



INTEGRATED MANAGEMENT OF LAGOON ACTIVITIES IMOLA PROJECT

PRA REPORT

RESULTS OF LIVELIHOOD ANALYSIS BY PARTICIPATORY RURAL APPRAISAL IN DIEN HAI COMMUNE

Hue, March 2006



PEOPLE'S COMMITTEE OF THUA THIEN HUE PROVINCE





PRA & SLA REPORT

ON

SUSTAINABLE LIVELIHOOD ANALYSIS

BY PARTICIPATORY RURAL APPRAISAL

TECHNIQUES IN

DIEN HAI COMMUNE

- PHONG DIEN DISTRICT– THUA THIEN HUE

PROVINCE

Hue, May 2006

PART I

BACKGROUND

GENERAL STUDYING CONTEXT

Thua Thien Hue is a coastal region in central Vietnam, having 126 km of coastline and Tam Giang - Cau Hai lagoon is considered as one of the biggest lagoons in South East Asia. Tam Giang lagoon is located along 5 coastal districts (around 60 km long) including 33 communes, 86 hamlets with the total area of 220,000 ha. This area is the main source for 350,000 residents (approximately 1/3 population in province) to depend on with many different economic activities such as natural aquatic exploitation, aquaculture, tourism, etc. (Thua Thien Hue Department of Fisheries, 2002). As estimated, about 100,000 people involve directly in fishery and aquatic resources, and other 200,000 either involves in agriculture, aquaculture, part-time capture fishing. About 1,500 households live on boats in the lagoon area and most of these are very poor households as they depend totally on aquatic source. As a result, their lives and livelihood are threatened by many reasons, including reduction in fish catches, difficulty in fisheries approach.

Recently, uncontrolled exploitation is the result of population explosion and the pressure of socio-economic development, which makes biological resource decrease both in quality and quantity (Le Van Mien, 2002) and affects residents' traditional livelihood. Thus, aquaculture development is the solution being used to reduce the pressure on the natural resources and maintain livelihood of those who live around the lagoon. However, many problems occur during the aquaculture development. On one hand, aquaculture development has direct positive impacts on daily lives such as creating employment, increasing income, solving unemployment, reducing poverty, etc. On the other hand, uncontrolled aquaculture development is threatening natural ecosystem, traditional livelihoods and creating negative impacts on poverty either in short term or long term. Especially, after the historical storm in 1999, under the request made by Ministry of Fisheries to establish adaptive management models for specific fishery ecosystem, FAO has supported Vietnam to build the project "Integrated Management for fisheries activities in Thua Thien Hue lagoon" with the targets of improving livelihood for the people living around the lagoon by participatory sustainable management activities relating to fisheries cooperating with socio-economic conditions and production activities. The project also stresses on the gender's roles, food safety and poverty reduction. However, for the project implementation, it is necessary to evaluate the socio-economic status and production activities of agricultural households, especially aquatic resources and capture fishery and livelihood status for the future development direction. Activity 1.2 of project IMOLA has implemented capacity building for local government officers (provincial, district, commune levels) about basic research of socio-economic status and information gathering in 6 communes around the lagoon by participatory rural approach method. This report displays the result of livelihood analysis in Dien Hai commune, Quang Dien district, and Thua Thien Hue province.

STUDY OBJECTIVES

General objectives

- Big problems in lagoon, especially the context of aquatic resources
- Utilization and Management of aquatic resources (conflicts in aquatic resource use and management).
- Livelihood activities.

- Related individuals/organizations (their responsibilities and practical actions).

Specific objectives

- Evaluate the livelihood of communities in the lagoon area.
- Approach residents' point of view about resource use, situation and tendencies.
- Identify the responsibilities and participations of all related agencies about managing aquatic resources.
- Study the local resources management plans.
- Find out related information about markets and outputs of aquaculture.

PART II

STUDY METHODOLOGY

STUDY SITE

Dien Hai is a contiguous lagoon commune which is considered as middle-tidal area in Thua Thien Hue. The commune has border with Quang Ngan commune in the North, Dien Hoa commune in the South, Lagoon in the West and sea in the East. Dien Hai commune has 8 hamlets (they are one village in the previous time named: The Chi Dong and Minh Huong). They are: Do, Lum, Cay, Nay, Diem, Chua (named hamlet from 1 to 6), Huong Vinh (hamlet 7) and hamlet 8 (where is the place of fishermen settlement). Dien Hai is one of the poor communes in Lagoon area and it was not received lots of supported projects. The Dien Hai authority was willing to help the project and working team in both organizing field trip and collecting data. That was a convenient for people working in Dien Hai commune.

WORKING TEAM

The working team was all trainees in SLA/PRA training course which was organized by IMOLA project with the supervisor of NACA specialists and national consultants. They are the officer of DoFi, some provincial departments, teacher of Hue Agriculture and Forestry University and district, commune officers. Those people were trained in 1 week at class about PRA theory and methodology and practice at Dien Hai 2 days: 1 day for collecting data by applying PRA techniques and one day for data validation 2 days later.

STUDY SAMPLES

The communities were divided in three groups; they were agricultural group (villages 4, 5 and 6), aquaculture and trading group (villages 2 and 3), capture fishing and trading group (village 7 and 8). The working team was also divided in three sub-groups to work separately with each target group of farmers. Detailed information about study samples and methodologies in collecting data are presented in Annex 1

DATA COLLECTION

Secondary data

Available documents are collected such as annual summation on production activities in commune, land using plans and military security. All the data on potentialities of community development, land-using, fishery development, and socio-economic development in each period of time were also collected.

Primary data

Semi-structured interview survey. Questionnaires were prepared before the field survey by interviewers to collect identical information from an amount of interviewees. Those were the key-informants in village 8, who are fisherman, representative of social organization in the village, agent. The questions focus on problems considered as objectives of PRA and some detail activities that people were doing.

Livelihood assessment by PRA. To investigate livelihood diversification, impacted factors on livelihood in Dien Hai commune, PRA methodologies and community

participation (including residents from different professional in 8 hamlets, representatives for branches, commune and hamlets) are applied.

a. Household classification

This methodology is used to arrange or classify households in community in terms of socio-economic criteria of point of view from principal residents in hamlet 8th (hamlet leaders, representatives for associations and experienced workers...) and then make a list of poor households in hamlet (specialized in aquaculture and aquatic exploitation). Information supplied-residents define socio-economic criteria to category and the number of community groups and arrange each household to suitable group. Thus, it is possible to specify: rate of poor and rich households, property of each group, livelihood strategy, effect and approaching capability of each group on livelihood strategy, food stuff self-provision capability, public demands in study site...

b. Problem classification and problem tree

Specify and arrange problems to evaluate their importance by using different criteria; continue to use case tree or relationship diagram to collect information; then study reasons and effects of these problems and give out solutions. Next, gather information on help and interference applied to community; develop suitable action plan; handle difficulties in using available resources.

c. Livelihood ranking:

Arrange professionals by marking: analyze role of available livelihood professionals for daily life in Dien Hai.

d. Gender analysis:

To distinguish the role of male and female in a working day and in each activity.

e. Historical map:

To learn about principally historical events which directly affect on community; the main problems in unstable situation that people are facing and the important programs and policies are applying in this area. In addition, the contexts and situations of these events and their effects on locality were also be explored. Furthermore, the present residents' reactions and responses information to these events in each production field and context of commune and hamlets were considered to collect.

f. Seasonal calendar:

Study on seasonal production of different works/activities in a yearround; included livelihood activities, upheavals, important information of each period, climate; target on income, expense, labor, celebrations, festivals... Based on these information, farmers' livelihood can be analyzed, so the most difficult or stressful period of time or residents' opportunities at a certain time can be defined. Moreover, we can plan working schedule with community most effectively and rationally.

g. Map of resources:

To know what and where natural resources are.

h. Traveling diagram

To learn about community relationships such as: friendship, business, authority, villages...; services, financial resource used by community including district banks, women's credit fund, urgent lenders, public works; public service foundations including markets, medical stations, hospitals, public wells... Furthermore, traveling diagram also shows us other human resource such as line presenting academic standard of infants/adults.

i. VENN diagram

To learn about the effects of organizations, associations, individuals on community (e.g : district and commune people's committee, district agriculture department, pisciextention center, shrimp's seed and food companies and agents, medical stations, schools) and roles of these individuals/organizations.

j. Social Map

To investigate comprehensively socio-natural conditions in the area, distribution of population and organizations...based on the point of view of PRA attended members.

k. Walking along the cross-section:

Collect supplementary information after finishing the map of natural resources and society. This diagram shows the relationship between physical factors on a vertical cross-section of community; difficulties and solutions.

DATA PROCESSING

Result collected by using PRA's methodologies and secondary documents was synthesized to analyze livelihood activities and the major issues concerns as well. Then, testify the accuracy of data was done by representatives of commune people's committee and 30 residents from hamlets and different activities included agriculture, fishery and trading sectors. All the data was then presented in the final report.

PART III

RESULT AND ANALYSIS

GENERAL CONTEXT

Natural resource

The Dien Hai commune total natural land area is 1,278 ha, including Agricultural land, Non-agricultural land, Unused/wild land, Aquaculture land and Water surface is 287.08 ha, 681.3 ha, 309.62 ha, 70.2 ha and 400 ha, respectively (Dien Hai commune people's committee 2005). The water surface is mainly the lagoon area that is suitable for capture fishing development and aquaculture in the shore area. Aquaculture area is 70.2 ha, of which 20 ha for shrimp feeding, 50.2 ha for fish farming along with 5.5 km seashore containing a lot of natural aquatic products which is considered as strength of Dien Hai Fisheries sector. In addition to agriculture, most hamlets in commune focus on aquaculture and fishing, of which hamlet 8 is specializing in this sector than others.

Dien Hai has both sides close to the lagoon and sea and it has a protective forest with the area of 31.4 ha. Those areas used to prevent erosion of land and sand in the seas shore and it also contribute as a natural resource for Dien Hai people. As estimated, 10 ha protective forest and a coastal strip of land will be developed at the end of this year for residents to shelter in flood.

Parallel with the above mentioned advantages of water surface and forest, there are some geographical disadvantages occurring in this area, such as it is located contiguously to the sea so that it has heavily alumized running water that could not be used for drinking or washing. Additionally, the salinity areas are expanding because of the effect of aquaculture.

The highway No 49 running across the Dien Hai commune center bringing a good condition for socio-economic development in the community and reduce the density of population in an area due to one of the Vietnamese people's habits is living near by the main road and develop the trading by selling products that supply for human needs.

On December 2005, Dien Hai people's council issued a land using program in 2006, in which 7 ha for dedicated purposes including culture center, sport center, inner field channels, trading service, hospitals, markets, irrigation system, 3 km road and 30 ha for wood planting. The comprehensive using land plan in 2006 is to transfer 30 ha wild land to used land, included 2.02 ha for one rice crop and one farm produce crop; 5.11 ha for two rice crops, 1.2 ha for non-agricultural land. In the first 6 months in 2006, the commune is trying to issue land using right for 100% qualified-households (Dien Hai CPC, 2005). Land using right transference goes on right orbit, so illegal land using is pushed back (Dien Hai CPC, 2005). Further information of Dien Hai natural resources and human views are shown in Annex 2.

Social resource

There are many associations and individuals impacting on daily life in community. However, the value of effect of these associations and individuals are different parallel with each one's objective. People's committee is the most important organ in commune, which represents for the authority, manages all administrative activities, carries out government's policies related with socio-economic life. And it has to responsible for the security and people livelihood with the upper Governments.

Farmers join agricultural collectives who directly guide and run agricultural production, provide seed, medicals and agricultural tools to residents. This collective organization play an important role in farmers lives both in productivity and community relationship.

Most women take part in the Woman Union, and both men and women participate the Farmer Association. These two organizations have branches at hamlet level. Woman Union propagandizes women to do household economic and family planning development. It also co-operates with Policy Bank and supported projects for women to borrow money for agriculture and livestock breeding at household level at low interest rate (0.6%). Farmer Association also encourages members to develop agriculture and lend the members at low interest rate (but it is impossible to borrow at both organs)

Moreover, there are also agricultural and aquaculture input supplier agents who play a major role in the community. They are supporting input products for residents until the end of crop season with free of rate, however, these agents are believed that they always pull price down; attached servicing business is insufficient with the need of farmers. Some farmers prefer going to buy these products themselves in Hue, where is very far from Dien Hai commune because they did not believe in the price and quality of products that agents supply.

Movement of developing cultural villages, hamlets and families is boosted enhancing spiritual life. At present, there are 8/8 Hamlets approved the social activities in the festivals or some important national days. Besides, social activities and sports are taken care and implemented at hamlet level frequently.

Human resource

Dien Hai commune's total population is 6,130 people living in 1,293 households, of them 53% are female. On average, there are approximately 4.7 people per household. Labor force is abundant; accounting for 40% (2,377 people) of the total population. There are 2,059 people at working age are now living in the commune.

Hamlet	Production area (ha)		Household	Individual	Labor (%)
	Agriculture	Aquaculture			
1		4,093	214	967	60
2		14,713	385	1780	
3		13,87	106	509	
4		11,12	86	265	55
5		14,154	106	550	54
6		12,2	200	801	50
7		1,8	99	492	50
8			103	509	50
Total	448,4				

Table 1 - Natural Area, Population and Labor Force in Dien Hai commune

Dien Hai commune is a place of qualified education having talented team in studying contest at district and provincial level; and is awarded certificate on universalizing high education. Moreover, commune authority pays attention to education, that is there were 235/270 children go to kidden garten of which 100% 5-year old children go to pre-schools. At the primary school level, 660/664 children go to school in which 31.96% are the good pupils and there is no ignorant pupil. Two pupils are good

students at district level, one at provincial level. At secondary school level, there are 618/631 children go to school in which 12.7% are good pupils, 41.1% are fair pupils. 100% of them moves up to high school and be assessed as good educational school. One of the special things in Dien Hai educational results was that there were 23 pupils passed the entrance exam to universities in 2005, that is considered as a high rate in a poor commune. In comparison with Loc Binh commune, the south commune of the lagoon, there are only 2 students in the University in 2005.

Focusing on education is one reasonable policy of Commune people's committee. Such a plenty of well-educated labor force is strength of Dien Hai in the future. However, one challenge needs to be solved by commune people's committee is that the rate of poor household is still high 19.2% (based on new standard), the number of 3-child family increase (35%) which cause poverty.

Infrastructure

Of the property, Dien Hai is still a poor commune. There are 100% permanent 4th level houses that is the house with brick roof and cimen wall. These houses can stand the normal typhoon but with the strong one, such as over 6 grade, it is not easy for them to be existed over the storms. There are 50% households of the total commune households have their own motorcycles and 98% of them have television sets.

Electricity. There are 3 Electric stations in commune and 98% households are supplied electricity for daily life and production. The village 7 and 8 are still inadequate with electricity because some households are based on temporary house or living on the boats and they can not have electricity for their household using. The low living standard of those families is a difficulty that need to be supported from both the authourity and outsiders.

Traffic road. Traffic is convenient for almost of the people in the commune. The highway 49 runs across the commune (5,5 Km) connecting all the part of the commune together. The small road between hamlet 1 and 2 is 1.3 km. 6 villages (form 1 to 6) are along the main road while the village 7 and 8 are seperatly and they are connecting with other villages by small and temporary roads.

Schools. In 2005, commune received VND 150 million from charities to build 2 classrooms occupying 0.1 ha for kindergarten. Kindergartens in hamlet 5, 6, 7 are built in the area of 0.16 ha under the implementation of the National program 135 which is biuding infrastructure for poor and remote communes (Dien Hai people's committee, 2005). Even being a developing commune, Dien Hai is well-equipped with educational infrastruture of 3 high schools, 1 secondary school, 1 technical vocational school, 1 kindergarten, 8 pre-school classes in 8 hamlets. Dien Hai is easy to expand people knowledge with both high school and technical vocational schools.

Medical station. There are one polyclinic, 1 medical station, 2 doctors in the commune that are enough for community need of health care.

Furthermore, there is one new market which is the place of 9-commune population concentration, that helps people easily to develop trading and communicating with other communes.

To boost agricultural development, there are 15 ploughing machines, 4 plucking rice machines... in 8 hamlets. Those public machines are necessary and enough for the need of the commune.

Financial resource

This is a multi-sectoral economy with relatively high revenue. According to the report of commune people's committee, revenue in 2005 was about VND 1.1 million of which 166 million was received in the area, above 950 million was from supplementary governmental fund.

Principal income of residents is from the following sectors: agriculture, livestock breeding, aquaculture and others. Additionally, another source of income is from the workers working far from home (counting from 18 year-old workers)

In terms of credit, total loan from all sources was VND 2.5 billion and some amount from organizations and associations... however, there has not got enough capital for residents' need and people are still overdebt and can not pay all the loan. So that, some solutions were suggested by the local people, including supply loan (to develop some professionals and livestock breeding) about VND 5-7 million per household at 0.5-0.6% interest rate which is suitable with family condition and they can pay back in time. The other solution is professional supporting projects for people to upgrading the knowledge level of working and production.

Generally speaking, agricultural area in Dien Hai is along with aquaculture and fishing area, therefore, the commune can be improved with diversify professionals. However, Dien Hai has large cultivated area but lack of production activities, and the cultivated area are affected by sandstorm. Dien Hai has plenty of labor force but lack of work, unstable job and there is no traditional job, so many people have to go far from home to work and earning money for family. Even the labours are hard-working, creatively, able to do many kind of jobs to guarantee daily life. They are well-educated, able to perceive science and technology knowledge but still waiting for the support from outsides. In the commune, there are many sources of income but they are unstable and the living standard is still low in some sampan households. The capital which they borrow from the banks is not adequate and they are difficult to pay in time. Household incomes are both sources of inside and outside of the family (remote working people) are better for people living than the inside only.

PRODUCTION ACTIVITIES

LIVESTOCK BREEDING

Production seasons

The livestock have been breed all the year round because livestock breeding in Dien Hai commune is small-scale production. As all the other communes around the lagoon, the main animal are raising in the commune are pig, chicken and cow. However, the chicken flu disease has affected to the chicken and duck culture in Dien Hai commune so the productivity of those animal were reduced. Pigs were grown as a saving way in the family, it is not a develop activity in the commune. And there is no specific season of these animals culturing.

Production context

Livestock was not very developed but it is play a key role in the households. People culture poultry for family consumption mainly while pig is a way of making use of family waste and cow is used for landing preparation. This activity is very good for households; they can take advantages of remnants from food, cultivation for breeding. In 2005, Dien Hai has 5 Buffalos, 70 Cows, 4,500 Pigs and 50,000 poultries. Women and children play the main role in this activity by feeding and collecting food for animals. Men do not care of those simple works.

Advantages, disadvantages, main issues, reasons and solutions

Livestock in Dien Hai is facing many difficulties, for example, the lack of high quality of young animal, disease occur everywhere and they have no area to graze so it is very hard for them to develop the large scale of livestock.

The local people had raised many suggestions that can be applied to improve the livestock development in the commune. They are the supplying technical training for the local people from the Dep. of Extension both Agriculture and Fishery. The quality of seed have to verified by building a modern hatchery close to the commune. The authourity should have a plan of building the areas to graze cows and goats and other cattle species.

Breeding development orientation

One of the local community strategies now is want to develop livelihood as a main source of income in the whole commune. Otherwise, both CPC and individuals have to collaborate to strength this activity. However, it can not develop as fast as people desire because of limited financial source and knowledge of cultivation.

CULTIVATION

Production seasons

There are 2 main seasons of rice-crop in the year. They are East- spring and summer – autumn. Other plants such as fruit or ground nut are planted in the winter-spring season. However, these plants are not grown much in Dien Hai commune. The main culture species is rice.

Production context

Total area for cultivation in the year of 2005 reached to 448.4 ha. Of them, 410 ha are rice crop, 5 ha for chili planting, 13.4 ha for vegetables and other species were cultured in 20 ha.

Advantages, disadvantages, main issues, causes and solutions

Difficulty:

Low production effectiveness

- Lacking of capital causes many difficulties in production, agriculture and aquaculture are not separated. It is necessary to build dykes to protect production. In terms of land using right: 'Death not exclude, birth not issue'. Producers who rent land from others get low income and effectiveness.
- Lack of farming land (for exploiting area): no replaceable professionals.

Reasons:

- Small and unfertile agricultural area
- Saltized land, usual floods and droughts
- Source of water depends on climate and underground water
- Implementing Decision ND/CP 64 is considered as shortcoming
- High material price, large expense, low effectiveness
- Irrigation depends on natural conditions; this is a big problem which makes loss in production in the last few years, especially 50% loss of revenue in 2005.
- Irrigation canals have not completed.

- Application of science and technology is not popular.
- Inner field traffic has not finished.
- Lack of capital and planting mechanism transferring programs.
- High fertilizer price, low effective irrigation systems, thus low effectiveness.
- Ever increasing saltized area is the result of aquaculture.
- Impacts of environment.

Solutions

- Invest on building irrigation canals to support agricultural production.
- Stabilize cultivating area, seed mechanism, productivity, high yield and quality.
- Focus on irrigation activities (irrigation system).
- Encourage farmers to take part in practical models.

Suggestions

- Construct irrigation systems
- Train seed activities and transfer technology
- Support loans to improve production
- Spend land for sowing rice

Development orientation

Agriculture, cultivation particularly is the main and traditional job of the Vietnamese people, so that its development trend is not shown the suddenly step of changing but it is develop gradually year by year. The authority always try to encourage people pay much attention on this activity to safe the food security and get the productivity in the following year are higher than that in the previous year. However, these problems need to be solved by the collaborate of the authority and individuals: (i) It is difficult for farmers to select fertilizer because of low qualified land; (ii) Seed type 1 is not enough and its price is too high for the people to buy; (iii) There is not a comprehensive plan to transfer agriculture to aquaculture

AQUACULTURE

Production season

There are two kind of aquaculture in Dien Hai commune. One is fresh water aquaculture that is cultured all year round. The other is shrimp farming which is divided into two main crops, the first important crop from Feb to April and the second one is making use of the available water surface is from May to August. The disease seasons were in both shrimp crops but mainly happen in Mar-April and August, when flood season comes.

Production context

Types of aquaculture: shrimp farming is the most important type in Dien Hai commune, ranking after this type are: reservoir fish (1), cage fish and seed fish farming (2); shrimp and fish farming (3), crab feeding in reservoir (4), and fish culture in rice field (5).

Advantages, disadvantages, main issues, causes and solutions

The main problem now in aquaculture is low quality of seed, disease expressing that lead to low effectiveness aquaculture. Many people who are involved to shrimp

farming are now facing with heavy debt or lacking of capital for the following crop investment. There are numerous reason of this issue and following are some main causes that were implied by the local respondents:

- Lack of capital for investment/
- Lacking of adequate culture techniques
- Unstable price of marketable shrimp
- Polluted environment which is one reason of shrimp disease.
- Traders' pressure both in shrimp products and input supplier products
- The lagoon is narrower then before so the area where is suitable for aquaculture is reduced.
- Low quality of seed, unqualified seed, long distant transportation from the hatchery to the culture pond lead to weak seed and easier to get disease.
- There is no fish/shrimp disease treatment.

Solution:

- The most important solution is improving seed quality by quarantining precisely and accuracy.
- Develop a sustainable aquaculture development program in this area
- Diversify the feed source in supplying for fisheries.
- Authority and individuals should identify what are the advantages of each productive activity to increase its effectiveness (it might be farm fish and shrimp intermixture).
- Improve the co-operation between credit branches (banks, credit organizations, projects...) and support loans for production at household level.
- The DOFI should organize and held the training courses free of charge in aquaculture and fishing techniques for involving people.
- Combine organizations and individuals in order to prevent and punish exterminative capture fishing.
- Planning sustainable development area for fish and shrimp farming separately
- Establish the food supplying agents to avoid traders' pressure and guarantee food's quality
- Build local hatcheries to supply for local people need and make sure of the quality of seed.

Development orientation

Aquaculture and fishing are considered the main source of income in the commune. Both community and individuals develop strategy is increasing the aquaculture production of both fish and shrimp. Moreover, the area of aquaculture can be expanded by converting some lowland or rice fields. The disease is prevented by quarantine from Provincial level and people knowledge of keeping environmental clean. Expanding people knowledge is one of the main way to develop this activity.

AQUATIC PRODUCT EXPLOITATION

Production seasons

There is year-round capture of which two major exploiting seasons with high productivity (i) from February to April; (ii) from June to August (solar calendar). Fish corral is the most concentrated capture and popular way of fishing in this area.

Of the total aquatic product annual yield, 80% are shrimp and 20% are fish.

Production context

Popular types of capture in Dien Hai: (1) Fish corral is the most popular and important in commune. Some other popular gear of fishing are mussel fumbling (2), cào lươn and bottom gear (3); manual electric pulse (4); casting net and surrounding net (5); chuôm chà (6); giã cào, te dũi (thường điện) (7); electricity gear by hand or equipment (8)

Time	Husband	Wife	Children	The old
6h-7h30'	Have breakfast	Sell aquatic products	Have breakfast	Doing slight work in the family
7h30'-8h	Repair fishing tools		Go to school	
8h-10h				
10-12h		Cooking		
12h-13h	Have lunch			
13h-15h	Work at home, repair fishing tools	Help husbands repair and mend net		
15h-17h		Cook and a eat	Go to school	
17h-19h	Go fishing	Look after Fish corral with husbands	Have dinner	
19h-21h			Study	
21h-6h a.m			Go to bed	

▪ Table 2 - The roles of family members in capture fishing

Advantages, disadvantages, main issue, causes and solutions

Advantages. Dien Hai has a potential area to develop capture fishing. Moreover, there is a self-governing teams in this area so the security is quite good, no struggle in the area. However, there are some disadvantages that exist and cause problems for fisherman, they are: (i) ever-exhausted aquatic resource, (ii) exterminate fishing gear using is still happen and can not be prevented; (iii) environment of the lagoon is polluted; (iv) low residents' awareness of keeping natural resources and protect environment; (v) over population in the commune, particularly in fishermen community that lead to more fishermen in the limited water surface; (vi) the natural fishing area is narrower; (vii) Lack of comprehensive programs on aquaculture area development; (viii) high density of fish corral everywhere and can not be controlled. There are lots of reasons that cause the above mentioned problems and the most strongly cause is unregulated/illegal fishing gears such as bottom net and electricity. The law of punishment is not very strictly and low speed (VND 500,000 for each exterminate gear is quite low and easy for people to cope with). In addition, the chemical treatment without following technical process of aquaculture and agriculture contribute to lagoon pollution.

Solutions

- Punish one time strictly.
- Set up stations to preserve local sources (at hamlet level), prevent exterminate gears; authorities (departments of fisheries, agency of aquaculture preservation...) should punish derogation synchronously.
- Building capability and expand awareness of the community.

- Establish a program of sustainable development area for aquaculture to reduce the bad affect to natural environment.
- Improve the co-operation among credit branches (banks, credit organizations, projects...) and support loans for effective productive activity.
- Combine organizations and individual's right and obligations in order to prevent and punish exterminate fishing gears.
- Create good conditions for residents have a better chance of changing their jobs.

Suggestions

- Patrol, verify and punish cases implementing exterminate fishing gears in lagoon.
- Spend preferential loans for exploiters to reproduction, aquaculture development.
- Allocate land, stabilize residents' life.
- Make under-deck avoiding flood.
- Establish self-governing teams in aquaculture and aquatic product exploitation.
- Planning for lagoon should be done early and stably to fishing lagoon better.
- Boost aquatic source preservation (punish heavily all offenders)
- Finish water supplying system for agricultural production.
- Provide resettled land, running water, production.
- Build schools, traffic (completed 50%), pay attention to environment

Development orientation

Expand the fishing is one of the development strategy of the commune. However, the urgent necessary thing can be done soon is organize the self-management group to help each other in do the fishing and protect natural environment and resources. Strengthen the forbidden in using exterminate gear is one way to conserve the resources for long-term using.

TRADE

Production context

Dien hai based on the centre of this area, so it is very easy to develop the trade. The trade in dien Hai includes sell materials for agriculture, building materials, feed for livestock and aquaculture and welfare of people.

Difficulties:

- Land using right in the market
- Trading services are in low investment condition and high price in comparison with people living standard.

Reasons:

- Local authority does not pay attention much on this activity.
- People who do the trading are lacking of capital.
- Asynchronous program in changing jobs for people who are living on boat to sell goods for fishermen and the communities closed to the lagoon.

Suggestions:

- Invest on infrastructure (trading centers, markets, rural traffic, public works)
- Encourage inside and outside organizations and individuals to invest on local services.

- Support loans for trade (preferential interest)
- Update market information
- Complete infrastructure and public works

RELATED-COMMUNITY ORGANIZATIONS, INDIVIDUALS AND POLICIES

There are many organizations and offices are related to Dien Hai people in developing trend. They are the district/provincial department of agriculture, department of fisheries, department of agriculture and rural development, center of extension, Local authority, Agriculture bank, Polity bank where to support loans for community, Collectives, Woman Union, Commune farmer association, Private agricultural material agents and Policies and decision makers of different local authorities.

People highly appreciate the help of state organs, from government to locality, for example, the support of Departments of Fisheries, Departments of agriculture and rural development, pisci-agriextension centers which train techniques in farming and curing...for many kinds of plants, animals and improve production.

Name of organization	Roles and responsibilities	Assistance	Restriction
Agri-extension center	Transfer science and technology of agriculture	Develop and implement models	
Agricultural collectives	Guide directly	Medicals, seed, materials	
Commune people's committee	Socio-economic related policies	Administrative procedures	
Department of agriculture and rural development	Manage agriculture at state level	Techniques and specifics	
Banks	Improve society and economy	Support loans	High interest rate, a lot of procedures
Farmer association and Woman associations	Propagandize and mobilize	Capital (at preferential rate), seed	
Department of agriculture	Manage, develop, orient policies		
Material agents	Provide services	Sell materials...	Trader's pressure, low qualified attached services
Fishery			
Pisciextension center	Transfer technology of aquaculture, combine residents with science and technology	Models	Not available Lack of feeding techniques
Agency of aquatic source preservation	Managing seed, disease outbreaks and aquatic product exploitation (source preservation)	Register and check diseases	People must work in far distance Lack of attention

Projects	Assist state organs to identify policies	Develop models, infrastructure; improve economy	
Department of Fisheries	Manage, develop and program fisheries		
Medical stations	Take care of public health	Examine and treat medically	
Private aquatic food supplying agents	Sell food for aquaculture		

▪ *Table 3 - The role of organizations related to Dien Hai commune*

NATURAL RESOURCE USE AND MANAGEMENT

Dien Hai is coping with the distill water for human using, so the local people are especially focusing on water resources and conflicts in using and managing that kind resources. The other problem is lagoon environmental pollution which is impact directly to most of residents in this area. The causes are mainly implied are (i) Impact of aquaculture: waste water is directly to the environment; (ii) high density of fish corral stop the water flow; (iii) and exterminate fishing gear using. Some solutions have been implied to prevent and solve the above issues are (i) more investment on construction with suitable hygienic standards; (ii) Analyze components in drinking water; (iii) improving the running water which is currently alumized heavily.

Verification. Many people have cancer which is caused by polluted water (50 victims in the past 5 years in hamlet 5)

PART IV

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

- All the main activities of the Dien Hai commune related to lagoon's resources such as agriculture, aquaculture and capture fishing. Obviously, it is very importance to find the best way to control and conserve the lagoon resources.
- Capture fisheries is one of the main activities of the local community. The fishermen are good at fishing, causing declining yield and overexploitation of the fisheries stocks in the lagoon. That is the reason why the income from lagoon capture fisheries seems impossible to increase further many see in aquaculture an alternative livelihood opportunity
- The aquaculture (both fish culture and shrimp culture) is the other main activities of the commune, but there is many problems in their aquaculture practices like uncontrolled shrimp pond development, diseases, water supply quality, and related to these problems, clearly identified the needs for capacity building by training courses to expand people knowledge.

RECOMMENDATIONS

- Improved the self management group (SMG) in both fishing and aquaculture as a model of community based the lagoon resources management.
- Promote the model fishing or aquaculture combine with the lagoon resources management
- Fish corral have to rearrange and this activity should be banned soon.
- The commune need to have regulation for shrimp farming culture and disseminate it to shrimp farmer
- Diversify species in aquaculture to prevent disease and losing from shrimp farming.

REFERENCE

1. Dien Hai commune people's committee, 2005a. Report on land using practice in 2005 and land using program in 2006. No 18/BC-UBND.
2. Dien Hai commune people's committee, 2005b. Report on socio-economic implementation in 2005, socio-economic development orientation in 2006.
2. Dien Hai commune people's council, 2005. Decision on land using program. No 5c/2005/NQ-HDND.

ANNEXES

Annex 1

Historical development at hamlet 3 in Dien Hai commune

Time	Event	Effect	Response
1985	Thunderstorm	aquaculture	
1997	UNICEP supported manual pumping wells	Supplied running water	Accepted
2000	Aquaculture (mainly fish farming)	High income from fish farming Loss because of shrimp feeding (low qualified water and techniques)	
2001	Named hamlet 3	Manage area of inhabitants easily	
2003	Rural traffic concretization	Not much	
	Irrigation canal stablization		Based on natural water source
	Cultural village formation	Good	
2004	land using changes	Good	

Responsibilities of each working team at the field on 20/02/2006

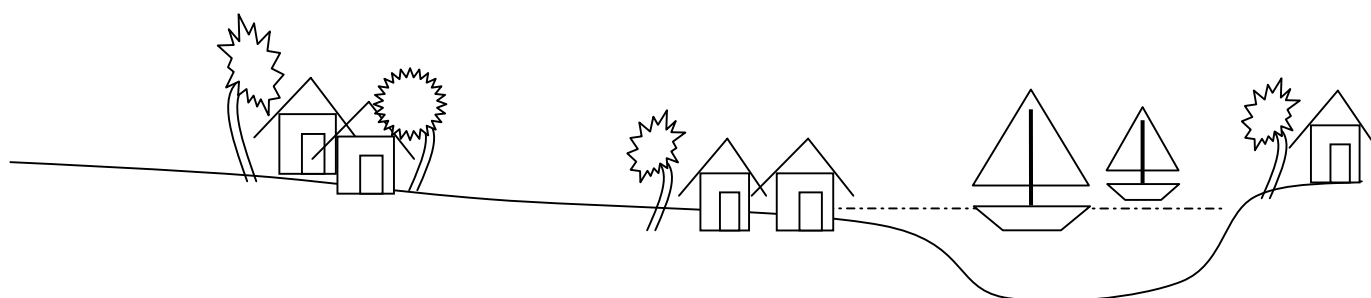
Team	Place	Objectives	Focus	Methodology	Note
Team 1	Hamlet 1	Agriculture (1), aquaculture (2), hydroelectricity (3) Morning: 10 people Afternoon: 10 people	Focus on agriculture, markets, sources and environment	Rank problems, case tree, map of sources	
Team 2	People's committee	Hamlet 2+3: agriculture, trade, aquaculture Morning: 8 people Afternoon: 8 people	Focus on economic sectors and markets	Rank order of professionals, traveling maps, case trees.	
Team 3	People's committee	Hamlet 8: aquaculture, hydroelectricity Morning: 8 people	Focus on aquaculture, aquatic product markets	Analyze gender, working-day; rank problems and case trees; interview exploiters; maps of aquatic sources	
	People's committee	Afternoon: 2+3			

Annex 2

Team	Place	Objectives	Focus	Methodology	Note
Team 4	Hamlet 4+5+6	Agriculture, aquaculture Morning: 15 people Afternoon 15 people	Focus on agriculture	Interview farmers; analyze gender and working-day, seasonal schedule, Venn diagram, case tree.	
	Hamlet 8 (afternoon)	Hamlet leaders, social organizations, traders: 10 people (support principal information)	General context on socio-economy, environment	Interview selected people; draw maps of sources, Venn diagram, cross-section; Household classification	
Team 5	Hamlet 7	Aquaculture Morning: 10 people Afternoon: 10 people	Markets, sources, environment	Interview aquaculture workers; rank problems and case trees; Venn diagram, historical diagram, seasonal schedules, traveling map	

Transect view of Dien Hai commune

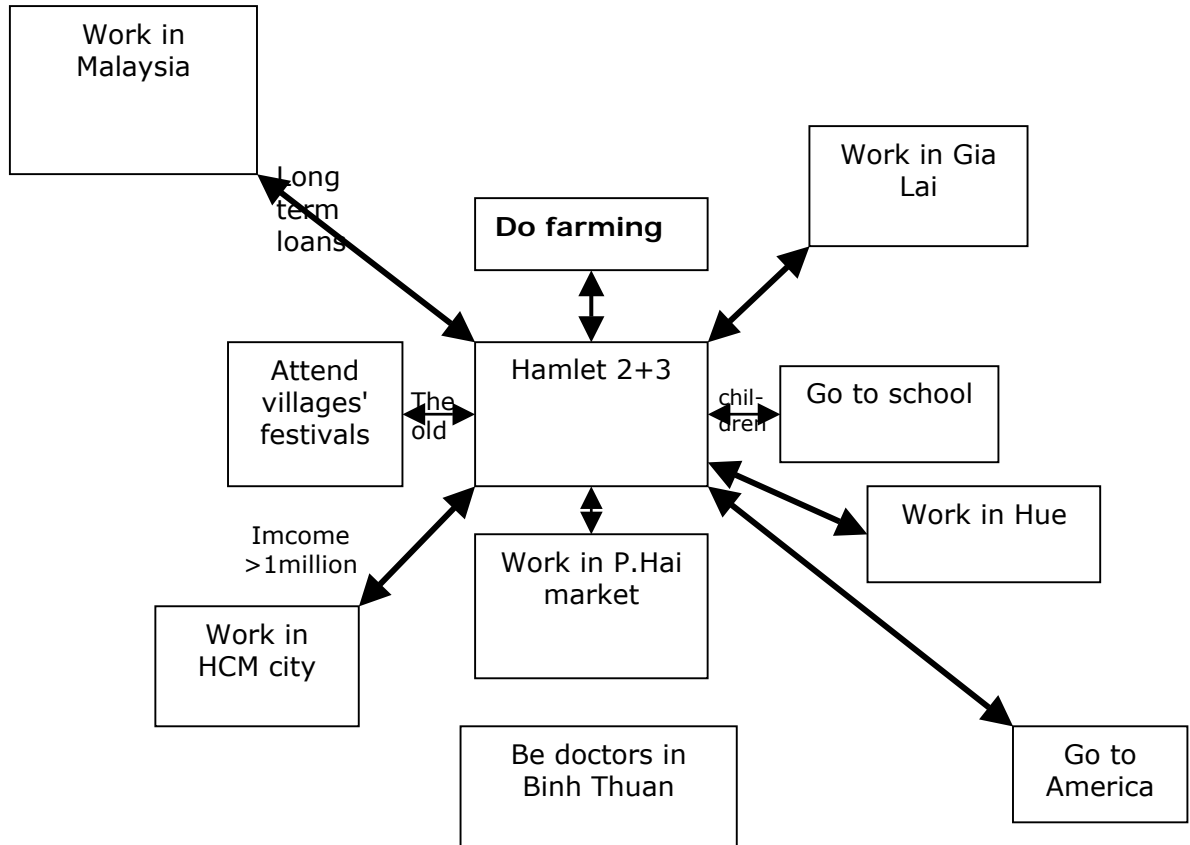
Section-cross diagram



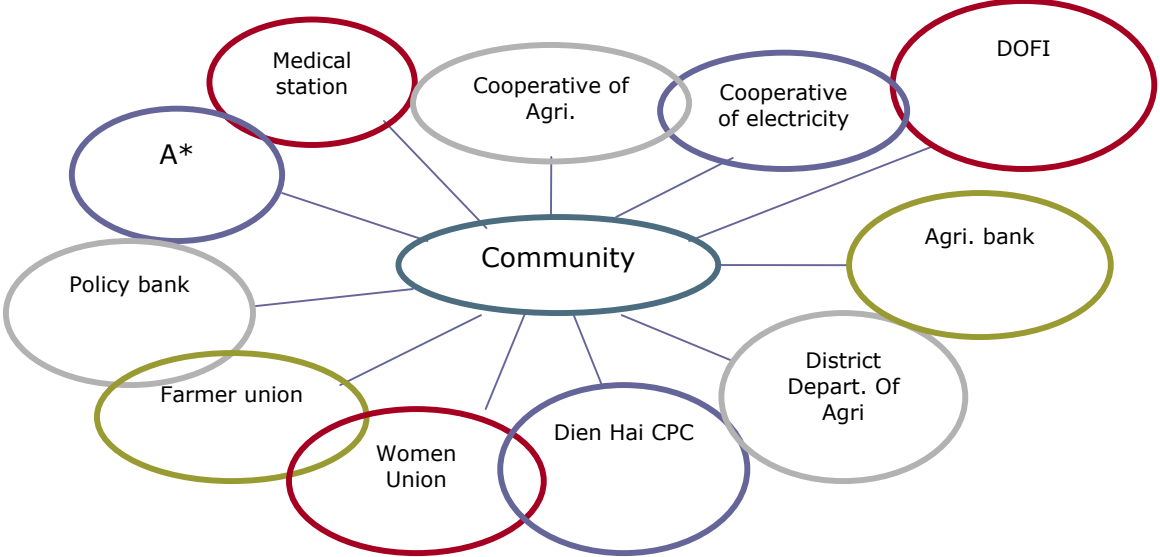
Areas	Area of inhabitants	Land	Settlement	Lagoon
Activities	Agriculture production; breeding; trade; extra work; aquaculture breeding; capturing in the nature	Rice, farm product, fish and rice intermixture	Aquaculture, small business, reservoir and cage feeding	Fish trap, cage feeding, sea weed exploitation, gaper exploitation (manually or by machine)
Participants	Farmers, fishermen, small businessmen, officers, guesses (traders), fisherman self-governing teams, collectives, local authorities	Farmers, collectives, local authorities	Fishermen, small businessmen, self-governing teams, local authorities, extension center, Hoang Long Co.,Ltd	Fishermen, farmers, waterway police, non-residents, project staff, agency of aquatic source preservation
Responsibilities	Take part in public interest work Use land for right aims		Exploit based on state regulation Be able to rent market area	Protect and develop aquatic source Punish offenders
Interests	Approved to use land Get profit		Approved to use water surface (excepting hamlet 1) Get profit	

Difficulties	Traffic Polluted environment Few leisure centers	Low agricultural and aquacultural yield	Lack of land; farming land is alumized	Lessened sources; lagoon management
Solutions		Science and technology transferring; seed; irrigation canal construction		

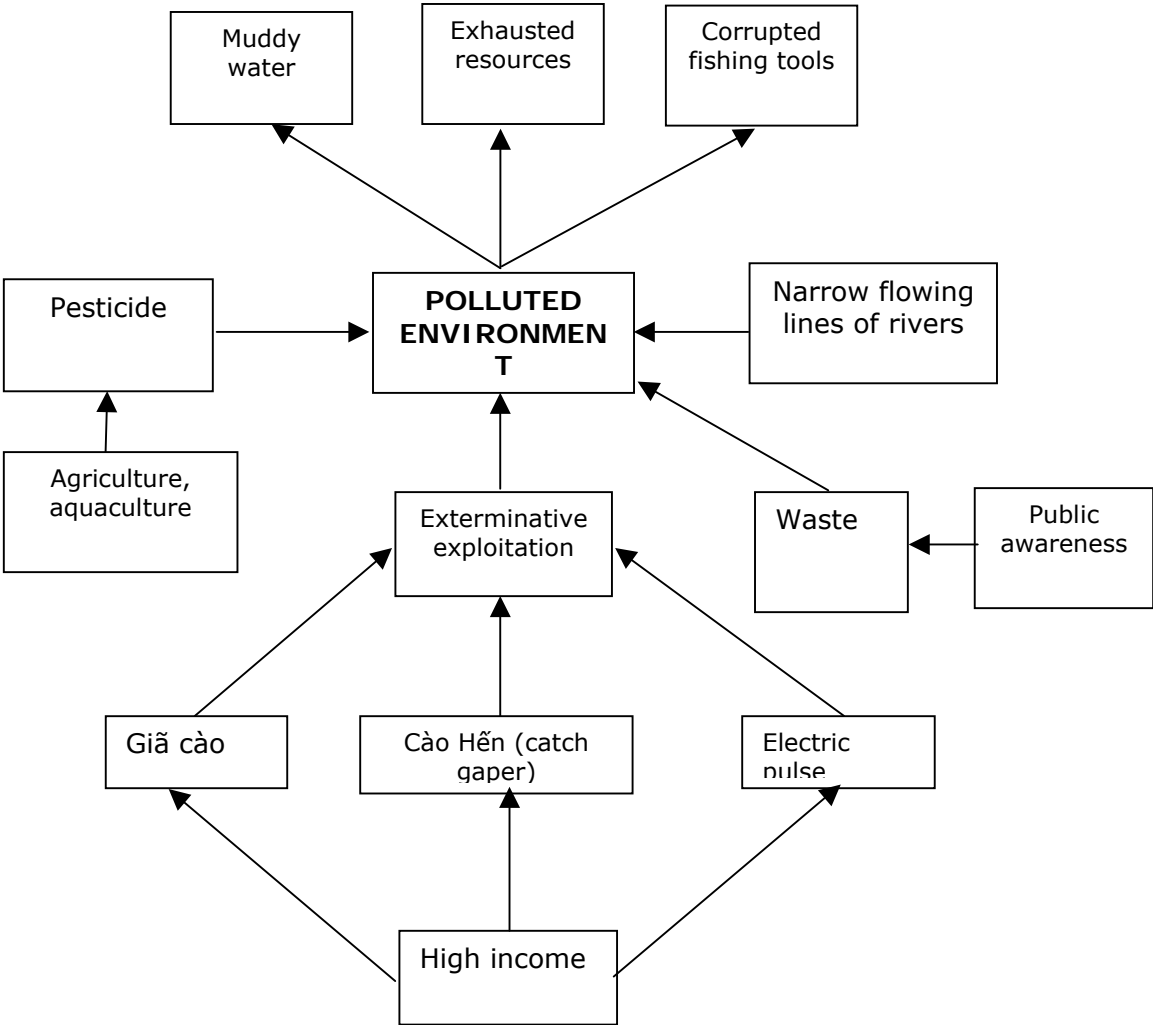
Mobility map of people in village 2 and 3- Dien Hai commune



Organizations in Dien Hai commune related to people in villages 2 and 8



(*) Argriculture input supplies (private)



Household ranking (village 8)

Criteria	Rich group	Fair group	Average group	Poor group
Property	Subsidiary money, permanent houses	Houses, ferry-boats...	4 th level houses	Temporary houses, no land for farming
Income	Approximately VND 40.000 to 60.000/day	Approximately 40.000/day	VND 15.000-40.000/day	Unstable, approximately < VND 15.000/day
Debt	20% production capital	30% production capital	40% production capital	60 - 70% production capital
Job		Textile	Seaside auxiliary job	No job
Working capital	> VND 2 million	VND 2 million	VND 1 million	VND 500.000
No of household	5	6	63	15 people

Family member participate in each activity (%)

Type	Activities	Wife	Husband	Daughter	Son
Production	Hoeing up ground	20	80		
	Seeding, transplanting	70	20	10	
	Harvesting	50	50		
	Breeding	70	20	10	
	Aquaculture	20	80		
	Natural capture	30	70		
	Hat making	70	0	30	
Total		330	320	50	0
Reproduction, traveling, fostering	Selling	90	0	10	0
	Cooking, washing	80	10	10	0
	Take care of children	80	20	0	0
	Looking after the old	50	50	0	0
	Leading children to school	30	70	0	0
		330	150	20	
Public activities	Hamlet meeting	30	70	0	0
	Cleaning hamlets	20	80		
	Constructing roads	10	90		
	Festivals	50	50		
	Weddings and funerals	50	50		
		100	340		

Working day of Agricultural group

Time	Female	Male
4h a.m	Get up	Sleep
4-5h	Cook, feed cattle	Drink tea
5-6 h	Have breakfast	
6-7 h	Go to market	Work in the field
7-11h	Work in the field	
11-12 h	Cook + have lunch	Help wife + have lunch
12-13h	Wash clothes	Take an afternoon nap
13-17h	Work in the field	
17-18h	Cook, feed cattle	Have a bath, watch TV
18-19h	Have dinner	
19-20h	Clean, have a bath, take care of children	Watch TV
20-22h	Watch TV	
After 22h	Go to bed	