

**Report of the
1st TRAINING NEEDS IDENTIFICATION WORKSHOP**

Dien Hai Commune, 19-20 January 2006

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I. INTRODUCTION

1. The Government of Vietnam and the Provincial People's Committee of Thua Thien Hue province, located in central Vietnam requested technical assistance from the Food and Agriculture Organization of the United Nations (FAO) in the sustainable management of the aquatic resources of Tam Giang Lagoon. With financial support from the Italian Government the FAO started implementation of a project aimed at improving the livelihoods of the people dependent on the Tam Gaing Lagoon by promoting a participatory sustainable management of the hydro-biological resources in the lagoons, in accordance with the socio-economic and production systems requirements of the population and with particular emphasis on the gender roles, the achievement of food security and the alleviation of poverty. The project is entitled "Integrated Management of Lagoon Activities in Thua Thien Hue province" IMOLA-Hue project (GCP/VIE/029/ITA).
2. The immediate objectives of the project are: 1) To understand the present issues in the lagoon, with respect to the hydro-biological resources status and use, human activities, current institutional responsibilities and management practices; 2) Based on the sustainable use of natural resources within the lagoon, to identify priority issues in an effort to support the existing, and develop new, management policies in order to improve people's livelihoods and reduce risks for poorer people who are dependent on the lagoon resources. These policies should be developed in a participatory way resulting in a draft Lagoon Management Plan which will provide, in a gender sensitive way, special attention to poverty alleviation amongst landless and lagoon communities; 3) To prepare for the implementation of the Management Plan, including preparation of the official enactment of the plan, implementing strategy at all levels, capacity building, as well as identification of credit, savings, insurance and organizational needs and investment requirements; 4) To strengthen the provincial institutional capacity in such a way that the Management Plan, once approved, will be implemented actively according to the strategies formulated and that the provincial institutions are able to formulate and implement policies related to the management of the lagoon system that are environmentally and socially sustainable; finally 5) To disseminate the findings and results of the project on a national and international basis, so that others may use this example in their formulation of Management Plans. By disseminating the knowledge gained it would most probably attract the interest of donors and government agencies for similar plans in other provinces in Viet Nam.
3. The Project started its activities in August 2005, and organized its kick-off workshop in September 2005. The 1st training needs identification workshop was held in the commune centre of Dien Hai commune, Phong Dien district, on 19 and 20 January 2006. The objectives of the workshop were the following:

- to identify which formal and informal capacity building would be required for those working in fisheries and aquaculture in the Tam Giang lagoon area, in order to increase their professional skills and contributions to the sustainable use of the lagoon resources.
 - to design a project capacity building programme with clear objectives that are specific, measurable, practical, relevant and timely.
 - to develop occupational profiles of at least fisherfolk and aquaculturists in order to avoid the provision of unnecessary or irrelevant training
4. The workshop was attended by 61 fisherfolk, shrimp- and fish aquaculturists, fish trading middlewomen, fisheries extensionists, commune leaders, Provincial and commune level Fishery Association representatives, Women's Union representatives, staff of the Provincial Department of Fisheries (DOFI), IMOLA project staff, and international officers representing NACA and FAO. The List of Participants can be found in Appendix I of this report. The workshop approved the Agenda which appears in Appendix II.

II. OPENING CEREMONY AND ORGANIZATION OF THE EVENT

5. The participants in the workshop were welcomed by Mr Nguyen Viet Vinh, National Project Manager (NPM) of the IMOLA project. His opening words were followed by the Chairman of the Commune People's Committee of Dien Hai Commune, Mr Cao Huy Buu who expressed his thanks on behalf of the commune and district authorities to the IMOLA project for organizing this event in his commune. He welcomed the international and national participants and explained the importance of the workshop for the commune. He mentioned that over 20 percent of the commune population depends entirely for their livelihoods on the lagoon and its aquatic resources. He added that he hoped that the IMOLA project would assist the commune in improving the lagoon management and support the people towards better utilization of lagoon resources.
6. Prof. Massimo Sarti, Chief Technical Advisor (CTA) of the IMOLA project, expressed his gratitude to the local authorities on behalf of the project for providing the opportunities to organize one of the first field activities of the IMOLA project in the commune. He mentioned that Dien Hai commune was selected for this first activity based on the fact that fishery is an economically important activity in the commune and the commune leadership was actively supporting the project in this event. Prof Sarti then listed the objectives of the workshop and told the participants that this workshop would pave the way for practical activities by the project in the near future. He urged the participants to use this opportunity to inform the project about their wishes with regards to capacity building from the project. He also referred to the environmental situation and particularly the need to combat pollution and over-exploitation of the aquatic environment as both fisheries and aquaculture development depend on this.
7. Subsequently all participants were asked to introduce themselves shortly to the other participants to get to know each other better. The workshop was chaired by the NPM of the IMOLA project.

III. PRESENTATIONS AND DISCUSSIONS ON DAY ONE

8. Mr Davide Fezzardi, international consultant for the Network of Aquaculture Centres in Asia-Pacific (NACA) facilitated the first workshop exercise in which the major income earning activities in relation to the lagoon aquatic resources were identified. The following list was produced by the participants:

Score	Aquaculture	score	Capture Fisheries (by type of gear)	score	Other activities related to the lagoon resources
		1	Fish corral	4	Aquaculture feed sales
2a	Fish culture in cages	2	Gill net	3	Boat repair and small boat building
2c	Fish culture in ponds	5	Line and hook	1	Lagoon resource management
1	Shrimp culture in ponds (tiger prawn)	2	Mollusk collection	2	Fish and shrimp marketing
5	Crab culture in ponds	3	Mullet trap		
4	Polyculture of fish and Shrimp in ponds	5	Cast net		
2b	Shrimp culture in ponds	4	Manual electricity device		
3b	Shrimp nursing	8	Trawling		
3a	Fish nursing	6	Fish aggregating device		
6	Fish culture in rice fields	8	Mollusk rake		
		5	Crab net		
			Wireless electricity device		
		3	Eel rake		

The score in the above table refers to the importance attached to each of the activities within their category by the participants.

9. The list was used to discuss which activities were considered easy or difficult to perform. It was decided by the participants that the capture fisheries activities were easy and that aquaculture, marketing and management related activities were much more difficult to carry out.

10. The discussion which followed was a general expression of the problems encountered in fishing, aquaculture and lagoon management. It was argued that electric fishing practices and the use of eel rakes should be stopped immediately and that the IMOLA project should assist in making this happen. The lack of a lagoon management plan, lack of access to the latest aquaculture technologies, and the limited knowledge about fish and shrimp health management were considered major problems raised by the participants. Other issues that were brought to the floor were the need for resettlement of the so called Sampan people. The Sampan people are living on boats on the lagoon and do not have land or a house. Another issue raised was the need for livelihood diversification opportunities. With the latter a change from capture fisheries to aquaculture was meant.

11. Dr. Raymon Van Anrooy from FAO presented the methodology that would be used for the training needs identification. He explained to the participants what training needs analysis is, why IMOLA does this, and he discussed the Learning Cycle and the Developing a Curriculum (DACUM) methodology. He told that the training needs analysis is a tool to identify the capacity gaps that can be bridged through focused training. He stated that the IMOLA project is now just at the start of the Learning Cycle, where the training needs are identified and training goals are set. The next steps will include the following: design of the IMOLA training programme, preparation of course content and training materials, implementation of the training programme in the communes, and evaluation of the training programme. He added that after one year the project might decide to start over again in the learning cycle and again identify the training needs, which might have changed by then.

12. The FAO officer continued by presenting the Developing a Curriculum (DACUM) methodology. He added that this methodology is used by among others by the International Labour Organization (ILO), FAO and various universities to design competency based training programmes. The principles of the DACUM methodology are the following:
 - Expert workers can describe their job better than anyone else, and
 - To develop all tasks in an appropriate way, knowledge, behaviour and skills need to be applied, together with the use of tools and equipment.

13. It was also outlined that the DACUM methodology makes use of specific terminology. It uses the term “competencies” for big tasks (activity level), and the term “sub-competencies” for smaller tasks (action level). A competency is considered to be the sum of a number of sub-competencies.

An example that was provided is the following:
 Competency A: to culture fish in a pond
 Sub-competency A1: to dig a pond
 sub-competency A2: to prepare the pond
 sub-competency A3: to buy fingerlings
 sub-competency A4: to buy fish feed
 sub-competency A5: to feed the fingerlings
 sub-competency A6: to keep good water quality
 sub-competency A7: to harvest the fish
 sub-competency A8: etc.....

14. At the end of his presentation Dr Raymon van Anrooy asked the workshop participants to split in working groups and prepare so called “Occupational profiles”. These occupational profiles are lists of actions that are required for the completion of an activity. The workshop participants decided that occupational profiles be developed for the following 5 competencies:
- Shrimp culture in ponds
 - Fish culture in cages
 - Fish culture in ponds
 - Lagoon management
 - Fish and shrimp marketing
15. Each working group discussed what sub-competencies were needed for one of the 5 selected competencies. They listed the sub-competencies and added the starting times, duration, level of difficulty, specific difficulties, training requirements and which institutions might provide training in the subject. The occupational profiles produced by each working group can be found in Appendix III.

III. PRESENTATIONS AND DISCUSSIONS ON DAY TWO

16. The second day of the workshop started with the presentation of the occupational profiles prepared by the working groups. From the discussion which was held subsequent of the working group presentations a list of identified training needs of fisherfolk, aquaculturists, extensionists, middlepersons and associations in Dien Hai commune was prepared, which included the following:

17. AQUACULTURE

Shrimp farming in ponds

- Shrimp health management, disease prevention and mitigation
- Water quality monitoring and improvement

Fish farming in cages

- Selection of fry and fingerlings (species and quality) for cage culture
- Nursing of fry
- Fish health management, disease prevention and mitigation
- Feeding of fish (feed preparation, feeding practices and alternative feeds for small feed fish)

Fish farming in ponds

- Selection of fry and fingerlings (species and quality) for pond culture (including polyculture)
- Reproduction of species (hatchery operations and nursing of fry)

- Fish health management, disease prevention and mitigation
- Feeding of fish (feed preparation, feeding practices and alternative feeds for small feed fish)
- Water quality monitoring and improvement

18. FISH AND SHRIMP MARKETING

- Market intelligence/information provision (market prices and demand)
- Market regulations and demands from (domestic and international) consumers
- Quality maintenance and improvement (not urgent)

19. BUSINESS PLANNING AND MANAGEMENT

- Business plan development (to access credit)
- Record and bookkeeping for aquaculture farmers

20. LAGOON MANAGEMENT

- Organization of aquaculturists and fisherfolk (organization skills, establishment and maintenance of associations)
- Information provision on laws, decrees, regulations and plans with regards to the lagoon
- Planning for aquatic resource management
- Improvement of communication with government institutions
- Awareness raising on aquatic resource exploitation levels and sustainable practices
- Community based management skills

21. Dr Raymon van Anrooy (FAO) then introduced the methodology of the 4Rs (Rights, Responsibilities, Revenues & Relationships) in relation to the management of lagoon resources. He said it is a tool to discuss and clarify the roles played by different stakeholders. The 4Rs tool forms part of a stakeholder analysis and it allows us to:

- Explore stakeholders' relative powers,
- Assess stakeholders' mutual relationships, and
- Pave the way for role negotiation by establishing stakeholder dialogue and agreement

22. He added that the IMOLA project uses the 4 Rs tool with the aim to:

- Clarify and agree upon the roles of stakeholders in relation to their current competencies to play these roles in fisheries and aquaculture management,
- Identify gaps and problems between roles and current competencies,
- Identify which training would be required to enable stakeholders to play their roles better, and
- Provide recommendations for policy-makers on gaps between rights, responsibilities and revenues.

23. He also said that it was not the aim of this workshop to negotiate roles and discuss how roles should be in the ideal situation. At the end of his presentation he gave some examples of the rights, responsibility and revenues of stakeholders and divided the workshop in four working groups to discuss these for the lagoon situation.

24. The findings presented by the working groups and discussed at the workshop can be found in Appendix IV. From the discussion it was clear that the perception with regards to the responsibilities of the different stakeholders varies a lot. Some workshop participants said that fisherfolk and aquaculturists have great responsibilities towards managing the resources of the lagoon, while others considered their responsibilities minimal. A number of stakeholders listed in the tables representing the work of working groups 3 and 4 were added in the discussion afterwards. The DONRE, Police, projects, tourism and some other stakeholders were not considered as such by the participants during the working groups; however, agreement was reached by the workshop participants that these stakeholder groups have their roles as well in the management of the lagoon.
25. Mr Arie van Duijn of the IMOLA project then presented an overview of the findings from the questionnaire and tried to validate some of the answers with the participants. The findings include that the majority of the 1,300 households living in Dien Hai commune depend on multiple activities to sustain their livelihood. Some 200 households depend completely on the exploitation of aquatic resources for their livelihoods. Many other households rely on aquaculture and/or fisheries as a major secondary source of income. The majority of households own boats, even if they are not engaged in capture fisheries. The most common fishing gears used are: fish corral; gill net; eel rake; mullet trap; electric fishing gear; cast net; line and hook; and crab net. Besides gears and boats the use of equipment in capture fisheries is limited to the mainly Chinese engines with which the boats are equipped. No freezers, cold storage boxes, ice-machines, GPS or other equipment is used. The most important types of aquaculture are the monoculture of shrimp in ponds and fish-cage culture. Other common types of aquaculture are the monoculture of fish in ponds; the polyculture of fish and shrimp in ponds; and pen culture. As far as aquaculture concerns, people use nets for harvesting and in a limited number of cases a water pump or a machine to enhance the supply of oxygen.
26. Before closing the workshop Mr Nguyen Viet Vinh, NPM of the IMOLA project, presented identified training needs in a comprehensive manner. He listed the priority areas for capacity building by the IMOLA project, based on the discussions so far. The list is already provided earlier in this report.
27. He then continued to discuss where training sessions should be organized, when would be the best period and what the commune and participants in future training sessions would be willing to contribute to those training sessions. Training sessions should be preferably organized at commune or district level in the commune or district centres, according to the large majority of the participants. The same participants expressed that they had no preference for any day of the week for participating in future training activities. They informed the project however that training consisting of only morning sessions of 4 hours would suit them better than training covering the whole day. The nature of fisheries and aquaculture activities demand them to dedicate every day some time to these activities.

28. The project was requested to provide training at such moment in the season that the experience gained could be used in practice immediately; e.g. shrimp health monitoring training should preferably start around stocking of the ponds as diseases generally occur a few (6) weeks later already. As far as the contribution by the commune and participants in the training concern, it was agreed that the commune should provide the training facilities for free to the project and that participants would contribute to the training in kind by providing lunch and tea/coffee for the participants (and accommodation for trainers) during the training sessions.

IV. CLOSURE OF THE WORKSHOP

29. The workshop was closed with some closing remarks from the CTA of the IMOLA project. The CTA announced that the commune will receive some support from the project in terms of training for lagoon management and aquaculture and that the commune will be one of the focal communes for the forthcoming PRA exercise of the project. All participants received certificates of their attendance to the workshop. The workshop was closed at 17, 00 hours on Friday 20th of January 2006.

V. ANALYSIS OF SOME WORKSHOP FINDINGS

30. While capture fisheries is one of the main activities of the workshop participants, all of them considered the capture fisheries production related work as relatively simple and not requiring technical assistance from the project or other institutions. The general impression was that they are too good in fishing, causing declining catches and overexploitation of the fisheries stocks in the lagoon. As income from lagoon capture fisheries seems impossible to increase further many see in aquaculture an alternative livelihood opportunity.

31. The emphasis on training in aquaculture sub-competencies may be partly explained by the fact that there were many aquaculturists among the workshop participants, but it also shows clearly that those involved in aquaculture already do not see themselves as competent in the activity yet. They encounter many problems in their aquaculture practices and have related to these problems clearly identified needs for capacity building.

32. As expected the need for management interventions with support of the IMOLA project was confirmed. The recently issued Decree No. 4260/2005/QD-UBND Promulgating the regulations on the management of lagoon fisheries in Thua Thien Hue, which was signed on the 19th of November 2005, makes IMOLA capacity building in management skills and planning for lagoon management even more urgent. Particularly as much of the responsibilities for the management related planning and implementation of the management plans are transferred through this decree to commune level fisherfolk associations. Associations which are not always established yet; at present only 12 associations at commune level exist formally and among these 12 there are many that just exist on paper and not in practice. IMOLA is asked by fisherfolk and farmers to play an important role in the establishment and operation of these associations.
33. The perception of the fisherfolk and aquaculturists towards the responsibilities of different stakeholders varies greatly; however, the Commune People's Committee is considered to have the highest responsibility. Fisherfolk and aquaculture farmers consider themselves as having many or zero responsibilities in relation to the management of lagoon resources; reflecting to extreme opinions. DOFI is perceived as dealing with fisheries management only at provincial level with hardly any responsibility in local level resource management. Responsibilities of stakeholders such as DONRE, AGRI-Bank, Projects, Police, VINAFISH and Tourism are not recognized by fisherfolk and farmers
34. Fisherfolk and aquaculture farmers consider themselves as having similar rights with regards to the lagoon resource use. Commune People's Committees are seen as institutions with many rights with regards to lagoon management (e.g. to tax, to issue permits, and deal with illegal fishing practices/violators). Also self-help groups and associations have recognized rights in conflict management and organization of fisherfolk and aquaculturists in the lagoon area.
35. The fisherfolk and aquaculturists themselves recognize that they obtain the highest revenues from the lagoon resource use; only illegal fishers obtain more revenues from the resource. The Commune People's Committees are seen as the institutions with the second highest revenues from the lagoon.
36. The 4Rs tool made clear that there are firstly important discrepancies between current responsibilities and rights of institutions and the perception by fisherfolk, and secondly that there are major gaps between current responsibilities with regards to lagoon management and the capacity of institutions and their staff to take up these responsibilities in a proper manner. The IMOLA project can play a key role in closing these gaps.

37. The questionnaire showed that most aquaculturists have received some kind of training at the commune level. This training was provided by different organizations including the Department of Fisheries, Hue University of Agriculture & Forestry and the Thua Thien Hue Rural Development Programme. All respondents consider they need training. Their perceived training needs focus predominantly on aquaculture (Health management, disease prevention and mitigation, selection of fry and feeding practices) and on how to gain access to financial support by credit scheme. Other areas in which training needs were identified by the respondents are the following: fisheries marketing; fisheries management; and environmental management (including how to ban bad fishery practices). Most attendants prefer to receive practical training or a mix of theory and practice and consider themselves unable to pay any kind of compensation for receiving this training.
38. Both, participants and the IMOLA project management recognized that this workshop was not sufficient to get a complete coverage of the training needs of the fisherfolk and aquaculture population around the lagoon. Therefore another commune level workshop will be organized shortly in one of the communes in the southern part of the Tam Giang lagoon. In addition, the outcomes of the training needs analysis at commune level will be combined with the findings from a training needs analysis meeting of IMOLA project taskforce members, which was held on the 23rd of January at the DOFI offices in Hue City. The Taskforce consists of DOFI, Women's Union and Commune People's Committee representatives from the different districts in the lagoon area. The combined findings will be used in the preparation of the IMOLA project training programme.

Appendix I

LIST OF PARTICIPANTS

No	FULL NAME	OCCUPATION	RESIDENCE
1	Hoang Duc Tuan	Fish culture	Village 1
2	Hoang Duc Loc	Fish and Shrimp culture	Village 2
3	Cao Huu Trung	Fish and Shrimp culture	Village 3
4	Hoang Duc Hoa	Shrimp culture	Village 5
5	Ho Dang Hien	Fish and Shrimp culture	Village 6
6	Truong Van Ai	Shrimp culture	Village 7
7	Tran Van Hung	Fish and Shrimp culture	Village 6
8	Cao Huy Phuc	Fish and Shrimp culture	Village 5
9	Cao Huy Buu	Commune PC rep.	
10	Phan Thao	Representative of Agri. cooperative	
11	Phan Thi Kim Cuc	Salesperson	Village 8
12	Cao Thi Dac	Salesperson	Village 6
13	Nguyen Moc	Fishing	Team 13
14	Phan Kien	Fishing	Team 3
15	Phan Hoa	Sampan	Team 3
16	Ha Thi Tu	Mobile lift net	Team 3
17	Ha Thi Co	Mobile lift net	Team 3
18	Phan Nhon	Capture	Village 7
19	Phan Bac		
20	Phan Que	Capture	Village 7
21	Cao Thi Huong	Capture	Village 7
22	Ho Thi Vui	Capture	
23	Phan Chinh	Fish corral	Village 8
24	Phan Hoai	Fish corral	Village 8
25	Phan Thuong	Fish corral	Village 8
26	Tran Vinh	Fish cage	Village 8
27	Ha Khanh	Cage culture	
28	Tran Khien	Fish cage	Village 8
29	Phan Chien	Fish corral	Village 8
30	Phan Thi Du	Fish corral	Village 8
31	Nguyen Qua	A type of gill net	Village 8
32	Ha Dua	Aquaculturist	Village 8
33	Tran Vang	A type of gill net, and mullet trap	Village 8
34	Tran Thuong	A type of gill net	Village 8
35	Phan Thanh	Fish corral	Village 8
36	Tran Trong	A type of gill net	Village 8
37	Doan Lai Thang	Representative of Dong Phuong hatchery Co.	
38	Cao Huu Lau	Fisheries officer of Dien Hai commune	
39	Pham Lui	Quang Loi fisheries union	
40	Pham Vuong	Quang Loi fisheries union	
41	Nguyen Luong Hien	VNFish	
42	Ho Ty	Ha Cong fisheries union	

43	Ho Hieu		
44	Cao Huu Long	Shrimp culture	Village 2
45	Nguyen Xuan Du	Farmer union	Dien Hai commune
46	Cao Thi Van	Women union	Dien Hai commune
47	Tran Tinh	Fish corral	Village 8
48	Massimo Sarti	CTA –IMOLA project	Hue city
49	Arie van Duijn	APO- IMOLA project	Hue city
50	Nguyen Viet Vinh	NPM- IMOLA project	Hue city
51	Raymon van Anrooy	FAO	Rome, Italy
52	Davide Fezzardi	NACA	Hanoi
53	Nguyen Thi Phuoc Lai	Interpreter- IMOLA project	Hue city
54	Tran Thi Anh Anh	Interpreter- IMOLA project	Hue city
56	Le Xuan Hoang	Technical assistant – IMOLA project	Hue city
57	Le Thi Thanh Binh	Administrator – IMOLA project	Hue city
59	Nguyen Quang Vinh Binh	Vice Director – IMOLA project	Hue city
60	Hoang Thi Thu Thuy	Multi-service assistant – IMOLA project	Hue city
61	Nguyen Minh Tri	Driver – IMOLA project	Hue city

Appendix II

Workshop Programme

Time	Thursday 19 January
9.00	Welcome words by Mr Vinh (national project manager of IMOLA)
9.05	Official opening of the workshop by the Chairman of the Commune
9.15	Introduction of the participants
9.30	Short presentation of the objectives of the IMOLA project by Prof Massimo Sarti (Chief Technical Advisor of IMOLA)
10.00	tea break
10.15	Identification of the major activities carried out on the lagoon by Davide Fezzardi (NACA)
10.45	General discussion on problems in fisheries, aquaculture and management
11.30	Lunch
13.00	Presentation of the methodology that will be used for the training needs analysis by Raymon van Anrooy (FAO)
13.30	Working groups prepare occupational profiles
15.00	tea break
15.15	Working groups prepare occupational profiles (continued)
16.00	Participants fill in a questionnaire
17.00	Closure of the day
Friday 20 January	
8.00	Presentation and discussion of the occupational profiles made by the working groups
9.30	tea break
9.45	Introduction of the methodology of 4Rs (Rights, Responsibilities, Revenues & Relationships) in relation to the management of lagoon resources by Raymon van Anrooy (FAO)
10.15	Working group discussion on the Rights, Responsibilities, Revenues & Relationships of those involved in fisheries and aquaculture in the lagoon area.
11.30	Lunch
12.30	Working group discussion (continued)
13.00	Presentation of working group results
14.00	Presentation of questionnaire findings by Arie Van Duijn (IMOLA project)
14.30	tea break
14.45	Presentation of the priority areas for capacity building by the IMOLA project, based on the discussions so far (NPM of IMOLA)
15.30	Conclusion of the workshop and announcements with regards to follow-up (Massimo Sarti, CTA of IMOLA)
16.00	Evaluation of the workshop
17.00	Workshop closure and small party

Action	Starting time	Duration	Easy – Normal – difficult	Specific Difficulties	Training required? yes/no	Who could provide the training?
1) Find the location to dig a pond (for culture of carp, pike, perch, tench, mud carp)	November (Lunar month)	To July (Lunar month)	Yes	Obtain an initial investment	Yes – business planning	IMOLA project
2) Dig pond		01 year			No	
3) Improve pond					Yes	
4) Purchase of fry/fingerlings	From beginning		Yes. Due to weather	Hatchery is far away		IMOLA should help establish a local hatchery/nursery
5) Purchase of feed for fish			Normal			
6) Take good care of fish	Since fry are stocked into pond	8 months	Difficult	In case of epidemics we do not know what cure for what disease.	Yes, techniques of culture and disease prevention and mitigation.	
7) Right-time harvest			Easy	Sale is irregular.		

(Group 2) Activity: _Shrimp pond culture_. Frequency: __4 crops per year_. Group presenter: Cao Huu Trung.

Action	Starting time	Duration	easy – normal - difficult	specific difficulties	Training required? yes/no	Who could provide the training?
1) Prepare pond	Jan 10 (Lunar)	-				/
2) Drain pond water		2 days	easy			
3) Lift bordering dike		7 days	difficult	Dike borders are weak. High cost of fuel. Electricity often not available.	Yes	/
4) Clean and level pond floor		5 days	difficult			
5) Spread lime on pond floor and dry the pond		5 days	normal		No	
6) Build net fences to prevent predation by other creatures		5 days	normal	Material is not available, must travel to Hue	Yes	Fisheries expert
7) Examine water source for supply		3 days	difficult	Saline intrusion. Dependent on tides	Yes	Fisheries expert

8) Possessing water		4 days	difficult	Material not available. Dependent on weather	Yes. Techniques	Fisheries expert
9) Colouring the water		5 days	difficult			
10) Launching seed shrimp: - Select post larvae - Test seed with PCR machine - Launch shrimp		4 days	difficult difficult	Hatchery is far. Must travel to neighbouring province.	Yes	Fisheries expert
11) Culture and monitor shrimp culture: - Shock-reducing medicine - Examine environmental factors	6am	4 days	normal			
11) Culture and monitor shrimp culture: - Shock-reducing medicine - Examine environmental factors		9 hrs daily, 105 days per year	difficult	Lack of equipment and professional expertise	Yes.	Fisheries expert
12) Feeding: - Buy feed - Feed		30 min * 4 daily	difficult	Transportation.	Yes	Fisheries expert
13) Prevent disease: - Examine shrimp for disease - Examine density	Since 40 days of age	01 time per 10 days	difficult	Don't know symptoms of disease Choice and use of drugs.	Yes	
14) harvest: - Prepare harvest equipment	1 day before harvest.		normal	Purchase of equipment	No	
- Marketing	Early morning		difficult		Yes	

(Group 3A)

Activity: Fish cage culture

Frequency:3-4 cages/year

Action	Starting time	Duration	easy – normal - difficult	specific difficulties	Training required? yes/no	Who could provide the training?
1) Buy net and bamboo	Not defined	10-15 days	Easy	Unable to pay interest		IMOLA
2) Find investment capital/funds			Difficult			
3) Prepare cages (C=100m)	10 days	Easy	Afraid that other people may destroy the cage	Yes, if foreign technology is better		
4) Buy seed fish	1 day	Difficult	Have to travel long distance	Support to build a hatchery in the locality		
5) Fish stocking	1 minute	Easy	Stocking time and number of production cycles			
6) Fish feeding (small fish: fry, fish feed, big fish: 100 g or more, seaweed collected from river)		Easy	Quality and price of feed and seaweed	Yes, suitability of feeds		
7) Disease prevention and treatment		Difficult	Do not know how to treat because of lack of knowledge	Yes, very necessary		
8) Harvest	Not defined		Easy			

(Group 3B) Activity: Fish cage culture Frequency:

Action	Starting time	Duration	easy – normal - difficult	specific difficulties	Training required? yes/no	Who could provide the training?
1) Buy net and bamboo for making the cages	November	5 days	Easy	Need funds/credit Need to find area for fish cage		Fisheries staff (DOFI)
2) Buy seed fish (fry/fingerlings)	November	3 days	Easy	Difficult to choose species	Yes	
3)) Fish stocking	November	1 hour	Difficult	Electric fishing causes difficulties	Yes	
				Concerns about safety, (theft is a problem), should organize themselves but do not know	Yes	
4) Buy food for fish	November	1 hour	Easy			
5) Feed fish (3 times/day for 3 months). After 9 months, collect seaweed for feeding fish (10,000 VND/day on average)	8am	1 hour	Difficult	Electric fishing causes difficulties to their harvest; no other fish to enter cage anymore and grow there		
6) Harvest	November, the following year	5 hours	Difficult			
7) Sell fish	Morning	2 hours	Easy			

(Group 4) Activity: Marketing Frequency:

Action	Starting time	Duration	easy – normal - difficult	specific difficulties	Training required? yes/no	Who could provide the training?
1) Buy products	5am	2-2.5 hours	Normal	Supply is not available in winter	No	Relevant agencies (VASEP) IMOLA
2) Sell products	8am	7 hours	Normal	Big competition in summer when supplies and the number of traders are abundant	No	
3) Market information collection	5am	7-8 hours		Difficult to find suppliers in winter and consumers in summer Need more information about prices, markets, and maybe HACCP for expanding trade in future, need support when the supplies are abundant	Yes Yes, on market information (HACCP not urgent)	

(Group 5)

Activity: Management

Action	Starting time	Duration	easy – normal - difficult	Specific difficulties	Training required? yes/no	Who could provide the training?
1) Collect information from government (on regulations, laws and plans)	As soon as possible (frequently)		Difficult	Little information reaches the fisherfolk	No, information yes	IMOLA
2) Organize fisherfolk	As soon as possible		Difficult	Lack of organization skills	Yes	Provincial Fisheries Association
3) Planning aquatic resources usage and management	Beginning of year/season	5 days to 1 month	Difficult	Lack of planning skills, low awareness	Yes	Agriculture Development Center, DOFI, Provincial Fisheries Association
4) Implement the plan for aquatic resources usage and management	After the plan is formulated		Easy	Need time and money; Lack of knowledge on fisheries management	No	
5) Develop and approve the self management regulations	After the organization is established	1-3 months	Difficult		Yes	DOFI Agriculture and Rural Development Division
6) Check, supervise and monitor fishing grounds	After implementing of plans and regulations	Frequently	Easy	Lack of facilities Lack of formal rights to fishing grounds Lack of communication facilities		
7) Coordinate with other government agencies		Frequently	Normal			

Appendix IV

Group 1		Score (0 = none, 5 = high/maximum)				
Stakeholder	Responsibilities		Rights		Revenues (Benefits)	
1.Fishermen	No	1	Fishing Nature resource protection Aquaculture, support each other in techniques, assets protection and disease prevention	5 5 5 4.5	Income from harvested products Technology and income	5
2.Commune PC	Support the economic management/ issue water use rights	4	Collect land tax	3	Revenues from tax and fees	4
3. Shelf help group	Fishing and aquaculture activities management	3	Monitoring, dissemination and propaganda	3	To help all fishermen & aquaculturists to secure assets & technology	3
4. Provincial fisheries association	No	0.5	To ban destructive practices and pollution	3	To help people to identify appropriate species	2
5. DoFi	Fisheries management at provincial level.	3	Conflict resolution, diseases mitigation, training and management	4	Reduction of diseases and pollution. Improve technology	
6.Fisheries expansion		0.5	Fishing and aquaculture training	1	Improve the technology	
7. Women Union	Support the economic management	3	Support access to credit	4	To visit a family in trouble, use WU budget	3.5

Group 2

Stakeholder	Responsibilities		Rights		Revenues (Benefits)	
1. aquaculturists	Protect lagoon and environment	2	Carry out aquaculture on lagoon grounds and land based ponds	2	get income from aquaculture practices	3
2. self-management team	Supervise lagoon activities and watch out for destructive practices (electric fishing, etc)	5	Capture violators and collect fees according to rules	5	Protect resources	4
3. fishermen	X	0.5	Have access to commune fishing ground	0	Income from the activities	5
4. farmers and women's union	Promote reasonable and legal exploitation and resolve conflicts	4	x	0	X	0
5. commune people's committee	Give permit to water-surface use within commune territory	5	Protect fishermen's rights and act against illegal practices	5	Collect tax and fees	4
6. district division of fisheries	Provide technical consultancy on resource use and protection	3	Give permits to access grounds within commune territory	3	x	0
7. middlepersons	Collect aqua-products from aquaculturists and fishermen	1	X	0	Profit from aquaculture business	5
8. illegal professional group	X	0	X	0	High income from illegal use of resources, destroying environmental balance	5

Group 3:

Stakeholders	Responsibilities	Score	Rights	Score	Revenues	Score
Capture fishermen	Responsible fishing Request Commune to ban destructive fishing Contribute to social benefit fund (10 000VND/year)	4.5	Open access Free choice of gears Sell the harvest without tax	3	Have income Have the appropriate occupation	5
Fish farmers (cage culture)	Production and asset protection by themselves Feed the fish Against electric fishing (electric shocks result in fish mortality or deformations) Environment protection	4	Can place the cages where they want Open access to nature feed sources. To catch thieves of fish if local government provides support	4	To get product Selling product without tax	5
Commune PC	Take care of people To ban electric fishing practices Support local people to access credit Organize meetings Support local people in case of disasters To deal with conflicts	5	Encourage and manage residents Stop illegal fishing and violations to aquaculture Resettle sampan people Facilitate production	5	The love from people	
DoFi	To organize natural resources management (Not yet done) Environment protection (Not yet done)	3	Prevent violation (Nothing done yet)	3	To obtain salary form the government.	2
Veterans	Encourage residents Support local people in disaster mitigation		Participate in security for the community	2	The love from the local community	

Women Union	Support to access credit To create awareness on birth-control	3	Support the poor to obtain access to the credit	2	The love from local community (Leader has small salary)	2
Agri Bank	Credit management	5	To provide commercial loans (with interest)	3	Get interest and risks	2,5
Other Projects NAV, SWEDISH, CBCRM...	Support to organize self-help groups, water wells, latrines	5	Fund activities in the lagoon area	3	Not clear	
Police	Regular patrol of lagoon Collaborate with self-help groups to enforce laws	5	Punishment for illegal fishing and other activities	4	Obtain salaries	3
SARD	Provide scientific and technical services	5	Not clear		Not clear	

Group 4:

Stakeholders	Responsibilities	Score	Rights	Score	Revenues	Score
Fishermen (wild capture)	Organize meetings	5	Fishing in the prescribed areas Right to place fixed gears	3	Have income	3
Aquaculture	Aquaculture area management	3	To buy fish juveniles and set-up the cage where they want	3	Harvest and income	4
Self-help group and Sub- Local Fish-Association	Patrol for violations of regulations and monitoring	5	Conflict Management by commitment Organization of Sub- Local Fisheries Association	4	Fishing ground protection in order to rehabilitate nature resources.	3
Dien Hai commune PC.	Inform about training courses, Deal with questions and contact higher level authorities when required.	4	Reminding, educating, low level Administrative punishment	3	Revenue from tax and punishment fees	2
Natural resources protection Sub-department	Checking	2	Administrative punishment.	1	Revenue from administrative punishment State salary	1
VINAFISH	Provide information on training courses	4	Recommend and decide on establishment of local Fisheries associations	4		3
DONRE	Environmental protection, enforcement of environmental protection laws. Habitat protection, prevention of destructive fishing practices	5	Provide solutions and suggestions on RAMSAR	5	State salary	3
Tourism	None		none		none	