

# PROVINCIAL AQUACULTURE DEVELOPMENT PROJECT



## LAO PDR

SUPPORT FOR TECHNICAL SERVICES

### **Socio-economics and Gender in Aquaculture**

Based on the work of

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**The Provincial Aquaculture Development Project (LAO/97/007) is a nationally executed, UNDP funded project working in five provinces in Lao PDR. Through its activities LAO/97/007 aims to:**

- 1. Improve fish fry production from government hatcheries through structural improvements and training*
- 2. Support fish fry production by farmers and entrepreneurs through the extension of simple appropriate technology.*
- 3. Develop the capacity of Department of Livestock and Fisheries staff to plan and conduct extension of fish culture techniques to farmers.*
- 4. Form farmers groups and extend improved fish culture techniques as part of the Department of Livestock and Fisheries extension process.*
- 5. Assist farmers and small-scale hatchery entrepreneurs to undertake aquaculture activities through provision of fish fry, broodstock and facilitate access to credit.*

**LAO/97/007 is working with the Provincial Livestock and Fisheries Section and farmers groups in: Oudomxay, Sayaboury, Xieng Khouang, Savannakhet and Sekong Provinces. Additional technical assistance and training is also provided to Livestock and Fisheries staff and farmers in other provinces. This publication is part of a commitment by LAO/97/007 to ensure gender and socio-economic issues in aquaculture are addressed during project activities.**

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**“Socio-economics and Gender in Aquaculture ” is also available in Lao.**

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## TABLE OF CONTENTS

<b>SUMMARY</b>	<b>5</b>
<b>1. INTRODUCTION</b>	<b>8</b>
1.1 Introduction	8
1.2 Introduction to fish production in Lao PDR	9
1.3 Macro / government policy on aquaculture	9
1.4 Socio-economic and gender issues in Lao aquaculture	10
1.5 Previous UNDP/FAO aquaculture projects in Lao PDR	11
1.6 Introduction to current project	11
1.7 Gender and agriculture in Lao PDR	11
1.8 Conclusions and recommendations:	12
2.1 Project team, timetable and study areas	13
2.2 Methodology for study	15
2.3 Limitations to study.	17
2.4 Visit to sites from previous aquaculture project (LAO/89/003)	17
<b>3. STUDY RESULTS, ANALYSIS AND DISCUSSION</b>	<b>19</b>
3.1 Why farmers are interested in raising fish - food security or increased income?	19
3.1.1 To substitute for over-fishing of wild fish in water bodies	20
3.1.2 To increase nutritional quality of diet	20
3.1.3 Preferences and tastes in fish consumption	21
Province	21
3.1.4 The importance of fish in Lao society and celebrations	21
3.2 Age preference for fish	22
3.3 Fresh fish / dried fish/ fish sauce / preserved fish	22
3.4 Traditional aquaculture practices in Lao PDR	22
3.5 Conclusions and recommendations:	23
4.1 Socio-economic groups involved in aquaculture activities at the village level	24
4.2 Access to land	24
4.3 Access to water	25
<b>5. THE OPPORTUNITIES AT THE VILLAGE AND INSTITUTIONAL LEVELS THAT ENCOURAGE FARMERS TO ENGAGE IN AQUACULTURE</b>	<b>27</b>
5.1 High demand for fish	27
5.2 Increased income earning opportunities	27
5.3 Farmers' positive perception of aquaculture	27
5.4 Women's perception that aquaculture is relatively easy work	27
5.5 Potential for farmers to sell table sized fish raised from fingerling stage	28
5.6 Opportunities for engaging in mini-hatchery	29
5.7 Institutional opportunities: fisheries extension through nationally executed LAO/97/007	29
5.8 Institutional opportunities with other organisations: AIT aquaculture project	30
5.9 Conclusions and recommendations:	30
<b>6. CONSTRAINTS AT THE VILLAGE AND INSTITUTIONAL LEVELS THAT LIMIT FARMERS ABILITY TO ENGAGE IN AQUACULTURE</b>	<b>32</b>
6.1 Constraints limit women and men farmers engaging in aquaculture	32
6.2 Economic and commercial constraints	34
6.2.1 Cost of digging and construction of ponds	34
6.2.2 Economic risk aversion	35
6.2.3 Financial investment – costs of entering/expanding into aquaculture activities.	35
6.2.4 Decision making processes for economic investment in aquaculture	35
6.3 Risk from fish disease	36
6.4 Institutional constraints – aquaculture extension	36
6.5 Conclusions and recommendations:	37
7.1 Labour division and intensity issues	38
7.2 Comparison of the total workload of women and men in Lao PDR	39
7.3 Overall gender division of labour in study areas by broad ethnic group	39
7.3.1 Division of Labour: Lao Soung	39

7.3.2	Division of Labour Lao Loum	39
7.3.3	Division of labour Lao Theung	40
7.4	Age distribution of labour	41
7.5	Gender analysis of aquaculture production cycles	41
7.5.1	Pond site selection and construction	41
7.5.2	Buying fingerlings	41
7.5.3	Pond fertilisation, maintenance and feeding the fish	42
7.5.4	Fish Harvesting.	43
7.5.5	Fish marketing, selling, and control over income generated	43
7.6	Conclusions and recommendations:	44
<b>8.</b>	<b>COMMUNITY AND INTRA-HOUSEHOLD DECISION MAKING PROCESSES</b>	<b>46</b>
8.1	Community and intra-household decision making processes	46
8.2	The main sources of livelihood and the most important income generating activities for both men and women farmers in Lao PDR.	46
8.3	Income distribution and expenditure control	48
8.4	Conclusions and recommendations:	48
<b>9.</b>	<b>THE INSTITUTIONAL STRUCTURE OF VILLAGES IN LAO PDR AND PROFILE OF VILLAGES IN THE LAO/97/007 PROJECT</b>	<b>50</b>
9.1	Institutional structures in Lao PDR	50
9.2	Provincial agricultural department selection of LAO/97/007 project target villages	50
9.3	Decisions about who participates from the village in the LAO/97/007 project	51
9.4	Fish farmer group leader selection	52
9.5	Sex ratios in fish farmers group: reasons for lack of women's participation	53
9.6	The dynamics of working as a group	53
9.7	Examples of how knowledge flows within the village	54
9.8	Conclusions and recommendations:	55
<b>10.</b>	<b>TRAINING OF FARMERS IN FISH FARMERS GROUPS</b>	<b>56</b>
10.1	LAO/97/007 project training activities to fish farming groups	56
10.2	Aquaculture training for women	56
10.3	Attendance of women in the LAO/97/007 project's aquaculture training	56
10.4	Education levels and access to training.	57
10.5	Knowledge flows to women: how women learn about raising fish.	57
10.6	The timing and type of training	58
10.7	The need to development aquaculture extension materials which are gender sensitive.	58
10.8	Follow-up training and support	59
10.9	Conclusions and recommendations:	59
<b>11.</b>	<b>INSTITUTIONAL SUPPORT IN LAO PDR FOR WOMEN IN AQUACULTURE</b>	<b>61</b>
11.1	Supporting legal framework	61
11.2	The Lao Women's Union	61
11.3	Opportunities for collaboration with the newly established LWU - GRID centre	62
11.4	Integrating aquaculture training into other training for women farmers.	62
11.5	Recommendation and considerations:	63
<b>12.</b>	<b>THE AGRICULTURAL PROMOTION BANK AND LENDING FOR AQUACULTURE</b>	<b>64</b>
12.1	Background	64
12.2	APB's nation-wide policy	64
12.3	Group lending	65
12.4	Repayment rates	67
12.5	How the APB communicates its services	67
12.6	Perceptions of banking by villagers	68
12.7	Who can borrow	70
12.8	What money is mainly borrowed for	70
12.9	Size of loans	71
12.10	The APB and lending for aquaculture	72
12.11	APB lending for mini-hatchery enterprises in the future	73
12.12	Mini-hatcheries and credit through NGOs	73

12.13 Conclusions and recommendations: _____	74
<b>13. OVERALL CONCLUSIONS AND RECOMMENDATIONS</b> _____	<b>75</b>
<i>Annex 1</i>	
<i>Terms of reference of international gender consultant</i> _____	82
<i>Annex 2</i>	
<i>Itinerary and Timetable</i> _____	84
<i>Annex 3</i>	
<i>Socioeconomic and Gender Analysis Framework</i> _____	85
<b>14. REFERENCES</b> _____	<b>98</b>

## SUMMARY

The Lao PDR population is predominantly involved in agricultural activities and increasing food security and income levels of poorer farmers of all ethnic groups are key priorities. The rural Lao PDR population depend primarily on rice cultivation coupled to a wide variety of other agricultural (pigs, poultry, buffalo etc) and wild food foraging activities for their food security. Both captured and cultivated fish is widely consumed and commands a premium price in markets. Easy access to fish for the family is one of the main reasons for both women's and men's interest in raising fish in Lao PDR. It is considered that there is a potential for increasing the scale and efficiency of aquaculture activities in Lao PDR. However, in most rural areas visited in Lao PDR during the study, aquaculture is considered as a side activity integrated with other agricultural activities. There are good opportunities to further integrate aquaculture into existing agricultural livelihood systems.

The gender and socio-economic roles of men and women in different forms of Lao aquaculture (pond, rice-cum-fish, mini-hatchery) have not been widely investigated. This socio-economic and gender analysis study of Lao aquaculture was conducted in five Lao provinces within the scope of the project LAO/97/007. The conclusions and recommendations of this study are based on the team's findings regarding the gender roles in aquaculture project sites, and on the broader socio-economic factors that affect farmers' engaging in aquaculture. Besides synthesising the results of the discussions groups in the villages, the team spoke to a number of other agencies to determine 'best practices' on how they incorporate gender issues into their technical projects, and on development approaches appropriate to the cultural and socio-economic conditions of Lao PDR. The recommendations and conclusions were also discussed and debated in detail with members of the LAO/97/007 project staff.

The majority of men and women fish farmers interviewed conducted aquaculture primarily for household food security, with income generation as an added bonus only where surplus fish were produced. Fish production for food security is considered to require low labour intensity once established. There are high levels of interest among women farmers towards aquaculture. However there are high labour and financial entry costs for pond based aquaculture. These entry costs are principally pond construction, fish fingerling costs and water availability. Pond construction favours flat land and this is often at a premium for rice production. In such cases integration of rice and fish production is a possibility. In many situations the rice land is unsuitable for rice fish culture due to risk of flooding, theft, or lack of sufficient water. Income generation from fish production may also incur higher labour demand and appears to be possible only in families with a high degree of food security.

Both women and men are involved in aquaculture, although each may have different roles at different stages of the fish production cycle. There are few cultural constraints to women's participation in most aquaculture activities. In Lao PDR men select the site for pond construction and as heads of households are regarded as owners of ponds. Production form the pond is strongly influenced by the availability of perennial water. If ponds are too shallow then production is often low. Deepening ponds is a labour intensive task, which may take several years to achieve.



The distance of the aquaculture operation from the house was a constraint to many women in engaging in aquaculture activities. Other domestic chores often conflict with the requirement for feeding and management of fish ponds. While men often make the major decisions concerning the production system, the production from ponds also depends on the time and effort allocated by women and children for pond management and for feeding of the fish. Men are usually responsible for routine feeding and harvesting the overall yield; women are often responsible for harvesting fish for household consumption. Children often assist with feeding. Due to the demands from domestic chores and child rearing, younger women (under 40) are less able to become involved in aquaculture activities.

Market demand for fish is high throughout Lao PDR, with the highest prices obtained in provincial markets. Where fish are sold, women control the cash income from the selling of fish at the pond site and in the market, although consultation with their husbands on household expenditure is common. Income distribution within the household is relatively equitable, so income generated from aquaculture is likely to benefit entire households. There are some differences between ethnic groups regarding management of household incomes.

Fingerling production shows a good potential as an income generating activity. Few farmers are likely to be able to enter this activity immediately after training. Fingerling production is suitable for farmers that already have ponds and some previous experience of fish culture. Fingerling production in net cages is now established as a successful technology and LAO/97/007 will pursue this with more experienced farmers. Only experienced (e.g. > 3 years) and relatively better off men and women farmers are likely to be able to engage in mini-hatchery enterprises.

While in theory women have access to aquaculture training and extension, in practice their access can often be limited because of gender biases in extension services. Existing village fish farmer groups are largely composed of men and there is scope for inclusion of more women fish farmers in such groups. In many cases women could not be involved in training due to household commitments or lack of awareness of the possibility of attending training courses. The establishment of women fish farmer groups and gender sensitive aquaculture promotion should be pursued either through existing extension structures or through organisations such as Lao Women's Union. Whilst often not involved directly in fish culture, the decision to start the activity was often prompted or supported by women in the household.

Since LAO/97/007 requires farmers to have a fish pond or suitable paddy land to take part in project activities, there is a tendency to select farmers with adequate land. Marginalised groups such as the landless or those without land suitable for pond construction are unlikely, or unable, to be included in project activities. General awareness of aquaculture is raised by the presence of extension activities within a village however farmers often adopt a precautionary approach to starting activities on their own. Many farmers expressed the need to observe successful, reliable aquaculture in their village before risking investment of labour or money in aquaculture.

The Agriculture Promotion Bank (APB) is the only source of formal credit for rural farmers, and overall, the group-lending scheme of the APB offers an opportunity for women as collateral requirements have been removed. The current requirements for group formation and travel to provincial centres to pay interest on loans can be regarded as a

considerable obstacle to obtaining credit for aquaculture ventures. The APB itself does not yet accept that aquaculture is a sufficiently low risk activity to allow extension of credit to farmers groups. This is partly due to the tendency for farmers to consume their production rather than take it to market. This attitude may change due to high fish prices and increasing rural access to local markets. The role of fish in rural food security is perhaps diminished by concentration on solely economic criteria.

This study identifies a range of practical conclusions and recommendations for more gender sensitive aquaculture development in Lao PDR, with specific emphasis on the activities of LAO/97/007

# **Socio-economics and Gender in Aquaculture - Aquaculture Development Project (LAO/97/007)**

## **1. INTRODUCTION**

### **1.1 Introduction**

Lao PDR is the most sparsely populated country in South East Asia with a recorded population of 4.58 million in 1995. The population is predominantly young with 45 percent under 15 years of age and is projected to double within three decades. The average size of the Lao family in the project target areas is 7.8 – 8.2 members (LAO/97/007 1997 survey data) and life expectancy at birth is 53 years for females and 50 years for male (UNICEF, 1996).

Nearly one out of every two Lao people is poor according to a study by the World Bank in 1995 (which defined a poverty line for Lao PDR in monetary terms of 11,472 Kip per person per month). It is widely acknowledged by the government and the UN that a number of factors including low income limited education opportunity, low levels of health and inadequate food supply all contribute to poverty in Lao. Over one third of adults are illiterate, however between 1986 and 1995, the average annual household income doubled to \$350 per capita (UNICEF, 1996).<sup>1</sup>

The Lao population is predominantly agricultural with over 80% of the population involved in agriculture. Increasing population pressure is creating increased demand for food and competition for natural resources. Lao PDR is also ethnically diverse and can be broadly classified by ethnic groups into Lao Loum – 59%, (low land Laos including Lao Thai), Lao Theung – 34% (lower mountain-dwellers) and Lao Soung – 9% (Hmong or Mien tribes that live higher up).

Most of the population lives in rural households. 1995 census data indicate that only 15% of the population live in “urban” areas, including cities, towns and district centres. Female-headed households may be more common in towns. One study of urban areas in Vientiane Prefecture found that 13% of households were female-headed while another study in neighbouring Bolikhamxay Province real areas found that 7.5% of households were headed by women (Rietmeyer 1988 and C. Ireson 1989 in Ireson 1996).

Rural – urban migration to larger cities and towns is not currently a major issue in Lao PDR. Sex ratios by province indicate that men are more likely than women to migrate to the Vientiane area, perhaps leaving rural households short of needed male labour (Lao PDR 1985). Never the less recently established factories in Vientiane draw on the labour of young women and may be changing these patterns of migration (Ireson, C. 1996). Migration issues are different in Lao PDR than in other neighbouring countries. At the moment, if people move to the cities it tends to be temporary and they often return to the villages at critical points in the year when their labour is required on-farm. There is a strong bond between children and their parents. In addition, in Lao many of the villages

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<sup>1</sup> 1 US \$ = approximately 3,500 Kip - August 1998

have an abundance of natural resources. However, some members of the Lao Soung community with a tradition of shifting cultivation are more mobile.

## **1.2 Introduction to fish production in Lao PDR**

The dominant economic activity in Lao PDR is rice production, with most areas producing only a single annual rice crop. Most Lao farmers subsist on wet season rice cultivation and have limited capacity to irrigate land for a second crop in the dry season.

While crop plants (i.e. rice) contribute fundamentally to the diet of the Lao population, the major sources of animal protein are cattle, buffalo, pigs, chickens, and fish. However a wide diversity of wild animals is also important animal protein sources and are harvested from forest areas. In addition to eating fish, rural Lao people eat many other aquatic resources such as eels, frogs, tadpole, crabs, insects, shrimps, etc. and many of these are foraged from water bodies and make up a considerable part of their daily diet. Increases in demand for animal protein are likely to occur throughout Lao over the coming decade because of increasing population. Fish are an important source of thiamine and riboflavin of the vitamin B complex. The health and nutritional status of young children and lactating women could be enhanced through more regular consumption of fish. Fish culture is hence considered a viable activity by the government of Lao PDR for the enhancement of food security and income generation among rural communities in Lao PDR.

Fish production through aquaculture activities in Lao can be increased through a number of different models. The different models and activities for aquaculture in Lao PDR include:

- Pond culture of fish
- Rice-cum-fish culture
- Hatchery production of fish fingerlings
- Private mini-hatchery development
- Private fish nursing and on-growing for sale

Opportunities to cultivate fish for increased food security and for income generation exist within an integrated wet rice-fish production cycle. Increased fish production through aquaculture may also help to limit the depletion of wild animal and capture fish protein sources.

## **1.3 Macro / government policy on aquaculture**

The Ministry of Agriculture and Forestry implements aquaculture development projects through its Department of Livestock and Fisheries. The Department of Livestock and Fisheries emphasises the important role of fisheries and is the lead national agency for the formulation and implementation of fisheries policies supporting demand driven fisheries production. Emphasis is also placed on strengthening technical support services in the more rural and remote areas of the country with the aim of increasing employment opportunities, food security and income levels of small farmers. The government would like to encourage small farmers to participate in the development of aquaculture as an income generation activity, but have not implemented this on a wide scale. The

Aquaculture Development Project (LAO/97/007) is nationally executed through the Fisheries Development Division within that Department of Livestock and Fisheries.

**In summary, the government encourages aquaculture in order to:**

1. Increase food security for farmers
2. Help to reduce shifting cultivation
3. Increase income generation for farmers

#### **1.4 Socio-economic and gender issues in Lao aquaculture**

Gender refers not to women or men per se, but to the social relations between them that defines their roles. Gender roles are therefore not determined biologically but are constructed socially and can differ between cultures and environments. As a central organising factor in communities, gender issues can have a major impact on production, consumption and distribution in aquaculture.

The evaluation of earlier aquaculture projects in Lao PDR emphasised that the activities of aquaculture projects should not be limited only to technological aspects of fish culture, but should also include consideration of gender issues. It had been well recognised that women perform key roles in aquaculture (for instance, they often feed and care for fish and women almost exclusively perform fish marketing).

However, the extent to which the introduction of aquaculture projects added to women's workloads and its effects on household labour and income dynamics were unknown. Whether aquaculture projects provided tangible benefits to women was unknown. In situations where fish is marketed for income there was the question of the net effects of the additional income to the household and the distribution of the income within the household. Further knowledge was required on the gender division of work in all aspects of fish farming, from production to processing.

Recognising the potential role of women in aquaculture development, it was noted that special efforts need to be made to actively include women in new fish farmers groups formed in the current project LAO/97/007. Thus, it was decided that a gender study would be conducted within the broader socio-economic framework of aquaculture in Lao PDR.

The objectives of the study were to:

- Analyse the gender roles in aquaculture, from preparation of fishponds to production including marketing, processing, access to credit, control over income, family health and nutrition, etc.
- Make appropriate implementable recommendations/suggestions that could be applied to the project LAO/97/007, respecting the technological, socio-economic and cultural conditions of Lao PDR.

See Annex 1 for the terms of reference for the study.

## **1.5 Previous UNDP/FAO aquaculture projects in Lao PDR**

The present aquaculture project, LAO/97/007, builds upon the results achieved by earlier UNDP-funded and FAO executed projects (LAO/78/014, LAO/82/014 and LAO/89/003). The last project (LAO/89/003) before the current one (LAO/97/007) aimed to disseminate suitable scientific aquaculture technologies to farmers to improve their traditional methods and in turn improve their nutritional level and family income. The project approach worked through ‘model farmers’ selected from progressive ‘target farmers’ to serve as village level extensionists, test introduced aquaculture technologies and adapt them to local conditions. This project worked mainly in the Vientiane Prefecture, Savannakhet, and Xieng Khouang, and trained district level extensionists and provincial and central level staff. The project adapted aquaculture systems to suit local socio-economic, cultural and environmental conditions including pond fish culture, integrated farming with livestock, rice-cum-fish culture and fish seed production. It was demonstrated through this project that fish culture is a potentially viable activity for the enhancement of food security and income generation among Lao rural communities.

The previous projects revealed that women play a pivotal role in fish production as well as in marketing. However gender roles, opportunities and constraints in different stages of fish production were not yet fully identified. Hence, a further detailed analysis of the role of women in aquaculture was recommended in order to ensure that the aquaculture project is more gender sensitive and reaches both women and men.

## **1.6 Introduction to current project**

The current project (LAO/97/007) is targeting low-income fish farmers’ groups in rural areas to contribute to food security through increased fish production from aquaculture.

The project aims to:

- extend fish culture to such farmers through farmers’ groups
- develop a trainers pool at central, provincial and district levels well skilled in aquaculture technology;
- improve the technical and managerial capabilities of extension personnel at provincial and district levels;
- increase the supply of fish fry and fingerlings by improving production at provincial fish seed centre and expand the involvement of the local private sector;
- and finally work towards creating an enabling environment to make institutional credit more accessible to low income fish farmers.

It is expected that these activities should include the involvement of women fish farmers.

## **1.7 Gender and agriculture in Lao PDR**

It is important to remember that gender sensitisation and gender training are relatively new in development projects in Lao PDR. An NGO, CIDSE told the team that they were involved in the first ever gender training in Lao as recent as 1993. They used women in development concepts to start with. The Swedish Development Agency (SIDA) has also

focused on gender issues in forestry for special attention. There have been very few studies of the role of women and fisheries.

### **1.8 Conclusions and recommendations:**

- ✓ **Integration of gender analysis in programmes is relatively new in Lao, and hence should be phased in a constructive step by step manner.**

## 2. METHODOLOGY

### 2.1 Project team, timetable and study areas

The socio-economic and gender study was undertaken between June and August 1998 by a gender analysis team consisting of one international consultant (Úna Murray) and one national consultant (Kesone Sayasane). Technical backstopping was provided by the FAO Aquaculture Development Advisor (Simon Funge-Smith) and the National Project Director at the Department of Livestock and Fisheries (Bounthong Sapakhdy). During the field visits to Xieng Khouang and Savannakhet the team was joined by a female staff member from the Fisheries Division (Nouhak Liepvisay). The National Project Director joined the team in Sayaboury, and the FAO Aquaculture Development Advisor joined the team on all field visits except to Oudomxay.

The geographic scope of this study focused on Xieng Khouang, Oudomxay, Sayaboury, Savannakhet and Luang Prabang provinces. The conclusions and recommendations can perhaps be extrapolated to other similar areas. In each province the team visited two districts, and at least one village close to a main market and another village in a more remote location. In most provinces the team also visited individuals engaged in fish farming activities, the provincial state hatchery and the provincial Agricultural Promotion Bank.

Approximately two weeks were initially spent interviewing key personnel in Vientiane. (See Annex 2). The remaining weeks were spent doing informal focus group interviews and gender analysis activities with farmers involved in aquaculture activities in villages and regions outlined in Table 1. Key personnel in each province and district visited were also interviewed. The villages were chosen as broadly representative of farmer's groups/individuals, which were involved in the LAO/97/007 project, as well as other farmers, engaged in aquaculture. Relevant institutions such as the Lao Women's Union and the Agriculture Promotion Bank were also interviewed.

The groups chosen were mainly involved in pond based aquaculture activities, although some of the groups in villages were also involved in rice-fish production systems, in lowland irrigated wet rice production systems. Some farmers were involved in fingerling production (mini-hatcheries) and supply.



**Table 1: Field sites and people met**

Area	Ethnic group	People met	No. in group
<b>Xieng Khouang Province</b>			
PAFO		Mr. Chan Pheng Deputy Director	1
		Mrs. Bounthiang	1
		Mr. Vandy, Project Counterpart	1
<b>Khum District</b>			
Sam Village	Thai Dam	Men's group	11
		Women's group	8
Hok and Phoumay Villages	Thai Dam	Previous project group	5
<b>Khoun District</b>			
Phosii Village	Thai Poowan	Mrs. Khambang District co-ordinator	1
		Mrs. Gong head of fish farm group	1
		Men's group	12
		Women's group	15
Khang Phoo Hatchery	Lao Theung, Lao Loum	2 Women	2
	Lao Loum, Hmong	2 men	2
APB - Phonsavanh		Mr. Khamla Ladsavong Head of Administration	1
Phonsavanh Market		Fish vendors	4
<b>Oudomxay Province</b>			
PAFO		Mr. Somnhot Phongsavath, project counterpart	1
		Mr. Phayvanh Vilidethvongthong, Aquacultural technician	1
		Mr. Juanich Godardo Libarios UNV aquaculture	1
<b>Beng District</b>			
DAFO	Hmong	Mr. Kew Mou Yeu District Extension Project Counterpart	1
		Mr. Siphone District Governor for Agriculture	1
Nah Baa Dtai village	Lao Leu	Men's group	10
		Women's group	7
<b>Xay District</b>			
Hooay Khum Village	Lao Loum & Lao Theung	Nang Daphone family	2
Hooay Khum Village	Lao Leu	Mixed Group	13
PAFO		Mr. Houmpheng Head of PAFO	1
APB – Oudomxay		Mr. Buangan Pongsavat Director	1
UNDP/PACT Workshop for MF			5
Xay District	Hmong	Hmong men	5
Oudomxay Market		Fish Vendors	4
<b>Luang Prabang</b>			
Provincial Hatchery		Mr. Onideth	1
<b>Sayaboury</b>			
PAFO	Hmong	Mr. Somneug project counterpart	1
		Mr. Chanhkeo Chief of Administration	1
		Mr. David Blake UNV Aquaculture	1
<b>Phiang District</b>			
Nah Samphan Village	Lao Theung	Group of Lao Theung Women	5
Nah Ngern Village	Hmong	Hmong mixed group	7
Nah Vehn Village	Lao Loum	Group of women Lao Loum	4
<b>Sayaboury District</b>			
Pang Khom Village	Lao Theung	Group of Lao Theung Women	3
Provincial Hatchery		Staff working at Hatchery	5

<b>Savannakhet</b>		
PAFO	Mr. Bounthanome project counterpart	1
AIT Project	Mr. Nick Innes Taylor	1
	Mr. Eric Meusch Consultant AIT	1
ABP- Savannakhet	Mr. Khamphone, Director	1
Sanam Xay & Huamnong Villages	Farmer from AIT project	1
	Men's group	10
	Women's group	5
<b><i>Outhoumphon District</i></b>		
Konggak	2 men at community fishpond	2
	Women's group	5
<b><i>Champhone District</i></b>		
Keng Kok Village	Mr. Bounkhouang Sayasane, previous project	1
<b><i>Chantabouli District</i></b>		
Nhonghoung Village	Lao Theung Men's Group	5
PAFO	Mr. Douangchit Litdamlong Head of Fisheries Unit	1
	Mr. Phoumeth Souvannasing - model farmer	1
<b><i>Savannakhet District</i></b>		
Savannakhet Market	Fish vendors	4
APB Vientiane	Mr. Saksy Thavorn, Deputy Director APB	1
Lao Women's Union, External Relations Dept.	Mr. Khamla Xaysombath, Deputy Director	1
Ministry of Agriculture and Forestry Dept of Livestock and Fisheries	Mr. Singkham Phonvisay, Director General	1
	Total	188

## 2.2 Methodology for study

The methodology employed in this study was based on a “systems” approach whereby the dynamics of the household were examined as a whole, focusing not only on aquaculture parts but also on the effects of raising fish on other aspects of the farming system (i.e. linkages with other farming activities). This was necessary in order to determine how both women and men view the importance and efficiency of aquaculture production in their village, as a basis for food security or for income generation. The intention was to obtain qualitative information on farmers' attitudes, perceptions, and opinions, including both their positive and negative experiences to identify opportunities and constraints to raising fish from the farmers’ perspective. This methodology followed the concepts outlined in the FAO Socioeconomic and Gender Analysis (SEAGA) Framework (FAO, 1998). SEAGA is a holistic approach to development, where socioeconomic and gender questions are framed at the macro, intermediate and field levels. The SEAGA framework was adapted to the aquaculture context, using published operation guidelines for incorporation of gender in aquaculture projects (European Commission, 1994 and Seki E. et al., 1994), (See Annex 3).

Focus Group Discussions was used as a social survey methodology to identify the reasons for existing activity and behaviour patterns in raising fish at the village level, identify desirable change from the farmers’ perspective, the obstacles to change, and how such change might be facilitated. Focus Group Discussions are one of the techniques used in Participatory Rural Appraisal (PRA). The team attempted to create an informal situation in which the farmer members of each focus group discussed aquaculture among themselves with the help of an outside facilitator and in the presence of one or more outside observers. Focus Group Discussions are considered useful for obtaining more reliable information

from farmers of low socio-economic status. The one-to-one interview seldom succeeds in obtaining relevant accurate information because poorer people - especially of limited education when faced by an outside interviewer - tend to say what they think the interviewer wants to hear, or they respond to what they think motivated the interviewer's question. There may also be a tendency to answer in a way that they think is the most 'correct' answer, even if the answer is not necessarily what they believe.

Although a household survey was conducted prior to the LAO/97/007 project's formulation, periodically consulting project participants (i.e. farmers) in depth during different stages of a project's life cycle can give them a sense of ownership, and also ensure that project activities are still relevant to their perceived needs. It increases the likelihood of the project's sustainability once the end of the project's life cycle is reached.

The focus groups consisted of small groups of farmers that were raising fish in the community or involved in the fish farmers group set up by the LAO/97/007 project. These groups varied from between three to fifteen people, with an average group size of approximately seven.

The team attempted to segregate the focus groups by sex (i.e. we met with one male and one female group in most villages), in most villages visited. We attempted to conduct the group discussion with no sense of formality or hierarchy with all participants seated at the same level. However, in villages where there were mixed focus groups, men tended to dominate the discussion or corrected the women when the women intervened. It is difficult to have mixed groups in which the women really have equal opportunities to participate and contribute.

Representatives from the three broad ethnic categories of Lao Loum, Lao Theung and Lao Soung were represented in the LAO/97/007 project villages visited during our study. In some cases families composed of mixed ethnic groupings were visited. Some of the provincial and district project counterparts came from ethnic groups other than Lao Loum, for example the district extension officer in the Beng District in Oudomxay is Lao Soung, as is the provincial project counterpart in Sayaboury. According to the March 1998 Project Quarterly Progress Report, the LAO/97/007 project is working with 16 ethnic groups.

For the Focus Groups, the first task of the team was to establish a friendly atmosphere, introducing the facilitators, and providing background information on the purpose of the visit and focus group discussion. In the women's focus groups the members of the group introduced themselves, gave their age and how many children they had. The team then explained the general purpose of the meeting, emphasising that the group's help is required to ensure the LAO/97/007 project meets their needs. The team tried to avoid building any unrealistic expectations about the project. A list of prepared questions were then used as a guide for the discussions that followed. Extra more probing questions were asked as appropriate.

A list of questions was also prepared for interviewing other stakeholders to the project. Such stakeholders included the head man in each village, the Lao Women's Union representative, the provincial and district project counterparts, staff from the provincial state hatcheries, the central project staff, the manager of the provincial Agricultural Promotion Bank, the Central Lao Women's Union and various Non-Governmental

Organisations working in the regions or working with aquaculture. (See Table 1 for a list of people met and interviewed).

### **2.3 Limitations to study.**

While there were some limitations to the use of this survey methodology, it is unlikely that any other social survey methodology could have provided better information from the large number of villages surveyed in the time period. Nonetheless, there were two main limitations identified by the team (a) time and (b) composition of focus groups.

Time is always a limitation for in-depth rural appraisal approaches. Accessing farmer-derived information for project planning that can be cross correlated across villages and regions is difficult to do in a limited time frame, where exposure to farmers groups is only for a day at most. Ideally, the periodic generation of such information by national project staff and farmer participants should be integral to ensuring that the project is meeting real needs and capable of flexibly adjusting to changing farmer circumstances and opportunities.

Lack of control over who attended the focus group meetings was a limitation, In particular, lack of control over the wealth ranking of those who in these groups may lead to bias in the findings. The groups were inherently biased towards those farmers who had access to enough land and labour to actively participate in aquaculture activities.

### **2.4 Visit to sites from previous aquaculture project (LAO/89/003)**

The team visited sites from the previous project to meet the model farmers who had experience of aquaculture.

*Savannakhet:* Mr. Bounthanome, project co-ordinator in Savannakhet (also involved in LAO/89/003), stated that one of the impacts from the last project in Savannakhet is that more farmers have been attracted to fish farming. Hence, the team visited a model farmer from the previous project, Mr. Phoumeth Souvannasing and ex-Livestock and Fisheries officer, who lives just outside Savannakhet town. He told the team that before he became involved in the FAO project he raised fish only for food security rather than income generation, so therefore appreciated the opportunity to learn how to breed fish and raise fingerlings. This year he sold 50,000 fingerlings, last year he sold 400 kilos of fish (approximately 1.4 million Kip at 3,400 Kip per kilo). Based on his small land holding (0.8 hectares) he felt that breeding fish and raising stocked fingerlings is the best way for him to earn an income.

He has adapted the techniques he learned in the LAO/89/003 project with traditional ways of breeding. He breeds tilapia and common carp in a traditional way, but uses hormone injection breeding techniques for silver barb. He also stocks Mrigal, Chinese carp and some indigenous fish. Overall, Mr. Souvannasing has shown sustained interest in aquaculture activities and has also shared his experience with other farmers, particularly when people come to his farm to purchase fingerlings from him for their own fish production activities.

*Xieng Khouang:* In Khum District of Xieng Khouang the team visited Hok village where there were also model farmers from the LAO/89/003 project. They told the team that before the project came to the village they farmed fish in a traditional way, each household

just produced enough fish for domestic consumption. Now they can earn an income from growing fish and they are also producing larger fish. They said that overall the quality of their lives has improved. One farmer said that his income has increased 5-6 times. Their village has become known in the area for producing fish, and a fish vendor comes from the district market early each morning to buy fish from different households. Some households sell between 70-80 kilos of fish a year at 4,500-5,000 Kip a kilo. They use the income generated from the sale of fish to cover household expenses. They are particularly interested in rice-cum-fish as they think it is a very practical approach.

Although production has increased dramatically in the village following the LAO/89/003 project, villagers have adapted the technology to suit their own needs and still use traditional breeding techniques. In this village the households that produce their own fingerlings, move brood stock into a pond with plant roots that stimulate egg production putting one female in the pond for every five males. They then move the roots to a nearby pond where the eggs hatch; they prepare food for the fry and feed them 3 times a day.

Nobody in the village is raising fish as a sole profession and they still have not invested any income earned in improving their production systems. However, they are very proud that nearby villages have come to learn how to raise fish from them.

*Oudomxay*: In Oudomxay, the provincial staff told the team that LAO/89/003 had arrived towards the end of the projects' duration. They said that they are pleased that LAO/97/007 is decentralised and managed at the provincial level. In LAO/89/003 they were only involved in the monitoring component of the project.

### **3. STUDY RESULTS, ANALYSIS AND DISCUSSION**

#### **3.1 Why farmers are interested in raising fish - food security or increased income?**

A major question regarding the LAO/97/007 project is whether farmers raise fish to increase their food security or income, or both.

According to Garaway (Garaway, C. 1995), in Xonbouli District, Savannakhet Province, it is only a minority of households (but significant) who have private ponds available for small-scale aquaculture. Only a small minority of these is earning an income from aquaculture. She found that in Xieng Horn only one family was making a significant income from selling fish in 1995. Most selling was going on in an ad hoc and small-scale manner.

In Oudomxay, the Provincial Fisheries and Livestock department told the team that interest in growing fish has expanded since 1995 because:

1. The catch from natural fish is decreasing
2. The price of fish in the market is increasing – the price of fish is now higher than meat
3. There is a lack of supply in the market for fish consumption – supply of fish is less than the demand. As a result, there is a high proportion of imported fish from Vientiane and Thailand for sale in the local market

In all villages visited in Xieng Khouang province the team were told that people were interested in fish as they can get a good price for fish (relative to meat) and fish can be used for household consumption. Interest in cultivating fish increases when women see the high price of fish in the market.

In Sayaboury, a Hmong group in the Phiang District said that upon seeing the price of fish in the market they thought it would be a good idea to have fish to both eat and sell. Another Hmong family visited in that Oudomxay province stated food security as the main reason for growing fish.

In the villages visited in Savannakhet, Sanam Xay and Huamnong, people said that they were not raising enough fish yet to sell. One man saw friends in a nearby village involved in the “AIT<sup>2</sup> nursing network” programme and he decided to copy them. They would be interested in selling fish in the future, but for now fish is for their own food security. One older woman in this village said that she would like her 18-year-old daughter to learn about raising fish, as her daughter has no other opportunities for income earning. She was very keen to send her daughter to any future training on aquaculture. Also in Savannakhet a model farmer from the LAO/89/003 project said that he began raising fish as a business when he retired early from his job as an extension officer with the department of livestock and fisheries.

In the first community fishpond visited in Savannakhet the motive for raising fish was for increased food security and also for selling to fund community improvements. This decision was partly prompted by a reduction in the quality of the water in the pond for alternative uses such as washing and drinking, presumably as a result of the large number

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<sup>2</sup> AIT - Asian Institute of Technology

of houses surrounding the pond. The second community fish pond was established as a means for limiting the exploitation of the resource by surrounding villages.

Many farmers, particularly women said that once you had a pond, raising fish was an easy task, and therefore they were interested in doing it. For instance a Lao Theung woman in Phiang district in Sayaboury said that “women too can raise fish, you just need to feed them twice a day”. She was interested in raising fish for food security purposes. Food security was also stated as why other Lao Theung women in Pang Khom village in Sayaboury would raise fish.

In conclusion, fish are being raised primarily for food security in most areas and are only raised for income when production exceeds household consumption. There are isolated examples of fish rearing exclusively for income generation but these are mainly in food secure households.

**Factors that led individual women to raise fish as one of their main sources of income: specific cases**

In the Xay District of Oudomxay, one of the few families that are selling fish as their main source of income told the team that they began doing this as their soil was poor for rice farming, they had the right physical conditions and they heard that it was a good business.

Although one woman in the Beng District of Oudomxay, was involved in rice production and other agricultural activities, including selling rice whisky “lao-lao”. The team were told by other villagers that the reason she also makes a substantial income from fish is because she originally came from the town and has a “good business sense” and education.

The team also interviewed two women living near the Khang Phoo hatchery that had stopped growing rice and are now stocking ponds and breeding fish as their main source of income. Their relative expertise was due to their proximity to the state hatchery and the fact that both their husbands worked in the hatchery.

None of these women in any of these cases relied on the income from fish exclusively for their livelihoods.

**3.1.1 To substitute for over-fishing of wild fish in water bodies**

Overall in Lao the catch from capture fisheries is declining. For instance, in a Hooay Khum village in Oudomxay, the team was told by the head of the fish farmers group that the decrease in natural fish in water bodies was due to over-fishing and the use of explosives to catch fish. This led to people now being interested in cultivating fish themselves. In Nah Vehn village in the Phiang district of Sayaboury, villagers told us that there used to be more indigenous fish in rice fields but there are less nowadays, hence their interest in cultivating fish.

**3.1.2 To increase nutritional quality of diet**

In general, the basic Lao meal consists of glutinous rice and a small portion of vegetables, green leaves and fresh or preserved fish. The food is provided through self-sufficient production, subject to seasonal variation. The risk of a deficiency in the quality of the diet

due to seasonal crop production is higher in April – October in the south, and February – June in the north. The percentage of calories derived from the consumption of meat represents only 3-6% of the total consumption expenditure per head, illustrating the low contribution of meat in the diet. Traditional Lao dishes in rural areas have been considered to be of low nutritive quality (National Committee for Planning and Co-operation, 1995).

Many farmers that the team spoke to were unaware of any nutritional advantages to eating fish in their diet. For example a couple in Oudomxay whose main source of livelihood comes from fish said that they did not realise that fish could be healthier than meat. A group of Hmong men in Oudomxay were also unaware of any nutritional value in fish. In conclusion, the groups surveyed did generally not appreciate the nutritional value of fish over other animal protein sources.

### 3.1.3 Preferences and tastes in fish consumption

Lao people often prefer wild rather than domestic meat and fish. Carnivorous fish such as catfish and snakehead are very popular but expensive to buy. The demand for fish particularly domestically produced fish, now exceeds supply and this is reflected in the high price of fish relative to meat. Table 2 gives an indication of fish prices relative to meat in three provinces. Most people prefer to eat locally produced fish and this is reflected in the price of domestic fish relative to imported fish. This preference for locally and domestically produced fish presents an opportunity for village scale fish production, which does not require an extensive or expensive marketing and distribution system.

**Table 2: Fish prices relative to meat in three provinces.**

Province	Price in Kip per Kilo			
	Common Carp	Tilapia	Beef	Pork
Phonsavan Market	6000	5000	4000	4500
Oudomxay Market	4500	4000	3500	3500-4000
Savannakhet Market	4000	4000	3500-4000	3500-5000

### 3.1.4 The importance of fish in Lao society and celebrations

Most people met by the team said that they liked eating fish very much. After hatching, farmers said that after three months, they can get the fish (if properly fed) to a reasonable table size (hand size 200 grams). Traditionally in Lao, people like to offer fish to eat when guests call to their home. Fish is also eaten during celebrations such as weddings and particularly during the Lao New Year in April. Often fish is raised mainly for such social purposes. In Sanam Xay (Savannakhet) a woman indicated that all the fish she raised was being used up on guests and that her husband was too sociable and generous inviting people to their house to eat fish. Although men tend to be in charge of the harvesting of fish when guests arrive, it is often the woman’s responsibility to harvest fish to feed guests. This was the case in Sam village in Khum district Xieng Khouang.



Lao Theung women in the Phiang District of Sayaboury said that although they do like fish (particularly indigenous fish), they prefer meat, and would hardly ever buy fish (due to its higher price relative to meat). These women said that in their culture they serve guests' meat rather than fish.

A Lao Soung group of Hmong in Phiang District of Sayaboury told the team that they particularly like catfish. In their household they seldom have fish to eat, so when they do, it becomes a special treat and everyone in the household eagerly eats the fish. One of the women in this group said that she likes Tilapia and common carp.

In addition to its food security role it is evident that fish consumption plays a major social and cultural role in Lao.

### **3.2 Age preference for fish**

Differing age preferences for fish are a key indicator of future demand for fish in the Lao diet. In view of the fact that 45 percent of the Lao population are under 15 years of age it is necessary to keep track of diet preferences. In one instance, in Savannakhet, a model farmer from the LAO/89/003 project who now sells 400 kilos of fish and 50,000 fingerlings a year said that they only eat fish twice a month, mainly when friends come to visit. The farmer has three young children who do not like the bones in fish. Raising fish for this family was really a business with the income generated used for buying meat.

### **3.3 Fresh fish / dried fish/ fish sauce / preserved fish**

Although some women said they pickle fish for household consumption, the majority of fish is eaten fresh. Conservation of fresh food is a problem in Lao due to the lack of a cold chain and poor transportation facilities. Most Lao Loum women make "pa dek" prepared by fermenting fish into a fish sauce. We only came across one low land woman in Savannakhet who preferred to get "pa dek" from her home village rather than make her own. However Lao Theung women in the Phiang District of Sayaboury said that they do not make "pa dek" and out of a group of five women, four of them had never tasted it. Similarly A Lao Soung group of Hmong in Phiang District of Sayaboury did not make "pa dek".

In Oudomxay a woman told us that she dries fish for her children and this also makes it easier for them to eat and bring it to school with them. Traditional fish drying and processing techniques could be promoted as an integral part of a future aquaculture project to ensure a more stable supply of fish protein during food deficit periods.

### **3.4 Traditional aquaculture practices in Lao PDR**

Aquaculture production practices span a wide range of approaches of varying technical complexity. For instance, fingerling production for some species (such as Indian and Chinese carp) requires hormone treatment and a certain level of technical competence, and easy/regular access to active hormone preparations. Other species such as Tilapia and common carp do not require hormone treatment for induction of breeding.

In Lao PDR, fish culture among low-income farmer groups is at a traditional level. Many villages visited told the team that they continue to raise fish in a "traditional" way, as this is the most practical approach for them. This means that farmers often raise fish by just leaving their fish in a water body without deliberately feeding them, worrying about stocking rates, water supply, selecting brood stock and breeding takes place naturally in the

case of tilapia and common carp. The evidence is that basic fingerling production of tilapia and common carp can be achieved at the village level without recourse to hormone induction of breeding.

A farmer in Sam village in Khum district in Xieng Khouang explained what he meant by farming fish in a traditional way – he puts about 300-400 Tilapia or common carp fish in his rice field. He harvests the fish when draining the water out of their paddy field in October catching the fish in home made bamboo cages. He chooses the biggest fish and moves such brood stock to a pond for spawning.

For common carp many farmers use what they call a traditional technique for breeding. Common carp will spawn on the roots of a plant that has fine hairs on the root tendrils. Alternatively substitutes (such as plastic string) can be placed in the pond to stimulate spawning. After spawning, the root of the plant has to then be moved into a cage and when the eggs hatch the fry are fed on a daily basis. Fish that are cultured in this traditional manner are harvested when they are hand sized (about 200 grams) and are eaten at that size. After harvesting in the dry season, farmers may not consider cleaning their ponds in order to avoid predators. In the Beng District of Oudomxay, the district level project counterpart said that this was how farmers practised aquaculture before training from the LAO/97/007 project. The LAO/97/007 project encourages farmers to purposely feed fish so that they would grow bigger.

The existing traditional culture practices that are employed in some provinces provide a good example of low risk, low input aquaculture that can become an example for extension in other areas. The tendency for farmers to modify aquaculture techniques that they are taught to suit local conditions should not be underestimated and may provide an insight to priorities regarding their attitude to fish culture.

### **3.5 Conclusions and recommendations:**

- ✓ **Promotion of the nutritional values of fish among children, young couples and lactating mothers would help to increase health and food security. Where possible, the nutritional value of fish could be promoted through the Lao Women's Union, extension services, teachers and where possible through integration into existing educational curricula. The Department of Livestock and Fisheries in collaboration with the National Committee for Planning and Co-operation could encourage a rural campaign that highlights the nutritional value of fish. Many people in Lao PDR like to decorate the inside of their houses with posters, pictures, calendars and photographs, in fact the team noticed many posters from the LAO/89/003 project still hanging on people's walls. If a supply of posters on nutritional aspects of fish could be distributed to people in rural areas, people would be very inclined to hang them in their houses.**
- ✓ **Techniques in raising fish could also be suggested for incorporation in the teaching curriculum for general and vocational schools.**
- ✓ **Traditional fish drying and processing techniques could be promoted as an integral part of a future aquaculture project to ensure a more stable supply of fish protein during food deficit periods.**

## **4. ACCESS TO RESOURCES AND ITS INFLUENCE ON WHO ENGAGES IN LAO AQUACULTURE**

### **4.1 Socio-economic groups involved in aquaculture activities at the village level**

The majority of target farmers, who benefited from the earlier UNDP/FAO executed projects were not necessarily the poorer ones. The target farmers and now the fish farming groups tend to be better off relative to others in their village. This is because of the need to have enough land for fishponds, the money or labour to construct fishponds or the ability to buffer the risk of losing a percentage of rice production area to dig a trench for fish in rice-cum-fish systems. In cases where farmers were wholeheartedly engaged in rice-cum-fish, cultivating rice seems to become secondary in income to cultivating fish (both cases in Savannakhet Province). These farmers had gradually moved from cultivating rice to cultivating fish as their main source of income.

### **4.2 Access to land**

There are two broad categories of land in Lao PDR, agricultural land and “natural” land. The government of Lao PDR are strongly discouraging the practice of “slash and burn” or swidden agriculture practised by the Lao Soung and Lao Theung. Changes in land tenure and use can often deprive women of use rights to agricultural and uncultivated land. (Ireson, 1996). The fourth Party Congress in 1986 approved the eventual cessation of swidden cultivation and shortly afterwards the national government prohibited the clearing of old growth trees with strong sanctions in some provinces, for clearing such a forest area in order to plant upland rice and other crops. Initially the prohibition extended to the clearing of primary forest for swidden cultivation. Eventually the policy will cover all forms of shifting cultivation. Ethnic groups engaged in this practice are now encouraged to move to the lowlands and engage in lowland rice cultivation. If resettlement villages are to participate in aquaculture activities it will be necessary to have access to enough suitable land for aquaculture.

Access to land in Lao PDR according to a recent UNDP/FAO report (1996) is becoming increasingly difficult at household level. Plot sizes can vary considerably due to a number of factors. For instance, kinship patterns affect allocation and access to land. Inheritance of land can vary by ethnic group, (e.g. among the Lao Loum, being matriarchal, the husband moves in with his wife’s family). One of the Lao Loum groups, Thai Poowan, told the team that the paddy is divided equally between their children in their village in Xieng Khouang. Land access constraints can affect different farmers (e.g. men/women, different ethnic groups, and different age groups) ability and interest in engaging in aquaculture.

For the majority of the groups in this study, access to land for rice production did not appear to be an issue, yet land was a constraining factor for engaging in aquaculture. In Sam village in the Khum district of Xieng Khouang, we were told that everybody in the village has enough land for rice production. In Phosii village in the Khoun district of Xieng Khouang, there were ten families without enough land for rice production (approximately 230 families total). In Oudomxay in a village five kilometres from the provincial capital, we were told that all villagers own their own land (126 households). Many people told us that not having enough space on their land for fishponds was a major constraining factor (for example in Nah Baa Dtai village, Beng District, Oudomxay). In Oudomxay province, we were told by the provincial livestock and fisheries section that there is enough land for sale in the province, but the problem is that people cannot afford to buy it. If access to land

for aquaculture is a constraining factor for the presumably better off families engaging in aquaculture, it is likely to be an even more constraining factor for poorer families with even less access to land.

### **4.3 Access to water**

Ideally, a supply of water all the year around is needed to culture fish. This is particularly important if farmers are to hold their own brood stock over the dry season and produce their own fish fry. In many provinces in Lao, particularly the low lands, the dry season can be up to 6 months long. There is often little or no rain during this period. Hence, access to a supply of water can be a major constraint or opportunity.

Many villages do not have a constant adequate supply of water in the dry season. Those villages that do have a good supply of water all the year round have been able to engage successfully in aquacultural activities. Even within a village, not all families have access to a steady supply of water all year round. Families within villages, which have more access to water, are at an advantage in terms of engaging in aquaculture activities. For instance in Khum District of Xieng Khouang, Sam village is near a river/stream so has a relatively constant supply of running water, with less water available in April/May. In Phosii village in Khoun district the team were told that not all families have water all the year around. In Nah Baa Dtai village in the Beng District of Oudomxay not all families have water all the year around, and for about two months of the year there is scarcity of water. By contrast in the Xay district in Hooay Khum village, there is no water supply problem, particularly now since there is a JICA funded irrigation dam. In the Phiang District of Sayaboury, all three villages visited mentioned that they have a problem with the irrigation system for the district.

Lack of access to water also creates difficulties in terms of establishing mini-hatcheries as a permanent water source is recommended. Fingerlings grow better when they are near a supply of oxygenated water and broodstock culture pond can be constructed.

It is assumed that due to the selection procedures for farmers' involvement in the LAO/97/007 project (see section below), those involved in the fish farmer groups are those that have the correct water conditions for raising fish. However, it is important to highlight that aquaculture may not be suitable to all low socio-economic people in villages because of differential water access problem.

Within villages and within households there can be conflicting demands for access to water. For instance, water use for raising fish can come in conflict with other essential activities. In Kongngak District of Savannakhet where the team visited a community management water body, we found that apart from raising fish in the community pond, the pond is also pumped for irrigation purposes. This year has been particularly dry, and now there is a lack of water and they will have to restrict the use of water for irrigation purposes. This may create conflict in the village. However the water users committee is responsible for managing this water body and have representatives from different levels in the community, and a compromise will probably be reached. The relative importance of aquaculture over other activities requiring the same water supply will have a bearing on the longer-term success of aquaculture.

The location of both water and land resources in relation to the household can have an impact on women's ability to engage in aquaculture. In rural Lao PDR aquaculture is considered as a household activity, which can easily be incorporated in the existing farming practices. Extension advice on the selection of the pond site can often only be based on technical factors like the suitability of the soil and the availability of water. However, this should also be done with attention to the distance from living quarters or the time needed for daily feeding and pond management. Because the daily feeding and management of the ponds is often considered a household activity women's inputs (time and effort) have to be taken into account.

#### **Factors that led one family in Oudomxay to convert their entire rice paddy to fishponds**

A family in the Xay district of Oudomxay told the team that when they arrived to their village in 1993 (because of the husband's state job) they were allocated some land to grow rice. This land could be gradually bought off from the government at a subsidised rate, which they have now done.

Their land is located near a main road, and has a supply of water all the year round. However, they found that the land is not very suitable for growing rice, because the soil is acidic. In their first year in the village, their rice yield was poor with not enough to feed the family, and they became worried about food security (the husband's salary was not sufficient to feed the family).

The husband met a friend who had a fishpond on his land, and his friend told him about the possibilities of growing fish instead of rice. He discussed the proposal carefully with his wife, and they worked out the economics of investing in fish culture. They decided that as their land had water all the year around, they might be able to farm fish successfully and they thought that they could harvest fish twice a year. The couple together decided that they would try to raise fish for one year initially. It was a major and expensive decision to dig up their rice paddy. They used their savings to hire a bulldozer to dig the pond. In 1993 it cost 45,000 Kip per hour to hire a bulldozer, but as they were near a road it was easier and cheaper to arrange. It took approximately six hours and so cost them around 270,000 Kip. That year they successfully harvested 300,000 Kip worth of fish and decided to continue fish farming. By 1995 they converted the rest of the land to fishponds and excepting one year where they overstocked, they have been successful in their endeavours. By 1997 they were able to make 831,000 Kip annually from the sale of fish harvested.

In this case, raising fish is not the sole income of the family, the husband works in a state run fuel station, and the wife also sells vegetables and small livestock. In this instance, the woman now has the main responsibility and knowledge for raising fish.

## **5. THE OPPORTUNITIES AT THE VILLAGE AND INSTITUTIONAL LEVELS THAT ENCOURAGE FARMERS TO ENGAGE IN AQUACULTURE**

This study identified a number of opportunities for some farmers to engage in aquaculture. Among these were:

### **5.1 High demand for fish**

In Lao PDR, the overall demand for fish exceeds the supply from domestic production. Excluding Vientiane Prefecture and Savannakhet province, fish are often flown to provinces for sale. At present, there are no constraints to marketing fish in Lao except access to markets. Road networks in rural areas are poor, so people tend to sell locally. There are market opportunities for increased fish production and marketing at the local level. There may be infrastructure constraints to supplying distant markets.

In addition in Lao PDR all people favour domestic fish. In fact Lao fish hold a premium price to imported Thai fish in the markets, and locally produced fish are more expensive than fish from other areas of Lao. This preference for locally and domestically produced fish presents an opportunity for village scale fish production that does not require an extensive or expensive marketing and distribution system.

While, one woman in the Khoun District of Xieng Khouang said, “if everyone decides to grow fish, who will buy it”? at present there seems to be little danger of market over-supply, even at the local level.

### **5.2 Increased income earning opportunities**

Where surplus fish are reared, the income from sale of fish has a beneficial impact on household food security. For instance, in Lao Loum ethnic groups, women control all income generated, which is used for purchasing household items and food. The team found that any income generated from the sale of fish was used for purchasing food and other household items. This can only mean increased household food security.

### **5.3 Farmers’ positive perception of aquaculture**

Nearly all farmers the team spoke to were very enthusiastic and positive about rearing fish, including those not directly involved in the LAO/97/007 project. Many such farmers were already involved in raising fish in a “traditional way”, but were keen to learn new techniques and methods to increase their yields. Raising fish is not considered as “foreign” because people have always collected fish and other aquatic animals from their rice fields and other water bodies. For instance, in villages in Oudomxay, a province very new to aquaculture techniques, the farmers were very enthusiastic about the future potential of their endeavours.

### **5.4 Women’s perception that aquaculture is relatively easy work**

The women’s groups that the team met often perceived that raising fish was an activity that, once underway, was not overly complex or demanding of their labour time. For instance,

the Lao Theung women in the Phiang District of Sayaboury said that they thought raising fish was an easy task. They perceived the digging of the pond to be the most difficult task. Many of these women already had previous experience of raising fish in an area that has now been flooded by a dam. They said that they have access to adequate supplies of rice bran to feed fish and there is no problem finding manure in their village for fertilising the ponds.

A Hmong woman in the Phiang District of Sayaboury also viewed digging the pond as the most difficult task in entry into aquaculture activities. This woman told the team that raising fish is lighter work than raising other livestock, because for livestock you have to plant crops for feeding them (such as corn for pigs), but for fish you do not have to plant a special crop to feed them. One of the men in this group cautioned that they are aware that raising fish has potential in terms of income, but they are not experienced enough at raising fish now to be sure of what exactly that potential would be in terms of cash. Lao Loum villagers in the same district also viewed digging the pond as the major initial problem that hinders future opportunities for raising fish. Hiring a bulldozer is too expensive, and it requires a high amount of labour to physically dig the pond. Beyond pond construction, one woman said that she did not perceive it as a difficult task. Lao Loum men in Savannakhet also viewed the biggest constraint as not having the money to invest in digging a pond.

On the other hand, in Sam village in Khum district Xieng Khouang women said that initially they thought raising fish was a man's activity. When asked why they thought this, they said it was because nobody ever came and talked to the women about fish rearing. This view was also echoed in Phosii village in the Khoun district, where one woman said, "no-one ever told them that raising fish could be women's work". In this instance, the women farmers were unsure of the complexity and labour demands of aquaculture activities.

Women in all provinces, often engage in producing the typical Lao rice whisky beverage "lao-lao" as an income generating activity. Some of the women in this study commented that raising fish would be less labour intensive than distilling "lao-lao".

In summary, apart from the initial labour and/or financial cost of digging a pond, many women consider cultivating fish as an activity that they could easily be involved in and an activity that would easily fit into their other daily household tasks. While the opportunity for greater women's involvement in aquaculture activities is clearly perceived, one major barrier to entry seems to be the construction of a pond.

### **5.5 Potential for farmers to sell table sized fish raised from fingerling stage**

There is large income generating potential in Lao for selling table sized fish raised by farmers from fingerlings in Lao. Such successful raising of fingerlings can prove very lucrative. For example, in Oudomxay, fingerlings are not widely available except from the state hatchery at the nearby province of Luang Prabang. One woman farmer travelled by car (5-7hours) to the Luang Prabang hatchery to buy 100,000 Kip worth of fingerling, which she subsequently successfully reared to table size, and sold for 1.2 million Kip. As a result, the next time she wanted to buy fingerlings, she was able to afford to fly from Oudomxay to Luang Prabang to purchase her next supply of fingerlings.

In Xieng Khouang province many women expressed an interest in developing skills in raising fish from the fingerling stage. In this province fingerlings are very expensive relative to other regions (50-60 Kip each, whereas in Savannakhet they are 10-20 Kip each). However women said that they are not confident enough about raising fish to become involved in fingerling derived production yet, but definitely saw it as a possibility in the future, particularly as they perceived raising fingerlings as not involving heavy physical work. The older women in the group (over 40 years of age) expressed more interest in raising fingerlings to table size, and younger women said that they were too busy with small children to take on such an additional workload.

## **5.6 Opportunities for engaging in mini-hatchery**

Because of the benefits of raising table-sized fish from fingerlings, there is widespread demand for fingerlings. This is often overcome by the import of fingerlings from neighbouring countries. Fingerling mortality rates are high and quality is often not guaranteed for imported fingerlings. Because of such supply problems there is a potential for mini-hatchery production of fingerlings for sale to farmers at the more local level. For instance, the demand for fry and fingerlings currently exceeds supply in the north of the country. In addition, all farmers appear to favour domestically or locally produced fingerlings. Hence, there are opportunities for increased local and domestic supply of fingerlings, potentially through farmer run mini hatcheries.

Farmers who can successfully raise fingerlings to table size fish are likely to have the most potential to engage in fry/fingerling production. In Savannakhet, the project counterpart is planning to train those who have been nursing fish for the past 2-3 years in fry/fingerling production (through the nursing network AIT project). Similarly, in Oudomxay the LAO/97/007 project are planning to train farmers that have a good water supply all year round to produce their own fingerlings next year. A major opportunity in Oudomxay is that many villagers expressed very keen interest in setting up their own mini-hatchery. Four men in Hooay Khum village said they would be ready next year to start these activities and said they were keen to engage in such activity as they have constant water all the year around.

Overall most farmers, particularly women, thought that cultivating fish was an activity with a existing market that they could be easily involved in, and it could be integrated into other on-farm activities. Those who have been identified as having experience in raising fingerlings and selling them at table size may be potentially ready to engage in mini-hatchery training for local level fingerling supply in the next phase of the LAO/97/007 project. The potential advantages of women becoming involved in setting up mini-hatcheries is that they can be located in an area (ideally with access to electricity) close to the home, where women can look after them. However, this may not necessarily be the case in all Lao provinces as the water source may not necessarily be beside the home, or electricity may not be available.

## **5.7 Institutional opportunities: fisheries extension through nationally executed LAO/97/007 project**

The LAO/97/007 project extends and supports aquaculture activities in five provinces. In some provinces the experience and the capacity among LAO/97/007 project provincial and district staff was greater than others, particularly those provinces that were involved in the



previous LAO/89/003 project. However, some new provinces are quickly taking on the opportunities offered through the LAO/97/007 project. The project counterpart in each province has been given opportunities through training to upgrade their knowledge on aquaculture. Project provincial staff are now scheduled to go monthly to the village and monitor how the farmers are applying the knowledge gained. The district staff are supposed to visit the farmers every week and have been given a motorbike for this purpose.

Fry supply is a serious constraint to aquaculture development countrywide as the cost and distribution of fry to farmers' limits the possibility of small farmers to engage in aquaculture activities. In order to facilitate the supply of fish fry to farmers in the project areas, upgrading of fish hatcheries and specific training in fry production is being implemented. It is a goal of LAO/97/007 to increase fry supply in the project areas by encouraging farmers to undertake fish fry production and fry nursing themselves.

### **5.8 Institutional opportunities with other organisations: AIT aquaculture project**

Aquaculture in Savannakhet is more established than in other provinces visited (excluding Vientiane prefecture). Villagers yields in Savannakhet from aquaculture are much higher, in particular those with access to irrigation. Overall incomes were also much higher in the Savannakhet villages that the team visited, in comparison to other provinces. The previous LAO/89/003 project worked with model farmers in this province and there is an Asian Institute of Technology (AIT) capacity building project located in the Livestock and Fisheries Department.

Furthermore there exists a supporting framework called the "Regional Development Committee" based in Savannakhet that aims to co-ordinate fishery related activities in the south. The Committee began as an informal group but has recently received formal endorsement from the central Livestock and Fisheries section of the Ministry of Agriculture. The Committee places a heavy emphasis on capacity building at the regional level. The Committee plays a co-ordinating role in the region, and a forum for exchanging information, co-ordinating projects, and provides advice on how to manage outside funds. It meets every three months for two days (i.e. 4 times a year) sometimes on a specific technical topic. For example, in September they will have a meeting on the effects of irrigation on fisheries, they will be involved in co-ordinating activities for a forthcoming Oxfam project on Upland Development Centres.

### **5.9 Conclusions and recommendations:**

- ✓ **When identifying people in each village for further training, particularly for training in mini-hatchery, ensure that women as well as men with experience in raising table-sized fish from fingerlings are chosen.**
- ✓ **Highlight further the existing market for fish and the potential income earning opportunities of fish production in rural areas through existing extension channels, NGO's, the Lao Women's Unions' Union and other relevant bodies that interact with farmers.**
- ✓ **Highlight the potential of integrating fish production into existing livelihood systems**

- ✓ **Highlight the relatively low labour demands of fish production once pond construction problem is overcome.**
- ✓ **A similar “Regional Development Committee” to co-ordinate fishery related activities in the North could be established or facilitated in the future.**
- ✓ **Experienced women and men fish farmers should be identified and trained in fry/fingerling production and encouraged to get involved in the marketing and sale of fish fry/fingerlings.**
- ✓ **Encourage both interested women and men to visit model mini-hatcheries to learn about the operation of mini-hatcheries, and ensure that interested women also attend the forthcoming workshops on mini-hatcheries. Ensure that the training materials for mini-hatchery technology are gender sensitive**

## **6. CONSTRAINTS AT THE VILLAGE AND INSTITUTIONAL LEVELS THAT LIMIT FARMERS ABILITY TO ENGAGE IN AQUACULTURE**

### **6.1 Constraints limit women and men farmers engaging in aquaculture**

A wide range of constraints were identified by both farmers and provincial/district staff which could limit the ability of women and men farmers to engage in aquaculture. Many of these constraints were overlapping between different provinces and districts, The following presents a range of the constraints identified.

In Sayaboury, aquaculture is a very new activity and farmers did not have enough experience yet to identify constraints. Many had not yet received their fingerlings from the project . However, in the Phiang district in a Lao Soung village, in addition to digging the pond, a Hmong woman identified tidying, weeding, cleaning the pond as a constraint as it takes time and effort and often conflicts with other activities. Conversely in Savannakhet where aquaculture activities are more established, the major constraints identified was the initial pond construction, steady water supply and flooding.

The provincial project counterpart in Oudomxay identified the major constraints for aquaculture as:

1. The province is very mountainous, there is not much flat land and therefore there is not much space for fishponds. For instance, some farmers in the Beng District were keeping their fingerlings in a neighbour's pond while they tried to improve or expand the size of their own pond.
2. The farmers do not have the funds to construct fishponds. It can cost between 80,000 to 130,000 Kip per hour to hire a bulldozer and it takes between 4-8 hours to dig the pond using a bulldozer.
3. There is a lack of fish fry/fingerlings in the region. The quality of the fry/fingerlings imported from China, Vietnam and Thailand is not considered good, with farmers sometimes being tricked into buying "small" fish called "Sieuw" that do not grow any larger.
4. Most farmers lack knowledge about the best techniques to grow fish, they tend to just release the fish into water bodies without feeding them properly or looking after them.
5. In some parts of the province there are problems with water supply

In addition, the district level project extensionist Mr. Kew Mou Yeu outlined the biggest constraint for fish farming in the Beng District of Oudomxay as being:

1. The quality of the water in the district is not good; some of this water comes from underground. The water in the ground is often too soggy and very difficult to drain without water pumps. There is a lack of water pumps in the district.
2. Farmers consider nylon nets for nursery cages as expensive. As a result, farmers substituted cheaper cotton nets for nylon nets and in some cases the cotton nets rotted or rats ate through the net.
3. Farmer lacked initial confidence in the project. The farmers were told they would only receive fish fry/fingerlings from the project on the condition that they first drain their ponds and clean them. Draining and cleaning the ponds is a very new concept to the

farmers in the district and they were initially sceptical about taking whatever fish was in their ponds out in the hope of obtaining free fry/fingerlings.

4. Overall, the quality of the fingerlings they had previously bought was low. Some farmers claimed that their fingerlings had not grown sufficiently. Although some farmers had not fed the fingerlings adequately, another reason put forward was that “Sieuw” fish may have been mixed in.
5. There is a lack of successful fish farming models in the district. (However, the LAO/97/007 has since organised study tours for some farmers to visit successful fish raising homes in other regions in the province).
6. Farmers perceive raising fish as a risky endeavour. Farmers are afraid to put their fish in the rice fields in case of theft.

In the Xay district in Hooay Khum village some of these constraints were echoed. Villagers said they faced problems with their land not holding water, theft, and other animals such as snake, birds and eels eating their fish. In this village women identified the location of the fishpond as being too far from the house as being a major constraint, in terms of feeding the fish and also in terms of transporting manure to the pond site.

A successful woman fish farmer in Xay district, outlined what she felt were the major constraints for her. During the rainy season she has to monitor the water in the pond very carefully to avoid overflowing. In fact, at night time, if it rains heavily, both she and her husband often have to get up to check the walls of the pond, and the screen near the overflow pipe. Although not very physically heavy work, she said that the work is very focused and fish require a great deal of attention and care. The work is continuous rather than having regular hours.

Loss of fish was also considered a problem in Beng district of Oudomxay where predators of small fry were identified as a constraint, but this was mainly by people who had not put their fry in nursery cages. Also in this district some of the farmers expressed dismay that not all of their fingerlings survived, and complained that the fingerlings were too small. The extension staff explained that it is normal in any context for a percentage of fingerlings to die.

In the Khoun district of Xieng Khouang the main constraints to fish farming identified by both a men’s and women’s focus group were listed as follows:

1. lack of space to build pond
2. lack of water, not enough for the whole year
3. lack of funds to dig ponds
4. lack of money to buy fingerlings
5. lack of time (women’s group) as they are busy minding children
6. lack of technical knowledge about raising fish and advice from technicians visiting their village to guide them
7. not all houses have water in the dry season

One particular constraint that was referred to in Xieng Khouang and in other provinces is that women of childbearing years are often less mobile than other women and men. In Lao women often become pregnant shortly after weaning their youngest child. So women must be available to their babies several times a day for most of their prime labour and for childbearing years (Ireson, 1996). This affects their mobility in terms of being able to travel to fishponds or rice fields that are not located near the home. This illustrates the fact that

women are not a homogenous group when considering the time that they have to engage in aquaculture activities. Other groups of women might include single, married, widows, pregnant, older women or younger girls.

Theft from ponds was mentioned in the Khum and Khoun district of Xieng Khouang as a major constraint. Specifically, theft of fish from rice paddies or ponds that are not located near the house was considered a problem. The tradition of free access for fishing in rice paddies increases the potential for theft of fish that have being deliberately cultivated. On a more positive note, in the neighbouring village of Hok (part of the previous LAO/89/003 project). The villagers mentioned that since fish production had increased in the village theft of fish had decreased considerably.

## **6.2 Economic and commercial constraints**

### **6.2.1 Cost of digging and construction of ponds**

In this study, the recurring constraint that was voiced repeatedly by farmers in all provinces was the high cost of digging a pond and/or the labour time/cost involved in doing so. Because land is a scarce resource, the decision to dig up part of the limited land as a fishpond is a tremendous one and is not taken lightly within households. Opportunities for growing rice are lost as a result, and people need to be really confident that they will be successful at raising fish.

As repeatedly stated in all provinces visited, digging the pond or hiring equipment to dig the pond is a major financial investment for low income rural people and thus a major constraint. The cost of hiring a machine to dig a pond varied from 45,000 to 130,000 Kip per hour. It takes about 8 hours to dig an average sized pond (or at least one day work with bulldozer machinery).

Most machinery-dug ponds in Lao PDR are located near main roads. It would be virtually impossible and beyond the budget of villagers to hire a bulldozer to come to a remote location. Even if they could afford to hire such machinery, access to remote and mountainous locations for heavy machinery is often limited.

The alternative is to dig the pond using your own manual labour or hired labour to do so. Some ethnic groups like the Lao Soung exchange labour. Mr. Somneug, the project counterpart in Sayaboury, himself from the Hmong ethnic groups, said that one of the advantages of forming fish farming groups in the LAO/97/007 project is that it may encourage groups to exchange labour to improve their ponds.

When ponds are dug by manual labour, they may often not be deep enough. This is not a problem in the cooler climate in provinces such as Xieng Khouang, but is a constraint for raising healthy fish in warmer provinces such as Sayaboury. The project staff in Sayaboury is trying to encourage villagers to deepen their ponds. But, in Pan Khom village in Sayaboury, the women told us that deepening ponds conflicts with other activities their husbands are engaged in, such as cutting trees in the nearby forest.

### **6.2.2 Economic risk aversion**

In Lao, the current systems of raising fish generally involve minimal investment. The constraining cost of digging a pond is related to the aversion rural people in Lao PDR have towards risk, particularly financial risk. This may be a constraint to the rapid widespread adoption of fish culture.

Although both women and men farmers express strong interest in growing fish, they are not prepared to invest money in what they perceive as a high risk venture geared towards income generation unless they first see a successful operation demonstrated by other farmers.

For example, in Xieng Khouang provinces many villagers said that were not brave enough to invest in fish culture. Even if these villagers were given an opportunity to borrow money to invest in aquaculture they would not be comfortable doing so. In the future, when they have received more extension and training, and if they saw more successful models they said that they might become more willing to invest in it. On the other hand, in Savannakhet which is a lowland area where fish farming has been more established and there are more models of successful aquaculture enterprises, farmers in the Sanam Xay and Huamnong fish farmers group said that they would be willing to borrow money for buying fingerlings, nursing them and then selling them on. This village was visibly wealthier than any previous villages we had visited, and people had other sources of income in conjunction to agriculture (for instance Tuk-tuk drivers, working in a health clinic and running small shops).

### **6.2.3 Financial investment – costs of entering/expanding into aquaculture activities.**

The average annual income for a low-income family in Lao is between 1-2 million Kip a year. The relative costs of entering into aquaculture are a key consideration for all low-income families. Borrowing money to dig a fishpond is not an attractive financial proposition for most low-income farmers.

A successful model farmer from the previous LAO/89/003 project estimates that in order to earn an income in fish farming in Savannakhet, (depending on how big you intend the business to be), a farmer would require savings or credit of 5 million Kip. This money would be necessary to cover the cost of digging ponds (in Savannakhet 90,000 Kip per hour), buying brood stock, buying supplies, such as lime netting, feed (rice bran feed).

The cost of fingerlings (grow firstly in hapas and later transferred to fishponds of rice paddies) for nursing and on-growing for sale differs between provinces. This cost is determined by the available supply of fingerlings, in Xieng Khouang fingerlings cost between 50-60 Kip, in Luang Prabang around 40-50 Kip and in Savannakhet 10-20 Kip each. These fingerings can be grown to about 200 grams before being sold.

By contrast, LAO/97/007 project staff have estimated that the cost involved in setting up mini-hatchery operations could be between 1–2 million Kip. They estimate that the pay back period is roughly 6 months.

### **6.2.4 Decision making processes for economic investment in aquaculture**

It also is important to remember that women need also to be convinced about the economic advantages of raising fish, because in low land Lao culture they control the cash income.

Although, decisions on how to spend or invest large sums of money are usually jointly taken by husband and wife, decisions about buying fingerlings are often under the control of women.

Lao Loum women told the team that the women exclusively make decisions about purchases up to 30,000 Kip. Men farmers (Lao Loum) in the Beng District in Oudomxay warned that their wives need to know about the financial possibilities in raising fish, as the husbands have to get the money from their wives to buy the fingerlings, and other inputs.

In Oudomxay province, the project counterpart told the team, they have found that farmers often misunderstand the group forming concept in the fish farming project, and feel that they may lose out economically at the individual level. Following bad experiences of the co-operatives in the early 80s, many farmers may not feel comfortable setting up other 'co-operation' groups. Differences within the household in the confidence in the fish farmer groups may occur. For instance, while the husband may want to join, the wife may misunderstand if she was not at the meeting and think they have to donate their pond to the project. In order to overcome this, the project staff try to explain the idea of group formation frequently and as widely as possible.

### **6.3 Risk from fish disease**

In the study, the farmers did not consider disease of fish a major constraint, although some farmers mentioned disease among indigenous and wild fish. On the other hand, diseases of livestock (poultry, pigs, and buffalo) arose again and again as one of the major economic problems in villages, with many villagers requesting vaccines for buffalo and chickens. At present, disease in fish is not perceived by farmers to be a constraint to engaging in aquaculture, rather they perceive the lack of disease as an advantage over other small livestock.

### **6.4 Institutional constraints – aquaculture extension**

Extension agents undertake extension activities for fish production under the Livestock and Fisheries Section of the Provincial Agriculture and Forestry Office. This means they must divide their time between both fisheries and livestock. Livestock production is a major priority for most extension staff. Vaccination programmes to curb major livestock diseases are one of the big priorities in many provinces.

There are also a limited number of specialised fisheries staff posted at the provincial and district levels. Most extension officers have received most of their training in animal production and husbandry, rather than in aquaculture. Encouragingly, in the regions where the provincial and district project counterpart was involved in the previous LAO/89/003 project, the aquaculture knowledge of extension agents is significantly better.

The following are considered the major constraints for provincial and district staff in aquaculture extension, according to the provincial project counterpart in Oudomxay:

1. The province does not have enough extension staff – in Oudomxay province, they have four extension staff, with only two of these staff working on the LAO/97/007 project. The project operates in 3 districts, with only one counterpart in each district.
2. There are many projects in the province (Oudomxay is a target province for UNDP projects for income generating activities, micro finance, SESMAC, IRAP) and the

existing provincial staff have to cover aspects of all these projects which limits the time and attention they can pay to each. Overall he felt the workload for the provincial staff is too large.

There are no plans or funds at present for the government to increase the number of extension staff in the provinces. In summary, district staff and extensionists say they have high workloads and are often over-stretched with different projects.

Some women and men farmers in villages visited suggested that it would be a good idea to have more women extension agents visiting villages for training of women farmers. The number of female extension agents is limited at present in Lao PDR. For instance, in Xieng Khouang Provincial office, there were two women extension officers out of a total of sixteen. One of these female extension officers was able to accompany the team on one of our field visits. She explained that the lack of women extension officers was due to the work women in the provinces are obliged to do both in the household and in the rice fields. In Oudomxay, there are only four extension staff for livestock and fisheries. Of the four extensionists, one is a woman and she is involved in administration of vaccinations, selling medicines and other such work. She does not travel to the districts.

## **6.5 Conclusions and recommendations:**

- ✓ **When considering involving women in aquaculture activities, do not categorise them as a homogenous group, but consider different categories of women, such as single, married, widows, pregnant, women that are breast feeding children, older women or younger girls. Target activities to the appropriate group.**
- ✓ **As women are major economic decision-makers, it is essential to explain to both women and men farmers the cost implications of engaging in different types of aquaculture.**
- ✓ **In organising farmer to farmer study tours/extension, ensuring that women farmers are also involved.**
- ✓ **Not all farmers can afford the financial risk to become involved in pond based aquaculture. Improving the extension of rice-cum-fish culture may be more appropriate to lower income farmers.**
- ✓ **Where farmers cannot afford the cost of machinery/labour to deepen ponds, encourage the gradual deepening of ponds each season using available labour.**
- ✓ **Where farmers do not have ponds it may be necessary to encourage renting/sharing of other water bodies (e.g. for farmers growing fingerlings to a suitable size for rice-cum-fish culture and/or for farmers who wish to maintain their fish while cleaning /drying up of their ponds during the dry season).**
- ✓ **Whenever possible use women extension agents to train and advise women farmers in aquaculture.**



## **7. GENDER ROLES AND THE DIVISION OF LABOUR**

### **7.1 Labour division and intensity issues**

Labour is a resource that is limited both over time and energy. In this study the team tried to collect information on the total workload of women over time, combined with specific data on the division of labour in raising fish in order to identify the barriers and opportunities for women to participate in aquaculture activities. This was in order to identify constraints to allocate labour and time (labour intensity) that may be important in designing project activities. For instance it may be easier to organise training for women farmers in times of low labour intensity after the rice harvesting period. In some instances we got both men and women to discuss and list their daily activities for both the wet and the dry seasons. In general both women and men have a lower workload during the dry season unless they plant a second crop.

#### **The division of labour as “traditionally” perceived**

It is important to highlight that the gender division of labour in any culture is not static. Sometimes the introduction of new techniques and technologies results in a shift from subsistence to market production if the scale of production is increased, and this may result in a shift in the division of labour. If a machine powered tractor is introduced, this may mean less physical labour for men that normally plough land, less time spent in looking after buffalo for boys, and, if a larger area of land is available for ploughing, more time for women planting and weeding rice.

In a study in Vientiane Province, Vang Vieng District, as weaving became a good business it impacted on the traditional division of labour. Formerly, all preparations before weaving were the domain of women, but as possibilities for cash income from weaving were available, men and boys increasingly helped to make looms, collect bamboo sticks, roll thread. Furthermore, boys and men even replaced women and girls in fetching water, cooking and other domestic labour, and grandparents looked after grandchildren more than usual (Schenk-Sandbergen, Khamphoui, 1995).

If farmers are introduced to hormone injecting techniques for breeding fish, exclusive control over this technique may become the domain of men (see section 10.6). Alternatively, if more fish were produced in a household, it could increase the time women spend selling the fish or alternatively, men may become involved in the sale of fish.

Hence, the gender division of labour is an important consideration in introducing any new activity or technology. However the gender division of labour is not static and may in some instances be flexible enough to accommodate the introduction of the new activity or technology, if it benefits all or most household individuals.

### **7.2 Comparison of the total workload of women and men in Lao PDR**

The National Union of Lao Women estimates that in rural areas women work two hours per day more than men (1989). Their work includes production tasks as well as household and child care chores (Ireson, 1996). Time-budget micro studies in Lao PDR show that women and girls perform 50 to 70 percent of all household consumption and production tasks (UNICEF, 1996). Women farmers produce mostly for household consumption and many rural women obtain as much as 30 percent of the family’s diet and household needs from foraging (UNICEF, 1996).

### 7.3 Overall gender division of labour in study areas by broad ethnic group

#### 7.3.1 Division of Labour: Lao Soung

In a Hmong village near Oudomxay the four main areas where men’s labour / time is expected was outlined as:

1. Looking after the big animals – buffalo and cattle
2. Cutting trees
3. Ploughing
4. Looking for money, this means that it is the men that leave the house to go to sell their agricultural produce in the nearby villages or towns.

The Lao Soung men’s group said that the women do everything else, from raising children to raising small animals, to working the upland rice fields. In fact, during the rice planting season they said they often do not see the women for days at a time as they sleep in the upland area – we were not able to interview any of the women in this village as they were in the uplands when we visited. However, we observed that this group of 5 men was taking care of small children that were already weaned but not old enough to help their mothers in the uplands.

This group of Lao Soung men told us that aquaculture was clearly a women’s job, particularly as they viewed raising fish as a task primarily for household consumption. They added that men are often absent from the household buying and selling (task 4 above), so they believed it should be the woman that receives training in aquaculture. In fact one man was very keen to send his daughter to aquaculture training and said he was even prepared to pay for such training. The men did not mention who would look after the fish feeding and management when the women are working in the upland areas.

#### 7.3.2 Division of Labour Lao Loum

In Phosii village in the Khoun district, the range of activities undertaken in the wet and dry season were outlined by both Lao Loum women and men. Xieng Khouang is a province that suffered heavily because of the war. Many men were absent for long periods during the war and this has left an impact on the general division of labour in agriculture. For instance often women were left to engage in agricultural tasks traditionally thought of as men’s, such as ploughing. Women from this province are thought as very “strong” all over Lao PDR.

<i>Phosii Village, Khoun District Xieng, Khouang Province</i>	
Women’s activities in the wet season	Men’s activities in the wet season
<ul style="list-style-type: none"> <li>• Preparing soil in the paddy</li> <li>• Preparing the water flow to the rice field,</li> <li>• Ploughing (if there is no man in the household),</li> <li>• Fixing the ridges between the rice fields</li> <li>• Growing the nursery rice and transplanting it,</li> <li>• Putting manure on the land, wedding the land</li> <li>• Maintaining the water level in the paddy</li> <li>• Weaving</li> </ul>	<ul style="list-style-type: none"> <li>• Preparing the community irrigation scheme</li> <li>• Preparing channels of water flow to paddy</li> <li>• Ploughing and Harrowing</li> <li>• Choosing and preparing varieties of rice</li> <li>• Helping women planting rice</li> <li>• Manuring the rice paddy</li> <li>• Water management of rice paddy</li> <li>• Making fences to protect paddy from buffalo</li> </ul>

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Raising small livestock</li> <li>• Vegetable gardening for the household</li> <li>• Raising children</li> <li>• Cooking for the household</li> </ul> | <ul style="list-style-type: none"> <li>• Cutting bamboo and preparing sting for bunds</li> <li>• Sharpening scythe for harvesting</li> <li>• Repairing house and livestock shelters</li> <li>• Raising large animals – cows and buffalo</li> </ul> |
|---|--|

*Phosii Village, Khoun Distric, Xieng Khouang Province*

<b>Women’s activities in the dry season</b>	<b>Men’s activities in the dry season</b>
<ul style="list-style-type: none"> <li>• Harvesting the rice</li> <li>• Threshing</li> <li>• Carrying rice to storage</li> <li>• Planting vegetables (chillies, onions, garlic)</li> <li>• Cutting grass for livestock feed</li> <li>• Collecting firewood</li> <li>• Weaving</li> <li>• Raising small animals, chickens, pigs, ducks</li> <li>• Raising children</li> <li>• Cooking for the household</li> </ul>	<ul style="list-style-type: none"> <li>• November – December finishing the harvesting</li> <li>• Preparing ‘everything’ to ensure the rice’s storage</li> <li>• Looking after cows and buffalo</li> <li>• Maintaining the community irrigation canal and the canal to their paddy fields</li> <li>• Cutting grass for livestock feed</li> <li>• If doing a dry season crop ploughing in January</li> <li>• Moving fish from the pond to the rice field</li> <li>• Cleaning and preparing fishponds (March)</li> <li>• Moving fish from rice paddy to fishpond</li> </ul>

It is evident from the above that during the wet season there is a heavier workload for both women and men. It is also evident that many tasks are shared and overlap, but overall Lao Loum consider that ploughing is usually done by a man and planting a woman’s job. It is particularly important to highlight the range of tasks women complete in addition to their household and reproductive tasks.

In other villages visited by the team, there were only slight variation on the above gender division of labour for the Lao Loum. For instance in the Beng district of Oudomxay, only men looked after the dykes between the rice paddies and only men did the threshing. In Hooay Khum village in the Xay District of Oudomxay, activities from harvesting onwards are women’s responsibility. This includes milling, pounding, processing and anything to do with the preparation of food and cooking. In the dry season in this village men cut bamboo for weaving the house walls. While women are responsible for growing vegetables and herbs for the household and for selling, men construct fences for the garden.

### **7.3.3 Division of labour Lao Theung**

The study team noted that in midland Lao Theung groups, women and girls are mainly responsible for cooking, household maintenance, water carrying, forest gathering, and care of small domestic animals. They also transplant rice and weed swidden fields. Men and older boys are mainly responsible for care of buffalo and oxen, hunting and ploughing the paddy and clearing the swidden fields. Lao Theung women in the Phiang district of Sayaboury told us that they were responsible for harvesting rice, but their husbands help.

The team noticed that the gender division of labour in Lao PDR tends to be more rigid among midland and upland ethnic groups, perhaps reflecting the relatively lower status of women among these groups. This confirmed the relative high status of Lao Loum women in comparison to women of other ethnic groups.

#### **7.4 Age distribution of labour**

Different age groups may undertake different labour tasks. For instance, in Lao there is a high respect for older people and often the younger generation takes over the heavy work involved in transplanting and planting rice. In Nah Baa Dtai village in the Beng District of Oudomxay we observed that many of the older women were looking after the young children, while the mothers of the young children had gone planting in the rice fields.

Children are an important source of labour for rural families. Usually the daughter helps around the house, preparing food, carrying rice from the granary to the household, fetching water. Boys are exclusively responsible for looking after the buffalo from washing, and feeding them. Foraging for fish in natural waters and foraging for other wild food such as mushrooms, bamboo shoots, etc. is done by women, but both sons and daughters also help.

The team found it interesting to note the perception of labour intensity. Nearly every village said that women engage in 'light' work such as tasks for the household including collecting firewood whereas men engage in the 'heavier' work such as dealing with buffalo. However, observing a young man leading a buffalo along the road with a young girl a few steps behind bent over from the weight of firewood on her back makes one wonder about the perceptions of 'light' and 'heavy' work. Perhaps another way of categorising or perceiving such work would be to say that women perform the tedious and time-consuming tasks and men the short-term energy intensive work.

#### **7.5 Gender analysis of aquaculture production cycles**

In Lao PDR, aquaculture is integrated with other agricultural and animal husbandry activities. Men and women usually share tasks and responsibilities in rural aquaculture production. As aquaculture is relatively new in some provinces, people were unable to say who traditionally does what activities and which jobs would necessarily be considered men's or women's. However, we were able to identify some patterns of activities that were predominantly female and others that were predominately male. For instance, some men said that apart from digging the pond, fish farming should be women's work (villager in Hooay Khum, Xay District Oudomxay). The following are some stages of aquaculture production processes where farmers discussed with the team their perceptions on the gender division of labour.

##### **7.5.1 Pond site selection and construction**

Men usually select the site for pond construction and perform tasks such as digging, pond clearance and repair. Thai Dam villagers in Khum district Xieng Khouang were very clear that the men choose the pond location and dig the pond. On the other hand in Phosii village in Khoun District of Xieng Khouang the entire family helped in the digging of ponds. In some situations farmers may buy or inherit land with a pond already in place. Where ponds are integrated with small livestock, men would generally construct the pens over the pond.

##### **7.5.2 Buying fingerlings**

Depending on where fingerlings will be cultured (e.g. in net cages, fishponds, or rice fields) different sizes of fingerling may be more suitable and have cost differentials. It is difficult to distinguish between different species of fish when they are at fingerling stage. Buying fingerlings can be a risky decision making process. Whether it is men or women farmers who buy fingerlings depends on the location of the village and the ethnic group. If villagers have to travel far to a district or provincial area to buy fingerlings, it is a man's

responsibility. Whether the husband or wife controls the money is an important consideration. For example the Hmong people told us that buying fingerling was exclusively a man's job, whereas many Lao Loum said that their wives have to consider the purchase of fingerlings a viable economic option in order for the wives to hand over the cash. For fingerling purchase, often the amount of cash required is small enough to be under the financial control of the woman. Hence, when traders with fingerlings visit the village, it can be either men or women that buy them.

### **7.5.3 Pond fertilisation, maintenance and feeding the fish**

Fertilisation of ponds is recommended for better fish growth. In the Xay district of Oudomxay, women and children collect waste material from the farm and household leftovers to be composted in the fishpond. In other villages this can often be a man's task. In Sam village in Khum district, Xieng Khouang children helped in tasks such as carrying the basket of manure to the ponds. The team were told that if the family lives bordering the water body, it can be easier for both women and children to be responsible for pond fertilisation and daily activities like the collection of household waste and animal manure for composting, water management and the feeding of the fish.

Generally, men are responsible for pond preparation, pond weeding, drying or draining and the regulation of water entry into pond prior to stocking, although women often help. Liming the pond (when done) is the responsibility of men. Men generally operate pump or pond gate operations and other water exchange practices. For example, in Phosii village in Khoun District of Xieng Khouang, the men look after the ponds. In Nah Baa Dtai village in the Beng District of Oudomxay, maintenance of the pond, liming the pond and water control were also considered men's jobs.

Ideally farmed fish should be fed regularly. In general, women usually prepare feed for fish, such as collecting rice bran, grass and any other available vegetable wastes that are fed to fish. No farmers interviewed during this study purchased formulated feed. In Sam village in Khum district Xieng Khouang both women, men and children feed the fish and women and children maintain the pond. This was also true in Phosii in the Khoun district but more women than men are responsible. Although women may be responsible for feeding fish, there may not be an increased demand on women's labour for rice-cum-fish cultivation in comparison to rice-only cultivation as people generally do not tend to feed the fish in the rice paddies.

The pond location was a critical deciding factor on who fed the fish. In villages where the ponds tend to be far away from the household women are less likely to feed the fish. If the pond is located near the household, feeding the fish fits easier into women's other daily routine work such as feeding poultry and other small animals. In the Phiang district of Sayaboury in a Hmong village the fishponds are located 25 minutes walk from the house, where they cultivate upland rice. One of the men told us that the responsibility to feed the fish lies with whomever happens to be going that direction from the household. Feeding the fish in this case would then depend on the season i.e. whether the men are ploughing, or whether the women are planting, weeding or harvesting. In ponds integrated with small livestock, there may be additional work in feeding penned animals rather than leaving the pigs, ducks or chickens scavenge for food.

#### **7.5.4 Fish Harvesting.**

Fish can be harvested and eaten in Lao when they are hand sized (about 200 grams each). Although most women harvest and decide on which individual fish for daily/weekly family consumption, any overall major harvest of fish is under the control of men. When a large batch of fish is to be harvested from a pond using cast nets, this is considered definitely a man's responsibility. Some women said that wading in waist deep water is not suitable for women, particularly when they are menstruating. For rice paddies, although draining water from the rice paddy is a man's responsibility, both women and men collect and harvest fish from rice paddy fields. In the Khum district of Xieng Khouang men decide when to harvest. In the same district it was also the men who choose the brood stock.

In Nhonghoung, a Lao Theung village in Savannakhet with a communal water body, the men told the team that in their village it is the women and children who catch the fish, and conduct all other activities related to post-harvesting (fermenting and food processing). In this case, the women sell the fish, and collect the money and give it back to the committee who manage the community funds from the fishpond.

#### **7.5.5 Fish marketing, selling, and control over income generated**

Women are the sellers, buyers, traders, middle-women and often the entrepreneurs regarding table-sized fish. In Lao Loum households, women control the income generated from sale of fish, which is used for purchasing household items. This is likely to also be the case in Lao Loum villages that are just beginning to raise fish to sell in the future, because women are already involved in marketing of agricultural and livestock products in these villages.

Overall, in low-income rural groups, the larger part of the fish production is usually sold at the pond site. Such farmers market their fish by word of mouth. In Oudomxay, a woman who was engaged in aquaculture as her main source of livelihood said that she sells directly from the pond site. The fish are hence only sold when friends and neighbours arrive. Although the quality of their fish has a good reputation, they are located only eight kilometres from the provincial capital, near a main road, so they do not have any problems selling the fish in the local market. In the villages of Sanam Xay and Huamnong in Savannakhet province, villagers said that if someone is thinking of harvesting his/her fish, they let others in the village know in advance and buyers accumulate around their pond. The woman in the house checks the price in the local market and then they decide a fair price for their fish.

In the Khum District of Xieng Khouang if there is surplus fish to sell from the villages it is sold to middle-women (traders) from the district town who travel by motorbike in the district calling on the villages where they know they can buy fish. They then sell the fish fresh in the Phonsavan market. In Sam village access to the village by road is only recent and now means that traders can come directly to the village to buy fish. However one woman in Sam said that (at the time of this study) they did not have enough fish for sale for outsiders to warrant them visiting regularly to buy fish. In Savannakhet, an area where aquaculture is more established, a model farmer from the LAO/89/003 project said that it was his wife who sells the fish. Although they live very near the town, they do not have a stall in the market, but they have permanent clients that his wife delivers to.

Women are responsible for the price of fish in Xieng Khouang and negotiate with the buyer/trader that comes to their village. Women decide the price by keeping abreast of how much fish may cost in the distant Phonsavan market. Some households said they might have up to 40-50 kilos of fish a year to sell. The village of Hok, which was involved in the LAO/89/003 project, is renowned for having fish and many fish sellers in the actual Phonsavan market said that they bought their fish directly from the village of Hok. In Hok the market sellers come regularly to buy the fish early in the morning. Some households in Hok village sell between 70-80 kilos of fish a year. One fish seller in the market in Phonsavan said that sometimes she goes to the provincial bus station to buy fish from villagers who have travelled to Phonsavan to sell fish with other agricultural produce. Thus, it is likely that farmers will only travel to the provincial capital to sell fish if they have other produce to sell as well. In Champhone District of Savannakhet, a successful fish farmer, Mr. Bounkhouang, told us that his daughter sells the fish in the district market. His wife regularly checks the price and supply of fish in the market and reports back to her husband. Based on this information they decide how much to harvest.

Most fish is sold fresh in Lao PDR. Fish processing was not generally found to be conducted by the fish farmers to produce fish products for sale. However, in all Lao Loum households women were exclusively involved in the making of a fermented fish sauce “pa dek” for household consumption.

In summary, while some villages have easier access to local urban markets and to traders, on site selling of fish is also a viable option and very common. It would seem that channels for the sale of fish is not a major constraint for the majority of farmers. Local reputation of fish farmers is another important consideration in fish marketing. Most villages surveyed were not engaged in selling of fish for income because they did not have a surplus of fish production. Selling of surplus fish for most farmers was largely ad hoc and considered an added benefit.

## **7.6 Conclusions and recommendations:**

- ✓ **In Lao PDR men and women can work together in all aquaculture activities. There are few cultural constraints with regard to women’s participation in aquaculture**
- ✓ **In some aspects, (such as selling and processing) the division of labour indicates that knowledge and experience differs between men and women. This could help to indicate the target group for future extension activities and other interventions to enhance the production of fish in Lao PDR. Any programme to reduce post harvest losses should be aimed at women, while campaigns to encourage people to dig or prepare deeper ponds should be aimed at men.**
- ✓ **Daily feeding of fish in ponds is considered a household activity so women’s inputs (time and effort) should be taken into account. Advice on improved feeding techniques and materials should be targeted to women.**
- ✓ **If extending advice on the location for digging the pond, ensure that the technical factors for selection such as the suitability of the soil (permeability) and the availability of water are balanced against the distance the pond will be from the**

**living quarters, particularly if animals will be penned over the pond and have to be fed.**

- ✓ **As both women and men buy fingerling, both need to be able to identify fingerlings that are suitable for purchase in order to avoid buying low grade or unsuitable fingerlings**
- ✓ **Workshops on fingerling quality could be aimed at both women and men, and fingerling producers.**
- ✓ **Group training and support with respect to processing, distribution of fish and the management of aquaculture enterprises could be targeted at women.**



## **8. COMMUNITY AND INTRA-HOUSEHOLD DECISION MAKING PROCESSES**

### **8.1 Community and intra-household decision making processes**

In Lao PDR a clear division exists between the public and private spheres for men and women. Men generally speak for the household and are elected or seconded to positions of authority within village social and political organisations. Women are confined to the private, domestic sphere, except for the important economic activity of trading (Evans 1995).

In many rural areas, women, continue to feel that they are inferior to men, and may not be confident enough to express their opinions to promote their rights and benefits. In the first community pond that the team visited in Outhoumphon District, Savannakhet the team was told that decisions regarding how the money earned from the sale of fish from the communal pond are made at village meetings. The Lao Women's Union (LWU) representative for the village is on the committee as are the elders from the village, the village head man, and the monk from the temple. The money earned had been spent on various community based projects such as building a road in the village, building a temple, paying dues towards national soldier day and getting access for the village to electricity. The women interviewed said they were very pleased with these developments. However, when asked if they put forward their ideas at such meetings, the women's group said that they never do. The women said that they usually follow the men's suggestions and decisions for everything related to how the money is used publicly. This is not to say that the women do not agree with all the decisions made regarding the use of the money, but the potential is there for women's priorities to be overlooked.

In many cases, rural women may not be aware of their priorities and needs. For instance, among the 5 women in the group the average age was 41, (aged 30-52), they had given birth on average 9 times each (total 45 live births) and now only had 29 children between them – between them they had lost a total of 16 children - about 3 deaths per women. In fact one woman's 13 year old child had just died from disease the day before the team arrived. While discussing infant mortality, all these women identified a better health centre as something that their families badly needed in the village.

On the other hand at the intra-household level even when it is stated that men make the decisions in a household, women do have the power to motivate men to take certain decisions regarding the household. For instance, if women are convinced that investing in fish culture is a viable option, they can influence their husband regarding household expenditure and risk taking. However, the viability of aquaculture has first to be demonstrated to women.

### **8.2 The main sources of livelihood and the most important income generating activities for both men and women farmers in Lao PDR.**

In Lao, subsistent integrated farming is practised for household consumption, with any surplus contributing towards family income. In most villages visited no-body produces fish as a sole income generator. In the villages visited by the team, farmers are dependent on a

range of activities as sources of livelihood, from selling livestock to weaving. Most families keep some chickens or pigs and tend vegetable or fruit gardens of various sizes.

Women in Phosii village in Khoun District of Xieng Khouang said that their main income comes from selling pigs, followed by selling vegetables, then from selling weaving products, and then from selling poultry. The men from the same village said that their main source of income was from selling buffaloes and cows. This was also true for men in Nah Baa Dtai village, Beng District, Oudomxay.

In some villages, women run tiny roadside stalls in which they sell cigarettes, sweets and miscellaneous items purchased in neighbouring towns or provincial centre. In Nah Samphan village in the Phiang District of Sayaboury, a woman told us she sells between 10-20,000 Kip worth of goods per day from such a stall.

Rural men in Lao PDR also have diverse sources of income. Important sources include sale of buffaloes and cattle. For many men their labour is an income generating resource that can be hired out or exchanged. In the Khum district of Xieng Khouang the main income is from livestock with one million Kip per year being the average income per household.

A Lao Soung family from Oudomxay told us that their main source of income was from selling opium, which enabled them to pay 3 million Kip to buy land in the low lands and dig a fishpond. They said that since moving to the lowlands they do not cultivate opium anymore. Their main source of income now was from buffalo, and also other livestock such as goats, chickens, pigs. They also sell vegetables and fruits.

In Sam village in the Khum District of Xieng Khouang one of the main source of income is from weaving. The money earned from weaving is used for household purchases. Villagers sell large livestock such as buffalo when they need large amounts of cash for something like building a house. Women in this region also keep small livestock for selling, and some women make rice whisky for sale. Women keep the money in the household, and even if it is the husband that sells a buffalo, he will give the money to his wife. Husband and wife make decisions together about spending money. The same was true in another village in Xieng Khouang where the main income for women was raising small livestock such as chickens, ducks, and pigs.

In Phosii village in Xieng Khouang, where there is no market, the team met women who had set off at 5am on a 4 kilometre walk to the market to sell a recently slaughtered pig. They tend to stop in villages along the way to sell some of the meat. Men also got income from sawing mills and planks and making products from bamboo. In Phosii village household incomes for six months in the dry season ranged from 150,000 Kip in poorer households to 500,000 Kip in total. On average they can make 300,000 Kip in 6 months selling rice. These Lao Loum wives control the money but will give money to the husband when necessary and after they discuss what will be done with the money. One woman said that they know their husband loves them when he trusts them with the family finances. In the Thai Dam villages in the Khum District of Xieng Khouang, women also hold the money in the household.

Hunting for game, birds and small wild animals is also very important for food security and is done by men. Gathering of wild plants and food is a task that often falls to women and is also an important economic activity, amongst others. Children and women scour the rice

fields for small shrimps, crabs, frogs etc. Weaving is an indispensable income producing activity in many villages and it is exclusively a female occupation. Intensive weaving does not normally occur during the planting season (when the team visited), but is an important activity after harvesting.

#### **Lao Women's sources of livelihood**

Rural women in Lao PDR have diverse sources of livelihood and their work activity each day is spread over several different, but vital tasks:

- ☛ Raising pigs and small livestock such as chickens, ducks, turkeys etc.(all villages visited e.g. Nah Baa Dtai village, Beng District, Oudomxay etc)
- ☛ Weaving in some villages (Beng District Nah Baa Dtai village Oudomxay where they are famous for their indigo dye)
- ☛ Sale of vegetables and herbs.
- ☛ In some villages, in some years income is earned through the sale of surplus rice.
- ☛ Many women distil the traditional Lao rice whisky and sell it as a source of income locally – often being their second major income.

### **8.3 Income distribution and expenditure control**

Overall in Lao PDR household members share the responsibility to secure welfare for their families and they generally pool the family income. However women may control expenditure. For instance, in lowland Lao Loum culture financial management of cash is exclusively the domain of the women up to certain levels of expenditure. The team found this to be the case in the Thai Dam villages visited in Xieng Khouang, and in the Lao Loum village in the Beng District of Oudomxay, where the team were told that for purchasing expensive items such as production equipment or buffalo men usually decided. In a village in the Xay district of Oudomxay, although the villagers said that men control the money from the sale of buffaloes, in reality a couple knows exactly what they will do with the money in advance. They plan and discuss together first.

In Hmong households' men are in charge of decisions about money. In Oudomxay we were told that the oldest male in Hmong households looks after the money. In the Phiang District of Sayaboury, we were also told that it is Hmong men that sell most things (in 80-90% of households), although women do sell certain non-wood forest products. The men told us that although they make the decisions about money, in certain circumstances they would discuss such decisions first with their wives. For example, Hmong wives will make decisions about buying clothes for children, but because she has many children she may not get to the market (one hour away) so it is often the husband who will buy the clothes.

### **8.4 Conclusions and recommendations:**

- ✓ **As management of income is of benefit to the household as a whole, the LAO/97/007 project should be concerned with increasing fish production in order to increase both women's income and men's income, and household food security.**

- ✓ **Because households have diverse sources of income generating activities fish rearing must compete with other income generating activities, and may be too risky an option for some households.**
- ✓ **Because Lao Loum women control household cash and expenditure for smaller items they have to be convinced of the benefits to be derived from buying smaller aquaculture inputs (e.g. netting, fingerlings etc). Conversely, decisions about large expenditures tend to be in the domain of men but are often made jointly. Hence, expensive activities such as pond construction have to be made jointly by both men and women.**
- ✓ **Although women make important decisions within the household, they may not be as willing to voice their opinions in public decision making processes. Nevertheless, it is important to seek women's inputs and opinions in important community decision processes as they may have different needs and knowledge inputs. This could be taken into account in extension and fish farmer group formation.**
- ✓ **Ensure that women are included in information on forthcoming aquaculture activities so that they can be more prepared to voice their opinions and needs. This could be done through the provincial Lao Women's Union office, and channelled through the LWU district and village representatives.**
- ✓ **Highlight successful cases in Lao PDR where benefit has been shared amongst a community or group as a result of income generation from aquaculture activities.**

## **9. THE INSTITUTIONAL STRUCTURE OF VILLAGES IN LAO PDR AND PROFILE OF VILLAGES IN THE LAO/97/007 PROJECT**

### **9.1 Institutional structures in Lao PDR**

Lao PDR is divided into 17 provinces. Each province is divided into districts, which are further divided into sub-districts that administer between 5-10 villages (Evans, 1995). Each village has a village headman and deputy, a LWU's representative and a youth group. The provinces are the key administration units and are run by administrative committees. These committees are replicated at the district and sub-district level. The provincial administration has sectoral services corresponding to those of the central ministries, although local provincial staff is directly responsible to the provincial administrative committees rather than to the central ministry. Parallel to this structure and often overlapping with it, is the Party organisational structure (Evans, 1995). The headman in each village reports to the Party's organisational structure. Each Province that the LAO/97/007 project is working in has a Provincial counterpart from the Provincial Fisheries and Livestock section of the Agriculture and Forestry Dept.

### **9.2 Provincial agricultural department selection of LAO/97/007 project target villages**

Selection criteria for LAO/97/007 project target villages were not pre-defined by the project staff although broad guidelines were given. The provincial agriculture department largely determined the selection of project target villages. The provincial counterpart in the provincial agriculture department was informed of the project's commitment to targeting low income groups, women and ethnic groups, and asked to include this in their village selection criteria (LAO/97/007 Project Quarterly Progress Report, March 1998). In the selected villages, fish farmer groups of up to 15 people were formed as the primary project target group.

Villages were selected by the provincial agriculture department according to some or all of the following broad criteria (Project Quarterly Progress Report, March 1998):

- Accessible by road (usually major road)
- Some existing aquaculture activity
- Previous contact with the Livestock and Fisheries section
- Co-operative village head / villagers
- Special interest to the Province (i.e. resettlement village, targeted for development)
- Presence of irrigation schemes
- Close to, but not included in previous aquaculture projects.

In Oudomxay, the study team was told that the provincial staff selected the districts based on their geographical location and then the district staff selected the actual villages. The villages had to be accessible by road for transportation.

In Xieng Khouang province the project provincial counterpart chose villages from the project in consultation with the provincial and district offices for livestock and fisheries based on the following criteria:

1. The village needed to be interested in aquaculture, the village should have written a letter requesting assistance from the district office.
2. Villages with the correct environment for aquaculture could be selected, i.e. fishponds, good water supply, rice fish culture
3. The village should have low income people, low resource, low inputs
4. Villages should have ethnic groups (For example, in the Khoun district of Xieng Khouang 16 Lao Loum families - including 2 Lao Soung families - from 2 villages form the project fish farming group).
5. Villages that do not have ponds or paddy rice, but have potential could also be selected (near a stream or water supply)
6. Villages had to have an accessible road during both the wet and dry season
7. Villages should have a high degree of organisation, the village elders, the headman, the Lao Women's Union had to have a working relationship.

### **9.3 Decisions about who participates from the village in the LAO/97/007 project**

It was recommended that the 'group approach' would be followed in this project by building and expanding on the individual 'model' farmer approach from the LAO/89/003 project in order to reach a broader socio-economic group. It was expected that such groups would give better opportunities to exchange information, disseminate information and facilitate gaining easier access to institutional credit.

Selection of farmers for group formation differed between villages but mostly relied on their ability to pursue aquaculture. The ability to pursue aquaculture implies the possession of a fishpond or rice fields suitable for aquaculture. In some cases farmers have constructed fishponds so that they may be able to take part in the LAO/97/007 project activities. An economic analysis of fishpond construction revealed that unless fishponds were constructed by the owners themselves the economic viability of fish culture in ponds tended to be marginal or loss making. Decisions related to selection of farmers with rice fields suitable for rice-cum-fish culture rested with the provincial and district counterparts. (Project Quarterly Progress Report, March 1998)

In some cases the arrival of the LAO/97/007 project prompted people to repair ponds which had fallen into disrepair. In the Phiang District in Sayaboury, one Hmong man said that he had a pond before the project arrived, for which he used to buy and then grow fingerlings (Tilapia) for household food. Last season due to heavy rain his pond was destroyed. When he heard about the project he was prompted to immediately repair his pond. In Oudomxay, not all farmers had finished repairing / constructing their fishponds before the arrival of the fry/fingerlings from the project. Other members of the fish farmer group allowed those who had not yet repaired their ponds to place other farmers fingerlings in hapa nets in their ponds.

In Oudomxay, the following guidelines were given by the Provincial counterpart to the village head man for choosing target farmers:

1. Those with an interest in fish culture – this was largely determined during the preliminary household survey conducted at the commencement of the LAO/97/007 project.

2. Those that have resources for fish culture - land, money for inputs, water supply etc
3. Those farmers that have demonstrated that they are willing to follow technical advice given by the aquaculture technicians.

In Xieng Khouang province the Provincial project counterpart said that for farmers to participate in the project group, farmers should be hard working (as defined by the village headman). Families should also be low income, and needed to have some area that could be used for fish culture (pond, or paddy). They must also own the land. The area of pond or paddy should not be prone to catastrophic flooding or drying out. The water body location should be accessible to the project staff (i.e. the pond should not be a days walk away from the village). The farmer should have some level of learning i.e. able to read or write. They should also be able to understand and accept the information offered. The farmer should be someone who could or would be willing to explain and promote the information to others. The farmer needed to have some ideas of the state of the market for fish and how to sell them.

#### **9.4 Fish farmer group leader selection**

Each of the fish farming groups has a group leader and two deputy leaders. Group formation strategies were outlined in a workshop for Provincial project staff and the following principles for selection of the leader were discussed:

- the establishment of three group leaders and the role of the group leader
- groups leaders should be selected by the farmer groups and should be acceptable to all members of the farmer group
- the group leaders should not be perceived to be benefiting at the expense of the rest of the group members
- group leaders must be effective in resolving disputes
- group leaders must also be acceptable to the provincial /district counterpart
- The conclusion of previous experiences was that if farmers were selected carefully the group would be effective and less liable to internal disputes.
- The involvement of a woman in the group leadership was considered to have a useful balancing effect on leadership decisions.

This last point would appear to ignore the productive role women play in aquaculture activities and would encourage women to only be selected for the groups as token members, rather than members because of their keen interest in aquaculture. The team found that women with teenage or adult children were very interested in aquaculture as their reproductive tasks are lessened and should not be singled out as having only a “balancing” role, for instance as deputy group leaders.

In Xieng Khouang province the following criteria for group leader selection was outlined: The group leader had to be someone with knowledge and ability, basic schooling (to age 13-14 i.e. ability to read and write), someone that was healthy, and they had to have had previous experience of traditional fish culture. The group leader should not be constrained by family responsibilities (*Note that this potentially excludes many women*). Finally, it should be someone that has good relationship with other people in the village and is respected by the community.

### **9.5 Sex ratios in fish farmers group: reasons for lack of women's participation**

In many villages visited by the study team it was said that there is a strong sense of community. People in rural families have goals that overlap, and people do not always act as 'individuals'. However, one individual household member interfaces with the project. It was necessary to stipulate one person per household because the project staff had to account for costs in advance. These costs included lunch and the supply of fingerlings.

The eldest married male in the Lao domestic group is considered the head of the household. He is the recognised spokesman for his family in the village and to the outside world. This biases the composition of fish farmers groups towards men participants. Female-headed households are not common, but single women, either widows or divorcees with children, are recognised by the community as legitimate heads of households (Ireson, 1996). Although the sex ratios of the farmers groups are not fully known yet, the district and provincial counterparts were requested to include women in training wherever possible. The majority of the fish farmer group members that we had contact with were composed of men, generally heads of household. Some groups also included one or two women.

It would appear that when LAO/97/007 project staff came to the village they tended not to state that whoever in the household was most interested in raising fish could attend and join the fish farmer group, so as a result, it was assumed that it should be the head of the household. In some cases project staff explicitly said it should be the head of the household. One woman from Sanam Xay village, Savannakhet, only attended the training because her husband was working somewhere else, so she replaced him. She is very interested in fish, and showed us her fishpond.

In many projects during the formulation stage even if there are separate groups for women and men to discuss their development priorities, when the groups come together again the women are shy at voicing their priorities publicly.

When asked about the major reasons why women in Lao do not participate actively in front of men the following issues were raised:

- The Lao culture and history of women's position in society
- Women are not used to speaking out publicly
- Women do not have information to sound knowledgeable about issues

There are also biases regarding the ages of women and men interested in aquaculture. Most of the male members of the fish farmer groups tended to be over 35. In many villages we found that older women were particularly interested in aquaculture and the project, particularly if they no longer had small children to mind. In Savannakhet, an older woman told us that if you already have a pond, and if you have someone to help you harvest the fish, if your husband dies or is away, it is a good source of income for a woman.

### **9.6 The dynamics of working as a group**

In the Beng District of Oudomxay, villagers in Nah Baa Dtai were initially concerned about the dynamics of working in groups. They said that working in-groups is difficult and often people do not work at the same level and pace. However, the Nah Baa Dtai group have worked hard at helping each other. For instance, one person received fry/fingerlings before he had finished digging his pond so another group member offered to let him leave his fry/fingerlings in her pond. He had used cotton netting in the other member's pond to nurse



his fingerlings and the netting tore and his fry/fingerlings escaped into the main pond. However, the fish farming group decided that each member of the group would donate 10-25 fry each to him for his own pond. In another district of Oudomxay (Xay district), one group members pond was being shared with other villagers. This was so that the farmers without ponds would be able to nurture their fingerlings in cages to a suitable size for placing in the rice paddy.

In Sayaboury, the provincial project counterpart Mr. Somneug said that one of the reasons the project is trying to get the farmers to work in groups is to encourage people to help each other dig deeper and better ponds. He said that the project staff had to spend time explaining the advantages of working in a group.

In the Khum District of Xieng Khouang the leader of the fish farmer group explained how the fish farmer group functioned. This group is made up of people from two villages (there are 7 from Ban Sam and 4 members from the neighbouring village). Although they have formed a fish-farming group they all work as individuals and take care of their own fish. The formation of the fish-farming group is for exchange of information and also for organisation purposes.

### **9.7 Examples of how knowledge flows within the village**

Overall the team found that, after the project arrived to the participating villages, regardless of who was in the fish farmers group or who attended the aquaculture training, great interest in fish farming was generated throughout the entire village. Aquaculture related knowledge and information seems to flow by peer example and discussion.

The fish farming group leader in Sam village in Xieng Khouang province told us that he had begun fish farming activities before the LAO/97/007 project came to the village. Sam village is located very near to Hok village that was involved in the LAO/89/003 project. The fish farmers group leader told us that he went to visit a friend in Hok to improve his knowledge on how to farm fish successfully. When he came back he changed some of his methods. He found that his fish were still not growing big enough, so he went back to Hok village again to discuss what he was doing wrong.

In Champhone District of Savannakhet a farmer who has been raising fish for 3 years and is part of the AIT project, now sells between 40-50,000 fingerlings per year. He initially visited the state fish station to learn how to grow fingerlings. He later received training and support from the provincial fisheries unit and went on a study tour to Thailand. He is now considered a model farmer in the district and many other farmers come to visit his pond and learn practical aspects of aquaculture from him. He strongly advises people who visit him to engage in traditional methods before engaging in more advanced techniques such as hormone induction of breeding.

A target farmer from the LAO/89/003 project said that when people come to his house to buy either fish or fingerlings from him, both women and men use the opportunity to ask him questions about his farming techniques. As he used to work at the Provincial Extension Office, so he is confident in explaining his techniques to people.

In a Hmong village in Oudomxay, the 80-year-old head of a household said that he learned how to grow fish solely by observation. He went to a nearby Lao Loum village and

watched someone rearing fish. Later, when he needed to harvest fish from his pond, he returned to watch the Lao Loum farmers using cast nets. He told us he then went to the market and bought one and practised throwing it in a field before using it for harvesting fish! He then taught his son-in-law how to use the cast net. In this village the men the team spoke to clearly thought that raising fish was a woman's job. Therefore, they said it should be the women who attend aquaculture training. When asked about language constraints for Hmong women (not all Hmong women speak Lao) the men suggested that the women could learn about fish farming if it was taught in simple Lao.

In Savannakhet the Fisheries Unit, along with AIT staff, organise a "lessons learned" workshop every year where the farmers involved in their "Nursing Network" are brought together. They exchange information and the farmers produce guidelines specific for their environment in aquaculture.

## **9.8 Conclusions and recommendations:**

- ✓ **Funds permitting, in each province, bring the farmers that were trained earlier this year together formally to discuss lessons learned.**
- ✓ **Encourage farmer to farmer training model for fish culture. This would require identifying and assisting model women farmers to train other women farmers in their area.**
- ✓ **Continue the farmers groups model as a method for learning from each other. Ensure that district staff broadcast and advertise individuals or villages that are doing well in raising fish, other villagers may visit them (even without funding from the project)**
- ✓ **There is greater opportunity for integration of women farmers in the composition of fish farmer groups. As the interest of women farmers in aquaculture exists there is scope to establish women fish farmer groups.**
- ✓ **Rural women vary considerably with respect to their interests, priorities and time available. Perhaps women with older children would be the most suitable group for initial aquaculture related activities, because they are less busy with children, they feel more confident, and both men and women in the village would respect them because of their age.**
- ✓ **It is very important that women who initially become involved in the aquaculture activities hold high respect in the village. Perhaps the LAO/97/007 project could use the head of the Lao Women's Union group in the village to encourage women to become formally involved in the project. Later, women with less confidence (or more disadvantaged) may begin to become involved in aquaculture activities.**
- ✓ **In any future group formation selection processes the LAO/97/007 project staff should make it explicit that women as well as men farmers are eligible for consideration to be part of fish farmer groups.**

## **10. TRAINING OF FARMERS IN FISH FARMERS GROUPS**

### **10.1 LAO/97/007 project training activities to fish farming groups**

A major project activity in 1998 involved the training of the farmers groups in aquaculture techniques. The training was to encourage basic low technology fish farming techniques to increase production. The training typically covered how to raise fish in ponds (including fertilising ponds, feeding, maintenance of ponds, harvesting), how to integrate fish culture with livestock, rice-cum-fish culture and simple fish breeding techniques. The farmers were also taught to keep records of the number of fish they got, daily feeding, and other activities.

### **10.2 Aquaculture training for women**

Women value the opportunities offered through training. However the possibilities to expand their economic activities by attending training for some groups of women really depend on how these women can reallocate their time and other agricultural responsibilities. The roles and responsibilities of women according to their age group and position in the family are determining factors for women to expand their activities. Women's domestic obligations and their productive activities might hardly leave them time to attend training in aquaculture, particularly if distant from the household or farm.

### **10.3 Attendance of women in the LAO/97/007 project's aquaculture training**

When the project will be conducting the scheduled national workshop to assess the results of the fish farmer groups' activities, it will be possible to determine precisely the numbers of women who are in each of the fish farmer groups. As the majority of the fish farmers groups were composed of men, it was mainly men that attended the training offered through the project. The details below are based on observations and discussions with district and provincial staff in the provinces visited.

In Oudomxay, three district training workshops of farmers took place in Xay, Hun and Beng districts. In Xay district, out of 34 trainees, 4 were women; in Hun district no women participated in the training group composed of 34 men; in Beng district out of the 35 people that attended the training, 10 were women.

In Sayaboury, the Provincial project counterpart said that it was difficult to ensure that women were included in the training. In the first village where they did training, only men came. However, in the second village out of the 27 people that came 8 were women. In the third village where they did training no women came. He suggested that this bias might partly be due to the fact that many of the women were busy transplanting and planting rice.

In many villages visited, women expressed considerable interest in raising fish, and perceived it as a women's role. Yet, they did not attend the training provided through the LAO/97/007 project. Some of them said that the project did not say that women could go to the training offered, or that there was no mention of women fish farmers when the project staff (men) first came. Others said that when something new comes to the village, the men want to know about it first. Many women the team spoke to did not know that it was possible for women to attend fish farming training.

In many villages the team were told that women only attended the training if the household was already cultivating fish and their husbands for one reason or another were unable to go. The women then represented the family at the training. Some women also said that they were unable to attend the aquaculture training, as they had to mind small children.

The village headman is the person that the project staff first meets and it may not have been clear to the headmen that women could participate in training in the aquaculture project. This may have affected the composition of the fish farmer groups.

In Xieng Khouang in Sam village, the men that had been trained said that they would strongly support their wives to be trained in raising fish. However, they suggested that the women should be trained separately to the men, because when men and women are trained together the trainer focuses on the men, and the women are too shy to speak up. Furthermore they suggested that if possible female extensionists should train women to raise fish. This view was echoed in by the women in Khoun district, Xieng Khouang, where they would like to learn aquaculture techniques in a group of women. In the Xay district of Oudomxay, the head of Hooay Khum village also recommended separate training for women and men as women are shy to talk out in front of men.

#### **10.4 Education levels and access to training.**

Another reason for the low participation of women at training workshops is because they have a lower education level, and feel that they may not be able to take notes and follow technical knowledge. Literacy levels are not high in many rural areas. In Lao 35% of adults cannot read or write. It is also accepted that girls are much less likely to attend school than boys. Parents rely on girls for daily labour more than boys (Ireson, 1996).

The level of education or literacy necessary to undertake the aquaculture/project activities varied by province. In Xieng Khouang the Provincial Project Counterpart gave guidelines to the villagers for selection for training. Although probably not an eliminating factor, among these guidelines was the requirement that the villagers should have some level of learning i.e. be able to read or write. In Nah Baa Dtai in the Beng District of Oudomxay nearly all the seven women that the team met had fishponds, and only their husbands had attended training. When asked if they were interested in fish culture training the women at first did not appear to be. When further probed, we found out that all but one of them could not read or write. They said that they thought they had to be literate to attend the training. Without being literate many women may not have the confidence to attend. In this particular village, the only literate woman in the group had in fact attended the training. The provincial project counterparts said that literacy was not a condition for attending training, but the women did not receive this message, thereby leading to their self-exclusion from available training.

#### **10.5 Knowledge flows to women: how women learn about raising fish.**

In some cases, the team found that when women did not attend training in fish farming, they instead learned by following the second-hand instructions from their husband. For instance, in Nah Baa Dtai Village in the Beng District of Oudomxay, women said that their husbands had told them about the new techniques for feeding fingerling (as it is a woman's responsibility). Similarly, in Hooay Khum Village in Oudomxay, only one woman attended the aquaculture training. When we asked other women in the group if their husbands explained what they learned, one woman said that you cannot be sure that your husband

understood everything and would relate everything to you. She said that she did not attend because the head of the household was encouraged to go to the training. In the Beng District also in Oudomxay district staff admitted that they are not sure the trainees bring back the correct message to the rest of the family. Two women that were running a successful enterprise near the Khang Phoo Hatchery in Xieng Khouang province, told the team that they learned everything about how to look after the fish, feed them etc. from their husbands who both work at the hatchery.

In a Lao Theung village, in the Phiang District of Oudomxay, out of a group of four women two of their husbands had attended the training. One of the wives mentioned that no-body said that women could also go to the training. The same woman complained that the men do not inform them about what was covered.

### **10.6 The timing and type of training**

Most farmers said that they feel the best way to train is to include practical aspects, preferably through on farm training. The season in which the training takes place is also crucial. During the rainy season both women and men are busy ploughing land, transplanting and planting rice. In Sayaboury some people said that the training took place at the wrong time – at the beginning of the main rice-planting season. During the planting season, Lao Soung women may often stay working in the uplands for days on end, so would not be available or have time to attend training in this busy season.

A further constraint to inclusion of women in training activities is when training takes place away from home. Fish breeding usually takes place during the night and involves managed activities up to and after midnight, typically requiring overnight sleeping at the hatchery. At the state hatchery in Luang Prabang, the hatchery manager said that the training they do which is mainly in the evening is not so suitable for women who want to learn about fish breeding. Women may not feel comfortable mixing with men in the evening he said.

In most villages visited, both women and men said that training in January, February and March would be the most suitable for them. The Lao Theung women in the Phiang District of Sayaboury and the Lao Loum women in Savannakhet considered this period most suitable for example. Many groups also mentioned July and August after the planting season as suitable (e.g. in Khoun District in Xieng Khouang and Xay District in Oudomxay, Lao Loum women in Savannakhet).

Although the farmers in the survey recommended the above months for training, this may not be possible for project staff to implement. This is because training has to fit in with the fish/fry life cycle. If training takes place too long in time before the farmers can practically implement what was covered at the training, they may have forgotten the techniques by the time they begin to practically implement their training.

### **10.7 The need to development aquaculture extension materials which are gender sensitive.**

The existing aquaculture extension and training materials are to be revised (LAO/97/007 Project Quarterly Progress Report, March 1998). The materials available are under review, and the provincial counterparts will be encouraged to take part in the design of the new material. These is an excellent opportunity to ensure that the extension materials are also gender sensitive and take into consideration gender roles in relation to aquaculture.

LAO/97/007 is about to produce a training video for use by extension staff, trainers and other interested organisations in the future. It is also important to ensure that women as well as men are represented in the video, and that women's role in aquaculture is reflected accurately.

### **10.8 Follow-up training and support**

In the Beng district of Oudomxay, the men farmers said that they needed more training. Many complained that one training session was not enough, and that they only remembered 50% of what was said. In particular they requested further training in fish breeding. The project staff in this province are now selecting two farmers from each village to go on a study tour to Luang Prabang hatchery. They will try to select at least one woman from each village. In the Xay district the farmers said they would like to know more about breeding fish.

Another aspect of training in aquaculture that should be considered is whether villagers have the economic means to actually put in practice immediately what they have learned. For instance, a Lao Women's Union weaving project had trained 40 Lao Theung women in the Phiang District of Sayaboury. These women had never woven before and said that they found the training to be very good. However, giving the women access to adequate credit to begin income generation from weaving did not follow up the training. These women said that credit of 45,000 Kip was available, but they claimed they needed 150,000 Kip to buy all inputs such as a loom, cotton etc. As a result only a few women began weaving after the training.

#### **Summary of reasons given why women do not attend the training**

- Lack of time
- Lack of confidence
- Women thought it was for male head of the household
- They did not realise that women could also attend
- Men like to be the first to find out about new things in the village
- Illiteracy – Oudomxay
- Wrong season - there were busy planting/working
- Language for some ethnic groups

### **10.9 Conclusions and recommendations:**

- ✓ **The majority of LAO/97/007 project staff are male and they tend to meet with and talk only to men in the village. Protocol requires that the village headman is consulted first. The project staff hence have to very clearly state that future project activities are for both women and men and also explicitly specify that women can also become involved in fish farming. If this is not stated, there may be a tendency for women to think it is only for men and they will not attend meetings or training.**
- ✓ **The project should encourage the training and use of women extension officers whenever possible. Many women who have attended technical agricultural schools end up working in office work where their agricultural skills are not best utilised.**

If practically possible, these women could be encouraged and given the opportunity to use their skills in technical extension work towards women farmers. Women extension officers may only be able to train farmers that are living near the provincial or district offices, so that the women extension officers do not need to stay overnight in villages.

- ✓ If training in aquaculture is to be organised for women farmers, it would be important to state well in advance that they do not need to be able to read or write to attend, otherwise many women may feel ashamed or embarrassed to attend.
- ✓ The LAO/97/007 project staff and district extensionists cannot assume that the men attending training will necessarily tell their wives about the training. In some ethnic groups (such as Lao Loum) they may tell their wives, whereas in others they may not. Also the training message can be distorted or lost in transmission. The project must specify clearly that women can also attend training or else they will not go. It has to be a deliberate suggestion to the villagers.
- ✓ Conduct a further survey in LAO/97/007 project villages to determine the viability of organising special training for women's groups. The provincial project counterpart in Xieng Khouang the provincial project counterpart is already planning to conduct a special survey in the project villages to organise a women's fish farming group.
- ✓ In the village on-farm technical training on aquaculture could take place so the women and men farmers can learn and practice at the same time. This training should be as practical as possible.
- ✓ If feasible, organise fish farming training for women in January – March or August next year. These are the months most suitable for women farmers as their labour intensity is least at this time.
- ✓ Organise training to take place in the most centrally located place for the majority of the target group. Alternatively, funding permitted, organise shorter but more frequent sessions so that women do not have to be away from their household for extend periods in one day.
- ✓ Ensure that any new aquaculture extension materials developed are gender sensitive and incorporate the roles of both women and men.
- ✓ Develop a fact sheet for extension staff on how to work with women and other gender related considerations.

## **11. INSTITUTIONAL SUPPORT IN LAO PDR FOR WOMEN IN AQUACULTURE**

### **11.1 Supporting legal framework**

In Lao, equal rights for women and men are accorded by the law and clearly stated in the Constitution under Articles 7,8,20,22, and 27 (LWU, 1995). In practice the understanding and implementation of such gender rights are still very superficial among both men and women at every level. There is a shortage of both men and women with technical skills in Lao. According to the LWU, even those with technical skills have not been given opportunities for advancement and may face family constraints, which discourage them from utilising opportunities to upgrade their skills or pursue higher position in institutions. Others are employed in jobs which are not compatible with the training they received (LWU, 1995). At the provincial and district levels there are even greater obstacles to women's advancement in technical areas such as aquaculture.

With the implementation of the New Economic Mechanism in 1986 steps were taken to retain only civil servants with high levels of education and competence in order to improve the state apparatus and increase the effectiveness of the civil service. Between 1989 -1990, the number of civil servants in some ministries decreased by 50%.

Whether in rural or urban areas, educated women in general do not have as many career choices as men do. There are not enough vocational schools to meet training needs. (LWU, 1995). Because of lack of funding there is little scope to implement any recommendations on increasing women in the department of livestock and fisheries.

### **11.2 The Lao Women's Union**

The Lao Women's Union (LWU) is the national organisation recognised under the Constitution (Article 7) as the mechanism for the promotion of equal rights, advancement and mobilisation of Lao women of all ethnic groups. LWU has been entrusted specifically with the task of upgrading the role and status of women and actively involving them in the development process. The organisation works in co-operation with the other ministries, state agencies and international organisation. Since late 1988 the LWU has extended its scope of activity and expanded its relations with the international communities by making increased efforts to seek assistance and co-operation. The structure of the LWU is similar to other governmental structures in the country, with provincial and district offices. Every village in Lao PDR has a LWU representative.

Presently the LWU does not formally interface with the LAO/97/007 project. Hence, the team met with Mrs. Khamla Xaysombath, Deputy Director of the Right Development and External Relation Department of the LWU central office in Vientiane. She stated that they are keen and willing to work with the aquaculture project. The LWU has some experience of training women farmers in aquaculture in Khammouan Province in Nongbock District where they are supporting fish raising in rice fields.



### **11.3 Opportunities for collaboration with the newly established LWU - GRID centre**

The Prime Minister's Office in Lao approved a project co-operation agreement in April 1997 between the Government of the Lao PDR, the United Nations Development Programme (UNDP) and the Norwegian Aid Agency (NORAD), to set up Gender Resource Information and Development Centres (GRID). The Lao Women's Union is responsible for the implementation of the project and is co-ordinating with the relevant ministries and experts. GRID centres have been located in four locations, Vientiane, Savannakhet, Sayaboury and Xieng Khouang provinces. The activities of the GRID centres include:

- ☛ Sharing information on gender and development from Lao and abroad,
- ☛ Promoting knowledge of gender issues through training sessions and mass media campaigns,
- ☛ Training of government officials in gender sensitive data gathering, analysis and use of such information for development planning and promoting such planning.

The GRID centres have already begun facilitating gender sensitisation and training courses. For instance between June 22 and June 26 a five-day gender sensitive training session was held for government officials from three districts of the Vientiane municipality. The participants were officials and heads of government from Sisatanak, Sayseth and Hadsaifong districts. The emphasis was very much on planning to incorporate gender issues into existing work.

### **11.4 Integrating aquaculture training into other training for women farmers.**

In many villages women told us that their priority in terms of development was training in health issues and access to better health clinics. Linked to this was the concern for a safe supply of drinking water. Other priorities included access to electricity and education for their children. Suitable extension materials and information on aquaculture could be distributed through non-aquaculture related training programmes or considered as a mini-component of broader training activities in income generation and food security.

A good example of integrated training for women aquaculturalists was conducted in Vietnam. This training was not only including technical aspects of aquaculture, but also discussion on education for children and caring health for women and children. According to the WES Newsletter (no 7-8 September 97 – March 98) planning for a National Network on Women in Fisheries for the Lao PDR has already been undertaken by the Department of Fisheries (DOF) and the Lao Women's Union (LWU) in Vientiane. Preliminary meetings are to be held in 1998, although this has not been referred to during this consultancy

A similar national network for women and fisheries has been set up by the government in Vietnam and in Thailand. The network in Thailand has the following objectives:

- ☛ Increase awareness of women's role in fisheries
- ☛ Information exchanges
- ☛ Support for research: how the network can study issues which need to be addressed
- ☛ Enhance gender sensitivity at the government level

Also in Lao PDR some projects and programmes are trying to incorporate gender issues into other technical training that they are involved in. Some NGOs have already attempted this approach, for example CIDSE. When conducting training in veterinary skills, they also

include a development component and a gender component. Information and extension on aquaculture could also be disseminated through such NGOs.

### **11.5 Recommendation and considerations:**

- ✓ **The LWU has a strong organisational network and is able to work with national and international organisations. The LAO/97/007 project could follow up on the preliminary meeting held by the team to seek the involvement of the LWU in order to take advantage of its organisational and large-scale mobilisation capacity.**
- ✓ **Follow up on the Planning for a National Network for the Lao PDR could be undertaken by the Department of Fisheries (DOF) with the Lao Women's Union (LWU) in Vientiane. Planning training activities for food security and income generation are compatible with the interests of the LWU and its members.**
- ✓ **Make use of the newly established GRID centres (Gender Resource and Development Centres) for networking on issues related to women in aquaculture and for disseminating information on raising fish and nutritional benefits of fish.**
- ✓ **Investigate the possibility of the Lao Women's Union holding a workshop at the GRID centre to determine best practices in working with women farmers and aquaculturalists in Laos. The focus could also be on how relevant information best reaches women farmers and how to diffuse information from projects to women farmers and aquaculturalists in Laos. Those who attend the workshop could include national project directors from government, project staff from the various agencies and NGOs working in Laos and those with experience of working with women in Laos.**
- ✓ **Investigate the possibility of organising training for extensionists in aquaculture through the LWU network and/or the GRID centres. The extension message in the training should deal specifically with women's tasks in aquaculture such as feeding, marketing, access to credit. If possible, try to include any women extension officers from the provincial or district agriculture office**
- ✓ **Disseminate information to Lao based NGOs on the benefits of aquaculture and on gender roles in aquaculture. Encourage interested NGOs to collaborate with existing activities in the LAO/97/007 project**

## **12. THE AGRICULTURAL PROMOTION BANK AND LENDING FOR AQUACULTURE**

### **12.1 Background**

Access to credit may be a major factor constraining increased farmer involvement in aquaculture activities. In many cases women farmers may have less access to credit than men farmers. Also poorer farmers are likely to have less access to credit or knowledge about formal credit channels.

The Agricultural Promotion Bank (APB) is a specialised, government-owned lending institution and it was created in 1993 by the government of Lao. It's original mandate throughout Lao PDR was to fill the unmet needs for agricultural and rural finance through credit, aiming to extend farther than the other banks in terms of rural areas. The APB now supports 15% of all villages in Lao (UNDP, 1997). Initially, the Banks prime focus was credit. The APB attempts to get rural people familiar with the concept of banking, while also assisting people in remote areas to obtain credit and now they have moved to encouraging savings among rural people. APBs are located in every province with the head office in Vientiane.

The team interviewed the managers of the provincial branches of the APB in Oudomxay, Xieng Khouang, Savannakhet and Vientiane head offices to discuss the Agricultural Promotion Bank's service in each province and to ask about lending for aquaculture related activities.

### **12.2 APB's nation-wide policy**

The APB has a policy for supporting rural people nation-wide. The areas they are interested in supporting are for:

- a) Increasing food production for food security
- b) Income generation through increased production
- c) Rural development through creating permanent professions for farmers, i.e. encourage employment/livelihood diversity for farmers
- d) Encouraging post harvest value added production such as processing, rice milling, coffee marketing

Money for lending is allocated by the government based on the provincial requests and provincial plans on how much money is needed for lending to rural people in each of the provinces. Approximately 70% of the loans offered by the ABP are for the four broad areas mentioned above. The remained 10-30% of their loans are for small enterprise development

The Deputy Director of the APB Vientiane, outlined the three types of loan available from the government fund to the APB and ultimately to their clients:

- a) For short-term loans of less than one year. The APB charges its clients 22% on such loans. 70% of the APB's loans are for short term less than one year.
- b) Medium term loans for between 1-3 years at 8% interest rate to the clients
- c) Long term loans for over 3 years, at 7% interest rate to the clients

Real lending rates were estimated to be around 20 percent in 1997 by a UNDP survey. Such real lending rates have increased since.

The Director of the APB Savannakhet branch told us, that between 1993-1996 the bank concentrated solely on credit without including how to manage the money. Now they concentrate not only on lending but also on providing advice on how to manage money by explaining concepts of banking. The bank now encourages that their clients have 10% of their loan in savings. At the time of this study a 19% interest rate is earned by depositors on their savings.

Mr. Souvannady explained the source and costs of funds the APB has access to.

1. Resource from government – for long terms loans to people the APB is charged 7-10% interest on funds obtained from the government
2. Savings<sup>3</sup> – for short term loans the APB obtains 25-28%
3. Funds obtained from other banks – interest charged to the APB depends on the rate borrowed.

### **12.3 Group lending**

The APB encourages group lending. 80% of APB loans are loaned to groups of farmers. This means that farmers must form a group to obtain credit, the objective being to guarantee each other. Groups have to sign a legal contract that they will pay if someone in the group defaults. The village headman must also guarantee the group. These lending groups can have between 7-15 people with one member per household. Because they have formed a group that guarantee each other and the farmers do not need collateral so potentially they can include poorer socio-economic groups. Mr. Khamla in Phonsavanh said that they do not know if these groups are composed of richer or poorer strata in the villages, as farmers themselves choose who is in the group.

In Oudomxay, Mr. Pongsavat said that they have 139 groups organised for lending (this includes 1120 families). In his experience there are two types of clients that came together in a group to borrow from the APB:

1. Those whose land is close to each other and want to collectively borrow to improve their land.
2. People who live near each other in a village and therefore know each other well enough to form a group.

In practice, the farmers have to fill out a form (it costs 800 Kip to process the form) that the Village Headman has to sign and then send it to the Agricultural Promotion Bank district representative. Following this, an APB district staff member will come and visit the village and explain the lending system and also discuss with the group their reason for borrowing. In Phonsavanh the farmers have to travel to the provincial capital to obtain the money. It is unlikely that women would travel to the provincial capital for this purpose. Within a group

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1. Between 1993-1996 the APB's policy was to lend money, but not necessarily to mobilise savings. In other words, the APB was administering the funds available from the central government. This policy has changed now, and the government allows the APB to work as a commercial bank in terms of mobilising savings for investment. In addition the ABP head office encourages the provincial branches to pay more attention to service, get more clients etc.

of eight women in Sam village in the Khum district of Xieng Khouang only one woman had ever been to the distant provincial capital two to three hours away by car (dry season). The repayment is monthly. Each farmer in the group lending scheme in Phonsavan has to save 1000 Kip per month, this is collected by the district staff and written in a deposit book.

In Oudomxay province the deputy director of the APB bank said that one of the constraints they face is that people don't want to become involved in group lending. Their solution to this problem is to try to teach people how to work in a group and also emphasise solidarity and helping out those who are poorer in the group.

**Steps involved in group lending: (Source: Manager, APB branch, Oudomxay)**

1. The district banker goes to the village and explains the APB services to a village meeting
2. Farmers are given opportunity and time to discuss the prospect of borrowing money
3. Farmers choose the members of the group themselves, assign a leader of the group and are given a form to fill in to become a member of the bank. The district banker will assist them in filling in the form if necessary. Each person in the group has to sign the form.
4. The head of the group and the head of the village have to sign the forms.
5. The forms are sent to the District Agriculture and Forestry office for approval and signature (ensuring the villagers have the correct criteria for the loan)
6. The forms are sent to the provincial governor for signature
7. The forms are sent to the APB head office in Vientiane for their approval.
8. When the form is returned to the village, the district banker explains the legal conditions and the farmers get an opportunity to change their minds at this stage if they so wish. The farmers then re-sign the forms.
9. The farmers are given the money and dates for loan repayment and the whole procedure takes about two months.

The branch manager in Savannakhet explained to us why they encourage group lending. Firstly, it is an attempt to reach the poor who do not have collateral. He said that in a group of farmers of 15, the APB would try to encourage the group to consist of a mixed income group. So that perhaps 75% of the farmers could guarantee the other 25%. While the APB aims to reach the rural poor, the manager in Savannakhet said that it is difficult to know how poor the clients are as farmers do not invest money in outward appearances such as their house but put their savings instead into buffalo, land and rice.

However, the team was told by farmers that including poorer people in a lending group is a difficult thing to do in reality, as it is too risky. One relatively richer farmer told the team that to guarantee another poorer farmer he would have to really see that this person worked really hard. Another solution for those less well off in the group to receive credit is for a rural development organisation, the district agricultural and forestry division, and the village headman all to guarantee the loan for the person.

On discussion of the team's findings regarding group lending, Mr. Saksy Thavorn Deputy Director of the APB Vientiane, agreed that they are aware that people may not like group loans. However, group loans are easier to administer from the point of view of the APB, and it is less likely that people will default on their loans. He also explained the reasons why some groups do not get funds through the APB. Firstly, it may be because they ask for

credit for an inappropriate reason, and secondly, it could be because of the history and background of the potential creditors.

Literacy levels may be a factor in getting access to credit. Not all poor farmers in LAO are literate. According to UNICEF, thirty-six percent of the populations remain illiterate. Roughly 58% of illiterates are women and 42% are men. Illiteracy for rural women, and especially ethnic minority women is very high. Figures range from 76% illiteracy for ages 36-55 to 43% for ages 18-35. More than twice as many female illiterates are found in upland and highland habitats compared to the lowlands (UNICEF, 1996). Groups are likely to have higher access to credit than individuals because at least some of the individuals in the group may be literate and hence capable of filling out and explaining the forms and discussing the conditions to illiterate members of their group.

#### **12.4 Repayment rates**

The head office of the APB told us that the overall repayment rate is 90%. The 10% that do not pay back are usually late because of seasons (e.g. late rains, dry periods etc). They must provide written evidence to the APB for the reason for defaulting or for the late payment.

In Phonsavanh the provincial manager told us that the repayment rate for their loans is 98%. He said that faults on repayment are due to people moving location. In Oudomxay the provincial manager reported the repayment rate for loans to be 95%. He added that the 5% who don't pay are usually just late in repayment, although sometimes it is because they have moved home.

In Savannakhet the provincial manager Mr. Souvannady said the main problem in the bank is late loan repayment. What happens, he said, is that livestock often get diseases and this creates a problem in repayment. He said the repayment rate was 80%. He explained that 20% of farmers who are late with repayments have problems with time periods for the second crop and disease. When this occurs the village headman or someone from the District Agricultural and Forestry Office has to write a reference for the farmer to explain the cause of the problem. The APB will then extend the timing of loan repayment to get the money back.

Overall the APBs policy for lending is necessarily conservative and they try to minimise their risk. The team asked what would happen if animals get disease and creditors default, and were told that they try to ensure that the villages they lend to do not have a history of epidemic diseases (or have been vaccinated) and have adequate knowledge on raising livestock. The APB does not lend to areas where there is likely to be high incidence of livestock disease; it would appear that they work closely with district and provincial agricultural officers and the existing village structure. The APB works with those close to the district, close to the dept of livestock and more progressive farmers.

#### **12.5 How the APB communicates its services**

The approach of the APB is to send their district staff to the villages to inform the villagers about the different credit lines available, give them help in deciding how to organise into groups. For example, we were told in the Xieng Khouang provincial ABP branch in Phonsavanh, that there are two APB district staff in each district whose job it is to contact

the villages to tell them about the services being offered by the APB. They are supposed to explain the criteria for obtaining money in the villages and explain the policies of the APB.

The APB may be understaffed in terms of district staff to reach the large number of farmers potentially interested in their services. For instance, in Oudomxay there are only 5 staff for the 7 districts serviced by the bank. These district staff live in their district. In order to meet the APB's schedule, the APB district staff meet with the farmers in January / February and talk to them. This is The APB may be particularly understaffed regarding district staff that can effectively reach women farmers. In Savannakhet there are a total of 25 district staff in 5 districts. None of these are women. Similarly there are no female district staff in Phonsavanh district. The manager in the APB Phonsavanh said that the job of district staff officer is not suitable for women as they may have to stay over night in the villages and women often have young children to look after.

Communicating the services of the APB depends on the capacity of the APB district level staff to communicate and understand the concerns of local people. Some villages reported that when the APB came to the village everyone came to the meeting and that the banks carefully explained their policies and services in detail. For instance, in the Phiang District of Sayaboury one woman told us that the APB representative explained that it is no good borrowing money for food to eat, but they should think how they could invest the money.

In Oudomxay Province a family who live only 8 kilometres from the provincial capital in Hooay Khum village reported that they heard about the Agricultural Promotion Bank (APB) through the government, as the husband works for the state owned fuel company.

In the Nhonghoung village in Savannakhet where a substantial income has been generated from a community pond, although the Lao Theung villagers had heard about the APB, they were hesitant to place their community fund in the bank (to generate interest). They said that they wanted to have easy access to the fund.

In Sayaboury, Phiang District, Nah Ngern village (Lao Soung), a group of families said that they had formed a group of eight people to get money to buy buffalo and cows. The APB representative came to visit and check their land to determine the suitability for cattle raising – and found that where they lived was not suitable. It would appear that there was some confusion among these Hmong families about the concept of interest paying and its related value in cattle. The villagers decided not to borrow as they thought it was too complicated and risky, and all the calving would have to be successful if they were to pay the APB back.

When discussing the APB in the Nah Baa Dtai village in Beng District of Oudomxay, with a group of women, most of the women (except one) said that they had never heard of the APB. The woman who knew about the APB, was one of the few who was literate and reported to the group that it was an easy process, you just fill in the form. However, the other women said they never borrowed money and would not be comfortable doing so.

## **12.6 Perceptions of banking by villagers**

The concept of borrowing is traditionally considered a “shame” and rural people are generally not comfortable with it (UNICEF 1996). Savings are mainly put into tangible assets such as buffalo, gold or silver or kept as cash. In Savannakhet, villagers in Sanam

Xay and Huamnong told us that if there is an emergency, such as when someone is very ill, they could sell their buffalo easier and quicker than going to a bank to withdraw money. This is because they may have to travel a long distance to the APB provincial office, and, they also because they are unfamiliar with procedures for withdrawing money.

When discussing the APB in the Nah Baa Dtai village in Beng District of Oudomxay, most of the women said they would not be comfortable borrowing money. Also in Oudomxay province, in the village of Hooay Khum in the Xay District (ethnic group Lao Loum), the villagers said that in 1995 the APB came to the village and they set up a buffalo bank. They reported that each household in the group could borrow 200,000 Kip in a group for 3 years at 8% interest. One man said that he paid it all back after one year and explained that in their tradition, they do not feel good borrowing money. They are afraid that the venture will fail.

None of the women we spoke to in Nah Baa Dtai village felt comfortable borrowing money. In this village, they said that they did not like the group-banking scheme, as they have to guarantee each other. If one person fails to pay on time, the whole group loses out. They would not be confident yet to borrow money to raise fish. The villagers said that they do not engage in informal credit. If someone needs money urgently, they help each other out.

This view was also reflected by a group of people from Sanam Xay village in Savannakhet. A group of farmers from the village borrowed money 3 years ago for buffalo, at 8% interest rate. They had finished paying it back by the time of this study. Although they borrowed as a group, (it was 300,000 Kip per family), they carefully chose the members of the group themselves. One man said that although he knows that the ABP want to have poor people in the group, in reality this is quite risky, because if the poor person defaults, the rest of the group has to pay for that person. In Outhoumphon District in Savannakhet women from Kongngak village said that they have never used the ABP and they do not like being in debt.

Poorer socio-economic groups are afraid to borrow as reflected in the view of the Lao Theung women in Nah Samphan village in the Phiang District of Sayaboury. The APB had come to the village to encourage the villagers to borrow money, and the representative explained that the ABP's policy was to help the poorest of the poor improve their income. One woman said clearly that the poor themselves are afraid to borrow as it is too risky, and they have no collateral. In this village twenty families had borrowed money for clearing rice fields in a group. They got between 200,000 and 300,000 Kip per family for 2 years. In this village, the Lao Theung women did not know the details about the percentage interest rate on those loans, but their complaint was that the money on offer for lending was not enough in any case.

In Sayaboury, Phiang District Nah Ngern village, a group of Lao Soung families said that in times of emergency they try to borrow from close relatives, if they cannot get money from relatives they sell their livestock rather than borrow from the bank.

In the Thai Dam village of Sam in Xieng Khouang (Khum District) people had borrowed money from the APB for small livestock. A borrowing group had been formed and they were given 200,000 Kip per household at 20% interest for 8 months. However some members of the group were unable to pay back and the next time the bank came to the



village the bank was hesitant to lend to the villagers, and according to the women's focus group the villagers did not want to borrow again. The women we spoke to were unsure of the bank's policy of encouraging them to save. They said the bank told them to have savings of 12,000 Kip per year. They did not appear to understand the logic behind encouraging savings and felt that it had not been explained well to them. Some felt that savings equated with irreversibly giving money to the bank.

### **12.7 Who can borrow**

The Lao government encourages lending to rural women as well as men. Yet access to formal banking is considered to be more complicated for women than for men often because of illiteracy and socio-cultural constraints. One reason is that most loan officers servicing village clients are men, and most loans are issued to men (UNICEF, 1996). If a woman wished to borrow a larger sum of money, she needs her husband's signature. Women are also less mobile than men due to domestic responsibilities.

However, all APB staff interviewed stated that women have proven that they are reliable at loan repayment. All APB staff the team spoke to reported that high percent of their clients are women. The APB staff said that women are good at paying back the loans as they often have the responsibility for money management in the household.

Individuals can also borrow from the APB if they have sufficient collateral. The study team spoke to a woman in Oudomxay Province who was able to get a loan from the APB for aquaculture for 2,000,000 Kip using their family land as collateral. The loan had to be paid back in 10 months at 20%. In this case, the husband is a state employee so he is not allowed to borrow from the Bank. She requested the money, filled in the form and sent it to the APB. Then the bank gave them a date to come and visit the pond. Her husband had to also sign the form as a guarantee. If she were a widow, she said she could have signed for herself.

Different ethnic groups use the APB's for credit. Mr. Khamla in the Phonsavanh APB said that they have had all types of ethnic groups use their services. From his experience in Oudomxay and Sayaboury the APB manager in Oudomxay said that Lao Song and Lao Theung do come to borrow, but for these groups, it is mainly the men that come to the bank. The team was told that different ethnic groups borrow from the APB in Savannakhet also.

As regards the age profile of APB clients, in Oudomxay province the deputy director of the APB bank said that most of their clients are younger than 50 years old.

### **12.8 What money is mainly borrowed for**

From our study we found that the vast majority of women or men farmers did not borrow money from the APB for aquaculture activities (e.g. pond construction, fingerlings, etc). The manager of the APB in Oudomxay who used to work in Sayaboury, said that people in Sayaboury province do not borrow for fish culture. In Savannakhet, the branch manager said that farmers are not yet confident enough to borrow for fish farming, as they still lack technical knowledge. However it would seem to be possible in isolated instances for some farmers to borrow money for aquaculture activities. In Oudomxay Province one family was able to get a loan in 1998 for aquacultural activities.

According to the Deputy Director of the APB Vientiane, group loans are mainly for livestock, irrigation, and/or developing rain-fed paddy fields. For instance, in Phonsavanh Xieng Khouang most of the lending is for small livestock (nearly 100% according to the APB manager in Phonsavanh). In Phonsavanh group loans vary from 200,000 Kip per person for poultry to 600,000 Kip per person for larger livestock such as pigs. Longer-term loans are for larger animals such as buffalo and cows and collateral must be given, as these are individual loans.

In Savannakhet the APB manager said that farmers borrow from the 7-10% fund to buy a small tractor, clear land, buy fertiliser etc. However in Savannakhet, since 1996 they stopped lending money for clearing land as its not easy to get the money back from it, as it often was not too clear what they were borrowing money for anyway. Now they encourage money to be borrowed to improve production, such as buying fertilisers and other inputs.

The new APB manager in Oudomxay provincial branch, said that in his experience the following were the reasons why the farmer borrowed:

1. Farmers who want to borrow money to improve production in their rice fields and borrow for 6-8 months at 10%. He has a fund of 295,000,00 for this purpose
2. Farmers who need longer-term loans for preparing fields, buying equipment such as tractors – For this lending, they use a fund from the government and the interest rate is 8%. They have 100,000,000 Kip for this purpose. He stated that this fund could potentially include lending money for investing in fish culture and ponds.

They have a total of 395,000,000 Kip available for Oudomxay province this year.

## **12.9 Size of loans**

Small groups (7 people) can get up to 3,000,000 Kip; large groups (up to 15 people) will get up to 7,000,000 kip. For individuals, the farmers have to come to the provincial office in Oudomxay. This year they only have 150 families who have individual loans. The size of the loan depends on the activity (at least 500,000 Kip for livestock)

In the Phiang District in Sayaboury, a group of Lao Loum women said that in their village (Ban Nah Vehn), a group of 8 people were able to get money from the APB at 7% beginning in 1995 for raising livestock (small livestock for the women). They had to have savings of 10% of what they borrowed. The head of the group could borrow 500,000; the deputy could borrow 300,000 and the rest 200,000. However within this group of women only half of them had borrowed and they were the women who were slightly better off. Every three months they give the interest to the head of the village and he travels to Sayaboury to pay back.

In Oudomxay, the bank mainly lends for rice field preparation; three-year loans would include funds for buying small tractors for ploughing. Mr. Pongsavat said that this year they have not lent to farmers only for fishpond construction on its own, but he thinks they have lent for preparing rice fields and preparing fishponds together. He added that some of the money they are lending now is for fishponds, buying fingerling.

Interestingly, in Phosii Khoun district in Xieng Khouang, although the women's group identified lack of funds to begin fish farming as one of their constraints, the women here

said that they were not ready to invest or borrow money for investing in fish culture yet, but after more experience they may think about it.

### **12.10 The APB and lending for aquaculture**

The APB does not have at present a clear policy regarding aquaculture. Although they have the same generic policy nation wide, and have not specifically addressed the issue of lending for raising fish. The interpretation of the relevance of aquaculture to the four broad areas the APB is addressing is somewhat at the discretion of the APB provincial managers.

From the team's interviews with APB staff in the provinces and in Vientiane, we found that at present it does not offer loans for pond construction or for working capital for aquaculture either to individuals or farmers groups. The Deputy Director of the APB Vientiane said APB do not generally support lending for digging a pond because in their experience, money required to build ponds cannot be repaid within 3 years, because of low returns within that period. Confirming this in Sayaboury province the LAO/97/007 project counterpart said that at the moment it is difficult to get funds from the APB for digging ponds. In addition he said that farmers producing fish are not always marketing and selling fish. However, it may be considered differently if people were raising fish to sell, so it really depends on the size of the farmers operation. The situation where people want money for inputs to improve fish production is more interesting to the APB. However the sums of money required for inputs to fish production are generally small (i.e. rice bran, nets,) and do not merit seeking credit.

In Vientiane the experience of the APB for lending for fish has not been successful to date. They would like more evidence or need some working models of successful operations in order to lend for aquaculture. The LAO/97/007 project would have to find examples and draw the evidence together.

The APB in Vientiane may however be interested in funding mini-hatchery operations. This is one of the objectives for LAO/97/007. Group lending in the APB averages at around 500,000 Kip per person. The APB currently considers hatcheries a high-risk enterprise. If the cost of setting up a mini-hatchery were between 1-2 million Kip, loans would have to be for individuals. This means those engaging in this endeavour would have to be relatively middle-income and literate.

At the provincial level, when asked if APB in Xieng Khouang would lend money for the purposes of developing aquaculture, the Phonsavanh APB branch manager said that, they had no problem with that and did not necessarily view it as high risk. However, he did caution that most farmers in Xieng Khouang province lack technical knowledge on how to raise fish. Each potential borrower has to outline what the money is for. The Phonsavanh APB branch manager said that, although he agrees in principle with lending money to dig ponds or buy fingerlings, he has never received a request for such money. He cited the two families in the Provincial Hatchery in Xieng Khouang as the only families he knew in the province who were experienced in raising fish.

In Savannakhet the manager of the provincial APB branch told the team that he has just got the new resolution from central government about lending to increase food production. He stated that in the future, based on this new resolution, he would support relevant lending for aquaculture activities. In his opinion lending for fish would appear to be less risky than

lending for livestock because fish do not have as much diseases as livestock, and the price of fish is higher than meat in the market. He added that there is however, the continuing risk of lack of technical expertise among fish farmers. He said that people expect fish to grow on their own, without consciously feeding them.

In the recent past this may not have been the case for APB lending in Savannakhet for some loan proposals from individual farmers for large sums of money for aquaculture. In Keng Kok village, Champhone District, a model farmer told the team of his difficulty in obtaining credit for improving his fish ponds and other aquaculture activities. He wanted to borrow 6 million Kip from the APB under a long-term 3-year loan, but at the time, even though he had collateral, the APB didn't want to lend for fish. Conversely, in Sanam Xay village in Savannakhet, the group of villagers we spoke to were very confident of borrowing again from the APB. They had already done so for non-aquaculture related activities. They said that as they already had fishponds they would be interested in borrowing for buying fingerlings, nursing them and then selling them on.

In Oudomxay province the APB manager, was very interested in lending for aquaculture. He said that he has observed the high price of fish relative to meat in the market. He said that in comparison to Sayaboury, he found that the conditions in Oudomxay are very good for lending for fish cultivation. He stated that he would encourage a policy on lending for fish in the province.

### **12.11 APB lending for mini-hatchery enterprises in the future**

Loans may be necessary for the development of mini-hatchery enterprises. Hence, there is a need for small-scale credit schemes for the promotion of mini-hatchery enterprise. However all APB managers said that to date, the APB has not lent to individuals or groups purely to set up a mini-hatchery. They said that lending to individuals for mini-hatchery is considered to be risky (as it's a new project, and they would like to ensure people have been properly trained). For individual lending, people would need to have land as collateral.

However, some APB managers said that because of the LAO/97/007 project for fish culture, the high price of fish, and the fact that the farmers' capacity in their provinces is becoming better for fish culture, if APB were presented with a well laid out budget and projected income plan for setting up a mini-hatchery, they would be interested in considering it.

It may be difficult for some women farmers to get the money and resources they need to initiate mini-hatchery enterprises. At present there are no known sources of start-up loans or grants for initiating mini-hatchery enterprises. However, theoretically, access to credit through the APB should not be more complicated for women than for men, providing women have collateral, and if married, can get their husband to also sign.

### **12.12 Mini-hatcheries and credit through NGOs**

To overcome the credit problem perhaps in an interested village, credit might possibly be organised through existing NGOs. If the NGOs are willing to sustain the increased risk of loan defaults from some farmers, this may help get over the initial problem of funding.

### **12.13 Conclusions and recommendations:**

- ✓ **There may be opportunities for farmers to obtain credit from the APB for some aquaculture activities, such as mini-hatchery development.**
- ✓ **Fish farming groups already formed within the LAO/97/007 project may have a comparative advantage in accessing credit from the APB for aquaculture activities. Such groups are likely to have established a working relationship as a group and may be able to present a consensus proposal to the APB.**
- ✓ **The APB may be favourable to lending towards women farmers because of high repayment rates.**
- ✓ **Group loans from APB may increase women's and poorer farmers effective access to credit services.**
- ✓ **In the near future, the LAO/97/007 project staff in each province could develop a detailed plan and budget for establishing mini-hatcheries based on calculations for equipment and fry prices. A model budget, based on producing 100,000 – 200,000 fry per cycle, with fixed costs and operational costs outlined, has already been prepared by the project. The economics of developing a hatchery in each province could be derived from this model budget.**
- ✓ **In addition a budget could be developed for a group hatchery where farmers could borrow as a group to set up a hatchery. The budget should include the cost of equipment, projected sales of fingerling, price, and benefit. This plan is very important for the APB to be able to lend for fish farming activities.**
- ✓ **Encourage the provincial and district LAO/97/007 project staff to follow up calls on the team's visit to the Provincial APB**
- ✓ **Aquaculture extension messages could inform both men and women farmers about how the APB group-lending scheme operates. Some farmers, especially women farmers, are not fully aware of the APB's services.**
- ✓ **Credit programmes with subsidised interest rates, often prove difficult to phase out and sometimes encourage capital intensive production (rather than labour intensive) by artificially reducing the costs of capital as compared to labour.**

### **13. OVERALL CONCLUSIONS AND RECOMMENDATIONS**

The following list of conclusions and recommendations (which were already outlined at the end of each section in this report) are based on the findings of the team on the gender roles in aquaculture project sites, and on the broader socioeconomic factors that affect farmers' engaging in aquaculture. Besides synthesising the results of the discussions groups in the villages, the team spoke to a number of other agencies to determine 'best practices' on how they incorporate gender issues into their technical projects, and on development approaches appropriate to the cultural and socioeconomic conditions of Lao PDR. The recommendations and conclusions were also discussed and debated in detail with members of the LAO/97/007 project staff.

Prioritisation of these recommendations should ideally be done by the LAO/97/007 project staff, as they can consider the human and financial resources available in the project and the time-scale required to implement the recommendations.

#### ***Analysis of Aquaculture Development Project (LAO/97/007) under a range of socio-economic and gender issues***

- ✓ If a further project is being formulated the project activities should be defined in terms of the different results aimed at for both women and men and reflect the roles that both women and men play in aquaculture.
- ✓ Integration of gender analysis in programmes is relatively new in Lao, and hence should be phased in a constructive step by step manner.

#### ***Farmers interest in raising fish - food security or increased income?***

- ✓ Promotion of the nutritional values of fish among children, young couples and lactating mothers would help to increase health and food security. Where possible, the nutritional value of fish should be promoted through the Lao Women's Union, extension services, teachers and where possible through integration into existing educational curricula.
- ✓ Techniques in raising fish could also be suggested for incorporation in the teaching curriculum for general and vocational schools.
- ✓ Traditional fish drying and processing techniques could be promoted as an integral part of a future aquaculture project to ensure a more stable supply of fish protein during food deficit periods.

#### ***The opportunities at the village and institutional levels that encourage farmers to engage in aquaculture***

- ✓ When identifying people in each village for further training, particularly for training in mini-hatchery, ensure that women as well as men with experience in raising table-sized fish from fingerlings are chosen.

- ✓ Highlight further the existing market for fish and the potential income earning opportunities of fish production in rural areas through existing extension channels, NGOs, the Lao Women's Unions' Union and other relevant bodies that interact with farmers.
- ✓ Highlight the potential of integrating fish production into existing livelihood systems
- ✓ Highlight the relatively low labour demands of fish production once pond construction problem is overcome.
- ✓ A "Regional Development Committee" to co-ordinate fishery related activities in the north could be established or facilitated in the future (similar to the one in the south).
- ✓ Experienced women and men fish farmers should be identified and trained in fry/fingerling production and encouraged to get involved in the marketing and sale of fish fry/fingerlings.
- ✓ Encourage both interested women and men to visit model mini-hatcheries to learn about the operation of mini-hatcheries, and ensure that interested women also attend the forthcoming workshops on mini-hatcheries. Ensure that the training materials for mini-hatchery technology are gender sensitive

***The constraints at the village and institutional levels that limit farmers ability to engage in aquaculture***

- ✓ When considering involving women in aquaculture activities, do not categorise them as a homogenous group, but consider different categories of women, such as single, married, widows, pregnant, women that are breast feeding children, older women or younger girls. Target activities to the appropriate group.
- ✓ As women are major economic decision-makers, it is essential to explain to both women and men farmers the cost implications of engaging in different types of aquaculture.
- ✓ In organising farmer to farmer study tours/extension, ensuring that women farmers are also involved.
- ✓ Not all farmers can afford the financial risk to become involved in pond based aquaculture. Improving the extension of rice-cum-fish culture may be more appropriate to lower income farmers.
- ✓ Where farmers cannot afford the cost of machinery/labour to deepen ponds, encourage the gradual deepening of ponds each season using available labour.
- ✓ Where farmers do not have ponds it may be necessary to encourage renting/sharing of other water bodies (e.g. for farmers growing fingerlings to a suitable size for rice-cum-fish culture and/or for farmers who wish to maintain their fish while cleaning /drying up of their ponds during the dry season).

- ✓ Whenever possible use women extension agents to train and advise women farmers in aquaculture.

### ***Gender roles and the division of labour in aquaculture***

- ✓ In Lao PDR men and women can work together in all aquaculture activities. There are few cultural constraints with regard to women's participation in aquaculture
- ✓ In some aspects, (such as selling and processing) the division of labour indicates that knowledge and experience differs between men and women. This could help to indicate the target group for future extension activities and other interventions to enhance the production of fish in Lao PDR. Any programme to reduce post harvest losses could be aimed at women, while campaigns to encourage people to dig or prepare deeper ponds should be aimed at men.
- ✓ Daily feeding of fish in ponds is considered a household activity so women's inputs (time and effort) should be taken into account. Advice on improved feeding techniques and materials should be targeted to women.
- ✓ If extending advice on the location for digging the pond, ensure that the technical factors for selection such as the suitability of the soil (permeability) and the availability of water are balanced against the distance the pond will be from the living quarters, particularly if animals will be penned over the pond and have to be fed.
- ✓ As both women and men buy fingerling, both need to be able to identify fingerlings that are suitable for purchase in order to avoid buying low grade or unsuitable fingerlings
- ✓ Workshops on fingerling quality could be aimed at both women and men, and fingerling producers.
- ✓ Target group training and support with respect to processing, distribution of fish and the management of aquaculture enterprises should be targeted at women.

### ***Community and intra-household decision making processes.***

- ✓ As management of income is of benefit to the household as a whole, the LAO/97/007 project should be concerned with increasing fish production in order to increase both household food security and women's income and men's income.
- ✓ Because households have diverse sources of income generating activities fish rearing must compete with other income generating activities, and may be too risky an option for some households.
- ✓ Because Lao Loum women control household cash and expenditure for smaller items they have to be convinced of the benefits to be derived from buying smaller aquaculture inputs (e.g. netting, fingerlings etc). Conversely, decisions about large expenditures tend to be in the domain of men but are often made jointly. Hence, expensive activities such as pond construction have to be made jointly by both men and women.



- ✓ Although women make important decisions within the household, they may not be as willing to voice their opinions in public decision making processes. Nevertheless, it is important to seek women's inputs and opinions in community decision processes as they may have different needs and knowledge inputs. This should be taken into account in extension and fish farmer group formation.
- ✓ Ensure that women are included in information on forthcoming aquaculture activities so that they can be more prepared to voice their opinions and needs. This could be done through the provincial Lao Women's Union office, and channelled through the LWU district and village representatives.
- ✓ Highlight successful cases in Lao PDR where benefit has been shared amongst a community or group as a result of income generation from aquaculture activities.

***The institutional structure of villages in Lao PDR.***

- ✓ Funds permitting, in each province, bring the farmers that were trained earlier this year together formally to discuss lessons learned.
- ✓ Encourage farmer to farmer training model for fish culture. This would require identifying and assisting model women farmers to train other women farmers' in their area.
- ✓ Continue the farmers groups model as a method for learning from each other. Ensure that district staff broadcast and advertise individuals or villages that are doing well in raising fish; other villagers may visit them (even without funding from the project)
- ✓ There is greater opportunity for integration of women farmers in the composition of fish farmer groups. As the interest of women farmers in aquaculture exists there is scope to establish women fish farmer groups.
- ✓ Rural women vary considerable with respect to their interests, priorities and time available. Perhaps women with older children would be the most suitable group for initial aquaculture related activities, because they are less busy with children, they feel more confident, and both men and women in the village would respect them because of their age.
- ✓ It is very important that women who initially become involved in the aquaculture activities hold high respect in the village. Perhaps the LAO/97/007 project could use the head of the Lao Women's Union group in the village to encourage women to become formally involved in the project. Later, women with less confidence (or more disadvantaged) may begin to become involved in aquaculture activities.
- ✓ In any future group formation selection processes the LAO/97/007 project staff should make it explicit that women as well as men farmers are eligible for consideration to be part of fish farmer groups.

### *Training of farmers in fish farmers groups*

- ✓ When the LAO/97/007 project staff visit the village they are in nearly all cases men, so they tend to meet with and talk only to men in the village, including the headman first. The project staff hence have to very clearly state that future project activities are for both women and men and also explicitly specify that women can also become involved in fish farming. If this is not stated, there may be a tendency for women to think it is only for men and they will not attend meetings or training.
- ✓ The LAO/97/007 project could encourage the training and use of women extension officers whenever possible. Many women who have attended technical agricultural schools end up working in office work where their agricultural skills are not best utilised. These women could be encouraged and given the opportunity to use their skills in technical extension work towards women farmers. Before they take up district level extension work, they would need to be given further training on interacting with women farmers investing in women extension staff would be of benefit to women farmers in terms of disseminating knowledge on technical issues.
- ✓ If training in aquaculture is to be organised for women farmers, it would be important to state well in advance that they do not need to be able to read or write to attend, otherwise many women may feel ashamed or embarrassed to attend.
- ✓ The project staff and district extensionists cannot assume that the men attending training will necessarily tell their wives about the training. In some ethnic groups they may tell their wives, whereas in others they may not. Also the training message can be distorted or lost in transmission. The project must specify clearly that women can also attend training or else they will not go. It has to be a deliberate suggestion to the villagers.
- ✓ In the village on-farm technical training on aquaculture could take place so the women and men can learn and practice at the same time. This training should be as practical as possible.
- ✓ Conduct a further survey in LAO/97/007 project villages to determine the viability of organising special training for women's groups. The provincial project counterpart in Xieng Khouang is already planning to conduct a special survey in the project villages to organise a women's fish farming group
- ✓ Organise fish farming training for women in January – March or August next year. These are the months most suitable for women farmers as their labour intensity is least at this time.
- ✓ Organise training to take place in the most centrally located place for the majority of the target group. Alternatively, funding permitted, organise shorter but more frequent sessions so that women do not have to be away from their household for extended periods in one day.
- ✓ Ensure that any new aquaculture extension materials developed are gender sensitive and incorporate the roles of both women and men.

- ✓ Develop a fact sheet for extension staff on how to work with women and other gender related considerations.

### ***Potential institutional support in Lao PDR for women in aquaculture***

- ✓ The LWU has a strong organisational network and is able to work with national and international organisations. The LAO/97/007 project could follow up on the preliminary meeting held by the team to seek the involvement of the LWU in order to take advantage of its organisational and large-scale mobilisation capacity.
- ✓ Follow up on the Planning for a National Network for the Lao PDR could be undertaken by the Department of Fisheries (DOF) with the Lao Women's Union (LWU) in Vientiane. Planning training activities for food security and income generation are compatible with the interests of the LWU and its members.
- ✓ Make use of the newly established GRID centres (Gender Resource and Development Centres) for networking on issues related to women in aquaculture and for disseminating information on raising fish and nutritional benefits of fish.
- ✓ Investigate the possibility of the Lao Women's Union holding a workshop at the GRID centre to determine best practices in working with women farmers and aquaculturalists in Laos. The focus could also be on how relevant information best reaches women farmers and how to diffuse information from projects to women farmers and aquaculturalists in Laos. Those who attend the workshop could include national project directors from government, project staff from the various agencies and NGOs working in Laos and those with experience of working with women in Laos.
- ✓ Investigate the possibility of organising training for extensionists in aquaculture through the LWU network and/or the GRID centres. The extension message in the training should deal specifically with women's tasks in aquaculture such as feeding, marketing, access to credit. If possible, try to include any women extension officers from the provincial or district agriculture office
- ✓ Disseminate information to Lao based NGOs on the benefits of aquaculture and on gender roles in aquaculture. Encourage interested NGOs to collaborate with existing activities in the LAO/97/007 project

### ***The Agricultural Promotion Bank and lending for aquaculture***

- ✓ There may be opportunities for farmers to obtain credit from the APB for some aquaculture activities, such as mini-hatchery development.
- ✓ Fish farming groups already formed within the LAO/97/007 project may have a comparative advantage in accessing credit from the APB for aquaculture activities. Such groups are likely to have established a working relationship as a group and may be able to present a consensus proposal to the APB.

- ✓ The APB may be favourable to lending towards women farmers because of high repayment rates.
- ✓ Group loans from APB may increase women's and poorer farmers effective access to credit services.
- ✓ In the near future, the LAO/97/007 project staff in each province should develop a detailed plan and budget for establishing mini-hatcheries based on calculations for equipment and fry prices. A model budget, based on producing 100,000 – 200,000 fry per cycle, with fixed costs and operational costs outlined, has already been prepared by the project. The economics of developing a hatchery in each province could be derived from this model budget.
- ✓ In addition a budget could be developed for a group hatchery where farmers could borrow as a group to set up a hatchery. The budget should include the cost of equipment, projected sales of fingerling, price, and benefit. This plan is very important for the APB to be able to lend for fish farming activities.
- ✓ Encourage the provincial and district LAO/97/007 project staff to follow up call on the team's visit to the Provincial APB
- ✓ Aquaculture extension messages should inform both men and women farmers about how the APB group-lending scheme operates. Some farmers, especially women farmers, are not fully aware of the APB's services.
- ✓ Credit programmes with subsidised interest rates, often prove difficult to phase out and sometimes encourage capital intensive production (rather than labour intensive) by artificially reducing the costs of capital as compared to labour.

### Terms of reference of international gender consultant

#### Terms of Reference (TOR) for Gender Study

##### **A. BACKGROUND**

In the Tri-partite Review (TPR) meetings of earlier projects it was regularly emphasised that the activities of the fisheries projects should not be limited only to technological aspects of fish culture, but they should also include gender issues, such as gender division of work in all aspects of fish farming, from production to processing, marketing, credit, etc. Women can perform key roles in aquaculture; they often feed and care for the fish and fish marketing is almost exclusively performed by women. What is uncertain in aquaculture development is the extent to which its introduction may add to women's workloads and its effects on the household. In situations where fish is marketed for income there is the question of the effects of the additional income to the household.

Recognising the role of women in aquaculture development, special efforts need to be made to include them in new fish farmers groups to be formed and to include them in various training. Since many of the routine fish rearing activities may be performed by women, it is important to provide direct technical training rather than learning second hand from male members of the household.

Mini hatcheries may offer good income generating opportunities for women and they could be targeted for training and for credit to enable them to set up hatcheries.

This study will utilise gender analysis within the socio-economic framework of the target groups and will:

- Analyse the gender roles in aquaculture, from preparation of fishponds to production including marketing, processing, access to credit, control over income, family health and nutrition, etc.
- Make appropriate implementable recommendations/suggestions that could be applied to the project LAO/97/007, respecting the technological, socio-economic and cultural conditions of Lao PDR.

##### **B. TERMS OF REFERENCE**

The following is the broad TOR for the study team:

- Thorough familiarisation with former gender-related studies performed during other projects in the Lao PDR.
- Review gender-related issues in aquaculture and other relevant projects in South-East Asia

- Familiarisation with the gender training methodology of other development projects in Lao PDR, e.g. Mekong River Commission (MRC), Outreach Aquaculture Project, the Farmer Irrigated Agriculture Training (FIAT) project, Sustainable Irrigation and Agriculture Project (SIRAP), Lao-Swedish Forestry Program, etc.
- To prepare a Gender Analysis Framework to investigate and gather information on: the division of work in aquaculture as well as other related activities (e.g. occasional fisheries, rice production), access to and control of resources, influence in decision making process within the household and the community, and
- To formulate possible concrete and practicable recommendations, which may be incorporated in future, project activities.

### **C. DURATION OF THE STUDY**

The duration will be approximately 2 months including field visits to provinces and the finalisation of the report.

### **D. COMPOSITION OF THE STUDY TEAM**

The study will be conducted by a team of: (a) one International Consultant/Gender Expert, and (b) one National Consultant/Gender Specialist.

### **E. MISCELLANEOUS**

#### a) Qualification and Experience required for International Consultant:

- Post-graduate Degree in any field of Social Science.
- Post-graduate training in the field of gender and development.
- At least ten years experience with Gender Issues and Development.
- Experience of conducting gender studies at field level, especially in Asian context and with publications of such works to his/her credit.
- Good understanding of Asian aquaculture and agriculture systems
- Experience in leading a team comprising national professional and field personnel.
- Good knowledge of English or French language. Proficiency in Thai or Lao language will be a considerable asset.

#### b) Qualification and Experience required for National Professional:

- Lao national
- Post-graduate Degree in any field of Social Science.
- Training in the field of gender and development.
- At least five years experience in Gender and Socio-economic Issues and Development
- Experience of conducting gender studies at field level. Publications to his/her credit on the subject will be an added asset.
- Working in a team comprising international professional and local field personnel.
- Good proficiency in English language (spoken) is required.

## Itinerary and Timetable

3/8/98	- Departure
24/6/98	- Arrival Vientiane
25/6/98	- Meeting and briefing Dept of Livestock and Fisheries
26/6/98	- Meeting at Gender Resource Information and Development Centre (GRID)
	- Meeting with NPD for project
27-28/6/98	- Reading, collation of background reports and field visit preparation
29/6/98 – 3/7/98	- Meetings and discussions with institutions and organisations working in gender and/or aquaculture: Dept of Livestock and Fisheries, Gender Resource Information and Development Centre (GRID), Lao Women's Union, JICA, CIDSE , Save The Children Australia, Oxfam, Community Aid Abroad (CAA), Concern Worldwide, etc.
	- Final preparation for Field Visits
4/7/98 – 12/7/98	- Field work in Xieng Khouang Province.
13/7/98	- Return Vientiane
	- Preparation for field work
15/7/98	- Travel to Luang Prabang
16/7/98 – 21/7/98	- Travel from Luang Prabang to Oudomxay province
	- Field work in Oudomxay province
21/7/98 – 23/7/98	- Travel from Oudomxay province to Luang Prabang
	- Field work in Luang Prabang
23/7/98 – 26/7/98	- Travel from Luang Prabang to Sayaboury province
	- Field work in Sayaboury province
26/7/98	- Travel from Sayaboury to Luang Prabang
27/7/98	- Travel from Luang Prabang to Vientiane
28/7/98 – 30/7/98	- Preparation work in Vientiane
31/7/98 – 3/7/98	- Travel to Savannakhet
	- Field work in Savannakhet province
4/7/98 – 17/7/98	- Travel to Vientiane
	- Report collation and writing
17/7/98 – 20/7/98	- Travel to Bangkok
	- Debriefing at FAO RAPA, Bangkok.
	- Departure Bangkok

## **Socioeconomic and Gender Analysis Framework**

**Analysis of the Aquaculture Development Project (LAO/97/007) under a range of gender issues**

**Úna Murray (20/6/98)**

### **Suggested Framework on gender study in Aquaculture in Lao PDR (adapted from the SEAGA framework)**

#### **Stakeholders, socio-economic factors, resources & constraints.**

The gender analysis is facilitated by the prior identification of all relevant **stakeholder groups**, ideally both within the project and surrounding the project.

The gender-disaggregated analysis can be divided into different **factors** or issues, which overlap to some extent but should make subsequent gender analysis easier and more in depth. These could include:

- Demographic factors
- Socio-cultural factors
- Political and legal factors
- Environmental factors
- Institutional factors
- Economic and commercial factors
- Labour factors
- Technological factors

As a result of this analysis the **resources and constraints** facing different stakeholder groups should become apparent.

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#### **Potential questions within this framework**

A brief gender disaggregated description of the of Village/Project area with more details on Project Site itself, would allow the gender relations in the project to be compared to gender relations in the broader community. Favourable or unfavourable distortions of gender relations as a result of the aquaculture project could hence be highlighted.

For each socio-economic factor we can look at the strengths, weaknesses, opportunities and potential threats, to differing stakeholder groups. This can be done by obtaining answers to questions tailored to the aquaculture activities, through a variety of social survey techniques. Suggested social survey methods/tools are indicated in the SEAGA Field Handbook.



I have developed examples of questions that may be relevant to the aquaculture project based on my reading of aquaculture literature and my experience in gender analysis. Some of these questions will be more relevant than others, key questions may be missing or some questions may be unanswerable. A core set of questions specifically tailored to the project and country context must be developed in conjunction with the Lao consultant and the project staff with technical expertise of aquaculture. Hence the questions outlined under each socioeconomic factor are really only sample or suggested questions at this stage.

Some of these questions may already have been answered by the RRA conducted in the project 5 provinces to collect household level data from 450 households in 45 villages.<sup>4</sup> Was this information gender disaggregated (in terms of roles of women and men), rather than looking at sex ratio numbers? Secondary information at village, district and provincial level regarding land areas and water resources is also available? Analysis of data already available in database may identify answers to questions that do not need to be asked again.

## **Consequences and recommendations of the gender analysis for the management of the project**

### **In summary**

- **Briefly analyse the gender differentiated context of broader location in which the project is situated/embedded.**

Determine the gender differentiated factors related to the Demographic, Socio-cultural, Political, Environmental, Institutional, Economic and Commercial, Labour and Technological issues in the broader project location.

(e.g. This will include looking at the total workload of women and men in broader project area, and gender differentiated income earning and expenditure patterns within the household).

- **Analyse in depth the gender differentiated context of the aquaculture project itself.**

Determine the gender differentiated factors related to the Demographic Socio-cultural, Political Environmental Institutional Economic and Commercial, Labour and Technological issues within the project.

Examining these factors will, for instance, include analysis of:

Division of labour by gender in aquaculture (lowland/upland, rainfed/irrigated, ponds/rice fields)

Gender differentiated access to and control over production factors and support services with respect to different aquaculture types

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<sup>4</sup> This information includes:

Household consumption and production of food and commodities, household access to land and water resources, household status (number of members, age, sex, ethnic group), fisheries and aquaculture related information (species caught, cultured, locations areas etc)

The above includes intra-household gender disaggregated considerations of:

- Access to land (natural resources, legal and customary tenure) and control over production in aquaculture project sites
- Access to and control over fish (e.g. fingerling) inputs and outputs (marketed or consumed fish)
- Access to and control of financial resources and purchasing power (e.g barter or kip)
- Access to and control of technology and related inputs for aquaculture (pesticides, rice varieties, domestic animals/manure, etc)
- Access to extension and ancillary services

## **DEMOGRAPHIC FACTORS**

### **Demographic profile**

- Demographic profile of village and project. (Male/female sex ratio and age ratios/distribution).
- What is the makeup of a household or family? Average family size?
- Mortality rates?
- Infant deaths?
- Nutrition aspects?
- Is there a high or low population density relative to other rural areas in Lao? (demand for fish)
- Is the village a new or old village (settlement)? (history of co-operatives in the past?)
- Comparison to UNDP demographics on Laos and other WID reports?
  
- How does population growth and density affect resources and its users?
- How do demographic characteristics affect male and female labour availability in aquaculture?
- What is the dependency ratio for rural and urban areas?
- Does the occurrence of female headed households affect gender relationships in decision making and division of labour

Is migration an issue?

- If so, what is the extent of migration among village populations?
- Who migrates to work? (Do men migrate to work)?
- Is migration temporary? permanent? regular? irregular? (duration / frequency / seasonal)
- If men migrate, how does migration affect the roles of men and women in migrant households and communities?
- How does the practice of migration affect the supply and demand of fish for men and for women?

Who participates in aquaculture/project?

- What percentage of the village or households are involved in aquaculture/project?
- Sex ratios involved in aquaculture/project?
- What age groups are involved in aquaculture/project? Old/young?
- Is aquaculture/project demographically representative
  
- Do women and men live bordering water bodies, where the aquaculture activities take place?

## ENVIRONMENTAL / PHYSICAL FACTORS

### Environmental / Physical profile

- What are the environmental / physical characteristics of the village/project location? (TREND LINES, TRANSECT DIAGRAMS).
- Outline of the farming systems (FARMING SYSTEMS DIAGRAM)
- What are the major natural and productive resources?
- What are the constraints and opportunities for access to such resources?
- Are the environmental / physical characteristics changing over time?
- What is getting better and what is getting worse in terms of natural resources?
- What natural resources are needed for the aquaculture project?
- What other essential activities is water use for aquaculture in conflict with?
- Is the project's demands for such resources in conflict with other productive activities? (i.e. Does this subtract resources from other activities? e.g. Where does the water come from? Who controls it?)
- If manure is used, does another farming activity lose out?
- Is there a need for access to fuel wood, salt, ice, construction materials for aquaculture?
- Who are most affected by fuelwood shortages (if needed for smoking fish)?

## INSTITUTIONAL FACTORS

### Institutional and local organisation issues

- What types of formal / informal organisations, interest groups exist around certain issues? (VENN DIAGRAMS)
- Who makes up their membership? e.g group of village elders, informal savings groups, etc).
- To what extent do men and women participate in decision making within these different organisations? (Is it assumed that women's views are expressed through their spouses?)
- Within existing organisations is there a sense /basis of community / group purpose, or do people act more as individuals? ( with goals which may overlap).
- Are any of the village organisations that already exist involved in the management of the aquaculture project?
- Which don't? Why not? Should they?
- Which local organisations interface with the project?
- Is it individuals, households or local organisations that mainly interface with the project?
- Men and women's perceptions of the aquaculture project as an institution. Both within and outside the project? (FOCUS GROUP DISCUSSION)

## SOCIO-CULTURAL FACTORS

### Socio-cultural profile (*Focus groups*)

- What ethnic groups in region/project? [Ethnic balance in project?]
- What religions? What beliefs and taboos do people hold that may affect aquaculture/project activities?
- Are norms, customary laws and territorial rights disadvantageous to one sex or ethnic group?
- Are there socio-cultural differences in opportunities/constraints for men and women in aquaculture related activities?
- Can men and women work together in all farming or aquaculture activities?
- Are there any cultural/constraints/opportunities with regard to women's participation in aquaculture?

- How mobile are women? (single women, pregnant women, married women, widows, girls, older women)
- Can women be contacted by male extensionists (outsiders) in the absence of their husbands?
- Do kinship patterns affect allocation and access to productive resources? How might this affect distribution of benefits from aquaculture/project activities.
- Along what socio-cultural lines does knowledge flow within the village (how do people learn best or get easiest access to resources eg from their peers, in groups)?
- What are the customs and norms that might influence adoption of innovations by men and women?
- Are there social and cultural norms limiting women's access to training opportunities and development assistance?
- What farmers do not adopt aquaculture and why?
- Are there socio-cultural issues related to adopters and non-adopters of technology?
- What is the level of literacy? What formal education have people had? Is a certain level of education or literacy necessary to undertake the aquaculture/project activities.
- Are there social or cultural incentives for participation or succeeding in aquaculture/project activities?

## **POLITICAL / LEGAL FACTORS AND DECISION MAKING**

### *Political / legal and decision making issues (Focus groups)*

- What underlying political factors exist? In the village/community? In the project?
- Is local government supportive of the project? For what reasons and objectives?
- Is central government supportive of the project? For what reasons and objectives?
- What is the power structure of the village (is it changing? How?)
- Is there a demand for the project? from whom? and why? How did the project 'arrive'?
- How are decisions made about who participates in the project?
- On what basis did the provincial counterparts/provincial agricultural department select project target villages? Who decides?
- How are fish farmer groups formed? Who decides who is included in the group? Why?
- How do you ensure women are included in fish farmer groups?
- Who makes decisions at the household level related to aquacultural activities?
- What is known about household and intra household decision making processes
- How does the bargaining power (eg. of the 2 sexes) within the household influence the allocation of economic and productive resources?
- Who makes decisions within households regarding production priorities; allocation of resources; distribution of benefits from economic activities? (*Resource picture cards*)
- Who presents decisions made a household level to outsiders?
- Who has access to and control over aquaculture resources? (*Resource picture cards*)
- Does access and control depend on to which ethnic or other group they belong to ? With respect to land ownership, user rights and inheritance, and support services?
- Can men and women own and /or inherit productive resources?
- What are the inheritance laws and property ownerships rights?
- Are property rights over land a motivating factor in stimulating aquaculture related activities?
- How do women participate in decision making regarding communal property/ponds?
- Traditional rights over land when selecting sites for aquaculture (Ponds, terraces, rice fields)?
- Can women own aquaculture waterbodies? Is this important?
- What about collective ownership of aquaculture sites by men or women's groupings (may not be appropriate)

- Are women aware of their official legal rights regarding land tenure? Can the project provide information on legal issues pertaining to access to land and water, decision making structures at local level, ie on co-operatives credit and savings schemes and other financial services?
- Can women get land for aquaculture?
- Is it easier for a group of women to obtain land for aquaculture?
- Can this be done through local [women's] organisations such as the LWU?(if sensitive)
- What are the issues that generate most conflicts in the village?
- What are the actual and potential sources of conflict between men and women?
- Do aquaculture activities introduce new conflict issues?
- Would any of the project activities lead to conflict between men and women for example, how do aquaculture-related activities affect other users of the water?
- Who is most affected?
- Would providing special credit or training to women or access to other services create potential conflict?
- How do people deal with conflict situations? (ie Are there any formal or informal ways of dealing with conflict?)

## **ECONOMIC AND COMMERCIAL FACTORS**

### **Economic and commercial issues**

- What is the basis (i.e kip, baht, barter, exchange, reciprocal exchange etc) of the local economy trading system? Is it changing? How?
- Consumption and trading patterns? Are they changing? How?
- What is the income distribution through the demographic sample? Of the village/community and the project.
- What are the main sources of livelihood in the village? (local/external dependencies).
- What are the most important economic activities in the village order of importance by both men and women.

Women	Men
1.	
2.	
3.	

Increasing the overall household income may not necessarily increase the well-being of all in the household. What is known about gender differentiated income earning and expenditure patterns within the household. (I.e. Find out about the different sources of income patterns control and expenditure patterns of men and women in households of different wealth)

- How does income get divided (distributed within the family) (*Income and expenditure matrices*)
- How visible to outsiders is women's contribution towards the rural economy?
- What proportion of their income do women and do men expend on different (especially essential) commodities for the household?
- Do women and men tend to invest in productive assets for themselves (how do they spend any disposable purchasing power)
- Do women have other/multiple sources of income, i.e. land to make a living from? Eg weaving
- What are the constraints /opportunities to make money or tradeable assets/goods
- Can women travel outside their house to make money or tradeable assets/goods?
- Do they get paid (in kind or kip)?

Access to financial or similar services eg. credit, savings

- Do micro finance intermediaries or analogous (e.g traders) exist? What informal savings are there intermediaries, moneylenders or pawnbrokers? What services do money lenders provide? Are there Rotating Saving and Credit Associations (ROSCAs)
- What is the role of the Agricultural Promotion Bank (APB)
- What do women most need credit for?
- How can a woman get the money she needs to begin aquaculture activities? Do women lack collateral, assets or savings? Are there start-up loans or grants for initiating aquaculture activities?
- If a woman wants a short term loan, who does she ask for it?
- Are informal credit channels more accessible to poor women? Why?
- What savings (or disposable/tradeable assets) do people have? Do women hold funds in kind or in cash? Is there inflation?
- Are savings in kind a sort of protection against inflation?
- Do men invest in the accumulation of productive assets?
- Is spending money on personal consumption more easily accepted for men or women?
- Is there a need for small scale credit schemes? Who would provide them? Is illiteracy a problem for access?
- What are the earlier experiences with credit programmes with regard to women's access and participation? Were there problems with tied credit? Subsidised interest rates? High transaction costs?
- Is access to services such as informal credit, formal banking, ancillary and technical services is more complicated for women than for men?

Incomes

- Should the project be concerned with increasing women's income or men's or both?
- What economic incentives are there for farmers (both women and men) to engage in aquaculture activities? What is the initial and short term incentive to join the project (e.g free fingerlings and netting)?
- How will these inputs be provided in the future?
- What alternative economic opportunities exist for men and women engaged in aquaculture related activities? (Opportunity costs). Is aquaculture a side activity integrated with other agricultural and animal husbandry activities? % aquaculture % animal % crops % other etc.
- Who has control over the yield, harvesting and marketing?
- Are there local, regional or state marketing organisations? Are there local traders of fish derived products?
- What are the mechanisms of price setting?
- Who obtains and controls the income derived from selling fresh fish locally or processed

Relative costs of entry into aquaculture activities.

- Cost of Fingerlings?
- Can reduction in pesticides free income for aquaculture entry?

## ***TECHNOLOGICAL FACTORS***

### ***Technology, extension and other service factors***

- What agricultural related knowledge and training is required for initiation and sustainability of aquaculture activities?
- Group or individual extension approaches?
- Do women receive training in aquaculture? How do you ensure women are included in fish farmer groups

- Can aquaculture activities be promoted by farmer to farmer diffusion? What are the technical bottlenecks to the wider adoption of aquaculture by both women and men farmers.
- Is it feasible to conduct village level training for women closer to their homes?
- Do women have easy access to extension and training programmes? Are the extension services gender biased in any way?
- Does the government extension service provide training and technology services for aquaculture activities. How does this relate to the project?.
- Do women have to rely on information provided through their husbands or other informants who may have benefited from extension work, but are not using the information themselves.?
- Are women's needs for technical assistance and services different from those of men? In what way? (Time charts)
- How relevant is existing research and development to the needs of men and women in aquaculture?
- How do men and women benefit from the research results?
- Are there female researchers and technicians who conduct experiments on fish culture?.
- What new technologies have been introduced in the project?
- What is the fastest growing of the species they are using? Does this change the sexual division of labour within the household especially in the fish processing sector
- Does a technology increases the marketable value of a product traditionally produced by women, (then it may get taken over by men)?
- Are seasonal fluctuations in the local availability and price of feed components in relation to growth performance?
- What changes do people make from the advice given by project? as a result of incorporating new practices (soil conservation or fish culture) i.e. species mix? Stocking density? Feeding composition and timing harvesting strategy?

*(Focus group discussion with other farmers ( in groups or singly) of their expectations of change through incorporating the new practices.)*

## **LABOUR FACTORS**

### **Labour division and intensity issues**

Labour is a resource that is limited both over time and energy. Need information on the total workload of women over time, combined with the data collected on the division of labour, to identify the barriers and opportunities for women to participate in aquaculture activities. This would also help to identify how to increase their overall productivity and income. Constraints to allocate labour and time (labour intensity) may be important in the project design. For instance it may be easier to organise training for women farmers in times of low labour intensity. *For information on labour division and intensity we could get people to draw daily activity clocks, seasonal calendars*

- How does the total workload of women and men compare? What are the major productive activities that women and men engage in rural areas? What is the labour intensity of different productive activities?
- What is the gender disaggregated division of labour within the farming system. What is the gender division of labour in aquacultural related activities
- What is the age distribution of labour (children?) for aquaculture and related activities (eg rice production)
- What is the gender disaggregated seasonality of labour availability? Is there seasonality of labour – where heavier workloads are placed on women or on men?
- Are busy periods for women the same as busy periods for men? What kind of activities are carried out by whom (types, location and seasonally)?

- Labour intensity of all activities – gender differentiated time charts for all stages of activities
- What labour demands of women and men limit their time and mobility (eg What multiple domestic demands limit women’s time and mobility)?
- Are women confined to sectors of the economy where domestic duties can be combined with economic activities?
- Does labour mobility affect male and female activities differently?
- Is aquaculture considered an activity (household) that can easily be incorporated in the existing farming practices?

Note: In the conclusion this information could help to decide which target group should be addressed for what activity

### **Gender analysis of aquaculture production cycles**

Gender issues should be looked at for all stages of the different aquaculture production cycles and activities in Laos for example:

- Pond culture of fish
- Rice-fish culture
- Hatchery production of fish fingerlings
- Private mini-hatchery development
- Private fish nursing and on-growing for sale

The following are some examples of such questions for analysis for different aspects of aquaculture.

### **AQUACULTURE**

- What key roles do women perform in aquaculture?
- What key roles do men perform in aquaculture?
- What key roles do children perform in aquaculture?

### **RICE-FISH CULTURE**

- What are the gender issues when water availability is reduced during dry seasons? (who collects and transports water?, what uses of water are essential during the dry season?)
- Who collects wild fish from rice paddy fields?
- Who manages the cultivation of rice-fish?
- Is the tradition of free access for fishing in paddies a constraint? What can be done about this?
- Compare women’s labour demands for rice-only cultivation and for rice-fish cultivation

### **POND**

Pond construction

- Who decides on the location of the pond? Is the selection of the pond site based on technical factors like the suitability of the soil (permeability) and the availability of water or distance from living quarters? Kitchen ponds?
- Who constructs fish ponds? Is labour ever hired?
- Who constructs pens? Who is involved in the physically labour such as digging, pond clearance and repair? Are some of these tasks also performed by women?

### **Pond preparation and access to land**

- Pond weeding, drying or draining?
- Control of pests and predators
- Fertilisation or application of manure? Is this from local or from outside inputs?
- (Women and children may be responsible for pond fertilisation and daily activities like the collection of household waste and manure for composting, water management and the feeding of the fish?)



- Regulation of water entry into pond prior to stocking
- Liming (pH management?)

## **MINIHATCHERY**

- How was mini-hatchery technology successfully introduced in Thailand, Bangladesh and India? What is the process for its introduction to Lao PDR?
- Do we have access to any gender analysis studies on mini-hatcheries?
- Is there plans for co-operation with government fish seed farms in promoting the development of private min-hatchery enterprises?
- Who designs mini-hatcheries? Do they consult with women farmers?
- Is it easy for women can visit a model mini-hatchery to learn about the operation of mini-hatcheries? Are women farmers encouraged to attend training courses on mini-hatchery operations? For instance, can women attend 5 day workshops? What are the alternatives?
- Are the training materials for mini-hatchery technology gender sensitive
- How will women entrepreneurs for mini-hatchery enterprises be encouraged?
- What savings (or disposable/tradable assets) do people have? Do women hold funds in kind or in cash? Is there inflation?

Combine with other questions on credit

- Is there a need for small scale credit schemes for the promotion of mini-hatchery enterprises? Who would provide them? Is illiteracy a problem for access?
- How can a woman get the money and resources she needs to initiate mini-hatchery enterprises?
- Are there start-up loans or grants for initiating mini-hatchery enterprises? From whom? What additional services will they provide (e.g. training in mini-hatchery? Management of credit etc..)
- What informal intermediaries, (e.g. moneylenders or pawnbrokers) are there? What services do money lenders provide?
- Is access to services such as informal credit, formal banking, ancillary and technical services is more complicated for women than for men?

Stocking fry/ fingerlings

- Who is to be trained in fish fry production?
- Who is in involved in marketing and sale of fish fry?
- Are fingerlings considered expensive by farmers?
- If so, is the lack of supply of fingerling the reason that fingerlings are considered expensive by farmers? Or is it the cost of production?
- Who selects and catch fry, fingerlings etc?
- Who decides the timing of stocking?
- Who is involved in other activities such as acclimation of fingerlings to pond temperature before stocking, counting of fingerlings by sampling

Fish selection and transfer- who is involved in:

- Weighing of fish
- Induced breeding
- Artificial fertilisation
- Spawning and egg incubation
- Fry transportation
- Growing/rearing

## **FEEDING**

Fish feeding -feed preparation,

- How are fish fed?

- Who prepares feeds? Rice bran, broken rice, boiled cassava meal, oil cake, vegetable wastes...etc
- Can farmers prepare formulated feed?
- Who collects components for feed? ie collecting waste material from the farm and household left overs to be composted in the fishpond
- What use is made from waste from buffalo, duck, poultry and pig raising? Who looks after poultry and animals? Who controls their waste?
- If livestock are penned does this cause additional work in terms of caring for them? ie who feeds them?
- Do women have information on how to determine the feed quantity or daily feed ration
- Who monitors and records feeding?
- How much time is needed for daily feeding and pond management?
- If daily feeding and management of the ponds is considered a household activity women's inputs (time and effort) should be taken into account.
- Are they paid in terms of access to fish for the household or through increased income for the family?.

#### Fish pond management

- Who samples and analyses the water and fish and keeps records for further decision making?
- Do women know how to operate pump or pond gate operations and other water exchange practices
- Others?

#### Harvesting

- What are the methods and techniques of harvesting fish and who does them
- Are farmers advised to sell all their fish at one time when they get to a certain age?
- Who decides on the size of the fish to be harvested?
- What is the optimal market size? Who decides?

#### Cooking for household use

- What percentage of fish is harvested for family consumption? Who does this? Who decides what to use for the household?
- Which do women prefer to prepare for household consumption? Consumer preference and household preference ? are they the same?

#### Post harvest handling

- What is women's role in post harvest?
- Who washes, cleans, guts, sorts the fish?
- Do women get paid for cleaning and gutting fish?
- Does knowledge and experience differ for men and women?
- What spoilage is there due to post harvest losses? (poor handling? Inferior processing methods? inadequate processing and storage capacity? for packaging? And transport? Spoilage?
- What percentage is post-harvest loss? 30%

#### Fish processing

- Is processing an important component of the project?
- If fish are preserved what methods are used for the preservation such as fish drying, salting, smoking
- What resources are needed for preservation? (fuel for smoking, salt, ovens..)
- Are the different types of processing (technology, species, scale) dominated by men or women?
- Where does processing take place?
- If there are fish processing units where are they located?
- Do women prefer to process the fish on or near their compounds so that they can combine processing activities with other domestic duties?

- What are the socio-economic characteristics of processors (men, women, age experiences, and residence status)?
- Are there any reciprocal arrangements (supply of fish/credit) which are gender related?
- Are there situations in which women or men are not paid for their labour inputs?

#### Fish marketing

- What are the constraints to marketing of fish?
- Are women involved in processing and marketing of other products
- Where is the larger part of the production sold? At pond site?
- How is the fish sold? Barter? Through relatives?
- Who sells the fish? Are there vendors?
- What are the socio-economic characteristics of traders?
- Is there any differentiation between male and female traders (location, species traded, types of market, ease of entry and exit)?

#### Access to markets

- Do domestic duties make it difficult for them to travel long distances
- Who controls the money made on the sale of fish?
- Is microfinance a component of the project and if so, what microfinance services are available for women and men?
- Do women receive money or gifts for fish?
- Do people combine their fish trading activities with other trading activities?

**Analysis on all major factors (by project staff/ farmers)  
to determine the strengths, constraints/weaknesses**

## CONCLUSIONS AND RECOMMENDATIONS

### MACRO LEVEL ISSUES

#### National level policy and planning

- Most important National Development Plans? Do these promote aquaculture? Why?
- Was there in the past the security of a guaranteed price from State marketing boards?
- Is there a free market system in Lao? Kip, baht, US\$, exchange/barter systems, etc
- Which ministry deals with gender issues?
- Are gender issues administered by other ministries?
- Does the government recognise the contribution that women make to aquaculture? Or to agriculture/farming.

#### Agriculture, food and land use planning objectives

- What are the governments agriculture and food related objectives for the next 5-10 years? How do these relate to aquaculture?
- What are the governments land use planning related objectives for the next 5-10 years? How do these relate to aquaculture?
- Urban –rural migration? Urban –rural demand for food?
- Food imports – exports?

#### Health and nutritional planning objectives

- Government policy? How it relates to aquaculture?
- Level of awareness of health and nutrition characteristics
- Which areas have a relatively low nutritional and health status?
- What are the main problems?
- Who is affected?

- Will fish help improve the nutritional status of an area?

#### **Donors**

- What are the existing national / donors policies and objectives in support of gender issues in aquaculture in Laos?
- What actions were taken to meet national and donor objectives and the level of commitment to meeting these objectives
- What budgetary allocation for gender issues has there been from donors?
- What strategies and training programmes in support of gender issues have been undertaken in other development projects in Lao PDR? What lessons learnt from these?

#### **Private sector policy**

- Does the government encourage micro-enterprise development?
- Are there any incentives for private sector investment in aquaculture activities? What aspects of aquaculture activities?

### **INTERMEDIATE LEVEL ISSUES**

#### **Intermediate Level**

- What gender expertise is available within institutions and other related projects?
- What power/capacity do the project staff have to implement recommendations on gender issues not directly under control of the project (e.g. govt. extension, access to credit, land)
- What gender expertise is available for implementing recommendations on gender issues in the project?
- Which institutions are suitable for co-operation / collaboration gender issues?
- Are the institutions in Lao used to any form of participatory research or evaluation?
- Do the relevant institutions (related to aquaculture) require training in gender skills?
- Are there women officers or technicians in charge of supervising fish production activities?

#### **To find out from institutions involved in aquaculture**

- Who and how many men and women are engaged in the fisheries sub-sectors (harvesting, processing, marketing, ancillary activities)?
- How do men and women benefit from these activities?
- What changes in the sector are likely to affect men and women and in what way?
- Is there an awareness that changes in the inter-relationships between different activities produce a gender impact.

#### ***Extension service structure and training***

- What is the number of persons working in the govt. extension service, by position and by sex?
- Is the extension staff competent and motivated to integrate gender issues into extension work?
- Are they developing and implementing extension methodologies which are gender sensitive?
- From past experience does the dept of livestock and fisheries modify their extension strategy based on feed back from LAO/97/007
- Are there barriers to the entry of women in vocational training and higher education?
- Do the curricula of training institutions incorporate gender issues?
- Can the extension services align their extension methodology and activities, tasks, needs and constraints for women??
- Who evaluates the quality of extension services
- Can extension staff plan their time to suit women? Ie flexibility of time?
- female extension workers be recruited? Trained? And equipped to identify existing professional groupings? Trained to organise women into groups? To work together with these women groups on issues prioritising by them and to mediate services from male extension staff?
- Can we train male extension staff?
- What approaches are used to teach farmers the most appropriate practices for cultivating fish?

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**STS Field Documents:**

- No. 1 Mini-Hatchery Development
- No. 2 Socio-economics and Gender in Aquaculture (English version)
- No. 2L Socio-economics and Gender in Aquaculture (Lao version)
- No. 3 Small-Scale Fish Hatcheries for Lao PDR (English version)
- No. 3L Small-Scale Fish Hatcheries for Lao PDR (Lao version)

**Project Field Documents:**

- No. 1 Government Fish Fry Production Facilities in Lao P.D.R. (December 1997)
- No. 2 Current Production Constraints and Suggested Improvements at Nongteng Fish Seed Station, Vientiane, Lao P.D.R.
- No. 3 Timetable of Project Activities 1998
- No. 4 Proposed Strategy for Extension of Aquaculture to Farmers Groups
- No. 5 Comments on Proposed Fish Hatchery/Seed Station at Hooay Keeow, Lamam District, Sekong Province
- No. 6 Introduction to the Provincial Aquaculture Development Project - Potential for Collaboration and Co-ordination
- No. 7 Training Notes for Workshop on Fish Culture Extension (Oudomxay and Savannakhet, March 1998) (English version)
- No. 7L Training Notes for Workshop on Fish Culture Extension (Oudomxay and Savannakhet, March 1998) (Lao version)