

# PROVINCIAL AQUACULTURE DEVELOPMENT PROJECT



## LAO PDR

SUPPORT FOR TECHNICAL SERVICES

### **Development and Training for Participatory Extension Techniques with the Provincial Aquaculture Development Project (LAO/97/007)**

Based on the work of the

Participatory Development Training Centre  
(15<sup>th</sup> February - 8<sup>th</sup> April 2000)

**THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
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## 2 Introduction and Background

The Provincial Aquaculture Development Project (LAO/97/007) is funded as part of a UNDP country programme for rural development. The project is government executed through the Department of Livestock and Fisheries, with technical and management assistance provided by FAO. The project duration is three years (November 1997 – December 2000).

LAO/97/007 follows on from previous UNDP/FAO aquaculture development projects that had started aquaculture activities and established feasibility. During these previous projects it was emphasised that the capacity of the government Livestock and Fisheries service to extend aquaculture on a wider scale was extremely weak. This has been due to a variety of reasons:

- Poor accessibility of rural areas, lack of roads and government vehicles.
- Difficulty in co-ordinating and managing national scale initiatives due to provincial autonomy.
- Previous restrictions on inter-province travel
- Lack of government funding for rural livestock and fisheries extension
- Insufficient staff at Provincial and district level
- Lack of capacity and poor incentivisation/management of district livestock officers.
- Shortage of fish fingerlings and lack of distribution network during peak seasonal demand.

LAO/97/007 is working in five provinces: Oudomxay, Sayaboury, Xieng Khouang, Savannakhet and Sekong Provinces. Within these provinces, there are 14 districts involved with a total of 37 farmer groups (total number of families 440). The target provinces are distributed along the length of the country and incorporate both lowland and upland environments (see Figure 1).

Additional technical assistance and training is also provided to Government Livestock and Fisheries staff in other provinces. The project objectives are to:

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

## 3 Overall Objectives

The Provincial Aquaculture Development Project is involved in a wide range of activities relating to development of rural aquaculture in Lao PDR. The project counterparts are full time staff of Provincial Livestock and Fisheries sections and District Agriculture and Forestry offices in the project target areas. Since the project is principally involved in extension type activities with farmers groups, there is a strong requirement for a participatory approach in the identification and selection of farmers' groups, farmer training, evaluation and monitoring of the impact of project activities. This need has been identified as an area for strengthening in the recent mid-term evaluation of the project (October 1999). Many of the extension activities of the project staff are already conducted in a participatory fashion, however this may not always be conscious action.

The aim of these training workshops was to enable the project counterparts to understand where their working methods are appropriate and participatory and where they may be modified or

improved. It is not expected that all the methods covered during the training courses will be implemented immediately, but that they will form part of the on-going process of introducing participatory methods into extension activities.

## **4 Summary of Activities Performed**

Four workshops, training project counterparts in participatory extension techniques have been performed.

- Workshop I - Performed in Vientiane, between 15<sup>th</sup> February – 17<sup>th</sup> February 2000, with 5 project staff from central level participating.
- Workshop II - Performed in Vientiane, between 28<sup>th</sup> February – 3<sup>rd</sup> March 2000, with 15 people participating; 5 from the central level, and 10 more from a total of 5 project provinces.
- Workshop II - Performed in the Southern province of Sekong (21<sup>st</sup> March – 28<sup>th</sup> March 2000) With 12 project staff at central, provincial and district level participating.
- Workshop II - Performed in the Northern province of Oudomxay (2<sup>nd</sup> April – 8<sup>th</sup> April 2000). With 20 project staff at central, provincial and district level participating.

## **5 Workshop I – Central Project Level**

The first 3-day workshop was carried out with the objective of reviewing and analysing past/present project implementation practices and processes. Perceived strengths and weaknesses in the project were also analysed. A summary of the results of these analyses are presented in the key tables translated from the Lao report (Appendix I).

### **5.1 Outputs**

Based on the results of these activities, strategies were developed for future implementation and promotion of greater participation by project stakeholders.

The outputs of the strategies identified were:

1. Enabling Provincial and District Counterparts to analyse and solve problems independently, in their location through:
  - Development of extension tools/ handbooks on Farmer Group Formation, Planning, Technical training, Extension, Monitoring and Evaluation (for each level of the project) using participatory methods and reviewing past experiences of all stakeholders.
  - Improvement of the technical and management capacities of the Farmer Groups and District Counterparts through training and use of tools produced by the project.
2. To increase the project impact on a larger scale and ensure future sustainability through:
  - Promotion of fingerling production in sufficient quantity in each region where and whenever feasible through technical training.
  - Dissemination of information on techniques and successful results of fish raising through mass media (TV, radio, newspapers), field visits, sharing of experiences, reports, cartoon booklets, video, drama, songs, and folk songs.

A final activity plan for the three follow-up workshops were drafted together with the participants. These workshops were: A 5 day provincial workshop to be carried out in Vientiane, and two 5 day training workshop involving the provincial and district counterparts - with one to be held in Sekong and the other in Oudomxay province.

## **5.2 General Comments on the workshop**

This workshop started off slow and the process was long and a little tedious. The workshop sessions helped the facilitating team from PADETC to understand the activities and practices of the project. Members of the project staff at the national level have little experience of participatory techniques in managing workshops and project activities. Their involvement throughout all of the workshops has considerably increased their ability to organise and conduct activities with an emphasis on increased participation. By the time of the last workshop, each one of them was comfortable in taking an active role in organising and facilitating workshop activities.

# **6 Workshop II - Provincial Counterpart level**

## **6.1 Aims**

The second workshop was carried out with three main objectives:

- 1) Review the implementation of the project and obtain consensus among the ten provincial project co-ordinators. This was done through reviewing and analysing of the past and present approaches of project implementation as well strategies for future activities.
- 2) Compare and validate the results obtained during the first workshop against the results of the first workshop.
- 3) Start implementing some of the agreed strategies, these were: drafting of extension booklets, participatory planning and monitoring system, and training in some extension techniques.

## **6.2 Outputs**

The second workshop achieved all of its objectives:

- 1) The analysis of the past and present project implementation in the field were more detailed and included more practical information than the outputs from the first workshop (Appendix II)
- 2) The project implementation strategies are identical to those obtained in the previous workshop. This demonstrates that there is a fairly good communication and effective teamwork between the provincial and central project staff. This is further confirmed by the great enthusiasm among the provincial project counterparts. Detailed information is presented in the workshop proceedings (Lao language). The net benefit of the second workshop is that it has further strengthened the common understanding of what the project has accomplished, what it intends to accomplish in the short and long term and the strategies for achieving this.
- 3) It was evident that each of the provincial participants has rich and diverse field experience and this was being shared among themselves during group activities. The outputs of this review of provincial experiences are two draft handbooks (Formation of Farmers Groups, and Production of Fingerlings). The draft handbooks have some drawings accompanying their

text. Additional outputs developed during the workshop included draft forms for participatory planning and monitoring of progress of farmers groups.

- 4) The workshop facilitators demonstrated and taught a number of skills in participatory training and extension work. Details of these activities are presented in the workshop proceedings (Lao language).

### **6.3 General comments on the workshop**

The provincial counterparts are very fast learners and are active participants. The discussions were lively throughout and substantiated with facts and practical experiences. Overall, they are good group workers with enthusiasm and commitment for the project and have a high degree of confidence. They are very willing to share their experiences with each other and through frank discussions, they respect and appreciate the differences existing between provinces. In the future, they will be a key resource in conducting/facilitating Project workshops and training sessions.

In the Southern workshop where district counterparts from the provinces of Savannakhet and Sekong participated, the provincial counterparts did not have the opportunity to facilitate the workshop. This was mainly because there were not enough provincial counterparts to form a team of facilitators. On the other hand, in the Northern workshop for district counterparts, the provincial counterparts from three provinces did most of the facilitating work.

## **7 Workshops III & IV - District Level – Sekong & Oudomxay**

### **7.1 Aims**

The two 5-day district level workshops were conducted with following objectives:

- 1) To field test and to adapt the extension and technical training tools which were developed from the workshop II.
- 2) To train the provincial counterparts on training skills and facilitation techniques using the district counterparts as trainees.
- 3) To train the district counterparts on the use of the extension and technical training tools which were developed and field-tested earlier.

The two workshops were carried out in two different locations. The first one took place in Sekong with participants from provincial and district levels of Savannakhet and Sekong attended. The second workshop took place in Oudomxay, with participants from the Northern provinces of Xieng Khouang, Sayaboury, and Oudomxay.

In the Sekong workshop the participants included 5 district counterparts, 4 provincial counterparts, and 3 central level project staff. In the Oudomxay workshop the participants included 9 district counterparts, 6 provincial counterparts, and 5 central project staff.



## 7.2 Workshop Timetable

Day 1	Problem analysis exercises using the experiences and knowledge of the district counterparts.
Day 2	Revising and adapting training tools - handbooks, planning and monitoring forms.
Day 3	Revising and adapting training tools continued. Rehearsing the use of training tools.
Day 4	Field testing and using of training tools with farmer's group
Day 5	Evaluating and revising the training tools.

Even though for both workshops had similar timetables, the approaches used were a little different.

In the Sekong workshop, where there were insufficient numbers of provincial counterparts to form a team of trainer/facilitators, greater emphasis was placed on revising the extension and technical training tools. The district counterparts found the original drafts of the training tools (developed during the provincial counterparts' workshop in Vientiane) were too long and confusing in some sections. The terminology used in the handbooks was too technical in many parts and required significant revision. During this review and discussion process counterparts from all levels were encouraged to participate and contribute. The district counterparts were fully involved and were not shy to point out the good and bad aspects of the draft version of the training tools. The result was a much simplified and farmer friendly version of the training tools.

In the Oudomxay workshop, the district counterparts reviewed and continued to revise the simplified version of the training tools. The emphasis here was not so much on the revision of the tools (since this was pretty much done already), rather on coaching the provincial counterparts in facilitating and training the district counterparts. The national project staff and the consultant team played the role of advisors. In this situation we had the provincial counterparts facilitating all the of the activities of the workshop as outlined in the timetable. This is a significant indicator of success for sustainability and participatory process of the project, since the acceptance of the participatory approach and development of the provincial counterparts as trainers/facilitators is the key to upgrading Provincial extension capacity.

## 7.3 Outputs

### 7.3.1 Strategies for the project

The tabulated outputs of these two workshops are presented in Appendix III. These tables represent a summary of the key features of LAO/97/007 project implementation at the district level. The tables also act as a guide to the project management in determining the main priorities for further activities.

- 1) Enabling Provincial and District Counterparts to analyse and solve problems independently, in their location through:
  - Development extension tools/ handbooks on Farmer Group Formation, Planning, Technical training, Extension, Monitoring and Evaluation (for each level of the

project) using participatory methods and reviewing past experiences of all stakeholders.

- Improvement of the technical and management capacities of the Farmer Groups and District Counterparts through training and use of tools produced by the project.

2) Producing impact on a larger scale and ensuring future sustainability through:

- Promotion of fingerling production in sufficient quantity in each region where and whenever feasible through technical training.
- To disseminate information on techniques and successful results of fish raising through mass media (TV, radio, newspapers), field visits, sharing of experiences, reports, cartoon booklets, video, drama, songs, and folk songs.

### 7.3.2 Extension materials produced by participants during the workshops

Two finalised extension manuals have been produced as outputs of these workshops (the group formation manual is presented in Appendix IV). These manuals represent the combined knowledge and experience of the project counterparts that they have gained together with farmers during the past two years of project activities. The handbooks are locally relevant and are derived from what is practically feasible for small-scale rural farmers in Lao PDR.

1) Extension manual on fish farmer group formation: A draft of this extension handbook has also been field tested and revised twice. It contains no illustrations and has the following headings:

- Criteria for site selection
- Criteria for selection of group members
- Rules/regulations for the self management of farmers groups

2) Extension manual on how to produce common carp fingerlings: A draft of this technical handbook has been field tested and revised twice. It includes some line-drawn illustrations for easy understanding. It contains the following headings:

- Site selection
- Broodstock ponds
- Broodstock husbandry
- Equipment and tools
- Breeding of common carp
- Nursing young fingerlings in ponds or cages

3) Extension manual for the production of Tilapia fingerlings: This remains a first draft as it was not field tested or revised. It still needs to be field tested with people who have had experiences producing tilapia in hapas. The project ADA feels that participants do not have sufficient practical experience to justify production of this handbook. In the future the draft could be reworked on by counterparts together with farmers who have had practical experiences of this production method.

### 7.3.3 Forms for Planning, Monitoring, and Assessment of Project and farmers activities

Forms developed with the counterparts for different aspects of project planning and monitoring

were as follows:

- Activity Planning for district extension workers (annually)
- Activity Planning for district extension workers (monthly)
- Seasonal Activity Plans for farmer groups
- Monthly Activity Plans for farmer groups
- Reporting Framework
- Assessment of the implementation of past month's activity plan
- Assessment of the impact of the project

#### **7.4 General comments on the workshops**

During the first two workshops there were comments by the national and provincial counterparts that district level counterparts lack confidence and some of them do not know very much about extension work and fish raising techniques. In reality it was found that the district counterparts are quite capable, active and very willing to learn.

During the first day of the workshop they were good listeners and did not participate very actively mainly because they were unused to the participatory approach which emphasises involving all the participants. By day two, when they realised the opportunities given to them, they became much more active. They were able to provide detailed practical inputs into the revision of the handbooks, making them relevant and easy to use.

Depending on a variety of factors, some district counterparts are able to implement project activities with little or no difficulty, however their technical background plays an important role in their confidence since most have only livestock backgrounds.

### **8 Workshop learning process**

**Facilitation:** Much of the approach was to draw out the experiences, knowledge and skills from the participants who have been working on the project for the past three years. The facilitation was done with open questions based on a pre-established framework for investigation. All participants were given equal opportunity to respond to questions; and results were immediately tabulated for everyone to see. When questions were raised by the participants, the facilitating team gave priority to other participants to respond. The facilitating team played a neutral role in the process and the importance and relevance of each issue was determined by the participants themselves.

**Participation process:** Participants have now participated in several exercises on the participatory process. They now have a clearer understanding of what it is and how it can be performed. They also see the values of the participatory approaches and how they make the participants improve their sense of ownership of the project activities. It clearly helps them feel that the results of the workshop come from them and belong to them. It has also improved their sense of confidence.

**Ice-breaking:** The participants learned some 10 songs and a number of games. These are very useful when meeting with farmer groups.

**Development of strategies:** The participants have learned how strategies are formulated - through focussing on project strengths and identifying weaknesses. They have also learned how to use these strategies as guidelines for developing activity plans.

**Sharing of experiences:** The participants see the value in listening to and sharing the experiences with their fellow participants. They come to realise that the wealth of experiences

that they have accumulated through participation in the project. Once shared, the experiences are important guidelines in planning future activities. They also give the participants a greater sense of self-confidence to implement project activities.

**Monitoring and evaluation:** The participants have learned of the importance of a system of regular monitoring and evaluation. They have experienced alternative “farmer friendly” methods of evaluation that do not resort to traditional survey based techniques. If properly planned monitoring and evaluation can be performed systematically with little or no complication. The use of simple report forms (which were developed during the workshops) for planning, monitoring, and evaluation can make their work systematic and easier in the future.

**Team work:** The participants have witnessed and experienced teamwork throughout the workshops through observing the consultancy team at work. They see that work can be fun and efficient if colleagues work together rather than opposing one another. They have learned that teamwork requires good listening skills, acceptance of one another, and equal opportunity to participate by all. They have also learned that some people are natural team players where as others are not. The higher level counterparts have learned to listen and give opportunities to lower level counterparts.

## 9 Outcomes

The counterparts at the national and provincial levels have come to a common understanding of their past accomplishments and future strategies. This helps create a spirit of teamwork amongst them. From an implementation stand point, such common understanding is a significant indication of future sustainability of the project.

The counterparts at all levels appear to have a good understanding and enthusiasm for the participatory process. This was demonstrated by their ability to facilitate some sessions of the workshop. The outputs of the workshops give them something concrete, relevant, and useful to take home.

The counterparts show some ability to produce and use tables on “Problem analysis” as a tool to identify problems and ways to solve them. This gives the district counterparts an ability and confidence in running the programme without having to be completely dependent on the provincial counterparts as in the past. Such capacity will help, to some degree, in the expansion and sustainability of the project.

The provincial counterparts are now potential members of a training team. They are now capable of organising and conducting participatory training workshops.

### 9.1 Methodologies Used:

After consulting with the project ADA, the facilitating team identified key issues to be discussed and analysed with the project counterparts first at central level down to the district level. Flash cards were used during sessions to allow all participants to have equal opportunities in contributing their own experiences to the workshops. All contributions from participants were posted and commented on for immediate feedback.

Drama was also used to demonstrate concepts of participatory teaching and learning. Songs and games were used to create a friendly atmosphere among participants. Small groups discussions were organised to allow more personal learning and sharing of experiences among members. The participants were responsible for making their own presentations for their small groups.

The participants were made to feel that they are active participants and possess a good share of

ownership of the workshop. This was done through a number of different activities. Introduction of themselves to the group, description of their expectations from the workshop (e.g. expected outputs, outcomes, skills to learn). At the end of the workshop, the participants reviewed this list of expectations to see if they had been fulfilled. At the end of each day they were asked to express their satisfaction of the day's session by having each one of them placing a star on a calibrated scale. The facilitator team used this daily feedback as a guide for planning of activities in the following day.

The workshop outputs are practically useful extension tools, which can be immediately used in project activities. Since they have been developed by the project counterparts, they feel that they have ownership of these tools and that the tools reflect their own practical field experience.

Throughout all of the four workshops there was minimal lecturing or descriptive theory.

## **10 Recommendations**

The overall recommendation is that the project should implement the strategies put forward during the first two workshops and incorporate them into any proposals for further phases of the project. The analyses of Provincial and district officers' strengths and constraints should also be considered in the design of future phases of the project. These results obtained from all levels of the project participants, are an evaluation of the past implementation practices of the project.

The handbooks should be reproduced in quantity as soon as possible, so that they will be available to for distribution to all stakeholders and interested parties.

A further series of training workshops for capacity building among the district counterparts should be conducted on the following issues:

- 1 Techniques on raising of fish fingerlings
- 2 Techniques of participatory training and extension work
- 3 Trouble-shooting of farmers fish culture practices/problems using flow charts/ indexes (from Lao experiences)

Compile information on how farmers detect and solve problems related to fish raising by conducting meetings, interviews. The information should then be printed in the form of a flow chart or index of recommendations on trouble shooting.

Introduce and integrate fish culture as a component of other development projects through liaison and co-ordination with other development organisations (Integrated development projects, micro-finance, income generating projects, irrigation projects, and other water supply projects are possible candidates). To initiate this these organisations may need only basic technical and management training of fish raising followed by backstopping and trouble shooting activities.

Whilst former teachers are often good at extension but require additional training on technical skills, the district officers graduating from agriculture schools require more training in communication and teamwork to be effective extension workers. Enhancement of these skills will improve the project performance and significantly improve their extension capacities. Unfortunately, these skills cannot be learned over a short period of time but require structured training such as a 10 day-course followed by proper coaching at regular intervals for at least one year. This should be done in Lao language, such services are available in Lao PDR but are constrained by the limited number of organisations able to perform these activities.

Specific training in Teamwork or Team Building for project staff would also be a useful activity.

This requires about 5 days of training and will need about 3 follow-up coaching sessions of 2 -3 days each time. The whole coaching period should be completed within a year's time.

In the longer term, improved concepts of marketing should be introduced or facilitated into the project activities. Whilst supply and demand are a strong stimulus to expansion of fingerling production and distribution networks, the process for facilitating this is relatively unknown in Lao PDR. The long term sustainability of the project intervention relies on the development and expansion of these. In the case of fingerling production this can be done through the following process:

- 1̄ Ask each province collect information on seasonal changes in price and availability of fingerlings as well as marketable fish;
- 2̄ Make the information available to potential buyers and producers either through radio announcements and/or using the provincial network of district extension workers;
- 3̄ Perform an analysis of the information obtained and evaluate what interventions would be most effective; e.g. fry availability, pricing, facilitation of distribution, assistance or development of fingerling traders.
- 4̄ Sharing of experiences between provinces in an annual workshop.

## **11 Additional Outputs**

Detailed reports of the complete outputs from each of the four workshops are available in Lao language.

## 12 Appendix I – Summarised outputs of Central Level workshop

### 12.1 Review of project goal/objectives & expected outcomes

OBJECTIVES	EXPECTED OUTCOME	PARTIES INVOLVED
1. Enhanced food security.	<ul style="list-style-type: none"> <li>* Increased FG's fry production in target areas by 50% per year.</li> <li>* No. of fish farmers and with market fish production increased.</li> </ul>	<ul style="list-style-type: none"> <li>* FG members</li> <li>* Fish seed producers.</li> </ul>
2. Generate income to target rural poor farmers	<ul style="list-style-type: none"> <li>* Increased production of fish farming families in order to have additional income.</li> <li>* Increased target farmers food sufficiency by 50%.</li> </ul>	<ul style="list-style-type: none"> <li>* FG members</li> <li>* Fish seed producers.</li> <li>* Provincial counterparts.</li> <li>* District counterparts.</li> </ul>
3. Improve fish nutrition among Project target farmers in rural areas through extension of fish farming techniques.	<ul style="list-style-type: none"> <li>* Increased production of fish farming families in order to have additional income.</li> </ul>	<ul style="list-style-type: none"> <li>* FG members</li> <li>* Fish seed producers.</li> <li>* Provincial counterparts.</li> <li>* District counterparts.</li> </ul>
4. Enhance the productivity of extension work.	<ul style="list-style-type: none"> <li>* Upgraded knowledge and capability of counterparts in the Province, District and 52 FG's</li> </ul>	<ul style="list-style-type: none"> <li>* Ministry of Agriculture central counterpart officers.</li> <li>* Provincial counterparts.</li> <li>* District counterparts.</li> <li>* Chief of hatchery.</li> </ul>
5. Disseminate information to all levels of governance regarding the project activities to ensure future sustainability .	<ul style="list-style-type: none"> <li>* Upgraded knowledge and capability of counterparts in the Province, District and 52 FG members organised during the past two years.</li> <li>* Increased target farmers food sufficiency by 50%.</li> <li>* Increased FG's fry production in target areas by 50% per year.</li> <li>* No. of fish farmers and with market fish production increased..</li> </ul>	<ul style="list-style-type: none"> <li>* Ministry of Agriculture central counterpart officers.</li> <li>* Provincial counterparts.</li> <li>* District counterparts.</li> <li>* Chief of hatchery.</li> <li>* FG members</li> <li>* Fish seed producers.</li> </ul>

## 12.2 Project planning

ACTIVITY	METHODOLOGY	PARTIES INVOLVED	% SATISFACTION	Priority
<b>First Year</b> 1. Project hand-over/start-up 2. Invite Provincial counterparts to understand project document. 3. Discussion about Project organisational structure in co-operation with Province and District counterparts from 5 provinces and 14 target districts.	1. UNDP-FAO hand-over Project to the Ministry. 2. Project sent invitation and explained project document in co-operation with UNDP. 3. Study with proposals data coming from the provinces/districts for use in planning the project annual activities.	1. Ministry, LVF, Province 2. Central Project Officers, Province and District Counterparts 3. Central Project Officers, Province and District Counterparts	100%  80% 60%	
<b>Second Year</b> 1. Review and work planning revision (based on the past lessons and field data received). Revise workplan according to project manpower capability and seasonal requirements of the field situation. 2. Revise Project Document to suit the actual situation.	1. Receive field reports and monitoring activities from the provinces and districts. 2. Produce workplan in co-operation with Project and UNDP.	1. Central Project Officers, Province and District Counterparts 2. DLF, Project CO, and UNDP	80%  80%	2  1

## 12.3 Project activity implementation

ACTIVITIES	METHODOLOGY	PARTIES INVOLVED	SATISFACTION WITH ACTIVITIES	PRIORITY FOR IMPROVEMENT
1. Field survey and data collection.	<ul style="list-style-type: none"> <li>Socio-economics interviews (family income).</li> </ul>	<ul style="list-style-type: none"> <li>Provincial officers and farmers.</li> </ul>	50%	4
2. Conduct training about fish culture, etc.	<ul style="list-style-type: none"> <li>Extension of theoretical techniques on fish culture.</li> </ul>	<ul style="list-style-type: none"> <li>Central Staff, Province &amp; district officers, farmers.</li> </ul>	60%	3
3. Selection of target groups.	<ul style="list-style-type: none"> <li>Consultations and resource availability.</li> </ul>	<ul style="list-style-type: none"> <li>Province &amp; district officers &amp; fish farmers.</li> </ul>	90%	2
4. Organization of farmers groups and formulation of rules.	<ul style="list-style-type: none"> <li>Farmers organise themselves including setting of their rules and regulations.</li> </ul>	<ul style="list-style-type: none"> <li>Fish farmers 9-10 members per group.</li> </ul>	70%	1
5. Training on fish breeding.	<ul style="list-style-type: none"> <li>Practical on-site (hands-on) training.</li> </ul>	<ul style="list-style-type: none"> <li>Province &amp; fish farmers.</li> </ul>	80%	1
6. Re-training / refresher training	<ul style="list-style-type: none"> <li>Farmers group proposes/requests to districts, districts sends request to province.</li> </ul>	<ul style="list-style-type: none"> <li>Fish farmers.</li> </ul>	60%	4
7. Periodic advice and recommendations (technical management).	<ul style="list-style-type: none"> <li>Actual observations, recommend/advice on-site.</li> </ul>	<ul style="list-style-type: none"> <li>Province, district &amp; fish farmers.</li> </ul>	90%	4



## 12.4 Project monitoring

ACTIVITIES	METHODOLOGY	PARTIES INVOLVED	SATISFACTION OF ACTIVITIES	PRIORITY for Improvement
1. Monitoring of technical recommendations implemented in the past.	<ul style="list-style-type: none"> <li>Dialogue with fish farmers.</li> </ul>	<ul style="list-style-type: none"> <li>Province &amp; district counterparts</li> </ul>	65%	3
2. Check/inspect past work situation.	<ul style="list-style-type: none"> <li>Receive reports from Provinces and districts.</li> </ul>	<ul style="list-style-type: none"> <li>Project officers concerned</li> </ul>	75%	3
3. Monitor work progress of provincial and district officers.	<ul style="list-style-type: none"> <li>Compile data of FG's actual field activities 2-3 times per month.</li> </ul>	<ul style="list-style-type: none"> <li>Province &amp; district officers, and farmers groups.</li> </ul>	85%	3
4. Monitor work progress of district officers and village.	<ul style="list-style-type: none"> <li>Four times per month.</li> </ul>	<ul style="list-style-type: none"> <li>District officers and Farmers groups.</li> </ul>	80%	2
5. Monitor work progress within the fish farming villages.	<ul style="list-style-type: none"> <li>One time per month.</li> </ul>	<ul style="list-style-type: none"> <li>District officers and farmers groups.</li> </ul>	50%	1

## 12.5 Project evaluation methods

ACTIVITY	METHODOLOGY	PARTIES INVOLVED	SATISFACTION	Priority
1. Field visits.	<ul style="list-style-type: none"> <li>Discussion with Province &amp; District counterparts and farmers groups.</li> </ul>	<ul style="list-style-type: none"> <li>Project team, province &amp; district counterparts, UNV, and FGs.</li> </ul>	70%	
2. Regular, annual, and monthly reports.	<ul style="list-style-type: none"> <li>Coming from province, district, and FG leaders.</li> </ul>	<ul style="list-style-type: none"> <li>Province &amp; district counterparts, UNV, FG's.</li> </ul>	10%	
3. Specific surveys and activities.	<ul style="list-style-type: none"> <li>Gender study mission, mid-term evaluation.</li> </ul>	<ul style="list-style-type: none"> <li>Consultants, Central officers, Province &amp; district counterparts, FG's.</li> </ul>	90%	
4. Feedback during training.	<ul style="list-style-type: none"> <li>Discussions with FG's and counterparts.</li> </ul>	<ul style="list-style-type: none"> <li>Project team, province &amp; district counterparts, UNV, FG's.</li> </ul>	70%	
5. Annual evaluation.	<ul style="list-style-type: none"> <li>No method yet.</li> </ul>	<ul style="list-style-type: none"> <li>Central Officers, all stakeholders.</li> </ul>	0%	
6. Annual meeting.	<ul style="list-style-type: none"> <li>Attendance of Central officers, province &amp; district counterparts, and UNV's.</li> </ul>	<ul style="list-style-type: none"> <li>Central officers, province &amp; district counterparts, UNV's.</li> </ul>	90%	
7. Monitoring, evaluation, and on-site solving of problem.	<ul style="list-style-type: none"> <li>Dialogue, data collection.</li> </ul>	<ul style="list-style-type: none"> <li>Extension officers.</li> </ul>	80%	1

## 12.6 Identified project strengths

STRENGTH	PREDISPOSING FACTOR / CAUSE	% UTILIZATION	Priority for improvement
1. Project workplan and implementation is appropriate to the real field situation.	<ul style="list-style-type: none"> <li>Planned strategy of the government is the same as with the Project</li> </ul>	80%	3
2. Planning for extension of fish production is realistic.	<ul style="list-style-type: none"> <li>Project infrastructure facilities (hatchery) and techniques have already been practised.</li> </ul>	85%	3
3. Farmers groups already organised in some areas.	<ul style="list-style-type: none"> <li>Fish farmers highly interested.</li> </ul>	80%	1
4. Government and Project co-operate together in implementation.	<ul style="list-style-type: none"> <li>Ease of budgeting.</li> </ul>	90%	2
5. Field activities successfully completed	<ul style="list-style-type: none"> <li>Project already implemented 2 years ago.</li> </ul>	45%	2

## 12.7 Analysis of problems encountered over past two years

PROBLEMS	CAUSE	SOLUTION	Priority for improvement
1. District counterparts not working full time with the project.	<ul style="list-style-type: none"> <li>Only few officers are available and doing non-project related works.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen district staff technical capabilities;</li> <li>Delegate more roles of project works to the farmers group leader.</li> </ul>	3
2. Not able to accept membership of farmers who have fish culture resources.	<ul style="list-style-type: none"> <li>Counterparts not working regularly with the project.</li> <li>District counterparts have not much experience.</li> </ul>	<ul style="list-style-type: none"> <li>Provide technical handbooks for use to the district counterparts.</li> </ul>	2
3. Not enough fry to supply the demands of FG members.	<ul style="list-style-type: none"> <li>Hatchery production is not enough.</li> <li>- short of technical experience</li> <li>- shortage of water for fish breeding</li> <li>- shortage of broodstock</li> </ul>	<ul style="list-style-type: none"> <li>Upgrade farmers group capacity to produce fry by themselves;</li> <li>Supply right species of broodstock the farmers group members need.</li> </ul>	1
4. Field reports not detailed.	<ul style="list-style-type: none"> <li>Field officers don't understand proper reporting, project document, and reporting format.</li> </ul>	<ul style="list-style-type: none"> <li>Develop detailed handbook about proper reporting and monitoring;</li> <li>Upgrade knowledge about reporting.</li> </ul>	2
5. NEX procedures and UNDP rules are not yet in order.	<ul style="list-style-type: none"> <li>NEX procedure is not yet clear</li> </ul>	<ul style="list-style-type: none"> <li>Co-ordinate with UNDP + CIC all the time.</li> </ul>	4

## 13 Appendix II – Summarised tables of Provincial level workshop

### 13.1 Review of project strengths

PROVINCE	PROJECT STRENGTHS	REASONS / PREDISPOSING FACTORS	LEVEL OF USAGE	IMPORTANCE (out of 5)
SEKONG	<ol style="list-style-type: none"> <li>The people are interested in fish culture</li> <li>There are suitable places for fish culture</li> <li>There are project counterparts in each district</li> <li>Independent authority to each level</li> <li>Extension "equipment" available</li> </ol>	<ul style="list-style-type: none"> <li>Wild fish catches are reducing</li> <li>There is irrigation and streams</li> <li>They have lessons and experience in fish culture extension</li> <li>It is efficient and given full participation throughout the project</li> <li>There is support from LAO/97/007</li> </ul>	<p>80% 70%</p> <p>70% 80% 80%</p>	<p>5 4</p> <p>4 5 5</p>
SAVANNAKHET	<ol style="list-style-type: none"> <li>The project follows provincial strategy</li> <li>Can split responsibilities between members of fisheries unit to achieve results</li> <li>Every ethnic group in the province is interested in participating</li> </ol>	<ul style="list-style-type: none"> <li>Suitable fish culture locations available</li> <li>Provincial and district counterparts have necessary abilities to teach farmers.</li> <li>There are road communications to every target village</li> </ul>	<p>80% 80%</p> <p>80% 80%</p>	<p>(3+) (4-) (4-)</p> <p>3</p>
XIENG KHOUANG	<ol style="list-style-type: none"> <li>Province is suitable for fish culture</li> <li>People have prior experience of fish culture and are interested on it</li> <li>Administration/authority at every level of project makes implementation easier</li> <li>The project has planning and organization for fish culture activities</li> <li>The project can provide funds, equipment and transport</li> <li>Farmers have learned rice-fish culture, pond culture, integrated culture and cage culture</li> <li>Farmers now have the ability to produce fingerlings in every district</li> </ol>	<ul style="list-style-type: none"> <li>Natural water supplies, streams, land and ponds</li> <li>There are irrigation channels</li> <li>Farmers have land and available labour to grow fish</li> </ul>	<p>80% 90%</p> <p>90% 70% 65%</p>	<p>3 3 4</p> <p>4 3</p>
OUDOMXAY	<ol style="list-style-type: none"> <li>Area and water resources are available</li> <li>Are able (authorised) to act at all levels</li> <li>Project give support</li> <li>People are very interested</li> <li>There is Agriculture Promotions Bank</li> <li>There are provincial and district counterparts</li> </ol>	<ul style="list-style-type: none"> <li>People believe in it and are hardworking</li> <li>Allows flexibility and good participation</li> <li>Provide funds and limited supplies</li> <li>Have their own funds and labour</li> <li>Money to borrow</li> <li>They have knowledge and ability in extension</li> </ul>	<p>90% 90%</p> <p>70% 90% 40 80%</p>	<p>5 5 3 4 2 4</p>
SAYABOURY	<ol style="list-style-type: none"> <li>There is effective management at each level (centre, province, district)</li> <li>There are funds available to perform the work</li> <li>Follows the livelihood and needs of the people</li> <li>There are counterparts who can lead and work with the farmers.</li> </ol>	<ul style="list-style-type: none"> <li>There is co-ordination between the levels</li> <li>Transport and budget available</li> <li>Convenient and co-operation</li> <li>Regular follow-up</li> </ul>	<p>90%</p> <p>100% 80% 70%</p>	<p>5 5 4 3</p>

### 13.2 Summary of project strengths for five target provinces

STRENGTHS	PREDISPOSING FACTORS	%	IMPORTANCE
1. Management at each level facilitates operation	<ul style="list-style-type: none"> <li>Follows the strategy of the government</li> </ul>	85%	5
2. Suitable areas for fish culture available	<ul style="list-style-type: none"> <li>Streams, canals, and natural water bodies</li> </ul>	80%	(4+)
3. People are interested and co-operative	<ul style="list-style-type: none"> <li>The extension method is suitable/appropriate to their livelihood</li> </ul>	80%	4
4. Project support	<ul style="list-style-type: none"> <li>Have budget funds</li> </ul>	90%	(4+)
5. Farmers can grow fish and fingerlings by themselves	<ul style="list-style-type: none"> <li>The methods extended are appropriate to the reality of the situation</li> </ul>	75%	4
6. There are physical outputs, the participating farmers have desired benefits in terms of fish to eat.	<ul style="list-style-type: none"> <li>Farmers are committed to fish culture as an activity</li> </ul>	78%	4

### 13.3 Review of problems encountered during project implementation over past two years

PROVINCE	PROBLEMS	CAUSE	SOLUTION	PRIORITY
XIENG KHOUANG	<ol style="list-style-type: none"> <li>Can not provide enough fingerlings to satisfy demand of farmers.</li> <li>Fish production levels are still low.</li> </ol>	<ul style="list-style-type: none"> <li>Farmers do not have enough experience in fish fingerling production.</li> <li>The natural environment does not provide as much as is needed.</li> </ul>	<ul style="list-style-type: none"> <li>Need to improve experience of fingerling production network in provincial staff.</li> <li>Need to invest in improvements to land and water supplies.</li> </ul>	5 4
OUDOMXAY	<ol style="list-style-type: none"> <li>Insufficient supply of fingerlings to satisfy demand.</li> </ol>	<ul style="list-style-type: none"> <li>Provincial hatchery does not produce enough.</li> </ul>	<ul style="list-style-type: none"> <li>Develop farmer facilities to produce their own fingerlings.</li> <li>Use all available sites and resources in project target groups to produce fingerlings.</li> </ul>	4
SAYABOURY	<ol style="list-style-type: none"> <li>Fish culture is still not yet producing up to what is expected.</li> <li>Fingerling production is still insufficient for demand.</li> </ol>	<ul style="list-style-type: none"> <li>Dry season water supply is insufficient.</li> <li>Some families are uncommitted.</li> <li>Natural disaster (flood, dry out).</li> <li>Current training has not yet sunk in.</li> <li>Still only a few families that can produce fish fingerlings.</li> <li>Lacking handbook and technical equipment.</li> </ul>	<ul style="list-style-type: none"> <li>Re-training of staff and farmers.</li> <li>Increase number of farmers producing fingerlings.</li> <li>Provide necessary equipment.</li> </ul>	4 5
SAVANNAKHET	<ol style="list-style-type: none"> <li>Fingerling production is uncertain - produce a lot but poor survival.</li> </ol>	<ul style="list-style-type: none"> <li>Lacking equipment.</li> <li>Production follows nature and natural influences.</li> </ul>	<ul style="list-style-type: none"> <li>Need to use simple techniques but need to be sure of success/quality whilst still keeping costs to a minimum.</li> <li>Need to select sites carefully (irrigation areas or small dams for all year water supply, also need to be sure that flooding will not occur).</li> </ul>	3 5
SEKONG	<ol style="list-style-type: none"> <li>Supply of fingerling is still insufficient.</li> </ol>	<ul style="list-style-type: none"> <li>Sekong lacks provincial hatchery.</li> <li>Still only a few families producing fingerlings.</li> </ul>	<ul style="list-style-type: none"> <li>Need station, budget, equipment, broodstock.</li> <li>Improve quality of fingerling production from those families.</li> </ul>	5

### 13.4 Causes and solutions to problems identified

PROBLEMS	CAUSES	SOLUTIONS	PRIORITY FOR ACTION
1. Fry production not able to satisfy the demand	<ul style="list-style-type: none"> <li>• Hatchery production not enough.</li> <li>• Fry producers are few.</li> <li>• No application of proper techniques.</li> <li>• Breeding materials not enough.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase fry producers.</li> <li>• Technical training</li> <li>• Supply more materials.</li> </ul>	1
2. Fish culture is not yet producing the anticipated output.	<ul style="list-style-type: none"> <li>• Natural calamities.</li> <li>• Some FG members did not apply technical recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>• Select new village using consultations with interested farmers and collect good village/site information</li> <li>• Motivate farmers to learn from other experienced farmers.</li> </ul>	2
3. Coordination between province and district (reporting is slow).	<ul style="list-style-type: none"> <li>• District officers are few and doing many work other than the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Improve system of reporting.</li> </ul>	3
4. Lack a sharing of experience within FG members and among FGs to FGs.	<ul style="list-style-type: none"> <li>• Members of FG mostly come from different villages and sharing of experience is not regular.</li> </ul>	<ul style="list-style-type: none"> <li>• Organize FG members to share experiences by themselves at least once a month and with other FGs twice a year.</li> </ul>	3
5. District counterparts have no specialization in fish culture.	<ul style="list-style-type: none"> <li>• No one is specializing in fish culture of all district counterparts.</li> </ul>	<ul style="list-style-type: none"> <li>• Hire additional technician specializing in fish culture.</li> <li>• Technical re-training.</li> </ul>	3

### 13.5 Issues contributing to project success over past two years

PARTICIPATION	EXTENSION METHOD	TECHNICAL ISSUES	PROJECT ADMINISTRATION
<ul style="list-style-type: none"> <li>• Have district counterparts in every district.</li> <li>• Farmers are interested and cooperative.</li> <li>• Many ethnic groups joining.</li> </ul>	<ul style="list-style-type: none"> <li>• Selection of target villages and organization of FGs is doing well because the project targets are in line with provincial strategy.</li> <li>• Farmers are interested in attending the technical training on fish culture conducted.</li> <li>• Farmers apply the knowledge learned about fish culture and fry production after their study tour.</li> <li>• Farmers able to learn and apply techniques of fish culture and fry nursing.</li> <li>• Project staff promote and extend technical assistance on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>• Some materials are supplied to poor farmers e.g. plastic bags, oxygen tank, etc.</li> <li>• Development of techniques for fry production, fry nursing, fish feeding, and more on fry nursing in cages.</li> <li>• Farmers are interested in the application of fish culture techniques.</li> <li>• Farmers able to produce fry by themselves especially in common carp after the training.</li> <li>• Farmers are able to produce fry for own use and some for sale.</li> <li>• Fry nursing in cages.</li> <li>• Farmers are able to transfer knowledge to anyone interested in fish culture over the whole cycle.</li> </ul>	<p>PROJECT ADMINISTRATION</p> <ul style="list-style-type: none"> <li>• Project management of central, province, district and expert staff is good.</li> <li>• Project organization is based on willingness to work</li> <li>• Staff are technically organized, maintain materials and equipment, etc.</li> <li>• Good coordination in the extension system between central, province and district levels.</li> </ul>





## 14 Appendix III – Summarised tables of District level workshop

### 14.1 Important lessons identified during the Project's Implementation

Province	Issue	Reasons
<b>Sekong Province</b>	<ul style="list-style-type: none"> <li>Fish culture has good results.</li> <li>Fry nursing in cages.</li> <li>Supply of fish seed to FG members is not yet enough.</li> <li>Organization of farmers group is not yet doing well.</li> </ul>	<ul style="list-style-type: none"> <li>Strong farmer interest</li> <li>Fish culture conditions are suitable</li> <li>Farmers ability to make green water.</li> <li>Because of monitoring and technical recommendations by Project technicians.</li> <li>Interest and co-operation of participants. Example: correct feeding of fish should be according to recommendation of the technicians.</li> <li>No place to produce fry within the province.</li> <li>High percentage of fry mortality during transportation.</li> <li>Fry supplied to local farmers came from other provinces.</li> <li>Lack of co-ordination in exchanging of technical experience by members within the group.</li> </ul>
<b>Savannakhet Province</b>	<ul style="list-style-type: none"> <li>Expansion of fish farmers groups is broad.</li> <li>More farmers wish to join FG's than the Project's ability to accept</li> <li>Farmers doing fish fry production increased.</li> <li>Fry nursing of farmers not yet as successful as per expectation.</li> </ul>	<ul style="list-style-type: none"> <li>Provincial and district counterparts extend technical assistance and monitor progress.</li> <li>Farmers know the importance of fish culture.</li> <li>FG has the ability to do fish culture and fry production.</li> <li>Extension officers working with farmers are not yet experienced on practical aspects of fish culture.</li> <li>Technicians specialising in fish culture is not available.</li> <li>Water supply for doing fish culture is not enough (esp. common carp season)</li> </ul>
<b>Oudomxay Province</b>	<ul style="list-style-type: none"> <li>Increased family income of farmers doing fish culture.</li> <li>Farmers are able to produce fish fry by themselves.</li> </ul>	<ul style="list-style-type: none"> <li>Increased technical knowledge and experience in fish culture.</li> </ul>
<b>Xieng Khouang Province</b>	<ul style="list-style-type: none"> <li>Farmers has interest in learning more about fish culture.</li> <li>Farmers learned techniques of fish culture.</li> <li>Farmers learned techniques of fry production in net cages.</li> <li>Fish farmers group served as model to other villages doing fish culture.</li> <li>Fry production is not yet enough to supply demands of local farmers.</li> </ul>	<ul style="list-style-type: none"> <li>Farmers learned proper techniques of fish breeding.</li> <li>Technical staff promote technical aspects of fish culture.</li> <li>Farmers received technical training in fish culture.</li> <li>Farmers received technical training on fish breeding in net cages.</li> <li>Other farmers came to learn and exchange experiences with each other and other FG members.</li> <li>Hatchery is not producing enough fry.</li> <li>Limited funds to purchase materials in producing fry and money for fry production (credit)</li> <li>Limited experience in fry production.</li> </ul>
<b>Sayaboury Province</b>	<ul style="list-style-type: none"> <li>Present project administration system has improved.</li> <li>Technique of fry nursing not yet doing well according to expectations.</li> <li>Fry nursing of farmers not yet as successful as per expectation.</li> </ul>	<ul style="list-style-type: none"> <li>Re-organization of the project, reporting, planning schedule, coordination with district and province counterparts normalized.</li> <li>Boiled egg yolk fed to nursed fry had spoiled the water.</li> <li>Extension officers working with farmers are not yet experienced on practical aspects of fish culture.</li> <li>Technician specialising in fish culture is not available.</li> <li>Water supply for doing fish culture is not enough (esp. common carp season)</li> </ul>

Problems	Cause	Solutions	Importance (top 5)
<p><b>Lamam District</b></p> <p>Supply of fry is not enough.</p> <p>Organization within FG is not yet doing well.</p> <p>Reporting from the district level is still slow.</p>	<ul style="list-style-type: none"> <li>Lack of materials for fry production.</li> <li>Technical experience of technicians in extension is not high.</li> <li>Farmers understanding about care and maintenance of broodstock is not yet good.</li> <li>Suitable sites for family scale fry production is still limited.</li> <li>District officer's recommendations to FG's for organization are not effective.</li> </ul> <p>Farmers are engaged in many diverse activities and may not be available.</p> <p>Usually, husband decides the work alone. During field visits some families could not be met.</p>	<ul style="list-style-type: none"> <li>Supply some important fry production materials to farmers.</li> <li>Train farmers about fry production.</li> </ul> <p>Let farmers know the importance of fry production (training with handbooks and study tour).</p> <ul style="list-style-type: none"> <li>Establish fry production network within the FG for sale to other FG members.</li> <li>Organise sharing of roles within the FG.</li> <li>Introduce more effective system of organization within FG.</li> <li>Before going to the field, district officers should inform the farmers in advance.</li> <li>Find ways for role-sharing appropriate within the family.</li> <li>Allow more FG membership from one family.</li> </ul>	5
<p><b>Thattheng District</b></p> <p>Reporting and co-ordination within the FG is not yet doing well.</p> <p>Supply of fish fingerlings to farmers is not enough.</p>	<p>Most farmers are doing many different jobs and may not always be available</p> <ul style="list-style-type: none"> <li>Time for training of farmers organization is too short.</li> <li>Recommended data form for use by FG leader to members is not yet doing well according to requirements. (Not yet done).</li> <li>District counterparts emphasis on technical aspect is broad.</li> <li>Technicians still lack expertise in fry production for the farmers.</li> <li>Shortage of important materials needed for fish breeding.</li> <li>Shortage of broodstock (large size fish already consumed only small size left).</li> </ul>	<ul style="list-style-type: none"> <li>During training allow husband and wife to attend together.</li> <li>There should be a group meeting every month at least once.</li> <li>Allow 2-3 days for training and organization of FG.</li> <li>If possible, there should be a data collection form specific for the farmers (Sample form of activities).</li> <li>FG organization should emphasise on two aspects: technical and administration of group at all levels.</li> <li>Need more training about fish fry production.</li> <li>Supply important materials to the farmers doing fish breeding (and hands-on training).</li> <li>Give training about selection and care of broodstock to fish breeding farmers before Lao New year.</li> </ul>	4
<p><b>Outhomphone District</b></p> <p>Fry nursing not yet producing good result.</p>	<p>Presence of predatory insects and fishes.</p>	<ul style="list-style-type: none"> <li>Recommend techniques for eliminating predatory insects and fishes to fish farmers.</li> </ul>	4
<p><b>Phin District</b></p> <p>Fry production of fish farmers not yet doing</p>	<p>No technical officer specialising in fish culture available.</p>	<ul style="list-style-type: none"> <li>Conduct short training course on fish culture for district officer</li> </ul>	

well.			and farmers together. Study tour to places who have farmers experienced in fish culture. Should have technical handbooks for distribution to farmers. Hire additional staff. Province staff should inform district counterparts 2-3 days in advance.	5
Data collection reporting is slow.	Farmers have no appropriate handbooks on fish culture and fry production. Because District officer is working alone and attending to so many responsibilities (nobody is responsible for this specific work).			3
<b>Xay district</b>				
Big size fish died.	Occurrence of fish disease		Change pond water. Cut male papaya, chop into pieces and spread over the pond bottom. Apply lime into the pond after fish harvest. Chop/pound raw bamboo shoots and spread over the pond bottom. Apply ash at 2 buckets / 240 sq. m.	5
Supply of fish fry does not satisfy demand.	Insufficient FG members producing fish fry		Supply enough fish breeding materials ahead of breeding season. Conduct technical training on fish breeding.	3
Slow growth of cultured fish.	Parent fish are not of good quality. Stocking density is not right. Wrong fish feeding practices.		Select good quality parent fish. Apply technical recommendations from the project.	
<b>Beng District</b>				
Supply of other species of fry is slow and not enough.	Limited number of Farmers producing fry in the district		Train more farmers on fish breeding techniques ahead of breeding season	4
Mortality of stocked fishes.	Fishpond dried up Over-flooded Extreme cold temperature Farmers lack technique		Find ways to prevent overflowing.	4
Slow growth of Puntius and Rohu by other farmers.	Project supplied fish are mixed with many species Pond condition is not suitable for fish growth, dirty water.		District and province staff extend more technical assistance. Follow recommended stocking density Prepare pond thoroughly, clean and improve according to standard practices	3
<b>Houn district</b>				
Fish culture is not yet doing well according to what is expected. Fry production is still below at desired level.	Last season there was improvement of the irrigation system done causing shortage of water. Lack of fish breeding materials. Fish breeding technique is still not enough. FG leader has no effective method of administration.		Use water pump to supply water in places where fish culture is doing well. Supply additional fish breeding materials. More training on fish breeding. Training on FG administration and technique of using handbook on FG organization.	5 3 3
Coordination within FG is not yet done according to expectation.				
<b>Paklay District</b>				
Staff not much experience in fish culture.	Difficulty during actual application because nobody		Technical re-training more on practical aspects of fish culture.	5

<p>Collection of data from FG is not yet formal. Fish culture is not yet doing well according to what is expected.</p> <p>Supply of fish fry does not satisfy the needs of farmers.</p>	<p>is specializing in fish culture</p> <ul style="list-style-type: none"> <li>Lack of prescribed form for collecting desired data.</li> <li>Farmers did not apply fully technical advice from project.</li> <li>Fry producers are few and some farmers are still uncommitted.</li> </ul>	<ul style="list-style-type: none"> <li>Make data sheet easy for FG members to understand.</li> <li>Participatory technical training to farmers.</li> <li>Exchange technical experience among themselves</li> <li>Re-training on fry production to many sites.</li> </ul>	<p>5 4 5</p>
<b>Sayaboury District</b>			
<p>Growing market fish is slow and did not produce the desired result.</p> <p>Fish culture is not doing well according to what is expected.</p> <p>Fish production mortality.</p>	<ul style="list-style-type: none"> <li>Farmers overstocked fish.</li> <li>Some FG members did not apply technical recommendation like manuring of pond.</li> <li>Did not clean fishpond.</li> <li>Pond site too small and overstocked.</li> <li>Fishpond is shallow and can not hold water for long time.</li> <li>Because of poaching.</li> <li>Farmers have too much other work.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce fish stocking according to desired density.</li> <li>District staff extend more technical advice to farmers.</li> <li>District staff to extend more technical advice.</li> <li>Project staff extend more technical assistance to farmers.</li> <li>Technical training to farmers, study tour, exchange past experiences.</li> <li>Farmers to commit more with FG.</li> <li>Make and apply FG rules.</li> </ul>	<p>5 5 4</p>
<b>Phieng District</b>			
<p>Fish fry production is not yet enough</p>	<ul style="list-style-type: none"> <li>Fry producers are few.</li> <li>Knowledge in fry production is limited.</li> <li>Fish breeding materials is not enough</li> </ul>	<ul style="list-style-type: none"> <li>Increase farmers producing fish fry.</li> <li>More technical trainings for FG members</li> <li>Supply enough materials for fish breeding.</li> </ul>	<p>4</p>
<b>Khoun District</b>			
<p>Farmers did not cooperate well as per expectation.</p> <p>Fishery extension to farmers has not yet sunk in.</p> <p>Fry production is not yet able to satisfy needs of farmers.</p>	<ul style="list-style-type: none"> <li>Farmers did not yet understand the techniques of fish culture.</li> <li>Technical capability of district counterpart is not yet high.</li> <li>Fish breeding materials not enough (nets)</li> <li>Still limited experience in fish fry production.</li> </ul>	<ul style="list-style-type: none"> <li>More technical trainings for farmers.</li> <li>More technical training to district staff.</li> <li>Supply netting materials to farmers.</li> <li>Technical training in fish breeding.</li> </ul>	<p>5 3 4</p>
<b>Kham District</b>			
<p>Fry production not doing well because of high mortality.</p>	<ul style="list-style-type: none"> <li>Farmers are still inexperienced</li> <li>Knowledge on conditioning of broodstock and fry nursing is still low.</li> </ul>	<ul style="list-style-type: none"> <li>Farmers to exchange technical experience among themselves.</li> <li>Learn more from the provincial hatchery</li> <li>More monitoring activities to farmers at least 7 days / month / FG.</li> </ul>	<p>5</p>
<b>Phoukhut district</b>			
<p>Farmers fry production still not enough.</p> <p>Supply of fish fry not yet enough.</p> <p>District staff still lacks experience in fish</p>	<ul style="list-style-type: none"> <li>Farmers producing fry are not many.</li> <li>Lack of technical know-how in fry nursing.</li> <li>Lack materials in fish breeding.</li> <li>FGs are far from the hatchery.</li> <li>Did not specialize in fish culture.</li> </ul>	<ul style="list-style-type: none"> <li>Farmers to exchange technical experience with hatchery staff.</li> <li>Supply at least 1 net materials to farmers doing fish breeding</li> <li>Increase farmers producing fry within the area.</li> <li>More training for fishery technician.</li> </ul>	<p>4 2 3</p>

<p>culture.</p> <p>Some FGs not yet doing well according to expectation.</p> <p>Breakdown of development work transport service (motorbike).</p>	<ul style="list-style-type: none"> <li>• District staff still inexperienced and some FG members did not apply technical advice.</li> <li>• Road condition is very bad during rainy season.</li> </ul>	<ul style="list-style-type: none"> <li>• More exchange of technical experience and study tour to hatchery.</li> <li>• More training for farmers and district technician.</li> <li>• Study tour and exchange of technical experience among farmers.</li> <li>• Budget for repair of motorbike.</li> </ul>	<p>3</p> <p>5</p>
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## 15 Appendix IV - Handbook for farmer's group organization developed by workshop participants

### I. OBJECTIVES

1. For convenience in administration and provision of services to the farmers groups such as planning, monitoring and evaluation.
2. For protection of the interests of the group.
3. To serve as collateral for obtaining credit.
4. For unity and to increase participation amongst members within farmers group.
5. For the ease in co-ordination with outside parties
6. To enable the achievement of the project objectives.

### II. VILLAGE SELECTION

1. Villages which have an interest in fish culture are considered under the three cases below:
  - 1.1 Farmers/Villages send proposal to the Project counterparts (District/Province)
  - 1.2 Province and district staff verify proposals.
  - 1.3 Suitable villages identified from surveys, data collection, and training conducted by the project
2. The village must have ponds or ricefields with sufficient water from an irrigation system or rainfall so that they can hold water for 6 months or more. If such, district officer will do actual survey of the village and make recommendations.
3. The village should be accessible during both dry and rainy seasons (or near to such a road).

NOTE: The village should satisfy 2 out of three conditions, but condition # 2 is given most consideration.

### II. SELECTION OF MEMBERS FOR FARMERS GROUPS.

1. Should have a suitable site for fish culture (at least one pond or ricefield).
2. Should be willing, hardworking, interested in fish culture and has not joined any other fish culture Project at same time.
3. Has performed some form of fish culture in the past, but lacks experience.
4. Open-hearted, unity with friends, honest, has sense of responsibility, not greedy and willing to extend to others technical know-how and experience about fish culture.
5. Membership is not limited and the head of the family can select any family member as representative. Men and women members should not be separated.

NOTE: A suitable member should satisfy 3 out of 5 of the above conditions. Condition # 1 is given most consideration.

### III. RULES AND REGULATIONS OF FARMERS GROUP

1. A farmers group should have 5 to 15 member-families; if there are 16 or more, divide into two groups. If many farmers come from one village, or if members come from several different villages, division into sub-groups may be appropriate.
2. The group leader and assistant leader are selected by the members, from within the group membership (the members decide themselves what the qualifications, terms

and conditions should be). There should be at least one woman member of the group leadership. Every 12 months there should be a re-election of the group leaders.

3. The group should hold a meeting every month. District counterpart staff should be invited to attend. During the meeting the groups will:
  - 3.1. Review past FG operations (strong and weak points).
  - 3.2. Make plans for the coming months
    - solve still unresolved technical and co-ordination issues
    - continue activities that yield good results
4. After the fish ponds or rice paddies are finally harvested, the group members will contribute to a welfare fund for the group. The contribution required from each member is to be decided by the group itself. The manner in which the fund is utilised is also the groups responsibility.
5. Every group should have an agreed policy for assistance to its members, when problems arise such as : from illness, death, etc.