquaculture techniques promoted by the Project, and immediate results are evident. Every fish farmers engaged in rice-cum-fish and/or pond culture visited by the mission provides positive feedback. Private small holder engaged in mini-hatchery activities expressed great appreciation for the Project. Almost every farmer wants to expand their operation. Overall, aquaculture activities, at the current level of intensification, shows great potential in rural Lao setting.

Although the technology is well received by the fish farmers, the methodology for aquaculture extension for Lao PDR remains a question, particularly when LAO/97/007 ends in year 2000. What is the best aquaculture extension strategy? Does the group extension process work? What are the training needs for farmer groups and the extension staff? How to optimise the logistics of fry production, nurser network and table fish production?

The self selection process utilised by the project results in mostly committed farmers with keen interest in receiving new aquaculture techniques. But, they may not fit the 'low-income' bracket targeted by the project. However, this selection criteria may be considered appropriate in the initial stages considering the fact that the project needs to 'prove' the technology during this phase. In such case, it is **recommended** that in the next round of selection, more 'low-income' farmers are considered for being part of the groups.

The formation of the group appears to be for the purpose of training and receiving fish fry at a subsidised price. Group members view themselves as selected to receive such privileges, and the rest of the villagers will have their turn later. The obligation of the successful farmers to take part in a future extension program was not communicated. It is not sure that they will share the techniques learnt from the Project with other farmers (though some interviewees explicitly stated that they would do that). Furthermore, it is questionable if the groups will remain intact after the project stops, even though most of the farmers will continue aquaculture activities. The objective of the group was unclear.

Any attitude of self help³³ in the groups were not evident. Group members expected the project to hand out small equipment that they could have procured collectively, if not individually. It was observed that group interaction was in many cases at minimum. Information exchange, mutual problem solving or sharing of new discovered techniques

³³ The term should be taken in its most general term, meaning the will to rely on one self.

probably exist informally among friends, but it is not evident that they are brought up in group meeting. Only one farmer group maintains a regular monthly meeting. Group leaders serve as a contact point between the project and the members. Leadership and management skills are not evident. None of the group initiates a charter or a set of rules and regulations. As a result, new member enrolment rarely occurs, apart from when initiated by the project.

In Sekong, it is the impression of the mission that the district counterparts visits individual households, even though they are in the same vicinity. When asked for explanation, the answer was that it was difficult to co-ordinate a meeting when every member was available. The counterpart claims to make 3 rounds of visit per month. With one farmer group of 15 households, he would be making 45 visits in a month. This is not a self-sustaining extension method for a province severely short of staff, it is actually a version of the Training & Visit system that the group approach is attempting to bypass as this require a lot of staff on the field level (Edwards and Demaine 1997).

It is **recommended** that the project take a more systematic approach towards group formation and strengthening. There is much to learn about group dynamics in rural Lao villages. The Project may take active collaboration with other projects such as FIAT, CMI or other NGOs in further developing the extension methodology. At the same time, the Project may launch a training needs assessment for the farmer groups and the district staff and proposed a streamlined training program. The Project should also consider documenting lessons learnt during its 3 years of implementation so that it can be used as a guideline for future replication.

VIII. Project effects, impact and their sustainability

VIII.1 Replication of project outputs

In order to assess the potential for the replication of the project outputs there is a need to define what part of the outputs and in which way. It is clear that one of the stated aims of the project to have achieved a "self-sustaining aquaculture development programme"... "that the DLF could replicate in other provinces not covered by the project without external assistance". As described in Section III.5.2 this is a unrealistic aim as none of the necessary provisions are part of the project document, such as a fulfilment of the precondition stated in section 7.2 of the project document. Commitment of cash funds towards the actual project activities in the appropriate national budget line to ensure smooth take over by the government is lacking. This should have been reflected in a national cash contribution under the budget lines 15 (duty Travel), 21.02 (printing of extension materials), 45.05 (operation and maintenance of motorcycles) and some contribution towards budget line 33 (training). As the project document is presented there is no such contributions.

However it is more realistic if one focuses more on the possibility of replicating the approach (and assume that funds will be found in one way or another) as this has more potential. The fact that the project has adopted an minimal cost approach to extension advice is trying to ensure that any funds available for implementation will be used in an efficient way.

It is the conclusion of the mission that there is substantial functional sustainability from the project in the provincial capacity of aquaculture development, however it cannot be expected that the provinces can implement this to its full extent without external financial support for field activities and training.

VIII.2 Effect and impact

The overall effect of the project is an increased production of fish by rural households. In 1999 some 567 households are producing fish in some 54 ha of ponds and 58 ha of rice fields in five provinces. The total fish production expected from this should be in the order of 25 tonnes. If fish is prices at around US\$ 1.00 per kg this is worth US\$ 25 000 on an annual sustained basis.

The impact is more significant that the gross production figures alone³⁴ as it is producing it in the rural areas where it is needed, and produced by rural households who benefit from it. The impact on households are discussed in section VIII.4 and it is here sufficient to say that participating households are clearly net beneficiaries of this activity.

The other important impact is the achievement of momentum in the development process, where there are now staff on provincial and district level that are confident in extending fish culture. There is also a substantial group of households who have shown others that fish culture is a worthwhile activity.

In short the impact of the project can be summarised as having better trained provincial and district staff (though some aspects of the training is lacking), the staff has field experience in fish culture through two growing seasons and have stimulated farmers through training and provisions of initial inputs (fish fry and some simple equipment) to drastically increase their fish production.

³⁴ As one large fish farm such as Tha Ngone (Vientiane Prefecture) is capable of producing several times that amount in one year.

VIII.3 Achievement towards development objective of the project

There is definitely progress towards the development objective of the project, but as there were no clear indicators for this it is not possible to say how much progress. There is also progress towards the immediate objectives, but as stated in Chapter IV lack of indicators makes it difficult to assess how much progress.

What can be said is that increased fish production of the participating households have provided fish for consumption and/or sale and thus impacted positively on animal protein intake (a nutritional improvement) and income generation (increasing household income), which is progress towards the development objective.

It can also be said that the capacity of government staff to promote aquaculture to rural farmers has improved and is beginning to form the basis for a suitable aquaculture development program in the five provinces, which is progress towards immediate objective number 1. Fish fry supply has definitely increased, which is progress towards immediate objective number 3. As described in Chapter IV.1.2, the immediate objectives 2 and 4 are not relevant as separate objectives. All in all, the project is on good track with respect to achieving the overall goals.

VIII.4 Impact on income levels and nutritional status

The project has only been going for one full growing season and is in the middle of the second season. This makes any detailed study of the impact on income levels in participating households impossible. For the households that are involved in fry production (through the promotion of mini-hatcheries) are clearly benefiting from the activity, where after only one season of operation several of the interviewees demonstrated incomes of several million Kip. It should be borne in mind that fry and fingerling production (hatcheries and nursers) is generally the most profitable component of the aquaculture production chain, but is limited to a smaller number of entrepreneurial farmers who have favourable circumstances, such as proximity to major road, keen drive for experimentation and business³⁵.

An earlier assessment of the impact on household income levels among those practising aquaculture in the Lao context (Wysocki and Friend 1998) indicate that low input aquaculture using mainly on-farm (or gathered) inputs is the most viable system.

Through interviews with farmers in participating groups there is a general picture that aquaculture is perceived profitable (or at least potentially so), especially with fish prices for cultured species being in the range of Kip 10 000-15 000 per kg. It was seen as a preferred form of livestock rearing as the perception was that fish had few disease risks, were easy to feed³⁶, readily marketed and convenient to have around the household.

Household interviews showed that fish is produced and consumed, this suggest that fish culture activity has had a positive effect on the nutritional status. What is not as clear is if other sources of protein earlier utilised is now not used making the total protein intake less. There is however no clear indication of this happening, where most families are still

³⁵ A lot of physical constraints such as limited water supply and lack of space for nursing can often be overcome as hatcheries use relatively small amounts of water and limited space.

³⁶ An interesting point was raised on a few occasions where it was pointed out that an advantage with fish was that they were quiet and did not make noises if one forgot to feed them.

collecting wild aquatic animals from the fields, apart from some cases where the convenience and time saving of taking fish from the pond has resulted in less foraging for fish³⁷.

The base line survey data suggest that the total intake of animal protein is 66 kg/person/year in the target areas, this is more than sufficient if the vegetable protein and calorie intake from rice, etc. is sufficient. So while families participating in the project are not in dire need of animal protein the project impact is clear in improved opportunity for income generation and scope for improved nutrition.

VIII.5 Impact on government capacity

The apparent impact on the capacity of the government staff to undertake aquaculture development activities is an improvement in technical capability as well as managerial skills such as planning and reporting. It should be said however that there is still a great need for training of the staff associated with the project.

The provincial authorities were generally convinced that it would be possible to continue the promotion of aquaculture after the project support is finished, albeit in a rather scaled down mode (due to financial constraints). They were also positive to the improvement in not only the technical capacity of the participating staff, but placed relatively high value on the improvement in reporting (particularly at district level where reporting skills are often very limited).

In terms of the capacity of government staff it is clear that the project have had substantial positive impact. It is clear however that the government will be unable to maintain the level and intensity of field activities after the project support ends as the financial resources available are insufficient. This may put into question the sustainability of the project impact, and this aspect is discussed in more detail in Section VIII.8.

VIII.6 Impact on environment

VIII.6.1 The Environmental Overview of Project and Management strategy (EOP/MS) for LAO/97/007

As proposed in the project document an environmental impact assessment of the project was performed at the inception of the project implementation (Potkin *undated*). The Environmental Overview of Project and Management (EOP/MS) strategy of LAO/97/007 presented how the project design failed to meet some of UNDP's guidelines for Sustainable Development and Environmental Management.

The analysis is, however, rather incomplete and the conclusions drawn on several points are either technically flawed or based on assumptions that were incorrect (possibly due to an incomplete understanding of either the project document, small scale aquaculture development or the circumstances in rural Lao PDR).

The EOP/MS report suggests that adverse environmental impact may result from conversion of "natural wetlands" into aquaculture as this has resulted elsewhere (lack of definition) in impacts on biodiversity and damaged capture fisheries³⁸. There is no indication in the project proposal that natural wetlands (which is not defined in the EOP/MS review) are to be

³⁷ This suggests that these families are not short of animal proteins, if they were, they would probably have continued collecting wild animals.

³⁸ As this is written it seems to refer to the alleged damage of coastal shrimp culture on the coastal fauna and near-shore fisheries.

converted into aquaculture ponds. Indeed general recommendations for pond construction for small scale aquaculture tends to be to dig a pond close to the house - to ease the work in feeding, fertilising and looking after the fish as well as avoiding the problems of theft - which is rarely a natural wetland.

Further, there is an assumption that the project is striving for an intensification of aquaculture leading to the use of agricultural residues (by-products) as pond inputs, which in turn would lead to effluent from the ponds which may damage downstream environment through nutrient enrichment and eutrophication, as well as pollution through increased use of antibiotics (more commonly used in shrimp culture and other intensive culture systems such as salmon, but is rather rare in low cost inland aquaculture). This is based on a flawed assumption that the project will promote intensive methods for fish production, indeed the opposite is true as extensive methods are more appropriate for rural Lao. Furthermore, it shows a lack of awareness of the available agricultural residues in rural Lao PDR, and seems to be based on experiences of the South Asian sub-continent where pressed palm-oil and soy-bean cake are relatively abundant resources³⁹. The claim that the project may be underdeveloped in terms of Ecological sustainability is an unsubstantiated and seemingly uninformed statement when referring to small scale rural aquaculture as promoted by the project.

A further issue identified was the associated fuel cost (from district workers visiting the farmer groups) of one litre for each kg of dry fish yield realised by the 2 500 farmers expected to be reached by the end of the project. Apart from the fact the actual calculation is wrong and should be less than 0.3 litres per kg dried fish⁴⁰, this implicates that the same farmers would be needing the same intensity of visits to be able to produce the estimated amount of fish on an annual basis. This is not the intention of the project. Furthermore, the money spent on travel costs are to ensure that the equity and poverty alleviation⁴¹ aspects of the project. If one were to focus on the most efficient way of producing fish an alternative approach (balancing the fish production against energy consumption as proposed in the EOP/MS review) would be found (such as large scale semi-intensive aquaculture), but this approach would not have the means of ensuring that the benefits were realised by the rural poor - the ultimate beneficiaries of the project.

The suggested approach to formulate the project addressing energy costs, effluent effects, potential economic and social disbenefits and policy considerations is not providing direction to a project like LAO/97/007 as it is production oriented and as such needs to look not only at energy but also at nutrients (which cycles and needs to be reused unlike energy in a agricultural system which assimilates energy from the sun), as well as the equity issue (targeting the poor) which is rarely the most economic method in terms of pure production. Economic and social disbenefits are likely to be realised by the government and its revenue sources as reaching the poor with careful development is a costly business.

Finally, the proposals for how to improve the performance of the project are rather ill defined and poorly focused. The first proposal to develop an "ecological component" to focus on ecosystem issues such as biodiversity (the particular biodiversity issues are not defined), habitat change (it is not defined if this means the rice field habitat, small pond habitat, or some other part of the farming system), species introduction (the proposal does not suggest the introduction of any new species and the EOP/MS review is not specifying in what

³⁹ Indeed one farmer in Sekong complained that there were not enough available resources to be used as fish feed.

⁴⁰ Based on that the 2 500 households' yields are around 45 kg per year (the recent project statistics) and that fish is 30% dry matter.

⁴¹ In other words, to ensure that the intended target group is reached.

context), water quality (this may refer to ricefield water, pond water or river water potentially affected by the aquaculture activity⁴², though this is not defined in the review) and disease risk (the emphasis on those of an epizootic nature usually associated with intensive aquaculture).

It also proposes that these aspects could be integrated into an extension media package, presumably for further dissemination, but no indication to which target group (provincial and district staff or farmers).

It is noteworthy that the potential environmental risks through uncontrolled importation of fish from Thailand, China and Vietnam is not mentioned in the analysis, though it is mentioned as a potential risk in the project document.

On another note it is interesting that the consultant makes the observation that "poverty eradication is not necessarily supportive of biodiversity"; as biodiversity is not mentioned in the eight criteria UNDP has set for sustainable development. Biodiversity and preservation of the environment is however, central to the Rio Declaration and is implicit in Brundtland Report on sustainable development. The section on how UNDP could prevent lack of sustainability in its future projects is not providing any useful guidance as it effect states that in poverty eradication there often has to be made trade-offs between short term gains (desperately needed) and long term sustained utilisation of the resources.

All in all the EOP/MS report is deficient in assessing the proposed project in terms of environmental impact and is not providing any clear directives of how to address the perceived adverse impacts. Neither does it provide clear strategic changes to the proposal to take potential negative effects into consideration.

VIII.6.2 Potential environmental impact

The potential environmental impacts should be seen from the perspective of what the development of the rural aquaculture sector can potentially lead to. The current (measurable) effects on the environment by the project initiated activities are almost non-existent apart from potential very local effects from fish escaping during flooding and discharge of nutrient rich waters. It should be said that these effects are likely to be very limited in scope. The issue of exotic species used in aquaculture and their potential effect on the indigenous fish fauna (and production) seems to be limited and the species promoted by the projects are not any new species, the main ones (*Barbodes gonionotius*, *Oreochromis spp.* and *Cyprino carpio*) are either indigenous or are already established in the region. The project should however be aware of potential effects and take precautionary steps as appropriate.

However the more long term effects the disease and genetic dilution risks through sustained or increased importation of fish seed from the neighbouring countries. As there are no controls⁴³ or standards for transports and importation of aquatic animals this poses a potentially serious threat to the aquaculture fish stocks in Lao PDR. Furthermore, imported fish resistant but carriers⁴⁴ of disease vectors may potentially pose a threat to natural (and wild) fish stocks in the country.

⁴² Several studies have shown that the actual potential nutrient pollution from small scale pond culture is negligible as much of the available nutrients, not absorbed by fish in the pond, are either released back to the atmosphere (such as nitrogen) or bound up in the sediment (such as phosphorus).

⁴³ In fact there are some rudimentary controls on the importation of animals but these are rarely implemented effectively along the borders, though recently there has been some tightening of controls in Savannakhet.

⁴⁴ Referring to animals that carry the disease but are not affected by it.

Another potential (positive) environmental impact of the project is that promotion of rice-fish culture may slow down and reduce the spread of pesticide use in rice cultivation may be slowed down or reduced with positive spin off effects for other aquatic animals and plants and the environment in general.

It is **recommended** to continue the approach of trying to achieve self sufficiency in fish seed supply to minimise the need of imported seed, minimising the risks mentioned in the previous paragraph.

VIII.7 Cost-effectiveness

The project has focussed on a minimal cost of any intervention and has intentionally tried to keep costs at a minimum. This was apparently done partly in response to requests from provincial authorities. As such, the cost of intervention to stimulate aquaculture (provision of fry and some equipment) is kept at a minimum and is deemed to be appropriate as the capacity of the provincial authorities to keep up such activities is more realistic.

There has been a reasonable balance between cost and quality with respect to training, where there is always a difficult path to go. It can be argued that the project has not succeeded in performing joint training with other projects (with specific reference to UNDP supported projects), but organising such activities are time consuming and sometimes not cost effective if the time of senior staff devoted to such arrangements are costed in. The mission was unable to assess to what extent there had been clear scope for such opportunity on a cost savings basis⁴⁵.

There are no evidence of misuse of funds and a recent audit of the project indicated that the accounting was satisfactory with minor adjustments needed. All in all the project seems to have been cost-effective in terms of implementation arrangements.

VIII.8 Sustainability

In assessing the sustainability of the project it is essential to separate the different types of sustainability. On one level the project document is aspiring to initiate a aquaculture development process that after 3 years can be taken over, *and continued*, by the government. As indicated in Section VIII.1 this is rather optimistic and there has been no clear provisions in the project to prepare for that. On a more realistic note the government probably does not have the necessary resources to do so as increased resource allocation to this area would mean that another area will face a cut in resources.

If the sustainability is measured in sustained capacity of the government to promote aquaculture development there are clear evidence that provincial level capacity is going to be maintained (if there are financial resources for field work) and generally a commitment to this work.

In terms of sustained impact on the farming households it must be said that all interviewed families (even ones that 'failed' in the current season) are committed to continue and even if government extension activities are discontinued there will be a spread from farmer to farmer, albeit at possibly a slow rate. Fingerling demand is still high and the initial farmers involved in hatchery and nursery operations are very likely to continue even with limited technical knowledge as the profit margins for fry production is likely to remain high.

⁴⁵ There are other issues of competence and capacity but these are discussed in Section VII.2.

In all, apart from the financial aspect of the sustainability the project has produced sustainable outputs and these can expand if there is provisions of additional funds for further implementation.

IX. Lessons learnt

There are some lessons to be learnt from the experiences of the project. These are of three kinds outlined below.

Firstly, it seems evident that one reason for the success in implementation of the project is the fact that after signing of the project document there were several actions taken to ensure understanding of the project aims and facilitate participation of all partners. The project document was translated into Lao as to facilitate the understanding, particularly on provincial level. A workshop involving provincial staff was held to explain and discuss the aims of the project. Finally an annual workplan was organised to detail the activities in the immediate future, here the initial list of activities was prioritised and rationalised for implementation. These aspects of encouraging participation by collaborators has helped in creating ownership. The possibility to be involved and affect the project in the inception is an important factor. As recommended earlier UNDP/FAO may consider encouraging some sort of inception report to allow modification of the original project document to suit particular circumstances better.

Secondly, it is also clear that the fact that the project message is concise and easy to understand, to grow more fish, is part of the reason for successful implementation. A more complex issue such as solidarity building for improved self help will automatically be more difficult to implement and measure in terms of success. The fact that the aim of the project is a clear production based issue, readily measured by farmers and district workers makes the implementation easier.

Thirdly, there seems to be substantial evidence for that aquaculture (and fisheries in general) is a good entry point into rural livelihoods. It is easy to stimulate discussion in and around fish production. It is easy to involve people as there is a general interest in producing fish. It should be remembered that aquaculture has some limitations in reaching the poorest of the poor but it is still a very good starting point. This fact should be considered when planning more comprehensive initiatives. It may be useful to study the approach taken by RDC which initially starts with fish production and is now planning to use this foothold in the villages to develop livestock, agronomy and forestry issues. Once confidence is developed there is scope to branch out into more difficult/complex issues of rural development.

X. Bibliography

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DEPARTMENT OF LIVESTOCK AND FISHERIES

FISHERIES DIVISION



PROVINCIAL AQUACULTURE DEVELOPMENT PROJECT (LAO/97/007)



MID TERM EVALUATION REPORT

ANNEXES

SEPTEMBER 1999

BY

BRETT TAN

HAN CHOUNDARA

HANS GUTTMAN

ANNEX A: Terms of Reference for the Evaluation

TERMS OF REFERENCE FOR THE EVALUATION OF THE PROVINCIAL AQUACULTURE DEVELOPMENT PROJECT – LAO/97/007

BACKGROUND

The Provincial Aquaculture Development Project - LAO/97/007 was signed between the Government of Lao PDR and UNDP Country Office on 26 June 1997. Project activities started October 1997. The project is nationally executed (Department of Livestock and Fisheries, Ministry of Agriculture and Forestry) and built on the achievements of the earlier UNDP supported and FAO-executed aquaculture development project (LAO/89/003).

The current project is working in 14 districts in Oudomxay, Sayaboury, Xieng Khouang, Savannakhet and Sekong Provinces. Technical assistance and training is also provided to government Livestock and Fisheries staff, NGOs and interested Development Organizations in other provinces. The project objectives are to:

- Improve fish fry production from government hatcheries through structural improvements and training
- Encourage fish fry production by farmers/entrepreneurs through extension of simple appropriate techniques.
- Develop the capacity of Department of Livestock and Fisheries staff to plan and conduct extension of fish culture techniques to farmers.
- Form farmers groups and introduce them to fish culture as part of Department of Livestock and Fisheries extension process.
- Assist farmers and hatchery entrepreneurs in starting their activities through provision of fish fry, broodstock and simple equipment items.

The ultimate output of the project is expected to be a sustainable aquaculture development approach, which the executing agency can replicate in provinces not covered by this project.

The UNDP budget input for LAO/97/007 (from TRAC Funds) is \$913,267. To date, UNDP total input is US\$ 913,267 with additional funding totalling \$237,600 for technical support from FAO through STS and SPPD agreements. Japanese Government contributions to the project are US\$ 153,000 (Sekong Hatchery Station construction and one UNV Aquaculture Specialist).

PURPOSE OF THE EVALUATION:

At the mid-point of the project, the evaluation is intended to make recommendations for any necessary changes in the overall design and orientation of the project and make detailed recommendations on the work-plan for the remainder of the project. The mission will:

- a. draw lessons from the project's experience for possible application in other provinces. This should include both development/extension aspects and project implementation under NEX.
- b. provide comments and recommendations regarding:
 - the future direction of the project.
 - enhancement of the sustainability of project interventions/activities.

- the government's capacity to implement an aquaculture development strategy that is self-sustaining and can be replicated in other parts of the country.

SCOPE OF THE EVALUATION:

The mission will assess the:

- a) Relevance of the project to development priorities and needs taking account of:
 - the achievements of previous UNDP assisted projects in the sector and the "capacity" of the government staff within the DLF (central) and provincial Livestock and Fisheries services,
 - the appropriateness of the project, with respect to the resource base and socio-economics of Lao rural livelihoods.
- b) Clarity, and realism of the project's development and immediate objectives, including specification of targets and identification of beneficiaries and prospects for sustainability.
- c) Quality, clarity and adequacy of project design including:
 - clarity and logical consistency between, inputs, activities, outputs and progress towards achievement of objectives (quality, quantity and time-frame);
 - realism and clarity in the specification of prior obligations and prerequisites (assumptions and risks);
 - realism and clarity of external institutional relationships, and in the managerial and institutional framework for implementation and the work plan;
 - cost-effectiveness of the project design.
- d) Efficiency and adequacy of project implementation including: availability of funds as compared with budget for both the donor and national component; the quality and timeliness of input delivery by both FAO and the Government; managerial and work efficiency; implementation difficulties; adequacy of monitoring and reporting; the effectiveness of the co-ordination mechanism between central and provincial levels related to project implementation; the extent of national support and commitment and the quality and quantity of administrative and technical support by FAO.
- e) Project results, including a full and systematic assessment of outputs produced to date (quantity and quality as compared with workplan and progress towards achieving the immediate objectives with reference to the indicators and success criteria listed in the project document), including:
 - development of Government and local staff capacity to identify, plan, implement and monitor small-scale rural aquaculture projects,
 - extent to which project outputs have been utilised by other rural development projects and the Government
 - extent to which gender aspects and equity issues have been adequately addressed.
- f) The prospects for sustaining the project's results by the beneficiaries and the host institutions after the termination of the project, including :
 - To what extent are the human resources capacity developed within the project being used effectively, (including the fish farmer groups trained under the project)?
 - Will the Government be willing and/or able to operate and maintain the facilities renovated/installed by the project (e.g. Government commitment in terms of management and staff resources, physical facilities and equipment)?
 - To what extent are the techniques and methods used by the project, appropriate and transferable within rural Lao PDR.
 - What, if any, are the potential environmental impacts of the project?
- g) The cost-effectiveness of the project in comparison with alternative approaches.

Based on the above analysis the mission will draw specific conclusions and make proposals for any necessary further action by Government and/or FAO, UNDP and other donors to ensure sustainable development, including any need for additional assistance and activities of the project prior to its completion. The mission will draw attention to any lessons of general interest". *Any proposal for further assistance should include precise specification of objectives and the major suggested outputs and inputs.* Recommendations will in particular address the following:

- a. If project objectives are not being satisfactorily attained, should further initiatives be pursued to attain the objectives? If so, what form of intervention should be pursued (including follow-up technical assistance) and would be recommended? Identify appropriate parties for implementation.
- b. If the analysis of project sustainability reveals problems, what are the perceived constraints, and what further actions (including follow-up technical assistance) are recommended? Identify appropriate parties for implementation.
- c. If the project activities were to be extended or expanded, what should be the pace for such expansion and whether additional technical assistance (over extent at present) would be required? How could the additional technical assistance be delivered, if so recommended?
- d. To what extent do the Executing Agency (GOL) and co-operating parties (Provincial institutions, farmers groups) "own" the project. Is the GOL taking a "leadership" role? If not, what are the factors hindering this and what would be the recommendations to ensure the various stakeholders "Ownership" and "Leadership" in project execution?
- e. Issues pertaining to UNDP's role in supporting the project and the National Execution process.

OUTPUTS

The mission is fully responsible for its independent report which may not necessarily reflect the views of the Government, UNDP or FAO. The report will be prepared according to the following outline (*alternatively state "the report will be completed according to the UNDP outline attached"*):

- a) Executive summary (maximum 2 pages)
- b) Introduction
- c) Major Findings and Recommendations
- d) Background to the Project
- e) Project Objectives and Their Relevance
- f) Project Design
- g) Project Implementation (including Budget and Expenditure)
- h) Project Outputs
- i) Project Effects and their Sustainability and Impact (including cost effectiveness)
- j) Lessons Learned

The report will be prepared by the mission in-country and the findings and recommendations fully discussed with all concerned parties and wherever possible consensus achieved. The final report will be submitted by the mission leader to UNDP prior to mission departure from Laos.

At the end of their mission, the evaluation team will hold a meeting with representatives from Government of Lao PDR (NPD, Director-General DLF and CIC), FAO and UNDP, to present the findings of their report.

The mission will also complete the FAO and UNDP Project Evaluation Questionnaires.

COMPOSITION OF THE EVALUATION MISSION TEAM

The members of the evaluation team will comprise of three consultants, mobilised by FAO, UNDP and the Government of Laos respectively. The project will supply at least one liaison member to accompany the team at all times.

1) UNDP Rural development/evaluation specialist (Team leader)

The team leader will assign specific tasks to the team members and will be responsible for the final report.

Qualifications:

- Field experience in rural development with working knowledge of either rural subsistence farming, or artisanal fisheries/aquaculture issues.
- Experience of development project evaluation including the use of participatory evaluation techniques.
- A minimum of five years relevant work experience
- Experience in the south-east Asian region
- Fluent in English
- Since this consultancy requires considerable communication with project stakeholders, a working knowledge of either Lao or Thai languages is essential.

The consultant is required to provide a lap top computer for personal use.

2) FAO Aquaculture specialist (Team member)

To work in close co-operation with, and answering to the team leader.

Qualifications:

- Proven experience in aquaculture development with emphasis on rural subsistence farming systems.
- Experience of development project evaluation.
- A minimum of seven years relevant work experience.
- Experience in the south-east Asian region will be an asset.
- Fluent in English.
- Since this consultancy requires considerable communication with project stakeholders, a working knowledge of either Lao or Thai languages would be extremely useful.

The consultant is required to provide a lap top computer for personal use.

3) Government of Laos Local Institutions and Rural development specialist (Team member)

To work in close co-operation with, and answering to the team leader. Qualifications:

- A broad experience of rural development in Laos;
- Knowledge of aquaculture;
- Fluency in English.
- Should not be a staff member of the Fisheries Division

Mission members should be independent and thus have no previous direct involvement with the project either with regard to its formulation, implementation or backstopping. They should preferably have experience of evaluation.

Timetable: The timetable for the evaluation mission will be as follows:

Duration:	31 working days (including travel)
Evaluation starting day/date:	1 st September 1999
Discussion of draft report	29 th /30 th September
Final report:	1 st October 1999

Consultations

The mission will maintain close liaison with the Representatives of UNDP and FAO and the concerned national agencies, as well as with national and international project staff. Although the mission should feel free to discuss with the authorities concerned anything relevant to its assignment, it is not authorized to make any commitments on behalf of the Government, UNDP or FAO.

The mission will consult with and be supported by inputs from:

Department of Livestock and Fisheries

Mr. Singkham Phonvisay	Director-General of DLF, Ministry of Agriculture and Forestry
Dr. Mahanakorn Souriya	Deputy Director-General of DLF, Ministry of Agriculture and Forestry
Mr. Bounthong Saphakdy	National Project Director (NPD)
Mr. Soukine Keomanivanh	Project Manager (PM)

(NB: DLF will assign one of its' staffs members as a full-time liaison person for the evaluation team)

UNDP CO/FAO, Vientiane

Mr. Simon Funge-Smith	FAO Aquaculture Development Advisor, LAO/97/007
Mr. Stefan Islandi	Assistant Resident Representative, UNDP
Mr. Khamphoui Saythalat	National Programme Officer, UNDP

Annex B: Mission Itinerary

W.1 Sep 99 (VTE)	am pm	Met with PADP's NPD, DNP, CTA and staff Met with UNDP Resident Representative & staff
Th.2 Sep 99 (VTE)	am pm	Finalized Mission Itinerary and logistics Mission Team Meeting (Evaluation Strategy and Approach)
F.3 Sep 99 (VTE)	am pm	Reviewed Documents Met with Mr. Singkham Phonvisay, DG of DLF
Sa.4 Sep 99 (LPB)		Travelled from VTE to LPB
Su.5 Sep 99 (HP)		Travelled from LPB to Hiem District, HP
M.6 Sep 99 (XK)	am pm eve	Travelled from Hiem District to Phonesavanh, XK Travelled to Phonexay Village, Khoun District Visited Khangphok Hatchery Met with Khoun District Counterpart Met with Phonexay Farmer Group representatives
Tu.7 Sep 99 (XK)	am pm eve	Met with PAFSO and PLFS Travelled to Xam Village, Kham District Met with Kham District Counterpart Met with Muongsam Farmer Group representatives Met with Phosi Farmer Group representatives Met with Bouamlong Farmer Group representatives
W. 8 Sep 99 (ODX)		Travelled from Kham District, XK to Xay District, ODX
Th.9 Sep 99 (ODX)	am pm	Mission Team Meeting (to compile XK results) Met with UNDP Liaison Office
F.10 Sep 99 (ODX)	am	Met with PAFSO and PLFS Travelled to Nongmaengda Village, Xay District

	pm	Met with Nongmaengda Farmer Group representatives Met with Houeikhoum Farmer Group representatives
	eve	Met with small-holder Km 8.
Sa.11 Sep 99 (ODX)	am	Travelled to Beng District, ODX
	pm	Met with Nahouei Farmer Group representatives Met with Takard Farmer Group representatives Met with Napatai Farmer Group representatives
Su.12 Sep 99 (LPB)	am	Visited ODX Hatchery Farewell party arranged by Nongmaengda Farmer Group
	pm	Travelled from ODX to LPB
M.13 Sep 99 (SBL)	am	Travelled from LPB to SBL
	pm	Mission Team meeting (compile ODX results)
Tu.14 Sep 99 (SBL)	am	Travelled to Phieng District
	pm	Met with Phieng District LFS Visited Thirty Ha. Hatchery Visited Small Holders in o Namphoui Village, Somsavanh Village and Namhia Village
W.15 Sep 99 (SBL)	am	Met with Namo Farmer Group
	pm	Met with Khounphone Farmer Group
Th.16 Sep 99 (LPB)		Travelled from Sayabouly to Luangprabang Travelled from Luangprabang to Vientiane
F.17 Sep 99 (VTE)		Mission Team Meeting (compile SBL results)
Sa.18 Sep 99 (VTE)		Report writing
Su.19 Sep 99 (SVK)		Travelled from VTE to SVK
M.20 Sep 99 (SVK)	am	Met with Savannakhet PAFSO Travelled to Phalanxay District Met with Phalankang F.G.

	pm	Met with Phalanxay DAFSO Travelled to Savannakhet
Tu.21 Sep 99 (SVK)	am	Travelled to Pakbo Hatchery Met with Hatchery Counterpart
	pm	Travelled to Outhoumphone District Met with Outhoumphone DAFSO Visited Phine Neau F.G.
W.22 Sep 99 (SK)	am	Wrap-up Meeting with SVK PAFSO
	pm	Travelled to Sekong
Th.23 Sep 99 (SK)	am	Met with Lamam District LFS Visited Beng District Farmer Group
	pm	Met with SIPDEP Project
F.24 Sep 99 (SVK)	am	Met with Maetaeng District LFS Visited
Sa.25 Sep 99 (VTE)		Wrap-up meeting with Sekong PAFSO Travelled from Sekong to Savannakhet
Su.26 Sep 99 (VTE)		Travelled from Savannakhet to Vientiane
M.27 Sep 99 (VTE)	am	Met with LAO/97/007 staff for additional information
	pm	Report writing
Tu.28 Sep 99 (VTE)		Report writing
W.29Sep99 (VTE)	am	Report Writing
	pm	Met with IRAP NPD
Th.30 Sep 99 (VTE)	am	Report writing
	pm	Met with DLF DG
F.1 Oct 99 (VTE)	am	Presentation preparation
	pm	Presentation of Evaluation Results Departed from Vientiane

ANNEX C: Persons involved in the evaluation

Evaluation Team:	Dr. Han Choundalat, DLF Representative Mr. Hans Guttman, FAO Consultant Mr. Brett Tan, UNDP Consultant (Team Leader)
Logistical Support:	Mr. Bounthong Saphakdy (Trip to southern provinces) Mr. Sukhine Keomanivane, DNPD (Trip to northern provinces) Dr. Simon Funge-Smith Mr. Khamphoui Saythalat (Trip to southern provinces) Mr. Onvong, Driver Mr. Lek, ODX Driver (Trip to northern provinces)
LAO/97/007 Staff	Mr. Bounthong Saphakdy, NPD Mr. Sukhine Keomanivane, DNPD Dr. Simon Funge-Simth, ADA
DLF	Mr. Singkham Phonvisay, DG
UNDP	Mr. Jeffrey Avina, Resident Representative Mr. Stefan Islandi, Assistant Resident Representative Mr. Khamphoui Saythalat, Programme Officer
IRAP	Mr. Ouneheuane Siriamphone, NPD
<u>Xiengkhouang Province</u>	
PAFSO	Mr. Sompheng Siphongsay, Deputy PAFSO Mr. Sonsawad, Head of PLFS
Provincial Counterpart	Mr. Wandee Bouddawongsy
Khoun District Counterpart	Ms. Khambang
Kham District Counterpart	Mr. Phimpa, Head of Kham DLFS

Khangphok Hatchery Station	Mr. Sithone Mahotham, Head Mr. Sue Yang, Deputy
Phonexay Farmer Group	Mr. Paengsy, Group Leader Mr. Khamtan, Village Head and approximately 10 members
Moungxam Farmer Group	Mr. Khammouane, Leader Mr. Phouvon, Village Head
Phosy Farmer Group	Ms. Kongkham, Head Mr. Singkham, Deputy Mr. Somboon, Member
Bouamlong Farmer Group	Mr. Lae

Oudomxay Province

PAFSO	Mr. Houmphaeng Mingboupha, Mr. Somnhot Phongsavath, Head of PLFS Mr. Simuang Laksanakun, Deputy PLFS
Provincial Counterpart	Mr. Phaivanh Vilidethvongthong
UNV	Mr. Gordado Juanich
UN Liaison Officer	Ms. Anna Polonyi
Xay District Counterpart	Mr. Bounsou Duangpasith
Nongmaengda F.G.	Mr. Xiengphan, FG #1 Leader Ms. Buaosone, FG #2 Leader and 8 members
Houeikhoum F.G.	Mr. Bounway, FG Leader

	Mr. Saysavanh, Village Head Mr. Keo, member
Small Entrepreneurs	Mr. Somphone & Ms. Daphone Luengvanxay (Km.8)
Beng District Counterparts	Mr. Kiumuya, Mr. Siphon, Head DAFSO
Houn District Counterpart	Mr. Bouchan
Nahouei F.G.	Mr. Nivon, FG #1 Deputy Leader Mr. Xiengbouaphan, FG #2 Leader Mr. Xienglang, member Mr. Bounthan, member
Takaad Small-holder	Mr. Kon
Napatai F.G.	Mr. Saen, FG Leader Ms. Khambao, FG Deputy Leader and 9 members
<u>Sayabouly Province</u>	
Provincial Counterpart	Mr. Somneuk Saynathy
Thirty Ha. Hatchery	Mr. Feng Phommakoun
UNV	Mr. David Blake
UNDP Liaison Officer	Mr. Stuart Ling
Phieng District Counterpart	Mr. Bounthong Souksan
Small Holders	Ms. Bouachan (Namphoui Village) Mr. Xiengbounthan (Somsavanh Village) Mr. Jonglue (not available; Namhia Village)

Namo Village F.G. Mr. Xiengmeung, Deputy Leader
Mr. Waen, Deputy Village Head
Mr. Daeng, member
Mr. Xay, member
Ms. Phone, member
Ms. Tig, member and LWU

Khounphone Village F.G. Mr. U-hin, Leader
Mr. Khoung, Village Head
Mr. Xay, member & PTA
Mr. Juafoo, member
Mr. Choomei, member
Mr. Baylean, member
Mr. Xengjiam, member
and 2 women members

Savannakhet

PAFSO Mr. Bounthien, Deputy Head

PLFS Mr. Douangchit Damlonglit, Head

Provincial Counterpart Mr. Bounthanom
Mr. Namngeun, Hatchery Staff

Pakbo Hatchery Mr. Bounthan, Head

DAFSO Mr. Thone, Phalanxay DAFSO
Mr. Phoun Kaykhamphitoon, Outhoumphone DAFSO

District Counterpart Mr. Somphit, Deputy Phalanxay LFS
Mr. Bounlean, Outhoumphone District

Phalankang Village F.G. Mr. Kieng, Head
Mr. Bouchaleun, Deputy Head

Mr. Nuthong and 5 members

Phine Neua Village F.G. Mr. Kanethong, Leader
Mr. Khamsou, Village Head
Mr. Bounraem, Deputy Village Head

Sekong Province

PAFSO Mr. Khamlek Bounyavong

PLFS Mr. Sounthone Phimmavongsa

Provincial Counterpart Mr. Sermisi, Deputy Head PLFS

UNV Mr. Masatoshi Fujino

District Counterparts Mr. Bounjan, Lamam
Mr. Bounsong Southpasert, Thataeng

Beng Village F.G., Lamam Mr. Somboon, Leader
Mr. Yan, Deputy Leader
Mr. Khamphouang, Tiu Village member
Ms. Chansamay & Mr. Oudomkan, Bong Village members
Mr. Bounlom, Houeikhiu Village member

Kapeu Village F.G. Thataeng Mr. Salee
Mr. Tieng

Thataeng Tai F.G., Thataeng Mr. Leuxay

Thataeng Neua F.G., Thataeng Mr. Inpaeng

Small holder (spawner) Mr. Ngad, Kafe Village

Liaison Officer Mr. Per Gradin

SIPDEP
(Sekong Indegineous
People Development
Project)

Ms. Chanhom, NPD
Mr. Keodalat, PM
Ms. Phetviengkon, Interpreter
Ms. Jacqui Chagnon, CTA

Note: Most people in the rural areas of Lao PDR have not adopted last names.

ANNEX D: PROPOSED LOGICAL FRAMEWORK FOR LAO/97/007

It is suggested that a Logical Framework matrix is developed for LAO/97/007. Below is an example of how such a matrix may look based on the project document. There is however a need to revise this proposal in light of what weight future work is to have on issues not elaborated on in the original project document.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Risks and Assumptions
GOAL			
Enhanced food self sufficiency and increased income and improved nutrition among low income rural people in the targeted provinces through the expansion of fish culture.	- Fish (aquatic animal) availability increased/improved among participating households	- Selected households surveys	
PURPOSE			
Improved capacity of government staff at central and provincial level to implement an extension approach ⁴⁶ to aquaculture development. ALTERNATIVELY Improved capacity of government staff at central and provincial level to implement a sustainable aquaculture development program.	- A comprehensive program for aquaculture extension for promotion of aquaculture developed and initiated in the participating provinces by the end of 2000.	- Plan produced - Progress and monitoring reports	- Developed plans initiated are followed (to the capacity of the province) after the project support ends.
OUTPUTS			
1. Improved capacity in planning, management, monitoring and reporting among participating government staff.	- Provincial aquaculture development plans initiated and developed - Monitoring systems for aquaculture	- Development plans produced	- Plans are followed

⁴⁶ Extension approach is defined in the project document. The definition is, however, lacking in clarity and the definition needs to be expanded upon to be useful for the project. In terms of what is meant with the term there needs to be a documented definition of all the aspects involved, such as role of the group, role of district and provincial staff, policy of the government etc., etc.

	development established and implemented (on a trial basis)		
	- Quarterly reporting ⁴⁷ from district to province functioning.	- Reports produced	
	- Semi-annual reporting from province to central functioning.	- Reports produced	
	-		
2. Improved capacity in group formation (organisation ⁴⁸) and other rural development (RD) methodologies by district staff	- Training ('on the job') of district staff in RD methods (QQT)		
	- Three new ⁴⁹ groups per district formed every year.		
3. Improved capacity in extension methodology among district and provincial staff	- Extension materials produced, video and written materials.		
	- Farmer group training in fish culture and spawning		
	- Extension methodology ⁵⁰ training for provincial staff (particularly district staff).		
4. Improved capacity in aquaculture technology among central and provincial staff ⁵¹ .	-		
5. Production capacity and distribution system of fish seed for small scale aquaculture developed in the target provinces ⁵² .	- Seed production capacity of government hatcheries are improved to close to full capacity ⁵³ by December 2000	- Seed production statistics (including geographical "reach", through sale records)	- Provincial governments instigate appropriate management measures to enable staff to work a full capacity, e.g. bonus schemes. <i>be careful to ensure</i>

⁴⁷ The exact interval should follow the established provincial reporting procedure.

⁴⁸ This includes a whole package of tools including issues such as group solidarity building and other group management issues.

⁴⁹ New groups formed can be in the same village with new members interested in fish culture, or in new villages. The old groups will still be contacted by the district staff albeit at a lower intensity and will not receive much material support.

⁵⁰ Needs clear definition.

⁵¹ At provincial level the main focus (though not exclusively) is on province rather than district staff.

⁵² This includes public and private sector.

⁵³ This figure should be determined for each hatchery involved and should not necessarily reflect the amount technically possible to produce but rather what is possible under the current managerial situation.

<p>6. Improved fish culture techniques among participating farmer households</p> <p>7.</p>	<ul style="list-style-type: none"> - Provincial seed production supply a substantial part⁵⁴ of the provincial fish seed demand by December 2000. - Geographical reach of provincially produced fish seed covers ?? % of the province by December 2000. - Fish production of participating households increased substantially (QQT). - 	<ul style="list-style-type: none"> - Seed sales records - Seed sales records 	<p><i>realistic assumptions</i></p>
<p>GENERIC ACTIVITIES</p>			
<ul style="list-style-type: none"> - Improvement of government hatcheries - Training in extension techniques - Training in management and related areas - Study tours (exposure tours) - 			

⁵⁴ The exact amount will vary between provinces and should be determined in cooperation with provincial staff to reach a realistic and measurable figure.

The development of the Logical Framework matrix is to be done in a process involving the main partners in the work (abbreviated stakeholder meeting) where the ideas need to be discussed. The main objectives (left most column) should be determined to a large extent by the project as it has certain objectives to fulfil. The selection (determination) of suitable indicators needs to be done in collaboration with province and district staff (as they will be the ones who are collecting information on the indicators), as well as means of verification (how to measure the indicator). Risks and assumptions are to be included to ensure the avoidance of "killer assumptions" and to ascertain possible changes or assure that certain factors remain the same, such as policy on self sufficiency remains and importation of cheap fish from neighbouring countries are not promoted.

It is important that the development is seen as a process, not an accomplished fact, to the senior partners of the project. The preferred method for the development of the matrix and is probably a series of workshops (probably two or three are needed). To be really useful the reporting should be against the logical framework matrix. It should be noted that the matrix produced for this annex is only to show what such a matrix could look like, it is as stated earlier essential that this is a process involving the main partners of the project.

ANNEX E: Compilation of key interviews

Xieng Khouang

Counterpart

Subject	Interview Results
Training	<ul style="list-style-type: none"> - Reporting & Mgnt skills needs improvement - Some technical training for hatchery - Extension & facilitation skills
Technical Assistance from <ul style="list-style-type: none"> o PADP o DLF 	<ul style="list-style-type: none"> - Satisfactory - Periodic visits w/ projects
Logistic	<ul style="list-style-type: none"> - Communication/co-ordination between provinces counterparts not sufficient due to distance - Hatchery wants to focus on niche market (eg. grass carp)
Budget/Allowance	NA
Implementation <ul style="list-style-type: none"> o Ethnic o Gender o Co-ordination 	NA
Next Steps	<ul style="list-style-type: none"> - Hatchery to solve main constraint in HR; More staff, better trained staff.

Government Staff

Subject	Interview Results
Objectives Achieved	#1: Good OJT for technical matters; still weak in proj mgnt skills #2: Staff exposed to group formation process #3: Objective met General response is positive towards project
Design <ul style="list-style-type: none"> o Staffing o Policy <ul style="list-style-type: none"> - Hatchery - HRD - Extension o Nex 	<ul style="list-style-type: none"> - FAO 89/003 was active in XK - Problems with understaffing and underqualified staff. - Request more fishery section staff - Intensification of agri to supply increased population - Seed prod, table fish, research (Aq. part of provincial diversification in Ag.) - District staff should be generalists. - Focus on raising animals staying put not roaming around to graze freely. - Local ownership has not happened yet. - Positive attitude towards project. - concern over lack of integration into prov. system
Implementation <ul style="list-style-type: none"> o Organisation Structure o Budget o Planning/Reporting o Selection Process 	<ul style="list-style-type: none"> - Geographical distance between provincial counterparts does impede co-ordination. - Hatchery mgr does not consider himself extension. - No govt contribution to hatchery for 1999, re-allocated to pressing needs. Hatchery seen as being supported by project. - Inadequate, need more training - Clear & coherent selection criteria
Training	<ul style="list-style-type: none"> - Comprehensive training needed across the board (fish cultivation, spawn, ext, pro mgnt, reporting, etc.)
Next Steps	<ul style="list-style-type: none"> - Group strengthening - Likely to need technical support in yr 2000 - With current lack of ownership, post project activity may cease beyond yr 2000

Farmer Groups

Subject	Interview Results
Group Process <ul style="list-style-type: none"> o Self perception o Outstanding problems o Public or shared resources o Management issues o Reaction to spawner/nurser 	<ul style="list-style-type: none"> - Groups with common objective of fish culture. - Problem in expansion of fish culture (space, weir, water, materials, capital) - No community resources involved in activities. - Increase group size may be an issue - Not available
Family <ul style="list-style-type: none"> o Level of fish intake o Income level o Time input o Farm inputs o Comparison w/ other options 	<ul style="list-style-type: none"> - Major protein source (wild foraged & cultured; children & women catch in rice field) - Increased due to sale of fish (30-100 kg/year) - Women usually in charge of marketing. - Increased labour input but considered taken from non-essentials tasks. - Rice bran, corn, fertiliser, leftover food, (brew waste) - Guarding - Easier to raise than other livestock e.g. less susceptible to disease - High price - Quick turnover, quiet.
External conditions <ul style="list-style-type: none"> o No. of cycles needed o Market issues o Credit issues 	<ul style="list-style-type: none"> - Easier to market in/around village, no adv to sell in provincial town. (middlemen buy on village level). - For 'business', possibly, e.g. dig ponds.
Problems & Issues	<ul style="list-style-type: none"> - Water shortage during dry season. - Flash flood - Techniques for fish raising and harvest (fingerlings and tablefish) not good (equipment lacking).
Next Steps	<ul style="list-style-type: none"> - Emergency fund creation (e.g. 1kg fish per family for broodstock bank)

Oudomxay

Counterpart/UNV

Subject	Interview Results
Training	<ul style="list-style-type: none"> - District wants training in spawning & study tours
Technical Assistance from <ul style="list-style-type: none"> o UNV o PADP o DLF 	<ul style="list-style-type: none"> - Sufficient
Logistic	<ul style="list-style-type: none"> - Fry production and distribution limitations in province - But there is improved access to locally produced (not imported) fry. - Split cost buying scheme not understood by farmer groups. - Dist. staff uncertain of length of time for fingerling subsidisation.
Budget/Allowance	<ul style="list-style-type: none"> - Increase work days from 5 to 6 days per month requested.

Implementation <ul style="list-style-type: none"> o Ethnic o Gender o Co-ordination 	<ul style="list-style-type: none"> - Ethnic representation in groups addressed where relevant based on geographical proximity (e.g. mixed villages) - Inter-project co-ordination exists
Next Steps	<ul style="list-style-type: none"> - Consider improve capacity of head of group to improve interaction with dist staff.

Government Staff

Subject	Interview Results
Objectives Achieved	#1-#3 Overall perception that the obj are being achieved.
Design <ul style="list-style-type: none"> o Staffing o Policy <ul style="list-style-type: none"> - Hatchery - HRD - Extension o Nex 	<ul style="list-style-type: none"> - Co-operation between staff (Prov + Dist) OK. - To few staff for activities - Role to supply fingerlings, clear commitment from Prov. - Hatchery prod. limited due to management constraints (theft, pond space). - Upgrade capacity at all levels through OJT, training, degree training. - Dist ext work as contact with F.G. with technical support from province. Head of Group being rep of group. - TOT is imp in extension model. - No implementation problems, small problems solved internally e.g. timing of disbursement of fund. - Clear ownership of project.
Implementation <ul style="list-style-type: none"> o Organisation Structure o Budget o Planning/Reporting o Selection Process 	<ul style="list-style-type: none"> - Potential problems of other commitments are solved through delegation. - OK - No major problem, but weakness at district level - Standardised and inclusive
Training	<ul style="list-style-type: none"> - Perceived need for district staff to improve reporting skills and et skills (disc. staff want more technical training)
Next Steps	<ul style="list-style-type: none"> - Believe project activities can continue after DEC 2000.

Farmer Groups

Subject	Interview Results
Group Process <ul style="list-style-type: none"> o Self perception o Outstanding problems o Public or shared resources o Management issues o Reaction to spawner/nurser 	<ul style="list-style-type: none"> - No group interaction observed but gives impression of relatively 'strong' groups esp. judge from establishment of nearby groups - No obvious problems. - No real shared resources. - Better organised - Can deal with new members. - No apparent conflict of interests.
Family <ul style="list-style-type: none"> o Level of fish intake o Income level o Time input o Farm inputs 	<ul style="list-style-type: none"> - Fish + aqua-culture product said to be major animal protein source, consumed almost daily. - Some family change from catching in fields to catch from pond. - Income increase (e.g. sale 45 Kg for 500,000 K and eat in family) - Women handle money from sale. - Feeding and sale work of women. Therefore, increase work. - Consider (actual) purchase feed inputs (corn, rice bran)

o Comparison w/ other options	<ul style="list-style-type: none"> - Example of great investment of family labour in pond digging. - Easy to raise and quick turnover. - Good price, easy to sell.
External conditions <ul style="list-style-type: none"> o No. of cycles needed o Market issues o Credit issues 	<ul style="list-style-type: none"> - Variable; village, from pond side, town. - Usually invest own savings. - Individual loans possible (interest is a constraint, a max. limit of 10% annum was suggested) - Group credit is a possibility (no details) - Some unorthodox solutions to credit constraints - Broodstock & fry, rolling fund in kind.
Problems & Issues	<ul style="list-style-type: none"> - Equipment for nursing - Seed in short supply, but is increasing very rapidly. - Credit systems not 'properly' understood.
Next Steps	<ul style="list-style-type: none"> - Forecast that fish culture will expand rapidly (esp. in Xay) - Evidence of project initiative in fry production is affecting households outside direct project area (e.g. Lao soung)

Sayabouly

Counterpart/UNV

Subject	Interview Results
Training	<ul style="list-style-type: none"> - District staff no fishery experience/background - Farmer training to be better timed and conducted at the village to give better practical experience - Stress farmer-to-farmer training
Technical Assistance from <ul style="list-style-type: none"> o UNV o PADP o DLF 	<ul style="list-style-type: none"> - Good technical support, limitations in rural/community dev - Little visible engagement with district
Logistic	<ul style="list-style-type: none"> - Logistical problems due to poor communications (road & phone), limited flexibility in budgeting by province. - Visit district staff face-to-face needed, motivation not so high.
Budget/Allowance	<ul style="list-style-type: none"> - Disbursement of funds not flexible (prov. & bank)
Implementation <ul style="list-style-type: none"> o Ethnic o Gender o Co-ordination 	<ul style="list-style-type: none"> - Gender sensitivity apparent - Representation OK, sensitivity to ethnic differences apparent among staff.
Next Steps	<ul style="list-style-type: none"> - Improve ponds, fish raising technique, fry prod. development OK. - Groups need strengthen but currently loose interest groups are suitable for ext. - Post project ext. activities will be limited (lack fund)

Government Staff (not interviewed due to political seminar, impression is given)

Subject	Interview Results
Objectives Achieved	N.A.
Design <ul style="list-style-type: none"> o Staffing o Policy <ul style="list-style-type: none"> - Hatchery 	<ul style="list-style-type: none"> - Project activities quite integrated with Provincial work. - Ownership on prov. level OK. on district uncertain. - Produce fry & fingerlings for sale to farmers at subsidised price.

<ul style="list-style-type: none"> - HRD - Extension <ul style="list-style-type: none"> o Nex 	<ul style="list-style-type: none"> - Production OK, management problems, sell hatchlings to nurseries. - Improve planning and reporting skill of district (prov) staff. - Staff lack ext. training - Some problems in not receiving equipment according to specifications - Nex financial procedures do not coincide with provincial procedures.
<p>Implementation</p> <ul style="list-style-type: none"> o Organisation Structure o Budget o Planning/Reporting o Selection Process 	<ul style="list-style-type: none"> - OK, seems integrated - See other points - Admittedly weak - Villagers selected in 1998 were more of prov. priorities and those selected in 1999 were of project priorities.
Training	NA
Next Steps	<ul style="list-style-type: none"> - Group strengthening

Farmer Groups

Subject	Interview Results
<p>Group Process</p> <ul style="list-style-type: none"> o Self perception o Outstanding problems <ul style="list-style-type: none"> o Public or shared resources o Management issues o Reaction to spawner/nurser 	<ul style="list-style-type: none"> - Variable range from very loose to cohesive. - Water shortage & flash flood. - One group lack leadership (leader did not continue raising fish). - No apparent - No apparent need for management of group - N/A
<p>Family</p> <ul style="list-style-type: none"> o Level of fish intake o Income level <ul style="list-style-type: none"> o Time input o Farm inputs o Comparison w/ other options 	<ul style="list-style-type: none"> - Main animal protein - Some impact (with high potential), but generally too early to see. - In pond culture, this is a factor, less so in rice fish. - Pond culture, feed (termite, rice bran, corn) - Input in digging ponds (in one village) - Generally raising fish is seen favourable over other livestock (some exceptions when villager have special resources.
<p>External conditions</p> <ul style="list-style-type: none"> o No. of cycles needed o Market issues o Credit issues 	<ul style="list-style-type: none"> - No perceived constraints - No perceived need, limited interest.
Problems & Issues	<ul style="list-style-type: none"> - Reporting and management skills of district staff
Next Steps	<ul style="list-style-type: none"> - Consider issues of processing

Savannakhet

Counterpart

Subject	Interview Results
Training	<ul style="list-style-type: none"> - Training appropriate & stimulate interest - Want more technical training at district level
<p>Technical Assistance from</p> <ul style="list-style-type: none"> o Lao/97/007 	<ul style="list-style-type: none"> - Sufficient

o DLF	- Enough staff to support
Logistic	- Some delay in fry delivery ('99), no clear evidence of utilising the nursing network
Budget/Allowance	- RDC monitors and facilitates
Implementation	
o Ethnic	- Lao Theung presence in groups, but are already assimilated into Lao Loum 'culture'.
o Gender	- Women participation presence. One family pond was initiated by woman.
o Co-ordination	- Phalanxay District staff uses aquaculture techniques learnt from Lao/97/007 in SIDA and NGO projects.
Next Steps	- RDC structure has helped Lao/97/007 to realise its higher goals (policy-oriented matters). Considerations of promoting a RDC approach (replicate) in some of northern provinces should be considered.

Government Staff

Subject	Interview Results
Objectives Achieved	#1: impact on participating households in increased fish availability. Eat and/or sell. #2: Project adds to an already relatively strong provincial capability (w/ other projects). #3: Project adds to existing initiatives in the province.
Design	FAO 89/003 was active in SVK Sufficient overall, possibly limited in some districts.
o Staffing	Is used as training centre too.
o Policy	In future, the role of Pak Bo is to provide broodstock management (preservation) rather than seed. Mobile hatchery & nursing network to produce seed.
- Hatchery	Medium term plan for staff upgrading (prov & dist) through short course (Dongdok & others), esp in planning, reporting, mgnt, monitoring.
- HRD	Aquaculture seen as good entry point into rural development starting multi-sectoral initiatives (forest, agr, irr, etc.) Need more attention for group formation and mgnt. Future support should put effort to replicate in non-intensive sites. Project activities in line with dist & prov policy
- Extension	Some procurement not according to spec (cotton rimmed nylon net, motorbikes, late inlet pipe) Show ownership of proj activities at dist & prov.
o Nex	
Implementation	
o Organisation Structure	Project fits into existing 'robust' institutional arrangement
o Budget	For hatchery, there is a provincial commitment A beginning of a 'one-door' financial accounting through RDC.
o Planning/Reporting	Districts still perceived as weak. Preliminary selection based on demand, self selection. (not evident that special effort taken to reach the poorer groups).
o Selection Process	
Training	Sufficient.
Next Steps	RDC intends to collaborate with forestry & irrigation to expand activities in integrated RD, for national food sufficiency programme, using aquaculture as entry point. Groups to be used for extension effort. Credit issue viewed positive but cautiously.

Farmer Groups

Subject	Interview Results
Group Process <ul style="list-style-type: none"> o Self perception o Outstanding problems o Public or shared resources o Management issues o Reaction to spawner/nurser 	Members see themselves as selected few (criteria: pond & interest) to receive technology and supports. Others may follow later. Do not see themselves as instrumental. Drought & flood. Irregular supply. Competing water with Irrigation WUG. Phalankang FG meets once a month to discuss water issues (gas for pumping, etc.) Village pond in Phin Neau Village stocked, but not managed None, too early to tell.
Family <ul style="list-style-type: none"> o Level of fish intake o Income level o Time input o Farm inputs o Comparison w/ other options 	Fish and aqua products consumed in great number Agriculture seen as significant addition. For some, a direct income. Others, reduced food expenses. Perception is that it is not a time consuming activity, but rather enjoyable. Rice bran & others. One farmer with goat manure. Favoured over livestock.
External conditions <ul style="list-style-type: none"> o No. of cycles needed o Market issues o Credit issues 	Technical contents of extension program in place, lacking in the process oriented aspects of extension. Farmers will continue, after project ends. Group continuation less certain (role). Market has high potential at all levels (fry, fingerling, table). Some credit needed, but cautious approach to credit recommended. (Needs to be sure the activity works, i.e. profitable) Farmers has bad experience with APB
Problems & Issues	Untimely delivery of fry, lack of fry.
Next Steps	Wants to expand activities, size of ponds.

ANNEX F: DETAILS OF TRAINING PERFORMED

	Topics	Days	Total participation		<i>Female</i>		Central Staff		Provincial Staff		District Staff		Farmers		Training Period	
			No	Pdays	No	Pdays	No	Pdays	No	Pdays	No	Pdays	No	Pdays		
1	Integrated Fish Farming Training	90	2	180	2	180	0	0	2	180	0	0	0	0	Apr-May 97	
2	Project Management Workshop	5	16	80	1	5	6	30	10	50	0	0	0	0	Sep-97	
3	Extension & Group Formation Workshop	3	48	144	3	9	5	15	10	30	15	45	18	54	Mar-98	
4	Mini Hatchery Workshop	5	246	1230	3	15	4	20	10	50	14	70	218	1090	May & Aug 98	
5	Farmer Group Training	3	450	1350	75	225	3	9	10	30	14	42	423	1269	Jun & Jul 98	
6	In-country Study Tour	3	61	183	9	27	2	6	10	30	14	42	35	105	Jul, Aug & Sep 98	
7	Video Production Workshop	5	8	40	1	5	2	10	4	20	2	10	0	0	Sep-98	
8	Broodstock & Hatchery Management Workshops	3	77	231	6	18	10	30	10	30	14	42	43	129	Apr-99	
9	FAO Aquaculture Extension Training (Bangladesh)	21	4	84	0	0	1	21	3	63	0	0	0	0	Feb-99	
10	Farmer Group Training in Fish Culture	2	396	792	12	24	1	2	5	10	14	28	376	752	Apr-May 99	
11	Study Tour in Thailand	6	39	234	2	12	4	24	5	30	14	84	16	96	Jun-99	
TOTAL			146	1347	4548	114	520	38	167	79	523	101	363	1129	3495	
				100%		8%		3%		6%		7%		84%		
				100%		11%		4%		12%		8%		77%		

	Topics	Days	Total Participants		Female		Central Staff		Provincial Staff		District Staff		Farmers	
			No	Pdays	No	Pdays	No	Pdays	No	Pdays	No	Pdays	No	Pdays
Technical														
1	Integrated Fish Farming Training	90	2	180	2	180	0	0	2	180	0	0	0	0
2	Mini Hatchery Workshop	5	246	1230	3	15	4	20	10	50	14	70	218	1090
3	Farmer Group Training in Fish Farming	3	450	1350	75	225	3	9	10	30	14	42	423	1269
4	Broodstock & Hatchery Management Workshops	3	77	231	6	18	10	30	10	30	14	42	43	129
5	Farmer Group Training in Fish Culture	2	396	792	12	24	1	2	5	10	14	28	376	752
		103	1171	3783	98	462	18	61	37	300	56	182	1060	3240
				100%		12%		2%		8%		5%		86%
				83%										
Project Management														
1	Project Management Workshop	5	16	80	1	5	6	30	10	50	0	0	0	0
		5	16	80	1	5	6	30	10	50	0	0	0	0
				100%		6%		38%		62%		0		0
				2%										
Extension														
1	Extension & Group Formation Workshop	3	48	144	3	9	5	15	10	30	15	45	18	54
2	FAO Aquaculture Extension Training (Bangladesh)	21	4	84	0	0	1	21	3	63	0	0	0	0
		24	52	228	3	9	6	36	13	93	15	45	18	54
				100%		4%		16%		40%		20%		24%
				5%										
Others														
1	In-country Study Tour	3	61	183	9	27	2	6	10	30	14	42	35	105
2	Video Production Workshop	5	8	40	1	5	2	10	4	20	2	10	0	0
3	Study Tour in Thailand	6	39	234	2	12	4	24	5	30	14	84	16	96
		14	108	457	12	44	8	40	19	80	30	136	51	201
				100%		10%		9%		18%		30%		44%
				10%										
TOTAL		146	1347	4548	114	520	38	167	79	523	101	363	1129	3495
<i>Percentage of Participants</i>			100%		8%		3%		6%		7%		84%	
<i>Percentage of Person-days</i>				100%		11%		4%		12%		8%		77%

ANNEX G: DEFINITIONS OF GROUP AND GROUP APPROACH

This annex discusses the definitions and meanings of groups and group approach to extension as this forms the basis for the project extension activities but is not defined in the documentation for the project. The terminology matters as on one level the terms can be loosely used to define a concept and on another level it is a relatively defined form of organisation and development methodology.

In the main documents of the project there is mentioned that the current project LAO/97/007 is building on the previous project LAO/89/003 in terms of skills and technologies but that the extension approach is changed

The terminology used is of importance as the understanding of the term group varies significantly depending on the qualifying word used with the word. Following is a glossary used in this report:

- Interest group - where group members share a common interest and the cohesiveness of the group is dependent on the strength of the interest. If the shared interest is removed the groups are likely to disintegrate.
- User group - where group members share a common resource, such as irrigation or common property. The group is maintained by the common interest in ensure access to the resources used.
- Production group - where members are together through the common interest in producing a commodity and market it. Members in the group may fill differing roles.
- Activity group - where group members are sharing interest in an activity. This can be production based but not necessarily so.
- Support group - where group members are mobilising support capacity by joining together.

With reference to the LAO/97/007 it is important to realise that the terminology in the project documents is vague and it was necessary to interpret the terminology while implementing the project. The history of the development seems to have been along the following lines.

From the review of LAO/89/003 Angell made a suggestion that a group approach rather than model farmer approach was to be adopted to be able to reach the poorer groups in rural Lao PDR. There was no further definition, but it is suggested that this was to be a mechanism of reaching the poorer households with appropriate extension advice. As Angell later was employed to draw up the initial proposal for a follow up project to LAO/89/003 the terminology and concept was carried on to the draft of LAO/ 97/007. The proposal was then modified by UNDP which may have added some components to make the project fit in better (and draw from other projects) in UNDP's program in LAO PDR. Thus there are numerous references to collaboration with other UNDP funded projects and a more explicit terminology in places referring to general rural development principles as defined by UNDP (and others) such as TOT, groups (which may be modelled on user groups such as water use groups in irrigation projects, or more general groups for credit and community development), etc.

Although this is a good goal and worthwhile striving for it is evident that the original project document had by that stage become a bit muddled in terms of objective, in short it was partly a sector cum production oriented proposal and partly a more general rural cum community development initiative.

To be able to rationalise the group formation in the project it is essential to realise a few key issues. Aquaculture as promoted by the project is a household based activity with private (as opposed to public) resources. It is a production oriented activity, in contrast activities in the health and education sectors⁵⁵. This sets certain preconditions for the utility of group oriented activities as it is not "naturally" a group activity, as activities with common/public resources are. It is neither an activity that relies on others' support such as for political pressure or disaster relief. In short group formation for aquaculture is not inherent in the activity (raising fish) in it self. The project has thus adopted a interest group formation approach. The criteria being owning a pond (or suitable rice field) and having an interest in raising fish⁵⁶.

It is rather evident that the initial inception of the group approach (Angell's evaluation of LAO/89/003) was to reach more households, particularly poorer ones. It is not clear of what other aspects were to be addressed apart form than it would be more cost effective to do extension through groups rather than visiting individual households.

What is evident however is that the groups are providing a potential inroad to broader rural development initiatives as aquaculture (and aquatic resources in general) is a good entry point into the rural livelihoods. What will be important is how to use this to its fullest potential, bearing in mind the starting point of being privately owned production oriented activities but lending itself to be dealt with in a interest group approach. This group can (if appropriate) be the staring point for other production oriented activities or more general community development oriented activities (though a clear focus needs to be maintained).

⁵⁵ Although one can argue that these two sectors are contribution to production in the long run.

⁵⁶ One could criticise the project on not being overtly poverty oriented in its formation of groups, but this should be weighed against the need to show that the promoted technologies do work for rural Lao PDR. One should not underestimate the importance of first "proving" that what is promoted really works.

ANNEX H: The regional development committee (RDC)

This appendix is describing one of the sub-national networks operating in southern Lao PDR with which the project has been collaborating. The information in this section has been provided by Mr. Douangchit Litdamlong (RDC Chairman) and Mr. Nick Innes-Taylor (advisor to RDC).

What is the RDC?

The RDC is an alliance⁵⁷ of national and international institutions that brings together resources and expertise for the development of Southern Laos. Partners in this alliance work within a common framework that provides a structured and culturally appropriate forum for development.

Its mission is to influence, encourage and assist development institutions to devise systems of livestock and aquatic resources management that are socially equitable, ecologically sustainable and contribute to the alleviation of poverty.

How does the RDC work?

Established by the Department of Livestock and Fisheries (DLF) in 1997, the RDC is an institutional experiment. It is the Lao Government's first regional-level development agency and differs radically from other Government institutions.

Coordination of the RDC is the responsibility of a committee of senior provincial DLF government officers drawn from the organization's member provinces. This committee (from which the institution takes its name), coordinates the inputs of development partners within the RDC Alliance. These partners include farmer and community networks, provincial and district Government offices, international development agencies, Non-Government development organizations, universities, research organizations and representatives from the private sector.

The RDC has an overall Coordinator appointed by the DLF who chairs the Provincial Coordination Committee and in collaboration with development institutions in the Alliance, guides the development of a management and administrative framework. This framework is used to develop partnerships within the alliance and maintain overall developmental focus and direction.

The geographical area covered by the RDC is determined by its membership. Provinces wishing to become members must qualify in terms of their institutional capacity to manage and administer RDC activities. They must also be able to actively participate in the coordination of regional activities.

What is it doing now?

The current focus of RDC activities is the improvement of developmental capacity at the district level. Through working with provincial staff in its member provinces the RDC is assisting district staff to develop farmer and community networks as well developing improved systems for the dissemination and collection of information.

Farmer networks for the production and distribution of fish seed (small fish used to stock ponds and rice paddies) and strategies for the communal management of village fisheries are being developed and tested. Simple methods of bookkeeping and improved participatory

⁵⁷ The terminology used in this section is rather loose and is not intended to have any specific meaning apart from trying to describe the system.

methods of data collection have also been introduced at the district level in RDC member provinces.

Presently there are three members of the RDC: Savannakhet, Kammouane and Champasak provinces. So far RDC activities in these provinces have focused on the development of aquatic resources management. Efforts in this direction currently seem to offer the most immediate opportunity to impact on poverty alleviation and the development of food security. Other provinces in the region have expressed interest in joining the RDC and they are present as observers on the committee. Work is currently underway to enable one or two of these provinces, initially Sekong and Saravanh, to join during 1999.