



Trade



Sustainable Livelihoods



Aquatic Resources

THE VIETNAMESE SHRIMP TRADE: LIVELIHOODS ANALYSIS OF STAKEHOLDERS AND MARKET CHAIN ANALYSIS



International Seafood Trade: Supporting Sustainable Livelihoods Among Poor Aquatic Resource Users in Asia (EC Prep Project EP/RO3/R14)

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I. Context

Aquaculture and capture fisheries in Vietnam have been increasing fast in the last decade, especially aquaculture growth rate is 12% for the 1999 – 2003 period, contributing a significant part into the hunger eradication and poverty reduction¹. Vietnam is to be ranked into one of the countries potential to produce the aquatic economic in the world, and the fact is that, after 40 years of establishing, the fisheries sector has made remarkable contributions to the country. By the list, at the moment the aquatic products make up about 4 - 5% of GDP and create job opportunities for over 3 three million employees (VASEP, 2004), in which the largest contribution is from shrimp farming.

Vietnam paced into the global shrimp market with a modest position as compared with other Asia countries, but advantageous ecological conditions, at most in the South, the embarkation of reform and open economic policies, and broader global market have brought in great economic potential from the shrimp industry. The industry has observed a rapid growth in Vietnam, from 200 tons in 1976 to over 100,000 tons in 2000, and 158,755 tons in 2001² with 80% produced in the South, and two thirds of the products were exported³. In 2001, shrimp farming area reached over 446,208 ha for the averaged capacity reached 0,36 tons/ha. Up to now, the shrimp industry is one the key livelihoods options in terms of farming area, capacity, job generation as well as the main income source of Vietnamese farmers. The income gained from this career is increasing and the average annual turnover gained from shrimp is around US\$ 500 million⁴. The shrimp is playing an important role in the innovation of hunger eradication and poverty reduction and in improving the life standards for the people. In 2000, Vietnam ranked in fifth position in the biggest exporters of shrimp in the world (EJF, 2002).

As estimated by experts, in the coming years, the demand for the aquaculture in particular and fisheries in general will soar up, and the main reason is the booming of population and rapid urbanization globally. The recent report of FAO "Fisheries in food safety" confirmed that by the year of 2005, the demand of fresh fish in the world will reach approximately 110 - 120 million tons (compared with 75 - 80 million ton in 1995) and demand of common species would be about 140 - 150 million tons.

II. Status of shrimp trade

1. Guidelines and policy for shrimp and aquatic import and export

Implementation of the Decree 13 - CP dated 2 March 1993 of the Government specified the agriculture extension work regulation, and among which is fisheries extension for the farmers and fishermen to improve production, and then fisheries extension system established in the country and expanding the operations in every field of the industry.

The aquaculture to be encouraged in Vietnam as the tool for obtaining development targets and export increase through official support in terms of preferential tax, credit supply and infrastructure investment, policies and programs at national level, provision of land use certificates for the aquaculture households on the forest land, separation of shrimp from forest, improvement of seed quality, increasing the fisheries extension training work. The enterprises trading or exporting fisheries products have also benefited from privilege tax and financial credit, development support fund and export insurance fund⁵.

The Decision No 21 of the Government in 1999 stated "Vietnam must quickly develop the aquaculture sub-sector in the large scale, in order to create more jobs for improvement of people's living standard,

¹ Comment by The World Bank (WB) at the seminar held by Ministry of Fisheries and WB organized in Hanoi on 28th October 2004.

² Environment Justice Foundation (EJF). 2002. Risky Business: Vietnamese Shrimp Aqua culture - Impacts and improvement. London, UK.

³ Tran Truong Luu, Research Institute for Aquaculture No. 2.

⁴ Saigon Times Daily (19/2/2001).

⁵ Vietnam News Agency, 27/8/2001, Shrimp price sink in flooded market.

better support coastal and rural areas, and contribute to solving the problems related to ecological environment... for the betterment of shrimp industry, step by step upgrade the shrimp farming from extensive to advanced extensive and semi - intensive practices meanwhile promoting concentrated intensive farming”⁶.

On one hand, the government has encouraged capacity building and application of intensive practices, and on the another hand, it demands that the aquaculture should be developed on the basis of careful planning and diversification of the products in order to reduce the risks and strengthen the concerted efforts to protect the ecological balance. This is extremely significant because of the exclusive characteristic of the Vietnam shrimp farmings as small industry mostly developed without proper planning and managed by the people lacking of experiences, knowledge and limited sources⁷.

Recognizing the important role of the aquaculture industrialization and modernization in stable generation of socio-economic profits, in the period of 2001 - 2005, the aquaculture sub-sector was further reinforced under the Aquatic Product Export Development Program to the year of 2005. The Program on *Promotion of Culturing Shrimp, Crab and High-value Seafood Products* is one of five major fisheries extension programs under Ministry of Fisheries. Besides, in the national strategy for socio-economic development, the aquaculture is regarded as "a sub-sector generating animal-protein products of high domestic and export demands, and possessing great potential to to become the most advantaged sector in agriculture” (Resolution No. 09/2000/NQ – CP by the Government on 15th June 2000). The Prime Minister has called for the aquaculture quality improvement, policies on extension in order to obtain the target of export turnover of over 3 billion USD in 2005. The Government needs to issue policies encouraging the development of the shrimp industry, so that farming area can reach over 500,000 ha to the year of 2005, contributing to improvement of the living standard of the rural communities in Vietnam" (EJF).⁸

On 8th December 1999, the Prime Minister signed the Decision No 224/1999/QĐ - TTG approving the aquaculture development programme in the period of 1999 – 2010, which targets to develop aquaculture for the sake of ensuring food security and supplying inputs for export processing; total aquaculture production hitting 2 million tons, valuing USD 2,5 billion, generating employment and stable income for approximately two million people by 2010; giving remarkable contributions to national socio-economic development and coastal zone security.

However, in line with the current tendency of cooperation and integration moving towards the removal of trade barriers and protectionism, there are both opportunities and challenges to fisheries in general and shrimp farming in particular. Import tariff imposed on for fishes, crustaceans, mollusc in any form (raw or processed) is 20% (Decree No 82, dated 13th December 1996). Application of zero tariff level according to AFTA agreement would create two-way impact to competitiveness of enterprises. The reduction of output expenses (export) lead to relative increase in production cost, while lower input expenses (import) lead to relative decrease.

As a result, in 2000, the total aquatic production reached almost 2 million tons, among which capture fisheries reached 1.24 million tons, aquaculture 730 thousand tons, and fish export turnover value was 1.3 billion USD. So far, the total area of aquaculture has been expanded to as much as 600 thousand ha, of which marine and brackish area is 330 thousand ha, mostly for shrimp farming purpose. 60,000 ha is utilised for intensive farming with productivity of 2 -3 tons/ha. By the end of year 2000, 22 projects of commercial shrimp farming were launched on the total area of 3,987 ha, from investment capital source of more than VND 886 billion (388 billion extracted from State Budget, and 498 billion is borrowed). Decision No 224/QĐ- TTG also exerted the emphasis for he government to increase investment in aquaculture, particularly seed supply system, scientific research, and construction of irrigation facilities. At present, there are 200 factories of aquatic process with total capacity reaching

⁶ Decision no. 251/1998/QĐ – TTG by the Prime Minister, dated 25/12/1998, approving Aquatic Product Export Development Program until 2005.

⁷ Vietnam News service. 8/1./2002. Fisheries Sector needs to sort our capital worse for making net gains.

⁸ Le Quang Minh, 2001, Mekong regional Environmental Governance: Perspective on chances and Challenges. The researching of the research discussing and environment management of the area Mekong REPSI. Chiang Mai, Thailand.

1,800 tons/day, and 40 enterprises registered for export to EU and 25 enterprises in the process of developing HACCP program as per US standards.

2. Export capacity

Before 1990s, shrimp export turnover makes up over 70% of aquatic shrimp export value in annual. Since 2000, although the shrimp only make up about 50% of fish export turnover of Vietnam, the overall trend of shrimp export is continuity to increase and by 2003, export value hit record level of USD 1 billion for the first time, equivalent to as much as 10% of export value worldwide for both warm and cold water shrimp. This achievement pushed Vietnam to rank within top five countries in shrimp export. Below are a number of milestones:

In 1993: Aquatic production reached 1,2 million ton (among which, aquaculture 400,000 tons; capture fisheries 800,000 tons). Export value reached 450 million ton.

In 2002: Total production reached nearly 2,410,900 tons (among which, aquaculture 976,100 tons, capture fisheries 1,434,800 tons). Export value reached 2.014 billion ton, increased by 45% as compared with the year of 2000.

In 2003, total production reached 2,49 million ton (among which rear capture fisheries reached 1,4 million ton, rear reached 1,09 million ton). Export value reached 2,25 - 2,3 billion USD. Among key export products, frozen Pandan shrimp came first with 375.6 million USD of export value (38% of total fish export turnover). Ranked in the second position is frozen fish with the total value of 217.5 million USD (22%). The high export value was partially caused by greater demand from China market, especially for lobster, in recent months.

In January 2004 only, fish export turnover of the country was 160 million USD, equal to 6.15% of annual plan target, and increased by 7.56% as compared with the same period in 2003. Frozen shrimp still remains as the most important export product, with the export production reached 65,000 tons (3% increase), followed by frozen fish products with 9,500 tons (11% increase), frozen squid and octopus – 4,000 tons (slight decrease from last year). It is assumed that one of the reasons giving impetus to the turnover increase is US importers hurried up to buy shrimp from Vietnam as the anti-dumping case is getting to worse situation.¹⁰

3. Export structure

In Vietnam, among the aquatic products for export so far, shrimp (frozen) have their unbeatable position.¹¹ The four most-valuable shrimp species include *Macrobrachium rosenbergii* (freshwater prawn), *Metapenaeus ensis* (greasy-back shrimp, living in marine water and mostly exploited from nature); *Penaeus merguensis* (Pandan shrimp living in saline conditions, a culture species); *Penaeus monodon* (black tiger shrimp).

Statistical data shows a transition in the list of shrimp in the recent years. Wild shrimp catch only ranges from 60,000 to 90,000 tons each year, that is, the capture has come very close to the marginal level. Meanwhile, culture shrimp production continues to grow quickly at the rate of 20%/year. Tiger shrimp is in the top position (200,000 tons out of total shrimp production of 244,000 tons). However, the growth rate of black tiger shrimp in 2003 compared with 2002 is 11.1 % only, indicating the transition to diversification of species. Culture production of some other shrimp species, especially *rao*, is emerging as a new rival to tiger shrimp thanks to successful application of seed breeding and farming technologies.

Regarding export mechanism, out of 300,000 tons of shrimp produced in 2003, two thirds were frozen

¹⁰ Enterprise Forum

<http://www.angieng.gov.vn/xemtin2.asp?idmuc = 402261220025907072&idtin = 21832320043372097&idtd = KINHTE>.

¹¹ Fisheries Magazine No 2/2004.

for export-driven processing. The remaining one third, which has lower value, were dried, canned, fermented or fresh. Estimated domestic consumption of shrimp is rather low, approximately 30,000 – 40,000 tons/year.

The current apparent export trend and markets of frozen shrimp, squid and fish somehow prove the comparative competitiveness of Vietnam in terms of aquatic product price, especially for shrimp (see [Table 1](#)).

Table 1: Average shrimp export price of some ASEAN countries in 1990 – 1996 period

Country	1990	1991	1992	1993	1994	1995	1996
Indonesian	7,3	8,4	7,6	8,9	10,1	11	11,1
Thailand	6,7	6,2	6,8	7,1	7,4	7	7,6
Philippines	7,1	7,1	6,6	7,8	8,3	9	8,6
Vietnam	n.a	4,2	n.a	4,8	n.a	5,2	n.a

Source: Ministry of Fisheries, Vietnam

When ASEAN countries remove trade barriers, demand of aquatic products from Vietnam will not sharply increase, because many ASEAN members, such as Thailand and Indonesia, are experienced in high productivity shrimp industry (see the comparative capacity of shrimp farming in Thailand and Vietnam, [Table 2](#)) and leading shrimp exporters. Moreover, Vietnam has less advantages in the competition of products with hi-tech blends with those countries. It is becoming a real concern to the loss of traditional export/consumption markets in severe global competition context, when the influx of massive quantity of aquatic products into the domestic market is fostered by lower import tariff.

Table 2: Shrimp production of Vietnam and Thailand

Target	Vietnam	Thailand
Average shrimp farming production (ton/ha).	0.282	2.444
Shrimp farming production (ton)	63.000	220.000

Source: Ministry of Fisheries, 2002

To sum up, shrimp export of Vietnam are characterized by:

- Existence of many barriers of export markets. Diversification of culture species, final products and consumption markets is, therefore, a pressing need.
- Market share of shrimp is coming down, although large proportion is still dominating in the export structure.
- Production of black tiger shrimp - key export product of Vietnam – is decreasing. Thailand and China, the two largest shrimp producers, are concentrating on white-leg shrimp although market demand for this species is much lower than the black tiger shrimp.
- The anti-dumping case filed by the US would be a limit to the shrimp demand of the US market for Vietnam's shrimp, even though the import is inevitable for the US to meet the growing demand while other shrimp producing countries cannot generate enough quantity to fill in the shortage caused by the high tax policies imposed on allegedly dumping companies.
- Domestic consumption, inclusive of that for high quality shrimp products, tends to increase.
- A major shortcoming of the Vietnam shrimp industry is that brood shrimp source for seed breeding is nature-dependent. The industry is far from bringing under control the availability of required feed and chemicals. Culture techniques are simple and cost-ineffective.

4. Production chain and distribution channels

The shrimp farming of Vietnam is practiced mostly in small scale without proper planning and regulations. Shrimp farmers usually buy seeds and feed from separated companies, and other extension services are provided by government. Many businesses seek to maximize their profits other than linking different chains of production. Seed hatcheries use antibiotics to keep shrimp healthy and leave farmers alone when the seeds die few days after delivery, and feed producers resort to importer-banned chemicals, that would cause serious economic damages when the export commodities are returned. Recently, Canada refused a delivery from Vietnam, which was detected to have *Chloramphenicol*-containing products. Tiger shrimp order was once dismissed by the UK due to the application of high quality shrimp products *Carcinogenic antibiotic nitrofurans*, a forbidden chemical according to EU standards. Poor farmers usually find it very difficult to decide when they would buy seeds, and at the end have to depend on middlemen. The common result for this system of maximizing profits in separated stages is that farmers suffer most¹².

Products are then distributed through market channels. One of the characteristics of these channels is, there are three groups of buyers: Middlemen who will sell the products in domestic or urban markets, retailers who sell the products to local consumers, and purchasers of high quality products for next delivery to frozen-product processing companies. Monopoly is often seen with these companies, so they are in the position to fix the prices (EJF, 2002). Similarly to production chains, market channels are ineffective.

5. Export markets

In the past years, the world fisheries trade keeps expanding. The major consuming countries that are determinant to market are US, Japan, and EU. Other markets of significant consumption include China, Hong Kong, Korea, Singapore, Taiwan, Malaysia, etc. (China exports more than one billion USD annually). The biggest catch and culture production is observed in Asia, mainly Thailand, India, Vietnam, China, Indonesia, etc. With a soar in export turnover, Vietnam has improved its position in the world production and export map, from 25th rank in early 1990s to 5th by 2000 (EJF, 2002).

In the current domestic market, fisheries products makes up some 50% of protein food source. Eating fish is becoming more popular, as the consumers tend to take less fatty food.

Fish are also becoming favourite in many countries and regions, promising a good perspective for the export of Vietnam's fisheries products. According to the report of Vietnam Ministry of Fisheries (2003), in 1998, number of countries and regions which have commercial tie with Vietnam for fisheries products was 50. The fish export turnover from big markets is evenly growing year by year. In Japan, aquatic products have become prevalent against meat, and average fish consumption of 71,5 kg/person is still on the rise. US and EU markets are also not less promising. It is expected that by 2005, aquatic products exported to Japan will account for 32 - 34%, other Asian countries (including China) 20 - 22%, North America 20 - 22%, EU 16 - 18%. The price fluctuation of fisheries products in the global market will not affect much the tendency of increasing prices for shrimp and benthos fish throughout the period 2000 - 2010.

In general the shrimp products in Vietnam exported to the above markets all of them ensured the demands of hygiene. The aquatic products of Vietnam exported to many different area markets, but most concentrated into US, EU, Japan and China. Mostly Vietnam concentrated to export into US market, makes up nearly 1/2 total value of export value of this good, or approximately by 1,4 total value of fish export gained from this market, because of this market at the moment is fast increase, over the market ever led in many last years is Japan market¹³. In the other hand, Vietnam enterprises still not yet understood the fond of, not yet having the competition price and well business strategy. These are the main limited made Vietnam shrimp not yet occupy and gained the large trade partial,

¹² Breski, V & Newkirkl, G.2000. *Lessons from the Lagoon, Research towards Community Based Coastal resources Management in Tam Giang lagoon, Vietnam.*

¹³ Aqua Culture magazine (2/2004).

stable in the Asia - Pacific market¹⁴.

In the first two months of the year 2004, Vietnam was reported to export to China 2260 tons of fish and earn 5.15 million USD, however, the frozen shrimp proportion was only 2.34 %. Vietnam enterprises do not seem to be able to meet the continuously rising demand for fresh and frozen shrimp in China. Frozen shrimp gets high price in China, but in fact, the export is limited and even dropped by 56.23 tons in the first two months of 2004. Similarly, of 1977 tons of fish exported to Taiwan in January and February 2004, frozen shrimp made up 20.29% only. In comparison with the same period in 2003, the frozen shrimp export value is reduced by 4,5%. In the past few years, frozen shrimp always be the key products and usually leader in all of the quality and the export turnover of Vietnam to this market but now they must shared the market with the fish products. Compared with China and Taiwan, it is more advantageous for the shrimp export to Korea market, however the market share is small at present. Of the 7537 tons of fish volume exported to Korea in the first two months of 2004, the frozen shrimp amount made up only 3.9%. There are more bright signs in Australia and Japan, where in the first three months of 2004, shrimp made up over 60% of aquatic products exported. For Japan, Vietnam has replaced Indonesia as a biggest shrimp exporter. The impetus for Vietnam's success in these two markets is attributed to the refreshment of fish demand: Shrimp import of Japan from other countries such as Indonesia, India and Canada also increased by 2610 tons in January 2004.

For exporting enterprises, Korea is tending the consume different shrimp species of smaller or average size other than large size. China has reduced tariffs on 536 agriculture and fisheries products from Vietnam, with percentage is lower by 5% on average, thus would make Vietnamese enterprises more competitive. However, in the Asia - Pacific market, there is emerging need for high quality products, which in turn makes export price higher. In addition to frozen shrimp, export of small shrimp, boiled or steamed shrimp products could be good options. Other processed products, such as shrimp rolls, shrimp paste, etc, could potentially draw to more earnings from the existing markets. In Australia, out of 10,000 tons of shrimp imported to this country in February 2004, only 1050 tons are in the form of raw or simply handled materials. Therefore, unless quality improvement and generation of new customer-oriented products are carried out, Vietnam cannot get higher export turnover¹⁵.

According to Ministry of Planning and Investment, US market is the largest importer and consumer not only for Vietnam but also for other countries. In 2003, Vietnam shrimp exported to the US brought back 513 million USD, equivalent to 48% of shrimp export value and 23% of aquatic products all together, increased by 17,5% compared with the year 2002. Some economists believe the reason for this is, shrimp prices in the US are more profitable for exporters and this market is more dynamic and easy-to-accept than other markets. However, it is risky when the final verdict of shrimp anti-dumping case was coming near, and shrimp export companies are giving more attention to Japan and some other markets. In the first quarter of 2004 export turnover reached 45% compared with the same Term. At the moment, Vietnam large enterprises all is special noticed into improving the export trade partiall to Japan (makes up to 60% total shrimp export amount). Only export side to EU market still not changing strongly.

Generally speaking, for the aquatic products, in case of losing the litigation case, shrimp export would decrease, and the extent of it depends upon the anti-dumping tax levels. Therefore, it is necessary to increase inspection on food quality in the production chain, improve environmental management and food safety and hygiene control. Financial penalties could be applied to prevent the using of additives or chemicals in culture or processing stages. Besides, the fish export enterprises need to obtain necessary certificates such as ISO 14000 (on environmental protection) and SA 8000 (social responsibility). Simultaneously, it is required to effectively utilise the existing retailer network of overseas companies as distribution channels in order to get fisheries products to into foreign markets¹⁶.

¹⁴ <http://www.angiang.gov.vn/xemtin2.asp?idmuc = 402261220025907072&idtin = 21832320043372097&idtd = KINHTE>.

¹⁵ <http://www.angiang.gov.vn/xiemtin2.asp?idmuc = 042261220025907072&idtin = 49542220045952005&idtd = ECONOMIC>.

¹⁶ http://www.tcvn.gov.vn/newdn_so8.html

6. Constraints and problems in the shrimp export

Fish export has highly potential to bring huge profits to Vietnam, a country endowed with many advantages in the fisheries exploitation and development. However, without new directions and solutions for export enterprises, Vietnam is not only unable to take these advantage, but it could also head to a deadlock. For successful and sustainable development, fish export enterprises should be well aware of the markets into which they intend to export.

Capture fisheries and aquaculture in Vietnam have undergone steady and quick development in the last decade, especially, the aquaculture increased 12% per year in the term of 1999 – 2003, contributed very large part to the hunger eradication and poverty reduction.¹⁷ However, the World Bank pointed out the limits in the aquatic exploitation and aquaculture management of Vietnam, such as overfishing of aquatic resources, inshore overfishing by a rising number of low capacity fishing vessels, environment problems, etc., have not been fully tackled. In order to sustainably develop the fisheries sector generally and shrimp farming in particular, it is requested to solve the problems related to environment management awareness, disease control, management of coastal areas, capture fisheries, aquaculture and market, and then identify priority areas for investment and support policies¹.

It is necessary to encourage the development the commercial, building of export capacity for participation in domestic and international trade. Simultaneously, suitable solutions need to be sought out to prevent the toxical contamination of aquatic products, as noticed in the Cuu Long river delta (such as Ca Mau, Bac Lieu, Soc Trang). Enterprises should also pay attention to trade-mark protection, responsible products exported into the markets which have not signed bilateral commercial agreements with Vietnam on inspection and certification of Food Hygiene and Safety (such as the one already signed with Japan).

The year 2003 recognized the role of US market for the export of Vietnam's shrimp, however, it is predicted that there are huge risks at the same time. And this threat is becoming clearer when the SSA filed against six countries in Asia and South America, alleging that some of frozen and canned shrimp products were dumped into US market, on 31st December 2003.

According the Vietnam Fisheries Society, Vietnam fish export perspectives are very promising for China market. In order to maintain the export turnover and reduce risks, it is important for enterprises to select suitable partners such as China's prestigious agents, entrepreneurs or local companies. However, there are obstacles in fish export from Vietnam into China, and the biggest issue lies with payment method. The fact that Chinese Government tightly controls the foreign currency flow poses another difficulty for Vietnamese exporters, as cash payment might not be allowed in some cases. The tax on aquatic products exported to China is relatively high, for example, 50% on shrimp, 20% on freshwater fish, etc.

III. Livelihoods of poor stakeholders in shrimp market chains

B. Market chains of shrimp production and consumption

The market chain of production and export of shrimp products is rather complicated and at the same time, attractive to numerous groups of stakeholders. In general, Vietnam shrimp production and export process could be divide into three phases: (i) input service supply, (ii) primary production, and (iii) product marketing and consumption (the diagram of this process is shown in Figure 1).

¹⁷ Comment by World Bank (WB) at Minsitry of Fisheries-WB seminar, Hanoi, 28th October.

¹⁸

1. Input service supply

1.1. Seed supply

a. Brood shrimp capture

The mature brood shrimp are caught and sold by fishing vessels for middlemen who will afterwards sell to seed hatcheries. Professional fishing vessels are available in some localities and at times brood shrimp are caught by these vessels. In some cases, brood shrimp are purchased directly on board by seed producers, but normally they are transferred through collection service before their arrival at hatcheries. Brood shrimp capture is professionally practised only from Central Coast to Cuu Long (Mekong) River delta, where brood shrimp source is abundant. In recent years, the brood shrimp have also been imported from neighbouring countries, such as Malaysia and Singapore (Ministry of Fisheries, 2003).

The brood shrimp capture at Tan An commune (Ngoc Hien, Ca Mau) has some advantages, as at the estuary of the Rach Goc River, there exists a large breeding ground of black tiger shrimp, which helps 47 fishing vessels to provide some 150,000 brood shrimp annually to local shrimp farmers.

Quang Tri and Thua Thien Hue provinces share a common fishing ground for brood shrimp at Cua Tung estuary. Local people said brood shrimp source has had no sign of decline as other capture fish species, and thought this might have been connected with the Government's project for renewal of shrimp resource.

The stakeholders in this stage include vessel owner (the investor who buy vessel, which is of about 300 – 1200 million capacity and equipped with a fishing net costing VND 150 – 300 million each) and sailors (comprising of the vessel shareholder and contractual labours). Fishing vessel owners are usually at labour age, and they acquired 20 years experience on average, but majority of them are already too old and will soon have to hand over the ownership to the next generation. Fishing technologies are out-of-date, as compared with the world and the region. The experiences of the vessel owner is only valuable in terms of traditional skills, fishing ground awareness, and some biological features of the aquatic animals living near the coast. The generally low education has caused disadvantages for production management, getting updated with advanced scientific and technical know-how, policies, laws and regulations on aquatic resources protection, environment protection, hygiene and food safety, etc.

The average income of a fishing vessel owner is slightly over VND one million /month, which does not balance with all the hardships in the trips and heavy work on the sea as well as the expenses for each trip. The income usually always rises and falls, depending on the catch per trip. Fishermen also face with the problems of nature resources depletion and insecurity on the sea. The fishing vessels usually hire employees whose earnings depend on the catch after each trip according to the ratio agreed by both sides. Normally, 50 – 70% of total catch is divided among all crew members, and the rest is to cover expendable costs of the vessel. These employees could be classified as poor households, because of their income instability.

In Thua Thien - Hue, during shrimp breeding season, lagoon fisherfolk at times catch brood shrimp accidentally. These are often itinerant boat people, living on the water and falling into the class of poor families. Their income is also unsteady, as the existing natural resources are being depleted, fishing grounds get smaller because of shrimp farming boom, and hence, their lives are confronting many difficulties.

b. Brood shrimp supply service

When the fishing vessels capture the brood shrimp, radio transmitters are used to inform middlemen or hatchery owners. Usually there is already close relationship among them, and a verbal selling-buying agreement is fixed before fishing trip. It is highly possible that many people get called at the same time, and if a middleman or hatchery owner breaks that verbal agreement, others may take the chance.

In this competition, who offers higher buying price would usually be selected to sell the products, and the person with him/her the previous agreement was fixed has to offer the price almost equal to others' if s/he does not want to lose the purchase right. However, the relationship between the buyer and the seller is relatively cohesive. In the main breeding season, the fishing vessels may sell the shrimp for the middleman at a price not too higher than the market price; and in non-breeding season, although demand for the brood shrimp is low, the middleman would continue to buy from him/her when brood shrimp are caught. A middleman always has many more partners for product distribution than a fisherman. The number of people involved in catching brood shrimp is unpredictable, and the line officers are also not aware of correct figures, as so far, no statistical survey has been conducted on the households and workers directly taking part in the brood shrimp capture. In Hue city, there used to be 6 middlemen (meanwhile it is impossible to estimate the number of workers and small-scale traders), but the competition between them has finally came up with the sole position of Mrs Tran Thi Bup, who directly takes in 40 -50% of brood shrimp catch from fishing vessels at Thuan An fishing centre.

Brood shrimp collection does not require labour, but the collector usually works directly (or sometimes supported by another family member). When informed of brood shrimp availability while the vessel have not landed, the collector drives high speed boat to the place to buy the shrimp. Normally the price is higher after the landing of fishing vessel than onboard purchase. At the stage of brood shrimp collection, assisting the collector is another person whose job is connected with water exchange, shrimp feeding and boat clean-up. In developed fisheries areas like Ca Mau, a technician is recruited to be responsible for assessment and classification of the shrimp caught, while in Thua Thien Hue and Quang Tri, only one or two persons inclusive of the collector are on the boat. After the collection, shrimp are transported to seed hatcheries without freight charge. The price is often fixed before transportation, and ranges from several thousand to ten millions of VND per one shrimp, depending on the farming season and shrimp quality.

The brood shrimp collection is carried out by well-off and experienced people, and only few cases of shrimp death during transportation are reported. This career is considered as less risky than other stages.

The shrimp collection activities in Ca Mau are more active than Hue and Quang Tri. The collectors sell brood shrimp for not only seed hatcheries in the province (60%) but also to other provinces (40%) such as Ninh Thuan, Binh Thuan, Khanh Hoa in Central Vietnam, etc., as the volume of captured shrimp is larger than the local demand. At Tan An commune only, there are 47 brood shrimp service providers in addition to their hired technicians (for shrimp classification) and a contractual worker (one person/hatchery).

Income of workers on the brood collecting vessel is trip-dependent, and the regular amount is VND 100,000 plus meals per trip and monthly income varies between VND 500,000 – 600,000 (for six trips/month). This career is characterized by seasonality, leading to the income instability too. In each season, therefore, they are engaged in different jobs (seine-net fishing sailor, bottom-net fishing sailor, etc.)

Shrimp seed production

Brood shrimp source is supplied for hatcheries in two ways: i) directly from the fishing vessels, i.e. fishing vessels bring the shrimp straight to the hatcheries, and ii) through brood shrimp collectors, who transport the brood shrimp to fishing centre and afterwards the shrimp are purchased by hatchery envoys based on earlier verbal agreement.

In the hatcheries, brood shrimp are domesticated and nursed for breeding. In the overall context, the country has more than 5000 seed hatcheries, most of them are medium-sized and concentrated in South Central Coast and Mekong River Delta, meanwhile in the North Central Coast and North Vietnam, the number of hatcheries is rather small due to less advantageous natural conditions such as low temperature in winter or unavailability of wild brood shrimp. However, in recent years, these two areas have gradually overcome the difficulties to be self-reliant in shrimp seeds (so far 30% of the demand is locally satisfied). Most of the shrimp seeds produced are distributed to commercial farms in

the form of post-larvae, but in many places, the shrimp larvae are purchased by seed nurseries and growing to bigger size before transportation to commercial farms. In the circumstance of extensive farming and limited farming-technology knowledge, the latter channel is the main option for shrimp farmers.

Private shrimp hatcheries are often small scale under the ownership of one person, and assisted by one technician together with from 5 to 7 contractual workers up to the hatchery capacity. A worker's monthly-paid salary varies from VND 800,000 to 1,000,000/month, while the technician's salary is *in ratio* with seasonal revenue (commonly 20%). Shrimp seed hatcheries do not usually employ female labour, and this has become a customary attitude of shrimp seed producers. The hired employees working for shrimp seed hatcheries are not poor, and most of them are comparatively well educated (at least they have finished lower-secondary education).

At the study sites, private hatcheries (28 in total) exist only at Tan An commune of Ca Mau province. These hatcheries produce about 200 million seeds annually but still do not meet the local seed demand. Since the research communes in Hue and Quang Tri do not have any hatcheries, farmers and seed nurseries take shrimp seeds from the hatcheries at Thuan An town or in Southern provinces, especially Da Nang.

In 2004, shrimp seed price at Tan An is 20 – 30 dong/ post-larva, which is 50% lower than the period of 1997 – 1998, thanks to the enlarging number of hatcheries and better breeding technologies while local demand remains unchanged. Shrimp seed price in Hue and Quang Tri, however, is always higher than in the Hue-neighbouring southern province of Da Nang, even if the shrimp seed are produced *in situ* or bought from other provinces.

Feed foraging for brood shrimp

Catching snails as feed for brood shrimp is a typical activity in some areas, such as in Ca Mau and Thua Thien Hue. The foraging time is from August to Tet (Lunar New Year). However, very few households (usually the children at the age of fourteen to fifteen years-old), are involved in the activity. Each family with 2-3 persons may get 3-4 kg of snails per night. The second group of foragers are itinerant boat people fishing with seine net, who sometimes get the snails as by-products and then sell them to hatcheries. Snails are often sold at the price of around VND 30,000/kg, through verbal contract. Snails catchers are often under-employed migrants, whose income is only enough for daily meals. They live either on boat or temporary houses without landholding.

Shrimp seed supply and nursery

Shrimp seed nurseries usually go to hatcheries to buy larvae. Transport expenses are sanctioned by themselves. For that reason, the shrimp seeds in Ca Mau are cheaper than in other provinces, as this place is home to many hatcheries. Similarly, seed price is lower in Da Nang in comparison to Hue and Quang Tri, because the shrimp hatcheries in Hue and Quang Tri are not self-sufficient and they have to buy extra seeds from southern provinces.

There are two types of shrimp seed nurseries: (i) The larvae are nursed and then sold out at a larger-size for grow-out (seed nurseries are not poor but only medium families, and only a small number of them get into poverty when they suffer from huge losses); and, (ii) The larvae are grown up directly to marketable size. Professional seed nurseries have less risks than grow-out farmers, as the mortality rate is rather low (50%) and thus it is more profitable. In most cases, seed nurseries hire seasonal labour for pond preparation, management and protection. On average, per one hectare, it is required to employ 80 working person days. The hired workers are all from poor families.

1.2 Other input supply.

Food

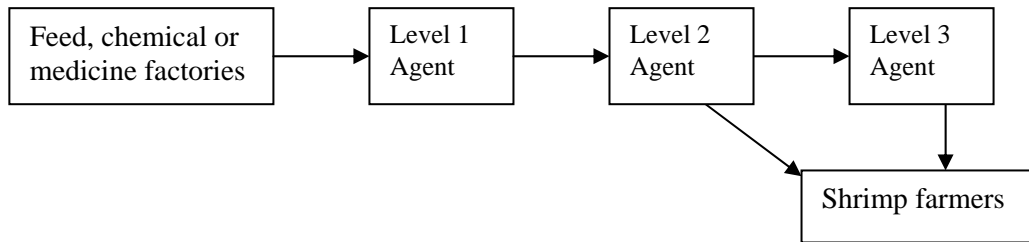


Figure 1. Diagram of input service stage for shrimp farming

Since the boom of shrimp farming, the network of input supply agents has kept expanding. In Thua Thien Hue and Quang Tri, the input services first appeared in the year 2000, when the semi extensive farming model became popular. Nearly all agent households are pond-owners, and the input service would be more money-making if they succeed in shrimp farming. Therefore, no poor stakeholder is involved in this stage.

In marketable shrimp farming areas, the agents mainly belong to levels 2 and 3. Presence of level 1 agents is observed in some localities of developed, but not much. Level 1 agent takes inputs straight from factory and puts them up for sale to shrimp farming households in neighbouring regions but the main supply will go to level 2 agents. At the communes of case study, their two major groups of agents are the ones of levels 2 and 3, who retail products to farmers.

- *Input product:* Level 2 agents receive products from level 1, who are usually based in the provincial capital cities. The inputs are of almost all necessities for shrimp farming (except for shrimp seed production) such as canvas, feed, medicines, chemicals, etc. Farmers' favourite feed brands include Tomboy, Long Sinh, UP, CP, Grobest, Unilong, Three gold coins, Profeed, etc. In general, each agent specialises in one feed product, but in some cases an agent can supply several feed products. All feed companies send technical staff to advertise and provide basic advice for agents and shrimp farmers.
- *Price and profits:* Pertaining to the agents of one product, it is on the whole settled between the company and agent that only company product is distributed, and the agent is not allowed to raise the price but follow the price fixed by the company. Level 1 agents get a 10% commission of product sale, and an extra bonus equivalent to 0.5% of annual profits. For each delivery, level 1 agents can be exempted from immediate payment for 20 – 50% of total product value within 20 days. Commission rates for level 2 and level 3 are 5% and 2.5%, respectively. The commission, therefore, keeps agents from breaking contract provisions. In case of contract violation by agent's unilateral action of rising the product price, the bonus will be cut off.
- *Labour:* Agents of levels 2 and 3 retail the product directly to farmers and at all business stages from purchasing product at level 1 agent, selling and transporting shrimp ponds, they carry out by themselves without employing any labour. Family labour is utilised in the way that the husband goes to buy and transport the goods to shrimp farmers, and the wife is responsible for managing goods, keeping delivery log and calculating expenses and returns.
- *Assets and investment:* Input service suppliers use their own savings and sometimes borrow bank loans to invest in the business. Agents of levels 1 and 2 often delay the payment to sellers at 50% of contract value until the end of shrimp season. When shrimp farmers start harvesting, the payment will go from shrimp ponds to level 3 and then upstream to levels 2 and 1.
- *Business form:* Level 1 agents are officially registered and pay business tax to the Government. Agents of levels 2 and 3, however, do not normally register. They provide shrimp farmers with inputs in the form of pre-loans that shall be refunded in cash by end of the culture cycle.

Generally, if shrimp in ponds are still too young, shrimp farmers have to make payment immediately for all the inputs purchased. If the shrimp are big enough, farmers who buy feed of grade 3 or higher could delay the payment with written promisory note. Many households prefer this option throughout the culture cycle, however, as investment capital is huge, some agents of level 2 have to borrow bank loans to reimburse level 1 agents. If level 2 agents have gained prestige, level 1 agents could lend them up to 70% of contract value on delivery. Each level 2 agent are usually able to cover 15 – 30 shrimp ponds depending on product brand (it is noted that sometimes there are several shrimp farming households sharing a pond). When level 2 agents are unable to sell out the delivered shrimp feed, they can bring back to level 1 agents and from that level the products can be returned to production company. In that way, feed agents suffer less risks. Nevertheless, it is impossible to return medicines and chemicals due to little quantity of transacted goods. The input service suppliers are also willing to support local shrimp farmers when they have other requests such as seed supply, and liason with level 1 agents and parent company for technician's advice when diseases happen.

- *Risks:* The most dangerous risk for an agent is capital loss when shrimp farmers fail to reimburse. Shrimp farmers usually keep their promise when the culture cycle completes successfully. However, the current widespread of shrimp diseases is the main obstacle to the process, which ends up with the stagnation of agent's investment capital in the form of borrowed inputs, and at the same time, extra amount of fund is needed for provision of inputs to the households in dept, because if they stop cultivating, they would not be able to pay off either. In case of continuous failures for a long period, the agents have to accept the permanent loss. Natural disasters could also lead to the bankruptcy of the agents. As a result, some feed agents have redirected to invest in medicines to reduce the financial risks. In the overview, being an agent is profitable. A popular aspiration of the agents is to cooperate local government in the way that a competent authority would approve the contract of purchasing the product.

Medicines and chemicals

It is usual that the medicines and chemicals are sold at the feed agents. As described earlier, some agents are afraid of risks in refunding dept, so they turn to invest in medicines and chemicals only. However, medicines and chemicals are not allowed to return like shrimp feed when the products face underconsumption. At present, the best-sellers of medicinal and chemical products, are the ones sold at cheap price. The capital amount required for investment in medicines and chemicals is not much, so the professional agents selling medicines and chemicals hardly accept late payment.

The family economy of the agents belonging to levels 1 and 2 is well-off at large, and they could afford to construct concrete houses, buy motorcycles and procure more land for expansion of shrimp farming ponds. Children of these households have much better conditions to finish school education. Agents of level 3 agent are less wealthy than the first two groups, and they do not have enough financial resource to accept late payment by shrimp households, however if the business is successful, after several years of saving they could become level 2 agent, who purchase products directly from level 1 to get higher income.

2. Marketable shrimp grow-out

For grow-out, shrimp seeds are bought from either hatcheries or seed nurseries. The most popular model in Thua Thien Hue and Quang Tri is the semi-intensive and low-stocking-rate ractice, in which both industrial and natural feed can be applied, because the farming area is close to coast where plenty of natural feed is easily found and traded at cheap price. In Thua Thien Hue and Quang Tri, the shrimp farmers have to pay immediately in cash for the shrimp seeds. After the shrimp get 1.5 – 2 months old, they are allowed by agents to delay payment for feed (up to 100% value) and farming-related facilities.

In Ca Mau, the most popular practice is the combination of shrimp farming and forestry (shrimp/forest ratio = 30:70), where black tiger shrimp is the main species. Shrimp seeds are stocked twice a year, at the rate of 3 – 4.5 shrimp/sq.m., with little amount of or no industrial feed. Farming productivity in Ca Mau usually ranges between 250 – 300 kg/ha.

In semi-intensive shrimp farming, most farmers have to hire labour for pond preparation, management and harvesting. A worker hired for pond management is given a monthly salary of VND 600,000 plus free meals (that cost some extra VND 200,000 per month) on average, and employed for 6 – 8 months a year. Other employees are recruited on seasonal basis, up to accumulative two months a year, and are mainly engaged in pond preparation right before stocking. Female labour is often cheaper than male labour by VND 5000/ person/ day. In 2004, a working day remuneration is around VND 30,000 - 35,000. In Trieu An commune of Quang Tri province, where the women labour are not less suitable to laying pond-bottom plastic material and taking away of dredged mud than men, the number of women hired for this type of job is greater than men and they get similar payment as men (VND 30,000 /day).

In the past years, a number of households who failed in the shrimp industry have fallen into poverty. This percentage, that has not been reported officially by statistics agencies, is more or less 2% as per estimation by communities. The hired employees are poor since they do not have a stable source of income, however, the shrimp farming does not have much impact on their livelihoods. If the shrimp farming does not exist, they are willing to look for other jobs to do, so the crisis of the shrimp farming, if happens, do not affect them as much as with pond owners.

3. Marketable shrimp trade

Small-scale collectors

In each shrimp farming area, there usually exist small-scale collectors who purchase some proportion of the shrimp harvested partially in the season to redistribute for either bigger middlemen, restaurants or consumers. These collectors are often women (90%) and not classified as poor. At Phu Da commune of Thua Thien Hue, there are nine collectors, who purchase 40% of commune shrimp production, and the rest is for external agents and state-owned processing companies. The small-scale collectors sometimes lend money to shrimp farmers, given that the lenders are granted priorities for the purchase of harvested shrimp and possibly at the price cheaper than that of the market by VND 1,000/kg. Also at Phu Da, a zero-interest gold loan, ranging from 0.5 to 1.5 *cay* (1 *cay* costs around USD 500), could be offered by small-scale collectors to shrimp farmers. When shrimp are harvested, farmers have to pay back in gold and sell the shrimp to their lenders. A common practice is, small-scale collectors at commune level do not register their business or pay business tax.

A typical feature of Thua Thien Hue province is that lagoon areas are suitable shelter for wild shrimp. Aside from earthen-pond farming, some households set up *sao* (pen) in lagoon water, which could give them a daily harvest of maximum 3-5 kg for sale to small-scale collectors.

The production scale of shrimp farming is different from the South to the North. In the South, the scale is larger, and thus leads to larger related business service sector. At Tan An commune, Ca Mau, there are nine large-scale registered collectors (purchasing 90% of commune's shrimp volume) in addition to tens of collection boats from outside that not only procure shrimp but also crabs and fish. After purchasing and simple handling, the products are transported to processing factories.

While each large collector hire 2 -3 employees, small-scale ones only resort to family labour. At times they face risks but such cases are not usually not serious. Product collecting households are better off in the commune, they have savings and can send children to school.

Large-scale middle men

Farmed shrimp after culture cycle are processed in factories and majority of the processed go to export markets, for purchase power in the domestic market is limited. Before arrival at processing factories, the products are collected by a small number of large-scale middlemen, who often register to be enterprises.

The middlemen usually have employed labour. Daily wage for an employee varies in the scale of VND 1 – 1.5 million/month. Both man and woman labour is accepted for this kind of job (men are

hired as driver or porter, while women are responsible for classification, record-book keeping, etc.), however they do not work throughout the year but 7 months is maximum.

Table 1. Purchase-price of shrimp in Hue (VND/kg).

Year	25-gram shrimp	10-gram shrimp
2003	80,000	30,000
2004	60,000	38,000

Risks for middlemen:

- Abrupt fluctuation of shrimp price in short periods (day to day, or even between morning and afternoon),
- Products are degraded or devalued, due to improper post-harvest maintenance, long maintenance duration, or disasters
- The adverse effect of anti-dumping case on price and profits.
- Mistaken purchasing in size of shrimp led reduced the products value when sold out.
- Mistakes in classification leading to devaluation of shrimp on sale.
- Price-fixing by processing companies: If the shrimp are transported to processing companies in more than one trucks, then the first truck could be sold at market price, but from the second truck onwards the shrimp price would be lower. Due to lower market demand for processed shrimp this year, there is often a long wait for the seller's turn to transact, but even so, the seller has to spend much time persuading the processing company to buy their products.

4. Processing and export of finished product.

No processors or shrimp exporters are currently available in Quang Tri and Thua Thien Hue. Quang Tri province used to have a factory, which went bankrupt even before operation. Likewise, the state-owned Song Huong processing factory was closed. As a result, shrimp produced in the two provinces are now processed in factories of Da Nang, Nha Trang and Ho Chi Minh City. Ca Mau province has 20 processing factories for shrimp and these factories export directly to overseas markets. Six of them are SOEs, and the rest are either joint-stock or private companies, which handle not only the raw materials produced in Ca Mau and neighbouring provinces but also the shrimp imported from China and India.

95% of raw materials for processing are from middlemen, and only 5% is purchased by factory staff. The processing companies publicize purchase-prices for shrimp, almost on daily or two-daily basis, but in the year 2004, the prices are informed hourly because of unstable consumption market. The middlemen coming from farther provinces such as the ones in Hue or Quang Tri, therefore, have to sanction all transportation expenses and possible risks.

Product quality

Middlemen and processing companies often evaluate quality of raw shrimp based on naked-eye observations, and the real quality is only defined at the beginning of processing chain where modern equipment is used.

Export processing company is a stakeholder who plays crucial role in terms of market assessibility for fisheries product consumption. They have powerful control over the market when large volume of products is transacted, and in the mean time, over market price based on negotiation with foreign importers. They put forwards standardized size and quality for material shrimp. However, the business of export processing companies is also subjected to export markets that are often out of their control.

Stakeholders in the processing and export stage include company/plant owners and their technicians, as well as permanent or seasonal labour. 90% of the workers for processing companies are women. The key positions in the enterprises, namely owners, managers and technicians, are taken over by men,

who has higher education and skills (90% of them are university graduates in the relevant professional field). This is a great advantage for them to be updated with advanced technical knowledge and to reinvest in the enterprise with modern assembly lines to keep up with new product quality, safety and hygiene control standards, which in turn help them have better access to new markets. By contrast, the permanent and seasonal workers are often secondary (either lower- or upper-) school graduates, who could be regarded as poor stakeholders.

Annual recurrent expenses of export processing enterprises are as huge as VND 450 billion on average, of which the biggest investment amount is for raw material (8%), followed by the coverage of depreciation of fixed assets, then payment of bank loan interest (1.5%) and so forth. Hence, export processing companies have to mobilize big loans combined with extremely high interest rates.

Many enterprises in Ca Mau have brought into play quality management standards of HACCP, GMP, or SSOP. Four companies have been granted ISO 9002 Certificate and accepted by EU for the export of shrimp products into this market (Ca Mau DOF, 2004). Processing technologies and capacity of province-based companies have been improved significantly to the advance level of the region and leave behind many provinces and cities in the country. 19 IQF lines have been installed at 14 enterprises, with the total capacity of 15,500 tons/year out of provincial turnover of 80,000 tons/year. However, 77% of the volume and 97% of the export value are contributed from frozen shrimp may not be a good balance and it is risky when abnormal changes take place in major markets.

Shrimp consumption markets

Only a small quantity of shrimp is consumed in the domestic market, mostly by restaurants and hotels in the province and big cities such as Hue, HCM City, and the majority, therefore, is exported to foreign markets. Ca Mau province has over 50 export-partners from more than 20 countries and territories, but the most important market is the US. In the year 2003, 16,000 tons of black tiger shrimp were imported by the US from the province, accounting for 60% of total aquatic products exports, EU's market share is 3.1% in volume and 1.7% in value. Technical barriers in terms of product quality standards are the main concern of the exporters.

In the year 2004, the unfavorable effects of shrimp anti-dumping case of US are creating hurdles to the shrimp consumption by lowering the market price. Several companies have been closed and thus puts shrimp farmers and middlemen on the verge of bankruptcy and poverty.

Risks and difficulties for export-processing:

- Market demand fluctuation
- Diseases in cultured shrimp may lead to scarcity and increased price of raw material
- Banned chemical residues found in cultured or harvested shrimp may make the whole container be rejected by importers who use random sampling to check quality
- Raw material supply is highly dependent on middlemen, sometimes competition happens among processors in purchasing cheaper or better quality shrimp
- Difference in purchase-prices from processor to processor
- Unfair competition among SOEs and private processors which causes loss to SOEs: Almost all foreign importing companies have their representative office in Vietnam, and no regulations on contract feed-back are to be bound when the importers buy products from private companies. However, the SOEs have to conform to such regulations envisaged by the Ministry of Finance.

B. Livelihoods of poor stakeholders

1. Poverty criteria

a. Government criteria

Hunger eradication and poverty reduction (HEPR) is a pressing issue that has been considered as a

focus in socio-economic development projects and programs of the Government. HEPR in Vietnam has attained the important achievements in the last decades. From 1991 to 2000, poverty incidence (as defined by international criterion of less than 1 USD income/person/day) was reduced by half, and Vietnam has become one of the countries going fastest in HEPR. In order to carry out a country-specific HEPR program, since 1997, the Government has issued a set of national criteria for poverty. According to this criteria, 1997, households in mountainous areas & islands, low-land & highland areas, and urban areas are defined as poor if the monthly per capita income is less than VND 55,000, VND 70,000 and VND 90,000, respectively. In parallel with the growth of national economy, so far these criteria have been amended as VND 80,000, VND 100,000 and VND 150,000. Based on the national criteria, in 1991 – 2000 period, Vietnam had reduced poverty by two thirds all over the country. Although having accepted the poverty definition by the Conference on Poverty Reduction for the Asia – Pacific Region in 1993, which clearly states the close relation between poverty and the satisfaction of basic human needs that are socially accepted and suitable to local socio-economic development and local traditions, the assessment of the poor as per national criteria is only based on income level.

b. Community criteria

It is apparent that income-oriented national criteria do not fully reflect the nature of hunger and poverty. Therefore, when mentioning “poor stakeholder”, this report highlights the poor defined by both the national criteria and community-developed criteria at study sites. The community criteria are largely different from commune to commune, due to different level in socio-economic conditions of particular areas and perception by community members. At the moment, living standards of the people have been much improved, especially in shrimp farming areas. In Trieu An commune of Quang Tri, VND 200,000 monthly income of hired labour, that is regarded as the poorer group in the community as evaluated by other groups, is already higher than the national criteria (VND 100,000). For that reason, the community-developed criteria is even more important than national one. Similarly, using national criteria only based on the income level means there are no poor people taking part in the shrimp market chains. However, in current situation, after a few years of continuous failures resulted from disease outbreak, some 1 – 2% of shrimp farming households are unable to repay bank loans and hence fall in poverty although they have properties, because even when all the family assets are sold for cash, the money is still not enough for principal and interest payment. The community understandings of rich and poor for classification of shrimp farmers and hired labour are given in the annexes.

2. Poor stakeholders in the market chain

At brood shrimp catching stage: Sailors on fishing vessels are classified as poor. Most of these people are men in good physical health but their education level is quite low, and very few women work on the vessels. In Thua Thien Hue, an other group of the poor is the itinerant boat people who live on fishing from lagoon. These families (inclusive of sailors and boat families) all have too many children (five to six on average) and the children have to stop school early.

Shrimp farming households: Farming households who continuously fail in shrimp culture for several years will be in bad debt and become poor. This kind of poor people is popular in Thua Thien Hue and Quang Tri. In Ca Mau, the migrants who inhabit illegally on forest land and take up shrimp farming are also poor families.

Hired employees: These people often work as for shrimp farming households, seed hatcheries (to carry out heavy work), or service agents (as porters). The permanent employees who get monthly salary have better living standards than seasonal labour.

Export processing factory worker: A large number of permanent or seasonal workers at export processing factory are poor.

3. Livelihoods analysis of poor stakeholders

a. Human resources

With fishing households, capture fishery is the only job they do. Seasonal workers are willing to take any job, even heavy one, to generate cash for the families.

Poor migrating shrimp farmers in Ca Mau often practise the extensive model of shrimp farming on forestry land without technical knowledge and hence, the yield is remarkably lower. Poor farmers in Thua Thien Hue and Quang Tri are the ones who have severe losses from culture. Education level of these households is rather low, primary and lower- secondary levels as the highest, therefore information sources and fisheries extension services are out of their reach.

The poor stakeholders at processing stage are both permanent and seasonal workers. Most of them are women who have passed lower- or upper-secondary school, and none of them has passed entry exams to universities or colleges, and thus results in their impossibility of applying for a stable job.

b. Physical resources

Hired sailors/workers in both capture and culture stages do not have valuable properties except cheap items (70% have second-hand TVs, 85-90% have radio, 3-4% have old motorbikes) in their make-shift house. Families of hired workers are allocated with 3-4 *sao* (1 *sao* = 500 sq.m.) of agriculture land, but the crop harvest is not sufficient to meet family's needs. It is common that itinerant boat people do not possess farming land.

Poor shrimp-farmers in Quang Tri and Thua Thien Hue have better housing conditions than other groups of poor stakeholders, and the only one problem for them is they cannot afford to pay the debts borrowed from bank, relatives friends. However, poor shrimp farming households in Ca Mau own neither land-use right (as they are migrants) nor considerable assets.

c. Financial resources

Savings and borrowings

A common characteristic of the poor households is that they have no savings, and do not have access to credit loans from Bank for Agriculture and Rural Development, as they are unable to reimburse timely and do not have real estate for mortgage. Some households are given loans from the Bank for the Poor or from credit funds through development programs under Women's Union or Farmers' Association, and the loan package is from VND 3 to 5 million, with low interest rates (between 0.5 - 1.2 %). The longest loan period could be up to five years, and application form has to detail production plan with main borrowing purpose for husbandry or agriculture. Without savings and necessary loans for investment, it is very difficult for the poor to diversify livelihoods options. Poor farmers always wish to borrow loans to make their life better, but at the same time, they hesitate to take too much (less than 5 million), due to the concern that the return would not be enough for repayment.

Nearly 100% of shrimp farming households in Hue and Quang Tri use bank loans for shrimp culture. There is a difference in community perception of the poor here: In Quang Tri, the unpaid debt of VND 10 million is a sign of poor family, while in Phu Da, a family would be considered poor if the unpaid debt is more than VND 20 million.

Income

In the year 2000, a hired worker on fishing vessel was paid VND 300,000/trip plus free meals, but at present, the salary amount is much less than before (only 200,000 dongs/trip) for vessel size is smaller and unable to go farther offshore, and catch volume has declined in offshore fishing. Hired labour of other stages could be involved in the shrimp chains for 90 days annually, and daily wage is VND 25,000 /person (unchanged from 2000 to date). Other contractual jobs could give them 30,000 /day but they can only do those for a short period of several days each month. Net income from family's agriculture activities is around VND 600,000 dongs per year if good harvest is gained .

	2000	2001	2002	2003	2004
Daily wage	VND 15,000	VND 15,000	VND 20,000	VND 25,000	VND 25,000

For the itinerant boat people the daily income is around VND 20,000. However, the income source is unsteady and it is their traditional custom to spend all the money earned, borrow cash when the family is in financial need, and then all members will do contractual job payment of the debt gradually. A bank fund, if available, would not be useful for them as besides the fishing activity, they do not have either farming land or agriculture experiences. That is the reason why they do not usually borrow loans.

For hatchery workers, the average income is approximately VND 500,000 – 600,000 dongs plus free meals. The payment of salary can be made by two ways: fixed amount, or in percentage with revenue. These stakeholders have higher income than the poor in the capture and grow-out stages, but their job is more demanding and night-time consuming. In addition to the months of hatchery-related employment, they can be hired to do other short-term jobs for which wages are daily based. Alike the above-mentioned group, these households do not borrow loans as they do not have land for mortgage. However, in general their income is relatively stable.

The main source of income for shrimp farming households is generated from aquaculture, which is subjected to bad or good harvest from season to season. Additional farming activities (agriculture, cash crop, etc.) contribute merely minimal cash income to the family economy.

Like hatchery workers, employees working for the shrimp farmers gets average income of VND 500,000 – 600,000 dong/month, or 10% of the harvest, plus free meals. Again, they are not loan borrowers due to the lack of mortgage asset. This is also the main source of household's earnings, so they cannot pay tuition for higher education of their children, who usually start working at young age to feed the family.

Processing factory workers are paid based on government salary scale if they work for state-owned company, or contract if working for private enterprises. A worker's salary (VND 350,000 – 1,200,000/month) is not stable through the year as company's business is season-driven. In the peak of harvesting season, they have to work 12 - 15 hours/day, but during idle period when no material shrimp are taken in, they become unemployed. It is also true for SOE workers, although their position in the factory is not lost after the idle period.

d. Social resources

In general, hired workers/employees are not engaged in social activities of the community, although they can be members of local mass organizations such as Farmer's Association, Women's Union or Self-Help Aquaculturist Groups, because the participation in those activities would take time out of their full working day, meaning the daily income would be lower, and secondly, they may feel uncomfortable when talking to people of better-off status. At meetings, these people often keep quiet and passive, unless they take part in micro-finance programs for poverty reduction and job creation.

It would not be uneasy for poor shrimp farmers to participate in social activities of the community and mass organizations at the commune. The model of Self-Help Group in Thua Thien Hue has been operating effectively, but such effectiveness is not observed in Ca Mau, because of they do not foresee the longer benefits from this kind of co-management in shrimp culture.

Through focus group discussions, diagrams of institutions and organizations supporting shrimp farmers have been drawn by community people as synthesized in Figure 2.

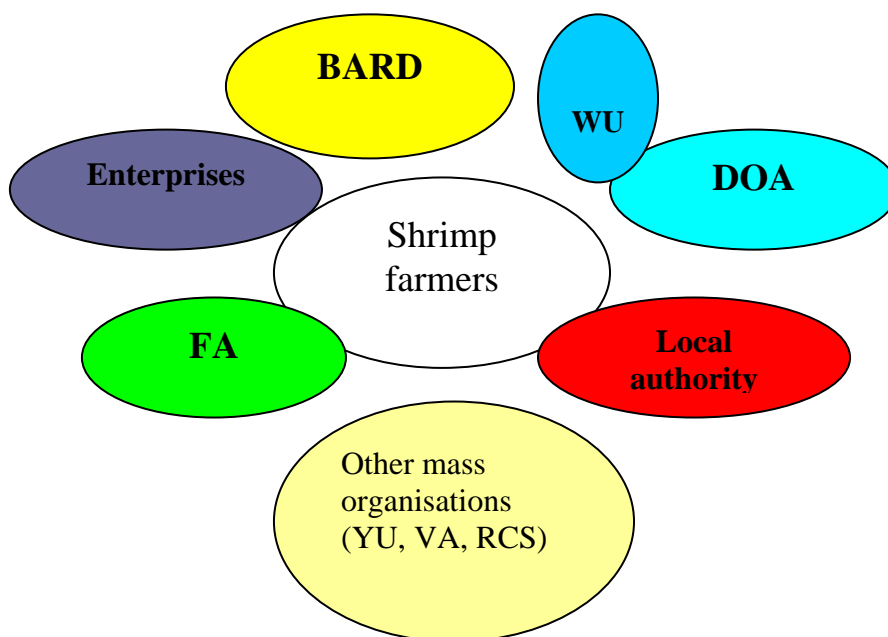


Figure 2: Diagram of support institutions

Note: WU = Women’s Union; FA = Farmers Association; YU = Youth Union; VA = Veterans’ Association; RCS = Red-cross Society; BARD = Bank for Agriculture and Rural Development; DOA = District Office for Agriculture

Evaluation of poor’s assessibility to social resources

As shown in the diagram, the Commune People’s Committee played a crucial role in making poor’s livelihoods stable. Especially, local money-lenders are rather close to the farmers, whereas mass organisations and banks are in relatively far distance.

Many mass organizations co-exist within the commune, namely Farmers’ Association, Veterans’ Association, Youth Union, Society for Learning Promotion, Elderly’s Society, etc. Among them, the Farmers’ Association has a significant role in the development of aquaculture. This is the organization that mobilizes financial resources to provide credit loans to members, and organizes farmers into groups or primary producers. In the same way, Women’s Association is very supportive to poor members. The Women’s Association of Trieu An commune in Quang Tri is being the implementer of nine government-funded development programs that cover 350 beneficiary poor households (out of 925 WA members). Each household under WA’s programs is provided with VND 1 - 2 million loan to start husbandry or agriculture activity, and if it is successful, refinance is promised for the next crop. In the year 2003, Provincial Women’s Association of Quang Tri offered one training class on husbandry for Trieu An commune.

Other mass organizations and functional agencies, however, are not really supportive to the poor households, partly because of the scattered locations of villages, difficult transport, or unavailability or mass media coverage. It is the evaluation of local people that the institutional structure of the mass organizations is generally poorly arranged, and members are neither active nor fully aware of common sense. Government offices, though concerned about some issues, have not actively take actions for the sake of people’s interests, for instance, the information and communication system related to diseases does not exist. Major information source for people so far is TV (e.g. Fisheries Extension Program), and seldom have books and magazines reached their homes.

As mentioned earlier, the enterprises at grassroots level of shrimp farming include some companies like CP, UNILONGS, Hoa Chen, Three gold coins, Tomboy, UP, Profeed, Long sinh, etc., which on the whole specialise in supplying farming inputs to level 1 agents. Though not responsible for purchasing the harvested shrimp, in several cases they provide trainings in pond preparation and

shrimp farming coupled with instruction manuals to farmers.

e. Influences and risks to the livelihoods of poor stakeholders

Credit

Government credit: The BARD offers a loan of VND 10 million/ aquaculture without land-deed households regardless of land area, given that there must be a competent organization to guarantee the repayment. Likewise, Policy Bank can give each poor household from VND 5 to 7 million. Through its job-creation program, members of Women Associations could get a loan of VND 1 million per family (interest rate of 0,5%/month) to invest in farming activities.

Private finance: A money-lender can lend money to borrower at the monthly interest rate varying from 1,5 to 10%. Another form of private finance is, service agents advance the inputs without immediate payment, and request the reimbursement later.

Public welfare services

Health care: Each commune has one health care station poorly equipped with a few patient beds. The patients down with serious sickness have to transferred to district or province hospitals.

Education: The overall education level is grade 7. 90% of commune people are literate.

Power supply: Electricity grid is now providing service to all coastal communes. However, poor households consume less (largely for lamps) than other families in the commune due to shortage of cash income and modern facilities.

Natural calamities

Natural disasters strongly affect the life of the sailor on fishing vessels, as in disaster period they are unable to work, that is, the income of family is cut short seriously. Some kinds of disaster, however, have little impact on direct farmers because even if they lose all money invested in the farm, the next cycle they can harvest lots of shrimp, for the reason that the pond environment will be cleaned by floods or storm, and that would be good harvest potential. Hatcheries and service operations are not influenced much by natural calamities.

Market

To fishermen, catch volume is in inverse ratio to price. The more they capture, the lower price would be. Market demand has a direct influence on primary producers or either seed or marketable shrimp. The producers never know when and to what extent the market price would change in a year. The continuously changing price makes producers think that middlemen and product collectors are the ones fixing the price. Aside from low production because of disease outbreak, this year the price drops and thus causes severe loss to shrimp farmers. Market forecast, if available, is very useful to farmers.

Diseases

Epidemic outbreak among cultured shrimp has a direct connection to the livelihoods of shrimp farmers as this is the main cause leading them to poverty.

Government policies

Shrimp farmers tend to be affected directly by finance and tax policies, that provide legal procedures in borrowing bank loans, maximum and minimum loan amount, relief provisions when the harvest is lost, etc. Other groups of stakeholders are less affected in this regard.

4. Role and activities of women in the market chains

In the market chains, the largest number of women appear in the processing period, as they account for 90% of labour force working in export-processing factory. Their specific type of job and income level has been described earlier. In other links of the market chains, women normally take part in housework management and financial book-keeping in the family.

In shrimp farming households, the husband is decision-maker for all economic activities (E.g., he decides to start shrimp farming or not, how big the shrimp farming scale is, and how to manage the shrimp ponds, etc.). The woman manages financial record-book and decides to buy what inputs for farming. The couple share responsibilities of feed-mixing and shrimp feeding.

Other two groups of women directly involved in the production chains is the hired workers for shrimp farming households during pond-preparation period, and the workers in charge of shrimp classification or record-keeping for product middlemen. Women remuneration is lower than the men by VND 5000 per day for heavy work, but there is no difference in payment for men and women doing the job of shrimp classification at product consumption period.

Women do not take part in fishing and seed production activities. In reality, there is no considerable difference in the role of women and men, and so far women have been empowered and equal with men in the family. Most of them are members of Women's Union and fully granted with membership rights. It is our observation that women have better access and are quicker in receiving information than men, because they have more time staying at home, watching mass media and joining social activities at the community. Pertaining to loans, husband usually go to receive government loans, but smaller borrowings are wife's job.

In coastal areas where capture fisheries is developed, men spend most of their time at sea, so the number of women as hired workers is greater than that of men (it is estimated that women account for some 65% of contractual employment).

In input/output service supply households, women are the main decision-maker on financial transactions, while the husband is responsible for. The men are responsible for goods transportation and engaged in other activities.

5. Implications of shrimp trade on the livelihoods of poor stakeholders

In the year 2004, under the impact from the anti-dumping case, the export and processing activities declined, and some fish export-processing companies have to stop operation. The case has seriously affected export turnover and trading activities of those companies, especially the ones had established market tie with the US. Price of material shrimp dropped quickly (by at least VND 10,000 /kg for every size as compared with the year 2003). Product collectors may be affected most seriously because processing company not only reduce the purchasing quantity but also stop the pre-informing of purchase-price, and it is common that many products are put in lower class on delivery, especially when the product stock is stagnant for one to three days, leading to the lower downgrade of shrimp. As a result, many middlemen in Hue and Quang Tri who used to sell products to processors now seek to make contact with bigger traders in main cities.

When shrimp price falls, shrimp farmers' income is reduced as consequence, and farmers find it difficult to prepare fund for the next culture cycle. In Hue and Quang Tri, the widespread of diseases forced farmers to harvest shrimp before the marketable size is attained. On the bright side, when purchase power in the US decreases, Japan and Korea markets could be good for export acceleration, where the consumer taste is in favour of smaller size shrimp (over 70 shrimp/kg) and import price increases by VND 5000 – 10,000 per kg compared to 2003.

Marketable shrimp drop has also generated bad effect on the net income seed hatcheries as the intake of seeds is lower. Impact on brood shrimp capture, however, is not really terrible. The slight drop in brood shrimp price last year is attributed to the higher catch.

The impact of the anti-dumping case is still unclear to contractual labour, for the daily wage remains stable, and even suffering from loss, the employer is not in the position to refuse payment. When the shrimp farming household gives up aquaculture option, there are still labour-demanding jobs that the hired workers can do to earn money.

IV. Recommendations for improving livelihoods of poor stakeholders in shrimp market chains

1. Opportunities and constraints

Opportunities

- The Government of Vietnam has paid much attention to aquaculture development and the investment in fisheries-sector infrastructure. Evidences of this would be Aquaculture Development Program to 2010, issuance and enforcement of various guidelines and policies conducive to production such as the ones on credit, preferential tax, land-use certificate for aquaculture households, seed quality improvement and extension training.
- In the meantime, Fisheries Society and mass organizations have strengthened their networks and reinforced activities for providing technical and market-related recommendations, advice, and information for the Government, enterprises and the people.
- There is greater potential for the technical and trade cooperation between domestic and foreign institutions and individuals.
- Marine and inland aquatic resources are rich and appropriate with both capture and culture fisheries. Shrimp farmers can adopt improved extensive model in shrimp culture, which has a clear competitive advantages. Market demand in the global context is promising for fisheries products.
- Processing factories are normally adjacent to large farming areas for a steady supply of quality raw material at lower purchase price if good relationship is created between processors and aquaculturists.
- Processors and exporters are becoming more consumer-taste-oriented and dynamic in ensuring goods quality, packaging, and diversifying products. Many local trade-marks have been accepted in the world market.
- Abundant and cheap labour force, rich sources of natural food and agriculture by-products for shrimp farming in particular and aquaculture in general.

Constraints

- Many policies of central and local governments as well as line agencies are implemented in very slow process.
- Environmental conservation is not ensured, leading to widespread of diseases. The surrounding and water environment for aquaculture are seriously downgraded and polluted.
- Fisheries planning is often preceded by people's spontaneous activities. Plan management, monitoring and evaluation have not been fully understood by implementers.
- Low quality of shrimp seeds, meanwhile quarantine is not satisfactory to the demand of producers.
- Limited application of advanced technology in shrimp farming.
- Protectionism and trade barriers set up by import countries make market price unevenly change.
- The fishery infrastructure system still not meet the produce development demand especially, the system of hydraulic served for aquaculture.
- Lack of credit facilities reaching poor primary producers
- Aquaculture and export turnover depend too much on shrimp, and the two big markets of the U.S. and Japan.

2. Recommendations

i. General recommendations for policy-makers

Planning

- Revise the annual and long term plans of capture fisheries and aquaculture and disseminate those plans to people; properly plan for concentrated aquaculture areas.
- Diversify culture species other than depending on shrimp only, to increase the income and generate greater quantity of raw material for export processing, and reduce the risks in the shrimp farming industry.
- Continue the rearrangement and reform in fisheries product processing SOEs, boost the equitization process for these enterprises,
- Encourage all economic sectors to invest in fisheries development, including household scale and cooperative models in feed processing, seed production, grow-out and product processing for export,

Finance

- Raise investment funds for research and development of technologies that support the improvement of productivity and quality of aquatic products either from capture or aquaculture.
- Issue new guidelines and policies that give poor households better access to credit sources, even when they fail in shrimp farming.
- Make use of government budget for investment for infrastructure construction in aquaculture areas and setting up a national hatchery network.
- Provide government's preferential credit facilities for projects investing in seed hatcheries, irrigation system; feed factories; plants producing ice for frozen product; upgrading or construction of fish markets and processing plants.

Extension and capacity-building

- Promote *in-situ* training, develop and replicate successful production models. Provide technical knowledge for the people through easy-to-understand extension materials and mass media.
- Develop individual and institutional capacity of the people and professional associations at grassroots level
- Raise people's awareness and community-interest spirit in shrimp farming areas.
- Send researchers, managers and technicians to overseas and local training courses in the areas of capture, seed production, grow-out, post-harvest processing and conservation, professional management
- Build technical human resources by training technical staff and marketing executives.

Market

- Issue suitable policies to maintain market prices stable. Facilitate the establishment of processing factories in or close to shrimp farming areas.
- Set up a price monitoring system
- Ministry of Fisheries, Ministry of Finance and other line agencies of Vietnam to jointly develop regulations and directions on the establishment of Fisheries Export Assistance Fund.
- Ministry of Fisheries, Ministry of Trade and Ministry of Foreign Affairs to work together in trade promotion and improvement of market information system; conduct professional trainings for marketing staff of enterprises; promote direct export to major markets.
- Vietnam Association of Seafood Exporters and Processors (VASEP) to set up representative offices in important markets, and establish Trade Promotion Task-force if possible.
- Support local producers, processors and exporters to take part in fisheries exhibition fairs for advertisement of shrimp products to international markets;

Science and technology

- Invest in the R&D of high-tech for genetic selection, improvement and reproduction; biotechnology, environment solution, capture and culture, disease diagnosis, and post-harvest product processing and conservation.
- Encourage import enterprises to the transfer of high-tech know-how from developed countries to Vietnam.

International trade cooperation

- Establish joint-ventures with foreign partners to invest in the field of aquaculture, feed production and seed supply; and to update technologies for capture fisheries, culture and processing;
- Call for sponsors' contributions to fisheries export programs.
- Reorient to new export markets for shrimp in the case Vietnamese enterprises lose in anti-dumping dispute with the US.
- Accelerate the negotiation between Vietnam and the governments of key export markets, in order to attain agreement on quality control and certification of fisheries products, as well as bilateral trade provisions.
- Request the trade promotion agencies in other countries to provide information related to the stages from culture to processing, maintenance, quality inspection, hygiene and food safety standards

ii. Recommendations for stakeholders at seed production stage

- Improve seed quality and quantity by linking operation of shrimp hatcheries with low-cost PFS technologies, and domestication of wild/ exotic parent shrimps;
- Promotion of R&D for protection and development of original strains.

iii. Recommendations for stakeholders at shrimp grow-out stage

- Strictly follow quality control regulations on production chain, from brood to marketable shrimp;
- Apply environmental conservation and food safety measures, even financial penalties to violators of chemical ban regulation;
- Bring into play Government Standards for Safe Shrimp Farming Areas;
- Actively improve product quality and prevent risks
- Promote community-based management through Self-Help Groups and Aquaculture Region Management Boards, with support by local authority;
- Promote the application and registration for ISO 14000 and SA 8000 certificates
- Take up new species for shrimp culture (such as White leg shrimp (*Spp vannamei*) originated from South America, which is currently a favourite food in many markets).

iv. Recommendations for stakeholders at processing and export stage

- Get aware of consumers' food preferences in the countries to which shrimp export is oriented; promote the processing and introduction of new products aside from traditional frozen shrimp, to satisfy consumption taste in export markets (e.g. Cooked food is more suitable for EU and Germany where people do not have cooking habit).
- Stable material supply and timely delivery for processing should be ensured,
- Improve quality of the product to meet requirements of EU and other markets;
- Take advantage of the existing networks of retailers to introduce shrimp products into foreign markets.
- Domestic enterprises to cooperate closely in order to avoid unfair competition, protect trade-mark prestige, keep track of market prices put forwards by other companies or other countries in the region, so that they can set a price level which is more friendly to customers.
- Payment mechanism should be more flexible, for example, L/C payment for 30 days, 45 days, 60 days period could be applied in stead of the current L/C at sight method. This would help

businesses in dealing with financial difficulties and relief their dependence on bank borrowings, reduce selling price and strengthen competitiveness.

**Ca Mau Provincial People's Committee
Department of Fisheries**

Report

**Analysis of the marketchain and livelihoods of the poor stakeholders at
Tan An commune of Ngoc Hien district**

Ca Mau, October 2004.

Analyze the market chain and livelihoods of the poor stakeholders at Tan An commune of Ngoc Hien district

I. Target:

Within the framework of EC - PREP project, the researching group of Ca Mau province operated the researching and analysing job in Tan An village, Ngoc Hien, included:

- Define the diagram of the market chain and the related elements.
- Define the subject (the poor and the women) took part in the market chain.
- Define the role and character of the subject groups took part in the market chain.
- Analyze livelihoods of the poor and women took part in the market chain.
- Request to support the poor and the women in the market chain.

II. Research methodologies:

1. Researching group members:

1.1 Office of Aquaculture:

- Mr. Nguyen Thong Nhan.
- Mr. Phan Van Ut.

1.2 Fishery Center:

- Ms. Hong Thi Kieu Nga.
- Ms. Cao Thi Nhu.

1.3 Ngoc Hien district People's Committee:

- Mr Le Van Su - People's Committee Assistant Chairman.

1.4 Tan An village People's Committee:

- Mr. Bui Minh Hoa - Office Deputy.

2. Researching solution:

Collected the information by the following researching solutions.

- Fast investigation the rural taken part of the community.
- Collection and analyze the primary and secondary data
- Individual interview.
- Group interview...

Identification of villages was based on following criteria:

- Villages where there are movement of shrimp rear development and to be the poor village of the Province.

- Shrimp rear community in the village there are much subjects took part into, the market chain of the village there are many characters and could be the representative for the market chain of the Province.

3. Researching plan: To be operated by six steps:

Process (order) to operation the market chain analyze and livelihoods.

Step 1: Define the point village to be the beginning place for point researching, and then defined the draw the diagram of the people took part and related persons to the market chain.

Step 2: For each of the subject groups, define the position and role of them in the market chain.

Step 3: Interview the representative of each of subject group (even with the poor partner) in each of the link of the market chain. The content of the interview would based on the available of livelihoods diagram.

Step 4: Analyze livelihoods quietly with the poor partner in the market chain.

Step 5: Member of the researching group together define again the diagram of the market chain drawnd, supplement or modify based on the results gained from the interview (step 3).

Step 6: Organize the meeting with representatives of the subject group, gained the feedback informations about the drawnd diagram through the last diagram about the market chain and discussing about the supporting solutions for the poor partners took part in the market chain.

4. Operation content:

Operation process of analyze the market chain and livelihoods by contents included:

Looking for the power resources and file

Power resources

Social resources

Material base (property)

Natural resources

Financial capital

The risks

Livelihoods results

Impact elements from outside

Researching content

1. Market chain.

1.1 Brood shrimp collection stage.

1.2 Seed produce stage.

1.3 Rear stage:

1.4 Processing stage

1.5 Export market.

2. Livelihoods of the poor took part in the market chain.

2.1 Brood shrimp collectionation stage

2.2 Seed produce stage.

2.3 Rear stage:

2.4 Processing stage.

2.5 Export market.

3. Market chain completed.

Basic information of Tan An village

Summary the natural and social - economic conditions:

Natural character:

Tan An village there are nature square is 10.918 ha and among is 7.775 ha of mangrove forest and 2.324 ha of aquatic rear (at the moment is exploting 1.976 ha from the center of the village to near by Tan An Tay). The East and the South of the villagea adjoined the East Sea and there is important seaport is Rach Goc. Coast length is 21,5 km, collapsed speed of coast is 5 -7m/year...

Infrastructure and social - economic:

National electric network owned in the village, at the moment is having 48,9% of the electric households in the whole village, expected in the year of 2003 there are 70% of households using electric (100% of hamlets used electric).

About the living water, under supporting of UNICEP about the fresh water for living day, combined with invesment money of the people, at the moment there are 100% of wells served for the living and produce.

About the traffic, main transport system of the village mostly is the sea transport. Beside, hamlet to hamlet transport system to be development too. By the sea transport system well, so the shrimp seed transport and aquatic product purchasing and the agriculture products very advantaged.

All the village there are 2.785 households, with 12.619 houses, average is 4,53 persons/household. Natural population increasing rate occupied 2,1% (even with the freedom immigration people). Population level is 125 people/1000m². Women rate occupied about 25%. People rate in the labour age is 6.309 persons in all the whole village. Population here is mostly there are the source of freedom immigration people (occupied over 1.226 households). The poor household rate is 17,8.

About medical and education, generally common education level of the village only reached the popularized level of the Primary school, generally culture surface is the 7th class. The rate of educated people occupied 98% of the whole village. At the moment, all of the village only having 8 primary shoosls and one secondary and high school. The rate of uneducated chidren over 5% of the whole village. The village there are one medical hatchery. Most of the serious diseaes must changed into the districts or provinces for curing with the reason is the medical material conditions still be very weak.

The associations and the role in aquatic rear: many associations organizations to be established in the field of the village such as: Farmer associations, women association, veteran association, youth union, learning encouraged association, people inspector, elderly association. And among, farmer and women association played the importatn role in aquatic rear such as borrow capital organization with the type of credit, support movement to produce consolidation.

Main economic produce of the village is rear and hatching aquatic (65,85% households), next is the service trade (occupied 20,57% households), and left took part in another operations. On the field of the village there are 28 of seed hatcheries and one hatcheries supplied by the province over 200 millions PL/year. In livelihoods of the village, aquatic rear (most is the shrimp rear) is the main

contributed in the main economic role of the village. In generally, the GDP reached over 5 millions dong/person/year.

The disputes in the community, generally not happened on the field of the village between the shrimp producers together and with another economic operations.

Some respect of the economic related to the aquatic rear, at the moment there are 100% of rear household received the borrow capital source from the bank for agriculture and rural development. The amount of borrow capital is 10 millions dong/ha/ household (by guarantee the green book), interest level depend on the short term, middle term and long term borrow.

Reality and potential of aquatic rear:

Reality of aquatic rear:

The frame of aquatic rear mostly is the shrimp rear combined with the forest with 70% square of forest, and 30% is aquatic. Rear shrimp mostly is the black - tiger shrimp, shrimp seed to be released twice/year. Released shrimp level is 30.000 - 45.000 cubs/year. Not feeding the shrimp in the process of rear. Average shrimp capacity reached 230 - 300 kg/year. Besides black - tiger shrimp, another parnters such as crab, spadefish, siver seaperch, arca, blunt greeper, clam to be combined rear. The matter of shrimp disease still be the difficult matter at the moment.

Now, on the field of the village there are 28 shrimp rear hatcheries, supplied about 200 millions of shrimp seed in annual. However, still not enough meeting the order of shrimp seed for the rear profession.

Potential:

Natural potential:

With the advatages position adjoined to the sea, wide square, forest are many, Tan An village there are many conditions to development to rear aquatic, mostly is the combined frame. The village there is river square is 435 ha. Rach Goc is one of the large river of the province. Along with Rach Goc river there is construction height, advantaged for developmen of industrial shrimp rear. Out of the sea there are Hon Khoai island, large potential in the aquatic rear along the coast but not to be seedied and examined to rear.

Seed potential:

In the mouth the Rach Goc river, there is large father black - tiger area, to be the source of parent black - tiger supplied in the province or out. And also, on the field there are many seed fishes such as: Spadefish, Siver seaperch and Blunt greeper to be distributed.

Human power:

On the field of Tan An village, mostly population living by aquatic rear, however, the aquatic rear training still be very little. Last year, not organized any courses.

The proplems about the environment related to the aquatic rear:

Environment impacts (polluted sources).

Polluted sources in Tan An village included three main sources:

- Because of aquatic operation in the village included:

- Pond bottom mud from the shrimp pond for hatching to be dredging directly to the river when cleaned the pond made pollution of organic and microorganism and vitrol.
- Waste water from the pond for shrimp hatching exhausted to the river when shrimp caught diseases or dredging and cleaning the pond (pollution of organic and microorganism and vitrol.)
- Waste water from the seed hatcheries with the germ, chemical and antibiotic exhausted to the river and channel (28 hatcheries).
- Because of the living waste of the population along the river (garbage, waste water, toilet, breeding facilities on the river), market and small trade and business bases (shrimp rear for meat, repairment machine on the river, port for anchor and parking or the vessel to hatching the aquatic).
- Because of the water polluted from the neighbor areas.

Reality and impacted:

- Mangroved water quality more and more worse since shrimp hatching (1994), because of the waste water and mud from the field exhausted to the river from above and in the flood seasons made the dead shrimp and fish in the rear pond and out of the river and channel. The nature aquatic benefit reduced remarkable in both of the amount and the various of the race.
- Mud dredging situation from the pond rear exhausted to the river recently reduced much but still popular because of without scheme square to contain the mud.
- On the field of the village there are 28 of shrimp hatcheries concentrated much most along the Rach Goc river and B Channel. These seed hatcheries mostly not solved the waste water but exhausted direct to the river.
- The village there are three repairment machine on/along the river and the market in the center village. This is the parking place of the vessel to hatch and purchasing the aquatic. All of these bases without the collection system and solution the garbages. The management solution of toilet and breeding facilities still not be absolved.
- The village there are 21,5 km of seashores and mouth of Rach Goc river. This is the rashing seaside, without alluvial group and remarkable natural resources except for Rach Goc river to be the parking place of the vessel to hatch the aquatic.
- Shripm not be controlled yet, shrimp disease always scattered happening not became the large epidemic. The area next to the large water resource often become opaque would bad effected in the shrimp rear would be reduced the effect and shrimp epidemic more often happening.
- Flooded rule of the forest to be changed by shrimp rear effected to the growth of the forest and ecology system of mangroved in the pond for shrimp hatching.

Advan tages and difficult:

Advantages:

- Tan An village there are nature conditions very advantaged for the aquatic rear development, variously in mother shrimp resources.
- Tan An village there are large square of forests played the role of biology filter improved the quality of mangroved water resource.
- The field of the village along the coast in the area of mouth of Rach Goc river there is tide level is high to exhaust and water supplied for the pond for shrimp hatching to cleaned the organic pollutions from the pond for shrimp hatching.
- The Government is very interesting to the development of the aquatic rear, seed and the rear aquatic. Active development the new rear framework.
- Here population is relatively high level of culture and conscious in development the aquatic by the way of diversified the rear partner.

Difficult:

- In annual, the shrimp epidemic still be happened.
 - The seed resource still be inspected enough.
 - Not scheme the area of shrimp are profession.
 - Not possible in borrow capital policy.
 - Mangrove water source continued to reduce because of the pollution by dredging the mud of pond for shrimp hatching exhausted to the river, waste water from the seed hatcheries and another pollution sources.
- And also, pollution water resource from other areas exhausted into in the flooding season always be effected badly to shrimp area in the local.
- Mostly without square scheme contained the bottom mud to controlled these polluted sources.

Shrimp rear profession history

1980: Forest shrimp started to development.

1983: Forest shrimp strongly started.

1994: Shrimp dead for epidemic on the wide area.

1997: The shrimp strongly damaged because of 5th storm.

2000: Movement the Economic mechanism from Agriculture - Forestry - Fishing to Fishing - Agriculture - Forestry.

2002: Separated Tan An village become Tan An and Tan An Tay.

2003: Combined SUMA and Office of Aquaculture and supporting for scheme of Aquatic Growth for Ngoc Hien district and among there is Tan An village.

2004: New district establishing Ngoc Hien (Based in Tan An), examination separated the land for shrimp hatching out of the forest land, examination to submitted the land-use certificate for the households received the forest for shrimp rear (total square? poor households at the moment took part in rear).

Shrimp rear market chain.

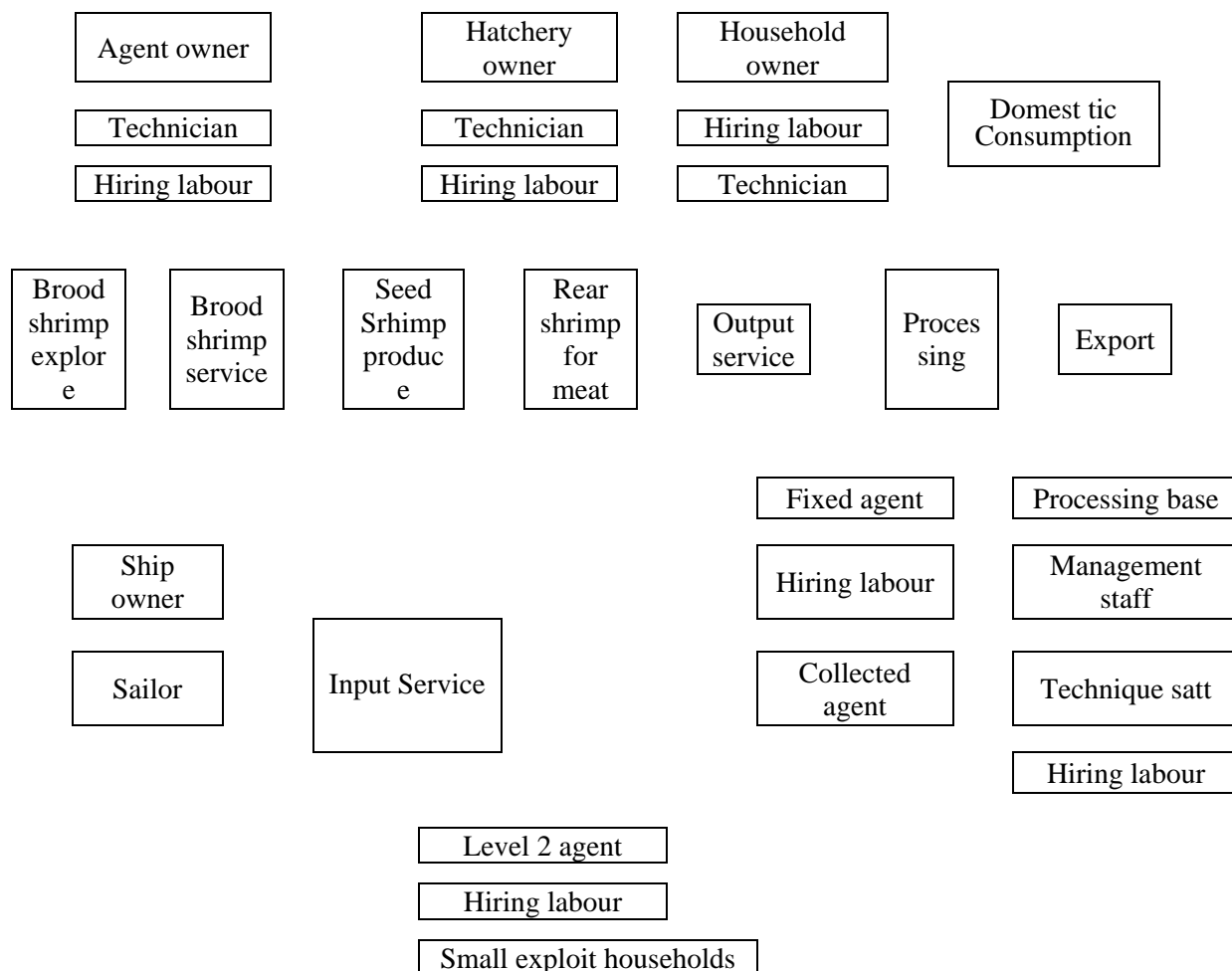


Figure 1. Market chain diagram.

1. Brood shrimp collectioned:

- At the moment all the whole village there are 367 sea exploit means and among there are 47 exploite means and purchasing parent black - tiger shrimp. (Trawling vessel: >20 m water (accidental hatching) and shrimp netting vessel (three layers)), may supplied for those market in annual over 150.000 different types of brood shrimps.
- Brood shrimp cost: Hundreds thousand to ten millions (depend on farming season and quality).
- Included: vessel owner (invested to buy the vessel about 300 - 1200 millions, net 150 - 300 millions). The average age level of the exploit household owners laid in the working age; correspondence value of the experienced years are 20 years, could say that the exploit households owned the high experiences, but most of them are ending the age of working and prepared to transfer the management for the next generation; exploit surface of our country is too down grade for the world and in the area,so, their experience is only significant in the get use to with the work, fishery and the biology character of the partner living near by the seaside;lowly education level surface would be disadvantages very much for the produce management, science and technology advanced collected, popularity and insitutionalize the policy documents and law as well as the regulations about the aquatic resources protecting, environment protecting, hygiene

and food safety... Average income of the exploit households in monthly over 1 millions dong could regarded as stable but not so high compare with the hardship difficulties for the journey and hardship labour on the sea and the expenses of the exploited households relatively high (human power resources, material and materials and means, repairment expenses, amortize and another expenses/time) (Important: income could be changed depend on the hatching capacity because of the aquatic exploite households payment for the sailors by the products they hatched on the each of the trip).

The people hatching the aquatic still be facing with the reducing the benefit of aquatic, not stable fishery, not experienced sailors. One difficult not avoided to talked to is the security problem on the sea. By the words of the fishermen group that in many situations their vessel to be arrested by the foreign vessels and never turned back the vessel for them. We must noticed that the aquatic benefit at the moment is reducing some documents of Ministry of Aquaculture carried out to reduced in somehow some of hatching profession along the coast and using in - shore fishing. So needed to have the scheme and investment capital to build the far away from the coast hatching vessel. The poor here is included the hiring labours for the owner of the means (sailor). Each of the mean there are from 10 - 15 sailors (10 15 persons/ship).

Reality partner: 100% Sailor are the poor.

Labour character

Profession: Only one job (exploit).

Brood shrimp is the accidental product or special.

A month averaged done about 15 - 20 days. Net vessel hatching in annual, trawling vessel still hatching in annual.

Education: Basic is low, ended primary and secondary school, even with not educated.

Age level: 18 - 45 years old (100% is male).

Health: Basic good.

Family: Children crowded (5 - 6 children/ household). Children ended the secondary school.

Original: Freedom immigration people from provinces. Enough from four sides.

Property

Temporary house, some of family tools simply and cheap (little having TV), 70% there are TV; 85 - 90% there are radio, 3- 4% there are motor bike.

Land: Without harvest land.

Capital: Not borrow from the policy bank. When needed they would hot borrow from out side, from 1 -2 millions.

Average income: 300.000 dong/ trip even with meals (2000). At the moment the income is lowlier (200,000) because of small vessel couldn't go far a way.

Effected element to the life of the sailor.

Farming season: Annual exploite (from the October to the December must exploitedd far away because of the flow effected).

Little information effected to the information and policy.

Disaster, flood and storm: Property of the sailor household quietly lost in the flooding in the year of 97.

2. Parent shripm service

- Purchasing the exploited vessels sold for the seed hatcheries in (60%) or out of the province (40% even is exported to Ninh Thuan, Binh Thuan and Khanh Hoa).
- Amount to be the brood shrimp service: In the village there are 47 households took part into.
- Included: Base owner, technician (very little), **hiring (one person/household)**.

Reality partner: Hirng (very little), both in and out of the village.

The nature is business, except for the owner, only having one partner assistant for changing the water for shrimp, growing up shrimp and arrangements the net. On the mean there is one technician responsible in appreciated and sellected the shrimp. Each of the vessel there are 1 -2 persons.

Labour character: Hired with the type of often labour, 100% of male (because of the religious not selected the female working to working). Well relatively education (graduated secondary school), age level about 18 - 30.

Not poor as exploit and rear, generally the income is relatively stable.

Property

Income: Each of trips is 100.000 dong/trip, about 6 trips/month. 500- 600.000 dong/month (even with meals). Not borrow the capital because without guarantee product, similar product like over partner. This proffession is the farming season, not stable. They didn't have the stable life, so it's depend on each of time they made different jobs (Trawling vessel, Bottom trawling vessel, Netting vessel).

3. Seed produce

- 29 produce bases of seed of the village.
- Capacity 250 - 300 millions post/year, mostly supplied for meeting the command of village, sold out a part.
- Post shrimp cost: 20 - 30 dong/shrimp (at the moment post price reduced about 50% compared with the time of 1997 - 1998, because of the hatchery increasing and completed technique in the local mostly not changed).
- Included: Hatchery owner, technician (1- 3 persons), hiring (max is 2 -3 persons/hatchery).

Real partner: Hiring (very little), not in the field of the village, so it's not characterized.

Labour character: Often, highly months: August, September. Raining season 2, 3, 5 is little operation. 100% is the male. Relatively well education (secondary graduated), age from 18 - 35 years old.

Property:

Average 4 - 5 persons/household. There are much more conditions than the sailor.

Income: From 500 - 600.000 dong/month (free meals). Two ways of payment, counted by the stable salary and counted by percent. Average 800.000 to 900.000 but the job is harddship and late at night often. Not borrow the capital because of without guarantee property, the property is similar like above partner.

Not poor as exploit and rear, gearaly is the relatively stable income.

4. Shrimp rear for meat.

- All the village there are 2324 ha could use for aquatic rear, exploit 1976 ha.
- Main rear type: Shrimp rear combined with the forest growht to be prior with the high rate. However beside there are much households didn't want to combine the shrimp rear with the forest growth. This expressed tat many populations still thought that with the high rate would be bad effected to the water environment in the pond for shrimp hatching.
- Prioir aquatic framework.
 - Shrimp and forest (combined with crab, fish, arca and snail). First class.
 - Separated shrimp and forest. Level 2.
 - Intensive farming and semi intensive farming rear. Level 3.
 - Extensive culture shrimp profession advanced. Fourth class.
- Wishing of the people which rear the aquatic.
 - Technique training. First class.
 - Fishery document. Level 2.
 - Information on TV, newspaper and radio. Level 3.
 - Performance framework. Fourth class.
 - Coast top seminar. Fifth class.
 - Another place sightseeing Sixth class.
 - Technique consultant staff. Seventh class.
- The relationship of the aquatic rear people.

Unit/Organization	Important level (1= most, 15= ending)	Closely level (1= most, 4= ending)
The services (food seed, product purchasing...)	1	3
Surrounding people	2	2
Village, hamlet government	3	1
Produce co-operative/forest and fishery.	4	3
Bank	5	3
Farmer association	6(?)	3
Television/radio/magazine	7	3
Women association	8	3
Veteran association	9	3
Private borrow person	10	3
Agriculture forest and fishin courage staff	11	3
Forestry	12	3
Youth union	13	3
The projects	14	3
Border - guard hatchery	15	3

Total of shrimp rear household: *There are 445 the poor households on the whole village, mostly are the freedom immigration households occupied illegal forest land for rear shrimp.*

- The policy of the household of shrimp rear and borrow the capital: each of households to be borrow 10 millions dong, not even with the square of rear shrimp is large or small. The bank for borrow is the branch of the Bank for Agriculture of the province, mostly is short term loan, the interest is 0,9 - 1%/month.
- Because of not enough the capital, the households must loancredit of black market or borrow from the agent of material collection.
- The rear household mostly still be single operation?

Rear direction of the poor.

Labour character: Lowly education, difficult to understand and apply the Science and Technology advances into produce; crowded person in family, little labours; Freedom immigration from another place. The poor households (because of recent years happened disaster and harvest lossing): 40% is lowly result. The family is included 4 - 5 persons. Needed to united to carry out the idea that: In the rear households now, how much per cent are there the poor households? The criterion to appreciated the poor households in aquatic rear? Among recent the poor households of the village (445 households) how much are there households ever rear shrimp and then changed job?

Property:

- Income: 500.000 dong/month/households (in the households there are more many labours will higher about income) from the shrimp pond, and out of the shrimp, also releasing the crab, fish....Some of the households advantaged the sandbank to grow the flower vegetable. Another expenses are 200.000 dong/month. The income not large innovated in the recent years up to now.
- Small land square is very narrow, not suited with shrimp rear (because of high place, not ability to be flooded, next to the sea, and consolidation level very large in annual).
- Small capital. If the debt is over 10 millions are poor.
- Income source: Mostly is from Aquatic Rear, cultivated operations only played the role is very limited. The income from the forest is nothing. (See diagram).
- Borrow capital source: The Bank of black credit (high interest) - borrow the first money of the purchasing agent, hiring owner. Max is 10 millions. In the year of 2004 to be loan maximum is 18 millions.

Impact elements

- The bank: The place where supplied the credit for the operations for pond construction, seed purchasing, materials and means of produce.
- Forest and fishery: Directed to delivery the land, managed the land for shrimp rear.
- Purchasing agent: Decided the aquatic material cost.
- The partners such as People's Committee, Aquatic and Agriculture , the association related further those three partners. Role: contributed in the land delivery, resettlement houses construction for the poor, created the condition for them to take part in the service produce operation.

Lost by shrimp diseases: Detail how is lost (2002?2003?2004?)

Hiring labour.

Labour character: Concentrated for the time of dredging pond.

Not as poor as exploit and rear, generally the income is stabled.

Income: From 500 - 600.000/month (free meal). Not borrow the capital because of without property for guarantee, the property as like above partner. Counted as the dividing solution, often is 10% of total income level gained by the rear household. Out of the shrimp there are another income areas such as: Crab, fish....plus more than 200.000 dong/month.

Effected element: Effected by the level of income of the rear owner: The market (direct effected to the income), effected by disaster and epidemic, policy information is not much significant;

Group of food exploit households for brood shrimp:

About snail exploit for brood shrimp: Exploit time is about from August in Sun Calendar to the Tet of Solar Calendar. Usually there is some of household follow this job, and mostly are children (14 -15 years old) responsible. The snail cost is about 30.000 dong/kg, after one night each of the family if there is 2 -3 labours, that households could gain 3 - 4 kg. The second style in the snail exploit is the exploit households by crawling vessel could gain the snail mixed with srhimp. After classified, would sell the snail for the seed produce base. The snail hatching household generally is without stable job, only made the negotiations by mouth, there is no the contract. The income is only for daily meal. Property: There is small vessel and not; without stable building. To be the freedom immigration people, without land and building.

Expected about 200 households.

5. Input service:

- Food, chemicals, medicines and finished product and machinery supply.
- Capacity: Only level 2 (three bases).

6. Output service:

- There are nine stable agents (business registered), also there are tens of boats from another locals to come to collected the products in aquatic rear such as: shrimp, crab, types of fish, after purchased and preliminary treatment the products would be delivered into the processing factory.
- Each of bases stable purchasing there are from 2 - 3 hiring **labours**.
- Purchase price about 300dong/shrimp.
- Request to supplegment following information:
- Output household good relation with srhimp rear household and processing bases by how? Did they make any agreement contracts? Is there any confidential regulations about the purchase territory and price?

Hiring for the input and output service.

The poor partner: Hiring (very little), not in the field of the village, so it's not specific. Hygiene, gained shrimp, selected shrimp...

Labour character: Usually, 100% is male (because of the religious not employed women labour). Relatively well education (secondary graduation), age level is about 18 - 30.

Job?

Property: Not as poor as exploit and rear, generally the income is relatively stable.

Income: From 500 - 600.000 dong/month (free meal). Not borrow the capital because of without the property for guarantee, the property is same as two mentioned above partners.

Effectuated element: The market (direct effected to the income), little effected by epidemic and disaster, information policy is not much significant; little effected by the management of the village.

7. Processing.

- Out of the Ngoc Hien district - Nam Cam district there is a base. There are labours of Tan An village to go to work.
- The province there are 25 processing enterprises of aquatic goods, among there are 20 of processing bases of export shrimp. (gained goods from the agent and export direct).
- Partner: Base owner (state enterprise, left are stock and private companies), management staff, technical staff, usually labour and farming season labour (90% is women).
- The risks and difficulties which processing enterprises had to cope with? Mostly are market and when rear aquatic, happened epidemic, material price is strongly increasing and most special is the situation of mixed impurities with the aquatic material in some agents and capital source.
- When purchased, the factory is very interested into the quality of material shrimp? Inspection quality of the material mostly based on the sensible.

Processing - exporting enterprises:

This is the partner which played very important role in the market approach term and the aquatic products. They played the decision role in market control because of the large consumption level and prices on the market to be decided very from the advantages and difficult in their business. They also carry out the standards for the size and quality for each of the material products. All of the whole of important staff or the owner of processing - exporting enterprises to be interviewed are young businessmen aged from 30 -50 years old and relatively high education level and professional. Only having 10% among them is just high school graduation and 90% left are university graduation. Special is most of them are having the certificate suited with their professions. This is the advantage point in the accessing of advanced science and technology and bravely invested into the produce chain of the modern industrial and registered the food quality management system and food hygiene safety. That is the beginning for the introducing and export market looking for, stable bases for the integration processing. Operation expenses in annual of the enterprises of processing and export is very large. The average value is nearby 450 billions dong (for the large enterprise this number is 2.000 billions). We could see that the expenses for buy the material occupied the basic density (over 8%), and next is the stable property amortize, the money spent for payment the profit of the bank is relatively high (occupied nearby 1,5%), left expenses included material expenses for fuel + electrical + water, labour salary, transport expenses, contact information, tax and another expenses....So we could see that the bases for processing and export needed to mobilized great amount of capital and they must payment the interest level is very heavy. Many enterprises in Ca Mau applied the quality management programs

such as HACCP (two enterprises), GMP, SSOP; some of enterprise granted the ISO 9002 certificate (4 enterprises) listed in the list of export goods by this market by EU (based on the data of Ca Mau Service of Aquaculture supplied). The technology and processing capacity increased in many times and equality with the countries in the area and further forward than many provinces and cities in the country. In Ca Mau province, at the moment there is 19 of the conveyor belts IQF (over 14 enterprises) with the capacity is 15.500tons/year; total of processing level of all the whole provinces are 80.000tons/year. This is the congratulation development step of the Ca Mau processing export aquaculture profession. However, at the moment and afterwards, Ca Mau enterprises needed to have the solutions to stable the market, define the material source, product mechanic to find the new market, prepared to investment into equipment and technique in processing, training high skillfull labour. The aquatic products of processing and export of Ca Mau not variety. The number of 77% of the capacity is approximatedly with 97% of value the freeze shrimp made us have to worry when large markets about shrimp there are abnormal changings.

8. Domestic consume and export:

- Domestic: Little, mostly for the restaurant, hotels in HCM City.
- Export market: At the moment in Ca Mau provinces there are over 50 partners in purchasing export aquatic from more than 20 countries and territories on the world, but these goods still depended too much on US market. In the year of 2003, the black -tiger shrimp amount in Ca Mau exported to US occupied about (60%) of export aquatic goods, approximatedly over 16.000 tons. Another markets such as: Korean strongly spent the goods of cuttle - fish, octopussy and grilled chopped fishes; Japan fond of the small shrimp amount and black - tiger shrimp goods valued increasing...China fond of ice shrimp goods and dried.....In the year of 2003, Ca Mau exporte to the EU market with the capacity is 3,1%; the value occupied 1,7%; aquatic goods exported to the EU market still facing with the main difficulties are technique barrier... expected to the year of 2004 would be more difficult because of the case of US about shrimp devaluation making the disadvantages pressure about the begning market and still be effected in coming years. So, when we lost US market, which kind of market that Ca Mau enteroprises sell amount of black - tiger shrimp goods for? This is not included the processing amount in the year of 2004 would be increased more than the year of 2003, another markets if pressed the price would be large effected tot he produce of the hundred and thousand farmer fisher and forest people and processing enterprises of aquatic, specially is up to now over 80% of aquatic rear households in Ca Mau provinces proffesion in black - tiger shrimp and not interesting to another partners. The aquatic expert defined that in the year of 2004, the Aquaculture should consider carefully whether should expanding the market or stepping deeply into the exploit of the empty places in the large market and traditional such as US, Japan, EU, China and some of Asia countries. More expanding the new market is very well, special is in the time of the difficulties that aquatic industrial is facing. However, that expert also said that, among some new markets, some market only in the small market, not remarkable amount when to compared with the efforts that we must

spent, export turnover value into the new market is unable to compensation for the export value reduced in the available markets. Therefore, Ministry of Aquaculture must having the strategy about the market, and the export partners.

Role and the operation of the women in the market chain.

1. Exploit

- To be the one who selected shrimp or knitting the net.
- Working by the farming season.
- Income? Unstabled, not often and depend on the ability: How much?
- Level: Primary and secondary school or illiterate.
- Role in the family: Depeding, cooking or looking after children.
- Little person to be the main labour in family.

2. Shrimp rear

The operations of the women played the important role in the family of the poor households. They took part pond for shrimp rear management; looking after the children; to be the hiring labour (selected shrim, fish for sea exploit means, knitting the bottom net...) In the pond for shrimp rear, the heavy job such as digging, construction is for men and left mostly responsible by the women.

3. Processing

Number of 15 thousand of women labours to be the freedom labours on the country. The poor: Off the top cover of shrimp (poorer than another, because of without the technique, only working by the farming season) occupied about 15% on the total of labour amount.

Low educate level, there is no property and land (for many women labours) and the poor partners are only temporary (waiting for the time more development of skill would be changed to higher level). Finished product is the poorest term.

In the family is only having 1- 2 are the main labours, in some cases parents must go to take the salary replace for children. Very little persons are married, mosly are single (over 80%) working to bring up the parents and brothers. Most of them rent the hostel, because of from the rural to the urban to become the hiring labour.

Income: From 800 - 900.000 dong/month. Highest will be more than 1million.

Effects from outside

Who will have to suffer the most serious damage from the market? The shrimp producer would be effected most serious; the hiring labours not effected much.

The case effected very large for the aquatic rear person because of material cost is reduced.

Would be reduced the income because of the common benefit is reduced too.

Solution: The farmer must created the conditions by them self to bring up more aquatic spices or plus growth the flower tree. The one who didn't have enough conditions must become the hiring labour to gain much more income.

Common problems of the shrimp market chain

a. Credit

- Government credit.

+ The Bank for Agriculture and Rural Development for each of aquatic rear household to borrow average is 10 millions dong/household not even with the square of land by the style of guarantee.

+ The policy Bank let the poor households borrow from 5 - 7 millions dong by the way of guarantee. The interest by the common regulation.

- Private credit:

+ The private let borrow the interest, it's changing from 5 - 10%/month.

+ The agents deposited the money to buy the material and then minus but still reduce the price compared with the freedom market.

- And another profession commission supported not enough.

b. Another services

- All the whole village there are seven fresh water systems connected to 512 households.

- All the whole village there are 570 telephones (average in 5 households there is one telephone).

Medical: The village there is one hatchery and in every hamlets having the medical groups supplied the health care service for the community. Each of the medical groups there are over 10 persons, served for the partner from 100 - 200 people. Mostly the serious diseases must change to the district or provinces because of the material bases still be weak.

Education: Generally the common education level of the village only reached the primary level, common culture surface is 7th class. The rate of the illiterate occupied about 98% in the whole of village. At the moment, all the village is only having 8 point of primary school and one secondary and high school. The rate of not educated children is over 5% of the whole village. And now the village is having the plan of construction more than 6 points of school with 20 classrooms.

Approach to the social force resources

The organization offices related to the poor

a. For the rear shrimp poor:

The most closely related organizations to them included:

- The bank: Where supplied the credit for the construction activity of pond, seed and material purchasing served for produce.
- Forest and fishery: Where directed to deliver the land and managed the land for shrimp rear.
- The agents for profession shrimp purchasing decided the aquatic material cost, deposited the money to buy material for the household owner.
- And while, another units such as village People's Committee, Office of Agriculture and Aquaculture, the associations further relation than three above partners.

b For the hiring labour.

The village People's Committee played the enthusiasm role in the process of stabled their life. Special is the private credit capital placed the closed relatively position than this partner, while the associations and the bank placed relatively so far.

Common estimated about the social associations:

The associations and role of them in aquatic rear: many associations organizations to be established in the field of the village such as: farmer associations, veteran associations, youth union, learning courage association, people inspetor, elderly association. And among them, farmer association played the directed role in aquatic rear such as capital borrow organization by the way of credit, courage to support the consolidation in the produce.

And left associations, function offices....still not ready supported direct for the poor households because of the field too wide scattered distribution, heavy traffic, without much of audio and visual means.

For the women, village women association there are 9 supporting programs for 350 member households (on the total are 925 households) making economic and gained the basic source from the Hunger eradication and poverty reduction projects of the Government and association, each of the household could borrow from 1 - 2 millions by the way of guarantee, in case of well business would have the chance to continue to borrow (mostly for growing and feeding cattle). In the year of 2003, the associaion of Province appointment the experts to training in feeding (one class) for the village, but from then to now, still didn't open the new class.

III Common estimated and solution proposed

1. Estimated:

1.1. Oppoturnity:

- The Government granted so much of interesting for the Aquaculture such as upgrade invesment to the infrastructure of fishing; scheme to develop the aquatic in the local to the year of 2010; enforced much more of lines and policies to courage to development the produce such as: credit policy, tax, supply red notebook for the aquatic rear households for the forest land, separated shrimp from the land, increasing the quality of shrimp and fishery practical.

- Fishing association and the public association more and more stepped into the deeply operations, well done the role of staff, consultant and informations supply about the science technology, market and to be the bridge between the Government, enterprises and people.

- Investment attractive ability, supporting cooperation of the organizations and individual in the domestic and abroad more and more increasing.

- Aquatic command of the world still large, the market more and more expanding.

Sea surface resources and field is large, suited for exploit and aquatic rear, special is shrimp rear.

Variety aquatic resources made the advantages in competitive in exploit and advance extensive farming rear.

The processing bases next to the material sources. Easy to created the direct relation to the producer to stable the material source, and while, could shortedn the market channel, reduced expenses and product cost, increasing the competitive ability in the market.

Many processing and export bases reached the international quality standard, hygiene and food safety.

The spontaneous development of the market network in the province in somehow met the command in the beginning. Many enterprises acted in market access.

Aquatic goods character products more and more increasing all in the quality, packages, brand.....placed the stand position on the international market.

Abundant human power, cheap labour, variety natural and industrial food resources. This is the advantage in the rear and needed to exploited well to increased the competitive ability.

1.2. Some existing:

- Many lines of the Government, professional and province slowly in execution.
- Scheme still must after the spontaneous development of the people. The scheme management of the levels and professionals and locals still limited.
- Common environment and water environment for aquatic rear is polluted and extremely serious downgrade.
- Seed quality is still bad. The apply of advance science and technology into the produce still limited.
- Some countries imported enforced the commerce protection policy and set up trade barrier made cost of products of rear and exploit up and down not stable effected so much for the producers and most is the poor households.
- Infrastructure system of fishing still not meeting the produce development command special is the hydraulic system served for aquatic rear.
- Still be limited in the credit working to meet the command of capital used for produce of the people.
- Rear partner and export is too little mostly is shrimp and must much depend on 2 large markets are US and Japan. When these two markets changed would bad effected to the life of the producer and the poor households.

2. Solutions:

1. Again scheme the rear and exploit sea in detailed for each year and in the united term to the people understood and operated by the very scheme.
2. Investment new technology to improved the capacity, amount and quality in rear and sea exploit. For example, ecology shrimp rear, industrial and semi - industrial rear.
3. Variousize the rear partners out of the shrimp to increased the income and created much more fuel resources for export processing.
4. Strengthen to investment in logistics service system construction of fishing, and fishing infrastructure.
5. Raising the seed quality and strengthen the training job in fishery exercise in the site, construction and multiple the produce framework with high result.
6. Combined with the competence professionals to strengthen the human power training for the people.
7. Province People's Committee enforced the lines, policies to created the conditions for the poor households borrow the capital served for produce.

8. Calling the investors in the domestic and abroad investment into the rear field and exploited the sea on the field.
9. More and more improved the operations of the association and commission of profession on the field.

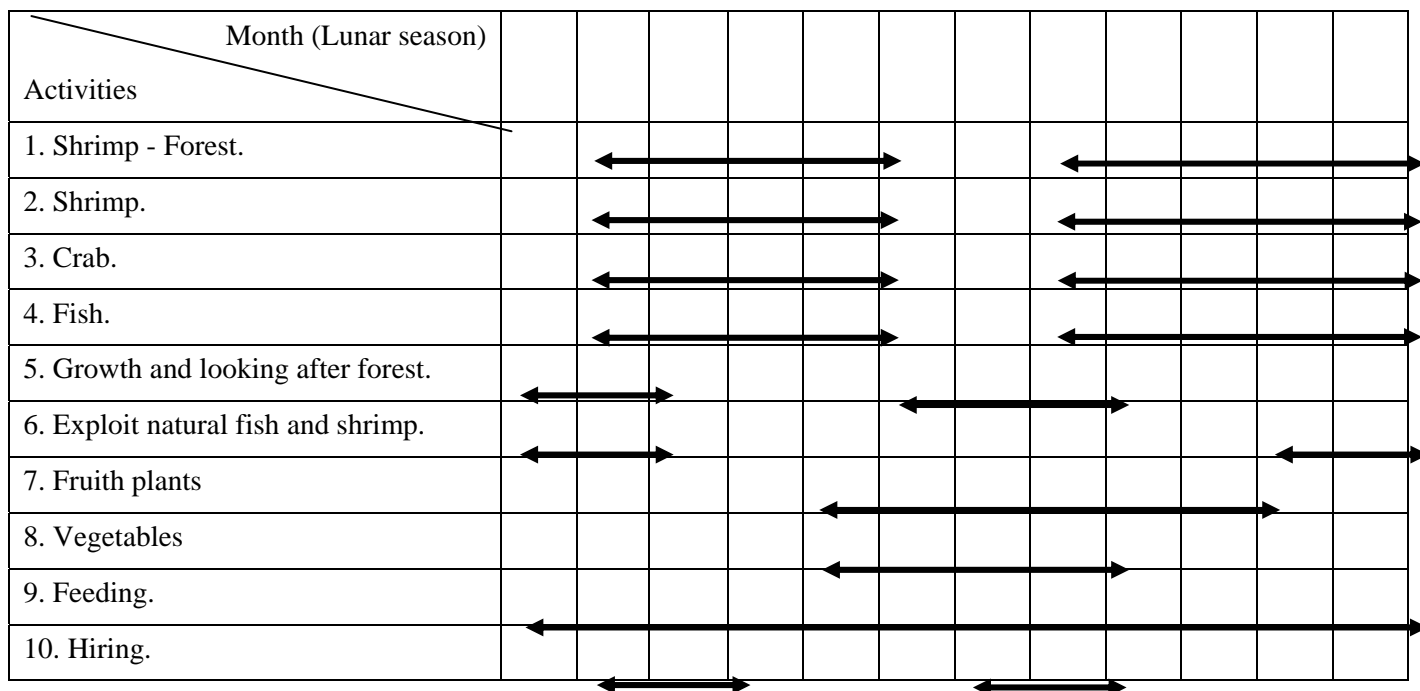
Some matters that the poor partner interesting:

- Red notebook supply.
- Separated shrimp from the forest.
- Increasing the square of aquatic rear.
- Supplemented the rear species effected.

3. Conclusion

Tan An village of Ngoc Hien district is the revolutionary base long ago, at the moment still on the development way when the district base just established on the field of the village. However, this is the poor village of the province. In order to ensure to get the target of hunger eradication and poverty reduction, needed to concentrated to development the suit frameworks for the poor. The poor whose little capital and knowledge about the aquatic rear and sea exploit still limited, so the frame of aquatic rear owned the first investment number lowly and effected sea exploit framework which is high result and low expenses needed to couraged to development. Moreover, the technique of rear and exploit sea must easy to applied for the poor when they took part in the fishery training courses.

Figure 3: Tan An village common aquatic rear farming season calendar.



The main farming season rear are included two seasons, first is from February (Lunar Calendar) to May (Lunar Calendar), second from August - December (Lunar Calendar). Between these two seasons, the poor who took part in hiring labour such as pond dredging from July - August (Lunar Calendar) and from January - February (Lunar Calendar).

The professions of produce arranged by the prior order:

Action	Sea exploit	Aquatic rear	Gardenning	Feeding	Another service business operation
Target					
Income	2	1	4	5	3
Labour	1	2	4	5	3
Experience	2	1	4	5	3
Expense	1	2	4	3	3
Risk	1	2	4	3	5
Ranking	2	1	4	5	3

Through the diagram we saw that for the poor and the women in Tan An village there are tow professions are main most important for them are aquatic rear and sea exploit.

- About aquatic rear: Mostly they took part in hiring working for the seed hatcheries and hiring dredging for the shrimp pond owner. And also they took part in forest growth and looking after and managed forest...

- About sea exploit:

+ For the men who took part in the sea exploit means.

+ For the women who took part in the product classified when the vessel came to the harbour, knnting the bottom net, preliminary treatment and dry products processing...

Circle Diagram:

Annual income mechanism of the aquatic rear households in the researching field:

Natural shrimp: 17,20%

Snail: 0,80%
Crab: 13,30%
Fish (rear and experiment): 2,80%
Rear shrimp: 65,90%

1. The list of the households which took part in the interview:

No	Fullname	Year of birth	Address
1	Vo Tiet Cuong	1950	Rach Goc A Hamlet
2	Ta Van Quan	1957	-
3	Bong Van Ty	1935	-
4	Lam Van Hut	1958	-
5	Nguyen Phuong Quang	1947	-
6	Lam Van Nghi	1948	-
7	Dang Van Canh	1960	-
8	Hong Van Doan	1970	-
9	Hong Van Quan	1938	-
10	Hong Van Ngoan	1968	Rach Goc A hamlet
11	Ho Van Khai	1968	-
12	Ho Van Dung	1964	-
13	Ho Van Ngoi	1963	-
14	Ho Van Bay	1968	-
15	Ho Van Thai	1961	-
16	Ngo Van Phuc	1947	-
17	Lam Thi Mien	1960	-

2. The list of material purchasing bases on the whole of village:

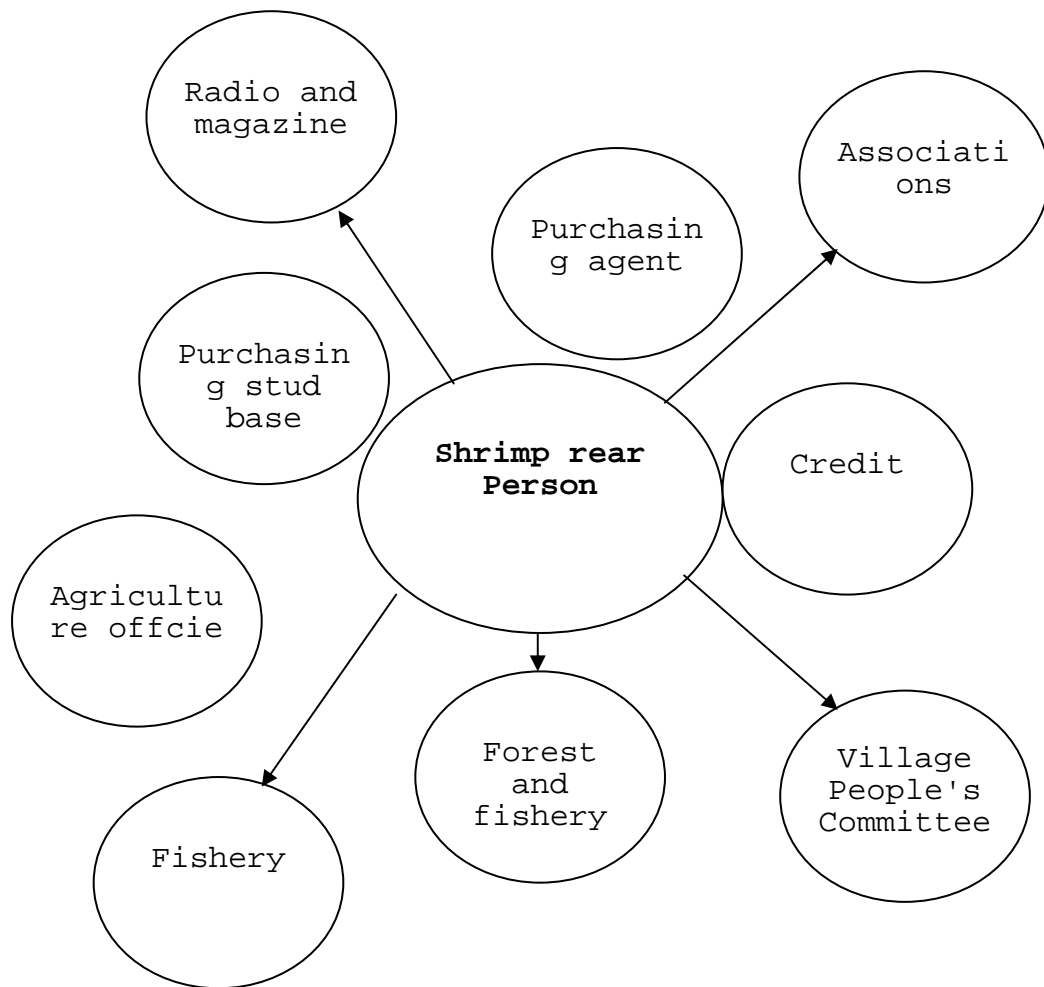
No	Enterprises	Address	Capital (million dong)
1	Thanh Tai Private enterprise	Rach Goc Hamlet- Tan An	40.000.000
2	Nguyen Van Say Private enterprise	Nam NghŰa Hamlet - Tan An	35.000.000
3	Tam Tam Private enterprise	Rach Goc B Hamlet - Tan An	35.000.000
4	Diem Phuong Private enterprise	Rach Goc Hamlet- Tan An	40.000.000
5	Thanh Thu Private enterprise	Rach Goc Hamlet- Tan An	35.000.000
6	Thanh Binh Private enterprise	Rach Goc Hamlet- Tan An	35.000.000
7	Minh Canh Private enterprise	Rach Goc Hamlet- Tan An	35.000.000
8	Phuc Thuyen Private enterprise	Rach Goc Hamlet- Tan An	35.000.000
9	Huynh Khai Private enterprise	Rach Goc A Hamlet- Tan An	567.000.000

The list of the offices and households who took part in the seminar Analyze the market chain and livelihoods of the poor who took part in the Aquatic rear.

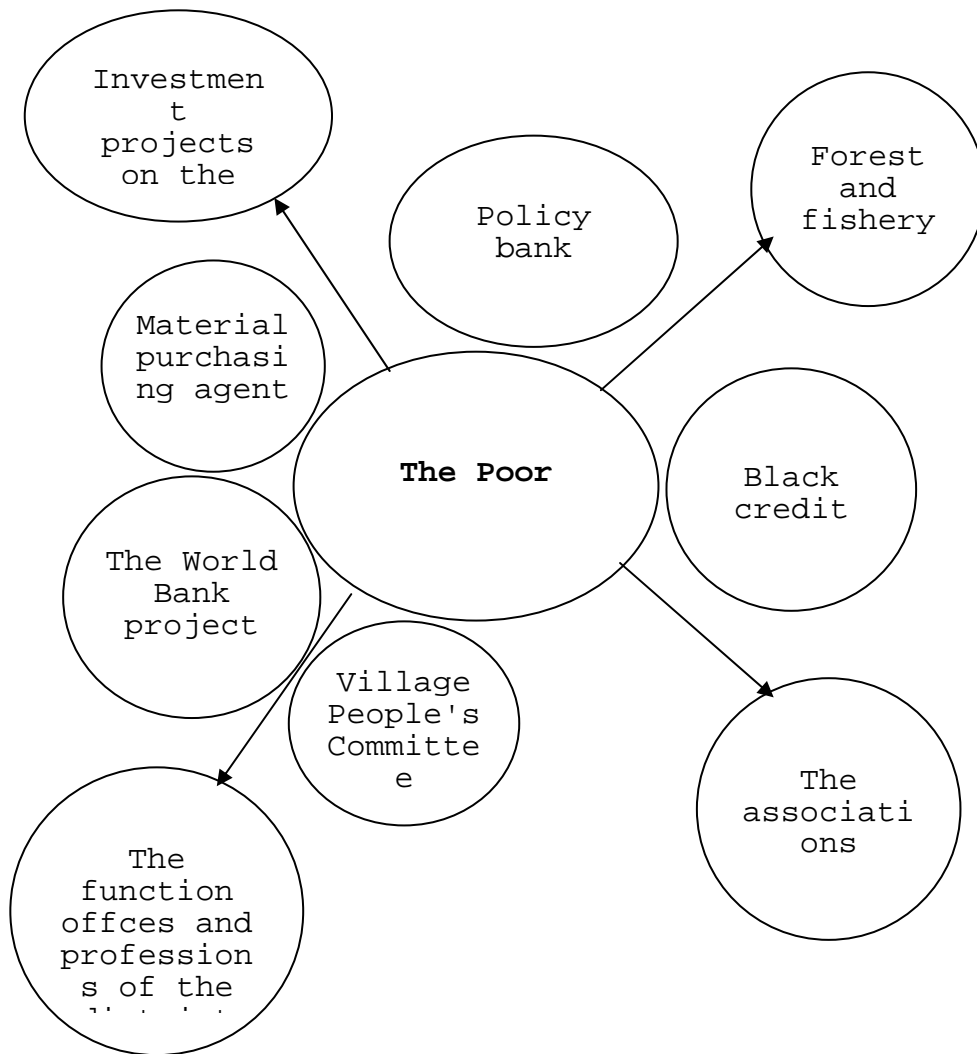
No	Fullname	Unit	Noted
	Huynh Cong Ut	chairman, people's committee	
	Nguyen Thanh Nhanh	Assistant chairman, people's committee	
	Lai Thanh Loi	Policeman	
	Tran Thanh Phong	Military officer	
	Pham Minh Luon	Transport and communication officer	
	Nguyen Hoang Huong	KTTC	
	Duong Thanh Hai	veteran	
	Tran Ngoc Giau	women	
	Nguyen Cong Binh	country front	
	Nguyen Phuong Nam	information culture	
	Ngo Dieu Linh	DC	
	Huynh Minh Nhu	committee office	
	Huynh Van Minh	Kinh Ba	
	Luu Van Dung	Kinh Ba	
	Ngo Van Ha	Kinh Ba	
	Huynh Van Hung	Kinh Ba	
	Huynh Trong Tam	Kinh Ba	
	Ly Thi Ut	Kinh Ba	
	Luu Van Vinh	Kinh Ba	
	Huynh Van Dang	Kinh Ba	
	Ly Van Binh	Kinh Ba	
	Le Van Chau	Kinh Ba	
	Pham Van Thao	Rach Goc A	
	Huynh Hoa Viet	Rach Goc A	
	Huynh Van Tuan	Rach Goc A	
	Huynh Viet Hoa	Rach Goc A	
	Huynh Phi Hai	Rach Goc A	
	Huynh Van Thong	Rach Goc A	
	Nguyen Hoang Khai	Rach Goc A	
	Tiet Minh Ngay	Rach Goc A	
	Le Minh Tien	Rach Goc A	
	Dang Van Hung	Rach Goc A	

Along (venn) diagram of shrimp rear group.

Shrimp rear group:



For the poor:



**THE ANALYSIS ON MARKET CHAIN
AND LIVELIHOODS OF THE POOR IN BREEDING
SHRIMPS FOR EXPORT IN QUANG TRI**

1. OVERVIEW ON THE PROJECT AND THE SELECTION OF RESEARCH SITE:

1.1 Overview on the project

1.2 Objectives of research

In the scope of EC-PREP, research group of Quang Tri province has carried out research and analysis in Trieu An pilot commune with the aims of:

Understanding the market chain of breeding shrimps; identifying poor subjects involving in the chain.

Investigating, analyzing livelihoods of the poor and women.

Giving out recommendations to support the living of poor subjects.

1.3 Members of the research group:

1. Nguyen Thanh Tung, Director of Quang Tri Fishing Promotion Center.
2. Truong Thi Quyet, Quang Tri Fishing Promotion Official.
3. Tran Quoc Tuan, Quang Tri Fishing Promotion Official.
4. Nguyen Van To, official of Trieu Phong NN-§C Department.

1.4 Duration and site of research

From 15/5/2004 to 30/10/2004

Criteria for choosing the pilot communes:

- Communes which have a developed shrimp breeding movement and are poor communes in Quang Tri.
- There are many subjects involving in the shrimp breeding community, the market chain has a number of features that can represent for Quang Tri's one.

Based on these criteria, Trieu An Commune, Trieu Phong District has been selected because it has the following characteristics:

- Being one of the poor communes in the province.
- Shrimp breeding is a newly-developed job and has created strong impact on the people's lives in particular and on the socio-economic situation of the commune in general.

- Having the typical links in the shrimp breeding market chain including shrimp farmers, breeder shrimps farmers, middlemen, output and input supply agents, the poor participating in the mentioned links.

To get an overview on the market chain in Quang Tri, 2 more communes are selected including Vinh Quang Commune in Vinh Linh District and Trung Giang in Gio Linh because:

Vinh Quang Commune in Vinh Linh District:

- Having the developed exploiting activity and its exploiting crew can catch natural brood shrimps to supply for breeder shrimp raising farms.
- There are 3 farms supplying man-made breeder shrimps (representing for the first links of the market chain).

Trung Giang in Gio Linh District:

Having the developed exploiting activity and its exploiting crew can catch natural parent sugpo prawns to supply for breeder shrimp raising farms (random shrimp catching).

The 3 communes above have included all typical links of the province market chain; besides other links will be taken into consideration in some typical regions such as Da Nang, Nha Trang (shrimp consumption places), input supply agents in Dong Ha Town.

1.5 Research Method

Collecting information through some methods as follows:

- Short surveys in rural areas with the participation of the community.
- Group interviewing.
- Individuals interviewing.
- Collecting and analyzing primary and secondary statistics.

1.6 Research Plan

The procedure on analyzing the market chain and livelihoods consists of 6 steps:

Step 1: Identifying pilot communes to start pilot research, then identifying and drawing diagrams on subjects involving in the chain and other relevant ones.

Step 2: To each group of subjects, identifying its position and role in the chain.

Step 3: Interviewing the representative of each group (including the poor ones) in each link of the chain. The interview content will be based on an already-specified livelihood diagram.

Step 4: Analyzing the complete livelihood to poor objects in the chain.

Step 5: Research group members together examine the drawn market chain diagram, supplement or amend based on the results from the interviews (step 3).

Step 6: Organizing meetings with subject group representatives, getting feedback on the drawn market chain diagram, and supplementing more information if necessary. At the meetings, the research group and the representatives will approve the last diagram and discuss solutions to supporting the poor objects involving in the chain.

1.7 The contents of analyzing the market chain and livelihoods:

a. Describing market chain and its links, identifying objects involving in each link and defining poor objects.

The market chain:

- Period for exploiting brood shrimps.
- Period for producing breeders.
- Period for breeding
- Period for processing
- Export markets.

b. Analyzing on the livelihoods of the poor involving in each link (as above)

- Resources:

- Human resources.
- Society resources.
- Facilities.
- Natural resources.
- Financial capital.

- Risks.

- Subjective impact factors.

c. Finalizing the market chain by organizing meetings to get feedback.

2. BASIC INFORMATION ABOUT TRIEU AN COMMUNE:

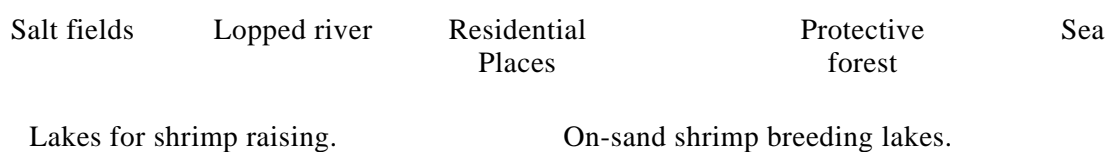
2.1 Geographical conditions, natural resources:

Trieu An Commune is located to the North East of Trieu Phong District, near Trieu Phuoc Commune to the South West, Trieu Van Commune to the North East, China Sea to the South

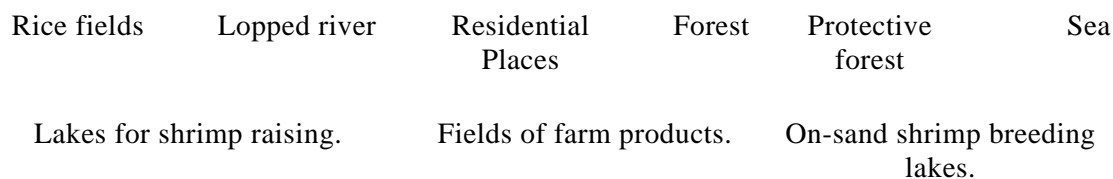
East, and Thach Han River to the North West. The overall natural area of the commune is 1431.433 ha in which the area of fresh water accounts for 13.889 ha; brackish water is 74.60 ha; forest area is 102.5 ha. Presently, there is 87 ha of area for raising shrimps of which 66.4 ha for semi-intensive farming, 14.6 ha for extensive and 5 ha for intensive farming. (Trieu An map: Annex 7.11)

- **Sources of benefit in Trieu An:**

*Figure 2.1: Diagram on the sources of benefit in Trieu An
(Cross Section A-A)*



**Figure 2.2: Diagram on the sources of benefit in Trieu An
(Cross Section B-B)**



2.2 Socio-Economic information

2.2.1 Human resources

Population: 6359 people; 1360 households; there are 319 households raising aqua-products in which 152 raising fresh-water products, 181 raising shrimps, 2 raising by cages. There are 523 exploiting households. The number of the illiterate in the commune is 97; 1531 finalizing primary schools, 1577 finalizing secondary schools, 273 finalizing high schools, 84 graduating from universities, and 27 post-graduates. Majority of the commune population finishes primary and secondary schools (50%). There are 2679 labourers, accounting for 42% of population. Thus, 1 labourer has to support more than 1 person. Of 2679 labourers, there are 362 taking part in raising shrimps in which 581 ones raise fresh-water shrimps and 1736 ones exploiting the sea.

According to the assessment of the commune, the rate of rich households in the commune is 0.1% with the income of 30 mil.VND/person/year; 84.9% medium households with the income of 5.5 mil.VND/person/year; 15% poor households with the income of 1.5 mil. The total number of poor households in the commune is 202 in which 65% produces agriculture, 25% exploits aqua-products and 10% operating in other sectors. The poor households in the commune are not those who participate in raising shrimps.

2.2.2 Resource of assets

The total food productivity of the commune including other farm products changed to rice is 879 tons/year. The average food rate per capita is 137.2kg/year. The average income is 3,200,000 VND/person/year. The average workday value is 10.5 kg of rice/day.

In the commune, there are a number of projects which offer loans to expand business and credit funds of some organizations such as Farmer Association, Women Organization. However, Agriculture Banks and Banks for the poor are those with the largest role in lending capital.

2.2.3 Social order and security

Trieu An is a commune with good social order and security. The people are well aware of their responsibility for building and protecting the homeland. Despite being a poor commune, theft rarely occurs.

2.2.4 Infrastructure

The commune has the dyke of 12.2 km long; 15.5km drainage and tunnel; 32.5km inter-commune, inter-hamlet roadways, 5 transformer hatcheries with 99% of households using electricity. There are primary and secondary schools with 26 classrooms; 1 clinic institution. Besides, Cua Viet Freezing Factory and fish port are also located in the commune.

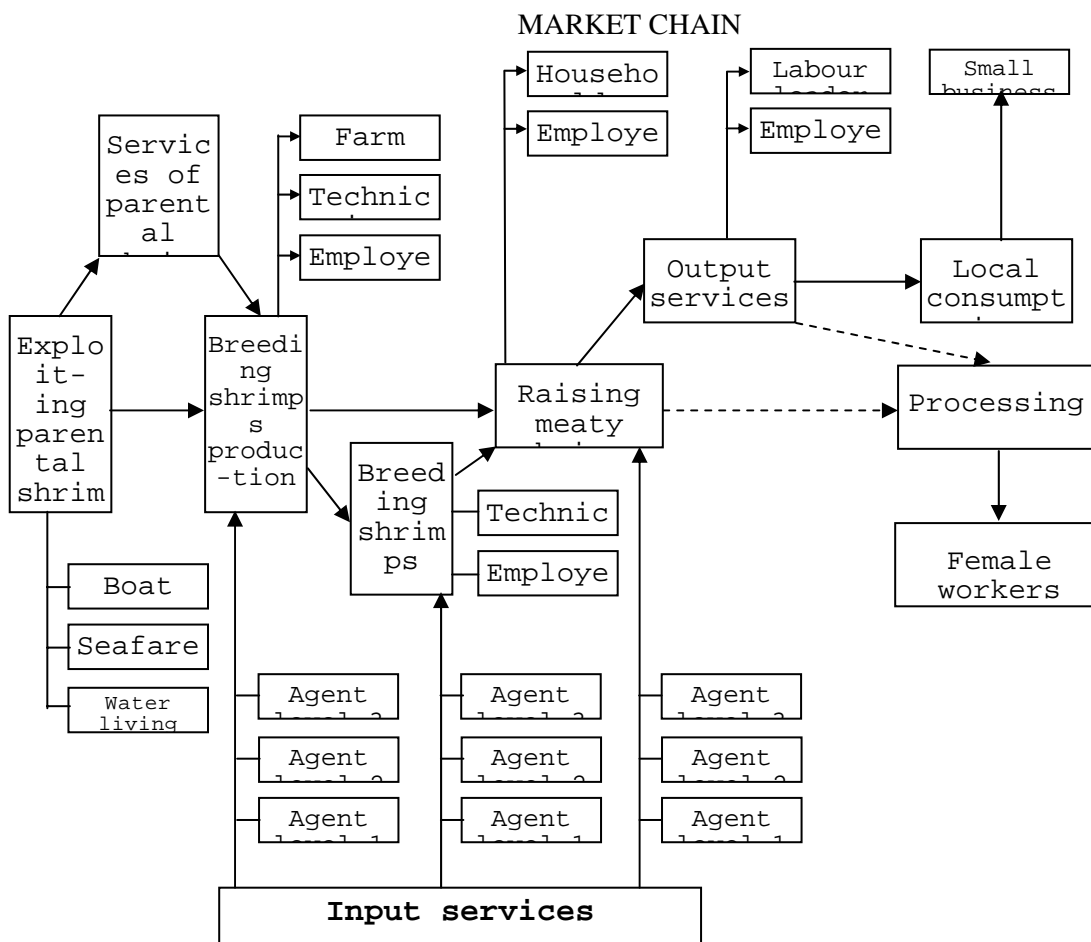
2.3 Major events over the past 20 years

Year	Events
1985	Strong storm, people in lowland lost their house and had to move to other places.
1989	Cua Viet Aqua-product Company recovered
1991	Dyke was over-flooded, flood occurred, rice season failed. Public works like transport roadways, schools, boats were heavily damaged.
1997	The petechial fever epidemic broke out.
1998	Electricity was transformed to the commune, harsh drought occurred.
1999	Strong storm occurred in November, causing heavy damages on fish boats, farm products. The people in the commune had to live on sponsored instant noodles and rice.
2000	The petechial fever epidemic returned; rice being infected by piriculariose could not harvest. The aqua-product export and import company stopped operating.
2001	Roadways were broadened; plan on infrastructure building for the commune shrimp raising places was set up.
2002	Plant structure was changed, Cua Viet Fish Port came into effect.
2003	Hydraulic channel, roadways, the commune committee office were built; sand preventing forest was planted; drought occurred.
2004	Ha Tay hamlet roadway has been covered with concrete, school has been built. Aqua-product processing company has resumed its operation in July.

2.4 The history of shrimp breeding job in the commune

Year	Events
1995	Shrimp breeding started mainly in the form of extensive farming, no risks occurred.
2001	In February, the province fishing promotion association assisted 5 shrimp breeding households to practise the form of semi- intensive farming.
2002	Shrimp breeding developed fast with 55.6 ha. The epidemic of white spots began to break out in March and August.
2003	The area of shrimp breeding in the commune was 63.5 ha; there was a bumper crop of shrimps, the price was rather stable.
2004	To 2004, The area of shrimp breeding in the commune has been 87 ha. The epidemic of white spots broke out in March, shrimp price fell down fast.

Sugpo prawn raising job of the people began in 1995 with 14.6 ha of breeding area and the form of extensive farming. Since 2001, the breeding area has been widened. At present, the breeding area in the commune is 87 ha with 242 households participating in which extensive farming is 14.6 ha (2 households), semi- intensive farming is 66.4 ha (222 households), intensive farming is 5 ha (18 households).



2.5 Exploiting brood shrimps

In Trung Giang Commune- Gio Linh District, people exploit brood shrimps by **Gi- Cuo** mesh. In a few years ago, some boats caught brood shrimps supplying for breeder shrimp producing farms outside province. In 2000, exploiting brood shrimps reached its highest productivity. From 2001 to 2003, the productivity of exploiting brood shrimps was low; shrimps caught were mainly supplied for producing farms inside province. In 2004, exploiting brood shrimps has sharply decreased, just 1 or 2 ones sometimes.

Other participants: Boat owners and boat crews.

Poor objects: Labourer on boats.

2.6 Brood shrimps services

In Cua Viet, breeder shrimp raising farm owners buy brood shrimps directly from exploiting boats of other provinces (Quang Ngai, Da Nang).

In Cua Tung, middlemen buy aqua-products from exploiting boats and sell for breeder shrimp raising farm owners.

There is no poor person participating in this period.

2.7 Artificial reproduction of breeder shrimps:

Artificial reproduction of breeder shrimps began in 2001. In the whole province, there are 4 breeder shrimp raising farms in which one is state-owned and newly coming in effect since 2003 with the capacity of 30 million post/year; 3 private ones with the capacity of each one of 7 million post/year. Production capability can meet 20% of the total demand for breeder shrimps of the province.

Mr. Thien, farm owner in Gio Hai said his farm produce about 6-7 mil. post/year. In 2004, the productivity has reached 9.5 mil. post/year, mainly supplying for local markets in the province and some others in Hue (Sia) and Quang Binh. There are 5 workers in the farm, in which 2 are engineers, 3 labourers. The salary of labourers is 800,000 VND/month for each (with food fee already subtracted); working time is from January to June every year; the remaining months, they do other works or come back home to do agricultural jobs. To the engineers, their salary is calculated based on the profit gained. Sources of parent breeder shrimps supplied for the farm is bought in Cua Viet on off-shore or middle-shore boats of neighboring provinces. The annual profit is 60-65 mil.VND. Capital source: 50% of their own and 50% of loans from banks. The risk

in breeder shrimp raising is about 40% (because of low rate of breeder shrimps which can survive from Nauplius to Zoea period) and the risk of weather (unfavorable climate in Quang Tri). Forms of breeder shrimp supply: shrimp farmers come to these farms to buy breeders. No poor people take part in this link.

2.8 Breeder shrimp raising

In Trieu An, there are almost no households raising breeder shrimps to supply for the market but to keep for home demand of raising.

In Trieu Do, the area of breeder shrimps raising is 2.3 ha, mainly supplying for surrounding communes such as Trieu An, Trieu Phuoc. Source of breeder shrimps is from Da Nang. Breeder shrimps raising began in 2000 but the area is not broadened. The profit is comparatively high.

Risks: from weather mainly, rarely from diseases.

People get knowledge about raising from training courses and conference documents rather than hiring technicians.

Using home workforce is more popular than hiring labourers.

Breeder shrimp farmers buy breeders directly from the farms not through any service.

Capital source: 100% of their own one.

2.9 Raising shrimps for food:

Calendar for shrimps raising season

Calendar for activities involving in shrimps raising job in Quang Tri

Activities	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Exploiting												
Artificial reproduction												
Shrimp raising												
Diseases among shrimps												
Product Consumption												
Processing and export												

Sugpo prawn raising job of the people began in 1995 with 14.6 ha of breeding area and the form of extensive farming. Since 2001, the breeding area has been widened.

Before 2003, there was only one season; since 2003, 2 seasons of shrimp breeding has been applied. There are many risks in breeding process mainly from White Spot disease; risks from natural disasters rarely occur.

Shrimp breeding job also suffers from outside impacts mainly from market prices.

Participating objects: breeding household owners including those who are poor ones, labourers (majority is poor).

2.10 Domestic Consumption

Part of low-quality products (shrimps with small size, soft cover and lack of heads...) are bought directly at breeding lakes, or through large middlemen by small-sized businesses to sell in small market in the province.

Small-sized businesses are those of wealth; they do not hire workforce so there are no poor households among these.

2.11 Processing and Export

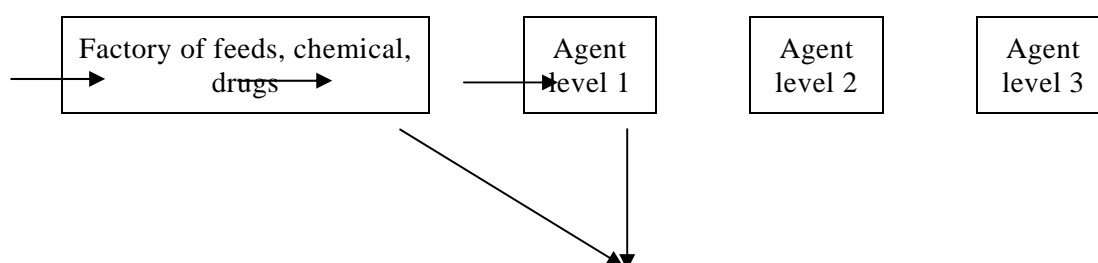
Before the year 2000, in Trieu An, there is Cua Viet collecting, buying and processing workshop (under Viet Ha freezing factory of Quang Tri aqua-product export and import company). The workshop is responsible collecting, buying and initially processing aqua-products from the North and South of Cua Viet to supply for Viet Ha freezing factory. Since 2000, because of facing many difficulties such as: lack of capital, materials; out-of-date technology...the workshop operation has more and more slowed down.

In 2001, in order to create a breakthrough, the province decided to build a freezing factory with advanced technology in Trieu An. To 2002, the factory building was finalized; however, because effective production ways have not been worked out, the province people's committee does not allow the factory to come into effect (in July, 2004, the factory began to operate). Therefore, outputs of Quang Tri shrimps are freezing factories in other provinces such as: Quang Binh, Da Nang, Khanh Hoa...

2.12 Input Services

Medicines, chemical substances, food manufacture Factories > 1- level agents> 2..> 3...> Shrimp farmers.

Figure 0-1. Diagram on the chain of shrimp input services



Poor objects: labourers for 1- level agents.

In Trieu An, there are 2 major kinds of agents: 2-level agents, 3-level agents which supply products directly to the people. There are 17 agents, located at 3 shrimp breeding hamlets in which 10 are 2-level agents and 7 are 2-level ones. Ha Tay hamlet has four agents of 2-level and 2 of 3-level; Tuong Van hamlet has 3 agents of 2-level and 3 of 3- level; Phu Hoi hamlet has 3 agents of 2-level and 2 of 3-level.

Products: Most of these agents get products from 1-level agents in Dong Ha town. Various products are supplied with all inputs (except breeder shrimps) for farmers such as tools (canvas), food, medicines, chemical substances. Major food products are Tomboy, Long Sinh, UP, CP, 3 Gold Coins, Coral, Profeed... There are 17 agents; each one can sell one or more kinds of food. Food Companies all assign their technicians to each field to give technical assistance for farmers.

Prices and Profit: Agents cannot increase the price, which is stipulated by manufacture companies. Two-level agents are enjoyed 5% of the total value of products sold and 2.5 % for 3-level agents.

Labourers: Two and three-level agents sell products directly to the people, 100% of agents in the commune do business on their own including buying products from one-level agents, carrying to localities, selling and transporting to hatching lakes without hiring any labourer.

Each agent often consists of 2 workers: a male (husband) who is responsible buying products and transporting to hatching lakes and a female who is responsible managing goods and some accounting tasks.

Assets and business capital: mainly borrowed from banks and one part is from their own money. 1-level agents offer loans of half of the total product value till the end of the crop.

Business Forms: 1-level is responsible to the Law and for paying taxes. At present, 2-level agents do not have to pay taxes and business registration licences. Shrimp farmers buy goods, products (canvas, food, chemical substances, medicines...) from 2 and 3- level agents at the beginning of the crop without paying all money until the end of the crop. This is a large sum of capital so these agents have to borrow part of the capital from banks to pay half of the total product value for 1-level agents. If two-level agents can build a long- term trading relations and create prestige, they can borrow 70% of the total product value. Each 2-level agent can supply products for 15-20 hatching lakes, or 25-30 ones based on different product brands (the number of households can be

larger because some share one lake). When farmers fail in the crop, the agents allow them to pay their loans later (the next crop). Sometimes, farmers are compulsive to maintain a trading tie with the agents because they can neither pay their loans nor change to buy another product.

When 2-level agents buy products which do not meet the quality, they can return them to companies, and in the case of product redundancy, they can give them back to 1-level agents. These 2-level agents do not have to suffer any risk of goods redundancy.

Shrimp inputs supply agents are also willing to help farmers in localities when they have demands such as buying breeder shrimps. These agents will also inform 1-level agents and companies when diseases occur so that the farmers can get assistance from technicians of the companies.

Risks: The greatest risk of agents is the capability of getting back their capital from farmers. Most of farmers pay all their loans when their business brings profit. However, there are some cases in which farmers with profitable business but just pay part of their loans (this rate is low). Presently, due to the outbreak of diseases, low shrimp price, farmers have to put up with many difficulties; especially in some past years, due to epidemic diseases, some households have lost all their fortune in the crop so they cannot pay their loans. In some cases, because of successive failures of some households, agents have to give up their intention of getting back the capital from these households.

When natural disasters occur, causing damage on shrimp farmers, agents are bankrupt.

General assessment: Acting as agents bring profit. Some products such as Sanho, Unilon, Tomboy are all favoured.

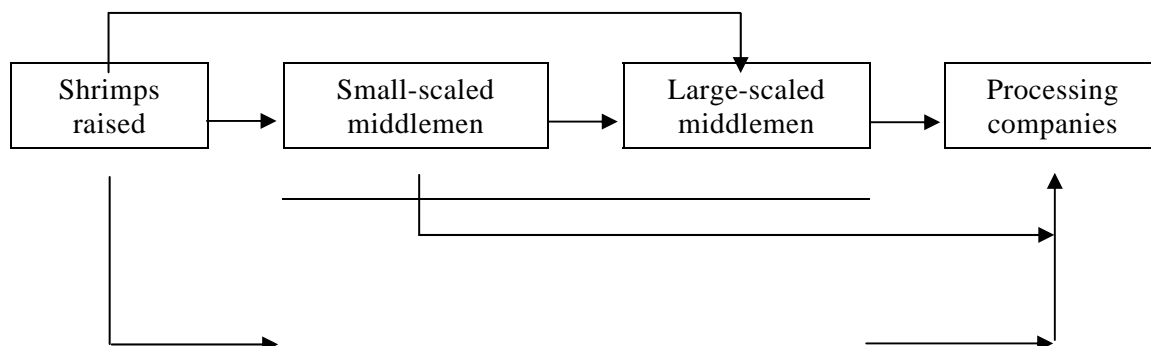
Aspirations: the authorities will approve their contracts on buying with loans (there are neither contracts nor loan notes).

2.13 Output services

Shrimps for food in the commune are mainly bought by private businesses of the province.

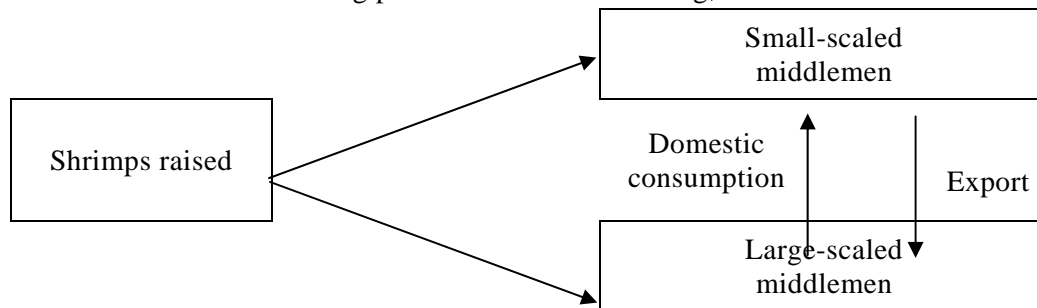
Because there is no aqua-product processing company in the province, price is controlled by private businesses.

Participants: middlemen inside and outside province (the rich), part-time labourers some of who are the poor.



Collecting and buying staff
of companies.

In Trieu An, there are 2 native middlemen one of who newly began his work, 2 from Gio Linh, and others from surrounding provinces such as Da Nang, Hue.



According to some residents in the commune, this year, epidemic diseases have damaged 70% of shrimp productivity, so the volume of shrimp collected and bought has sharply decreased compared to some preceding years. In 2001, this middlemen could buy 20 tons/crop, but this year this figure is only 10 tons/crop. The volume of shrimp collected and bought accounts for 30% of the total shrimp productivity in the commune.

Statistics from office of Trieu An Commune People's Committee shows that this year the total shrimp productivity in the commune for the first crop is 75.63 tons with the total value of 4.4 billion VND, 2 billion of profit.

Shrimp price depends on the price level of companies and competitiveness of middlemen.

Often there are 3- 4 people contributing their capital to buy shrimps because one can not afford all; but only one is assigned for the process of buying and collecting. Shrimp buying and collecting households hire labourers to do these tasks (with the salary of 15,00-30,000VND/day).

Shrimp buying and collecting people themselves are input service supply agents. In this case, they do not force farmers who have used their products to sell shrimps for them to control price.

Means of transport: Shrimp collected in the commune and in surrounding ones are conveyed by trucks with freezing containers.

Risks: According to farmers, shrimp collectors are enjoyed the most profit. However, in fact, these people have also to face some risks:

- Unprofitable business if lack of experience (due to inaccuracy of shrimp form identification, and buying low-quality ones).

- Wrong evaluation on the shrimp yield in lakes of farmers (For example, when shrimp yield in lakes estimated is 700kg, but the actual is only 200, the collector will lose unnecessary money for transporting).
- Not to be informed about price change by companies.
- Shrimp quality is under-evaluated compared to the actual one by the companies.

3. LIVELIHOODS OF THE POOR

The identification of poor object is based on criteria built by public which is very important.

3.1 The actual objects

Labourers on off-shore exploiting boats.

3.1.2 Characteristics of labourers

- In Trieu An, brood shrimps are caught accidentally, in Trung Giang, boats mainly begin to exploit in October to December according to lunar calendar.
- Education qualification: 7/12 (majority)
- Labour rate: 80% of men, 20% of women.
- Children number: 6-7/household. Most of these children just finish primary and secondary schools.

3.1.3 Assets

- Dwelling land: 2-3 *Sao* (1/10 Vietnamese mou)/household.
- Source of capital: None
- Accommodation: Temporary
- Family assets: old-fashioned bicycles, motorbikes (of 1-2 mil. VND), domestic-made TVs.
- Accumulation: None
- Income sources: There are 2 main ones:
 - From working as labourers within 10 month/year with 400,000-500,000VND each month.
 - Total income of the family (from raising pigs, chickens, knitting...) of about 100,000VND/month.

Nguyen Van Sy- working as a fisherman for hire in Nam Son Hamlet-Trung Giang Commune- Gio Linh District said: I have 6 children and my family is one of the poor households in the commune.

Because of having too many children, and lack of money, we cannot buy the most necessary tools for fishing (meshes, boats), I have to work for hire for Nguyen Van Nam. Our main income source is from my wage; therefore we are always in difficulty. We have 3 “Sao” of land, majority of which is dwelling land, we have no garden or land for planting. We live on the sea so we hope that we can borrow capital from banks to buy a boat serving for my job and to improve living standard of our family.

3.1.4 Impacts

Natural disasters are those causing the heaviest damage; next are environment, information, knowledge, markets, capital policies, and tax policies.

3.2 Raising shrimps for food

3.2.1 Raising households

3.2.1.1 Labour features

- Occupations and calendar of household production activities: According to women, major occupations are raising shrimp; making salt; planting rice and other agricultural products; feeding pigs, buffaloes, cows; making wooden products; building; doing small-scaled business.
- Both the wife and the husband participate in raising (age of 25-55). Others help them with some work.
- Accessibility to information sources about fishing promotion: easy and updated thanks to mass media.

Some people said that shrimps will be caught right after 1 month if disease symptom appears. From April to September, agricultural products are planted inwards and salt field is set up outwards where salty water can be flown in directly.

- Education qualification: Low (finishing primary and secondary schools).
- Labourer Number: Depending on each major job of the family (except some are typical for men such as building and making wooden products).

3.2.1.2 Assets

- Income: Working days of labourers hired for digging lakes: for the first crop at the beginning of the year: 30 ones/lake x 40.000VND for each within 10 days; 15 ones/lake for the second crop.
- Income: of male and female labourers is equal with 30-35,000 VND/workday.

- Production means: bumping machines, water fans.
- Agricultural land area: 5-7 Sao/lake/household (average).
- Production means: in Tuong Van hamlet, 80% of households raise shrimps, the rest of 20% focuses on farming jobs because of lack of labourers and financial ability. In fact, land for raising shrimp is transformed from agricultural one. There is no obvious difference between farming land area and area of water surface delivered. Rich households are those starting from poor one but thanks to some successful crops of shrimp raising, their income is increased. While some rich households, which failed in the crops, have turned into the poor ones.
- Capital:
 - Projects on raising shrimps: borrowing level of 40-50 mil. VND with the interest of 0.4% started from 2000-2001 via Agriculture and Rural Development Bank.
 - Agriculture and Rural Development Bank: 2-5 mil. VND for agricultural production activities; 10-100 mil. VND for business households, 30mil VND for shrimp raising households within 12 months and the asset mortgaged is the red record of land-own right certificate.
 - The period of 12 months for paying loans can be more lengthened. The interest for the first year is 0.4% and 1.15% for the time over expiry date.
 - Women Organization: 1-2 mil.VND/household paying in the form of small parts with mortgage assets.
 - Lending Capital: average of 10 mil. VND/household within 1 year in case of facing risks, the expiry date will be lengthened of more 6 months.
 - Individuals: Interest of 2%/month, lending level depends on conditions of the borrowers; payment is done when the crop is harvested. The poor often has to borrow more from this source.

3.2.1.3 *Affecting factors*

- Markets: price affects farmers (low price or price being controlled by others).
- Environment: During the raising, water is not kept clean causing polluted.
- Natural disasters: None
- Epidemic diseases: in some recent years, “white-spot” disease has occurred very often in shrimp raising lakes of Trieu An, causing majority of shrimps die. The disease factor is the most influential because the people are not aware of the importance of protecting water

habitat for shrimps. Self-controlled organizations have not been established; therefore, when disease occurs, the people cannot control it.

Comment from the commune people's committee: in 2003-2004, thanks to the assistance of aqua-product exploiting sector of the district people's committee in expenditure and technique, works on epidemic preventing have been done successfully, helping reduce damages for the people. What the people mentioned above refers to extensive farming lakes.

- Policies and the law: people are allowed to borrow money from state banks.
- Communication and fishing promotion: assisted by the province fishing promotion center in training, organizing conferences, and collecting information from the fishing promotion program on TV. Besides, technicians of the center and agents also help the people so much.

3.2.2 Households working for hire

3.2.2.1 Labourer features

➤ Age: 25-40

- Occupation and labour structure (in the scale of 0-4 points)

According to the people, raising shrimps for other owners is one of activities helping increase income, because the working time is only within 5-10 days. This is not a major livelihood and easily replaced by other activities such as catching other aqua-products available on field and selling to the market.

In terms of nutrition, households including the poor ones assure to offer all necessary nutrients for the families to maintain their working ability. Although poverty is a historical problem (inherited from their ancestors), and they are still poor, the people said that their life at the moment is much better than in the past. Their main meal is fish (because of being a coastal commune, fish is available and cheap); they just have meat for 2-3 days/month.

➤ Education qualification: low (below secondary schools)

➤ Crop Calendar (according to lunar calendar)

Nguyen Van Hung, a shrimp raiser in Tuong Van Hamlet said:

In my family, there are 4000 square metres of raising lake. This job is full of risks because once you convey salty water to the field, you cannot plant rice on it. We were never afraid of being hungry in the past, but now this can happen at any times because there are few households planting rice. Besides, waste treatment is also a great concern. Water from all raising lakes is

flown directly into Hien River, so possibility of pollution is very high. Raising shrimps means giving up planting rice and vice versa. We are also worried about borrowing capital because the expiry time is too short; after a year without paying the old loans, we just can borrow small sums.

3.2.2.2 Assets

Production Means: One of differences among areas in the commune is that the different land own regime. In Tuong Van, most of the households are members of agricultural co-operatives and are enjoyed with equal division of land; whereas in Ha Tay, because of historical factors, the households own land inherited from their ancestors.

Income: Working days of labourers hired for digging lakes: in the first crop at the beginning of the year: 30 ones/lake x 40.000VND for each within 10 days; 15 ones/lake in the second crop.

Dwelling land: 5 Sao

Consumption: for living

Income: 30,000VND/day x 2 months/year x 30 days from raising shrimps and from other agricultural sources.

Year	2001	2002	2003	2004
Income (VND/workday)	20-23,000	25-27,000	25-30,000	30-35,000

Farming land: > 1 Mou (= 4,970 square metres).

Capital sources: mainly from state banks with the soft interest from 2-5 mil. VND/household and from the commune's women organization of 1-2 mil/household. In general, they do not have to suffer from paying debts because they do not borrow much.

3.2.2.3 Influential factors

- Markets: affected by prices.
- Weather: From December to March: sea exploitation faces a number of risks such as flood.
- From February to March according to the lunar calendar: rice and other agricultural products are affected by weather changes such as drought.
- Social policies: poor households are enjoyed with favored loans, absolutely poor ones benefit from some programs such as World Outlook project, domestic animals, plants.
- Accessibility to social activities: all households are equal in participating so they are very enthusiastic. The poor is given priority in participating in economic development activities.
- Fishing promotion: all households can take part in training courses on raising technique.

Pham Xuan Linh- a shrimp raiser in Tuong Van Hamlet said: My family has 6 Sao of land for raising shrimps which was changed from saltlized field. In the past 2 years, the successive occurrence of white spot epidemic in the commune have strongly affected my family. We lent about 40,000,000 VND from the bank but now we can not return it. If the bank does not allow us to borrow more, my family will find no way to live.

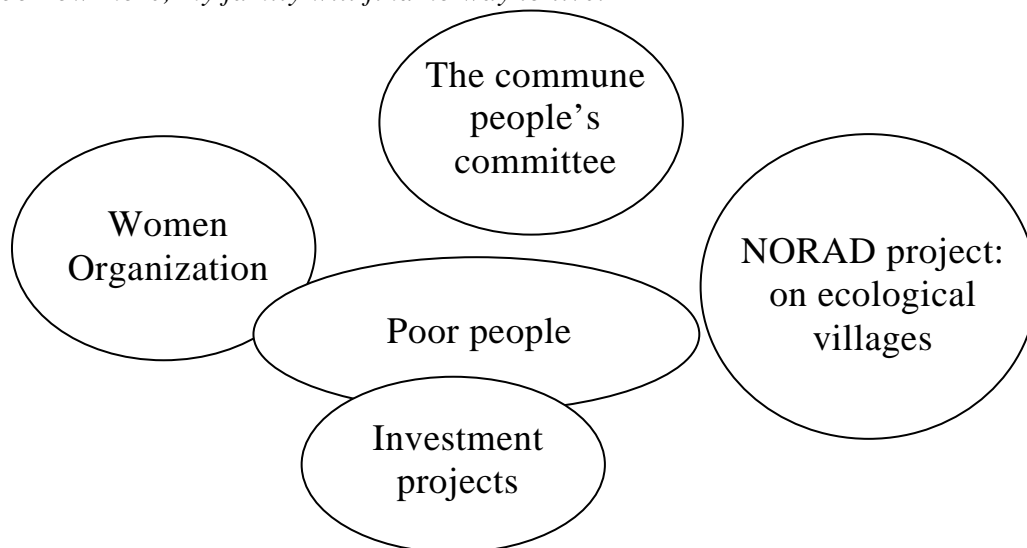


Figure 3-1: Organs, organizations which have influence on the life of labourers.

Women Organization: lending capital to create jobs, but few households borrow from this source because it is a small sum of money which is not enough to produce a job such as aqua-product raising. Of women involving in the research, no one borrow from this source. Major role of Women Organization in the commune is to organize training courses on gender, family planning for its members and other festivals for women in the commune. However, the number of women participating in such activities is little because they do not want to lose a working day.

Investment Projects: offering households with capital for production but poor households rarely get access to these sources because of their ability to return the capital. There are 2 non-governmental organizations actively operating in the commune: World Outlook and Infrastructure Development Project funded by Norway. They provide the poor with clothes, household assets; they build infrastructure works such as roadway systems, channels; especially, they cooperate with local authority to build an ecological village with the investment capital of 17 mil. VND in which 10-12 mil. is spent to build a house and dig a pond for raising fresh-water fish and to plan production area of 1 ha/household. Beneficiaries from the projects are the commune's residents who have registered to be involved in. However, due to slow accessibility to information of the poor, few of them know about the projects.

The commune people's committee: is very concerned about the life of the poor. But due to its limited capability, they cannot go further into the life of people to find out solutions and to make

recommendations helping the poor such as reducing the tuition fee for their children (as stipulated only hungry households are enjoyed with tuition exemption).

- The poor does not know about the community role of associations such as Farmer Association, Youth Union, Health Organization...

3.3 Output services

3.3.1 Actual objects

Labourers who work for large middlemen (carrying goods to processing units).

3.3.2 Labour features

- Tasks: carrying, loading, and classifying shrimps.
- Education qualification: 9/12 (highest).
- Labour rate: 50% of men, 50% of women.
- Being labourers at localities.
- Number of children: 4-5 ones/household, majority of them just finishes primary and secondary schools.

3.3.3 Assets

- Houses: Unsettled
- Food: enough to eat
- Farming land: 3-4 Sao (1500-2000 square metres) of planting rice and other agricultural products.
- Accumulation: None
- Income: from 2 main sources:
 - From working for hire: They are paid with 25,000 VND/workday by middlemen (within 1 month). Other people work on boats (to these ones, this is a major income source). When farming works are less, these labourers do various jobs depending on the demands.
 - Major income: from agriculture.
- Capital: (similar to the exploitation stage)
 - Borrowed from banks for the poor: 3-5 mil. VND with 3 level of interest of 0.5, 0.7, and 1.2%; duration: maximum of 5 years. Capital is spent on planting and raising.
 - Borrowed from individuals: 1-2 mil. VND for each time with the interest of 1.5%/month. Capital is not spent on planting and raising but for other purposes (medicines...).

3.3.4 Influential factors

- Natural disasters affect to the demand for hiring labourers rather than salary of the labourers. Market has little impact.
- Policies and technical information (planting and raising) has an important meaning; however, there are few of information supply sources.

4. ROLES AND ACTIVITIES OF WOMEN IN THE MARKET CHAIN

4.1 Exploitation

- Women account for 20%; majority of them is wives and daughters of boat owners (not labourers) having house on land.
- Qualification: 9/12 (highest).
- Equality to men: keeping money, taking care of the life of people on boat.
- Supporting organs: Women Organization (information), female labourers are enjoyed with member rights.

4.2 Producing breeder shrimps

- Women who are wives of farm owners manage finance, input and output services but do not involve directly in production. They have a role (discussing with their husbands) in deciding on product buying and selling.
- Women who work for hire in breeder shrimps farms: None.

4.3 Raising breeder shrimps

- In the households: women who are wives of farm owners participate in upgrading ponds, they do not involve directly in production. They have equality with their husbands and have conditions to participate in social activities.

4.4 Raising shrimps for food

4.4.1 Households directly involving in raising

Men say that women have a role in raising shrimps, including feeding shrimps, watching ponds, managing money, contributing ideas on raising. According to women in these households, activities of women and men are illustrated in the 2 following tables:

Equality in family and ability to take part in social activities, accessibility to information sources.

Being equal to their husbands, managing finance; all decisions relating to shrimp raising are made by husbands. Women get access to information faster than men (via mass media) and have conditions to take part in social activities.

Husbands are responsible borrowing money from banks. Wives are responsible borrowing small sums.

4.4.2 Families working for raising households

Because men work on sea, the number of women working for hire is larger, accounting for 65% of labourers with the same working days.

Conditions to take part in social activities and accessibility to information sources: Because the time of working is not continuous, these women still have time to take part in social activities, and get access to information sources.

Female labourers play an important role. Majority of labourer working in raising households is women. Their main tasks are carrying mud to other places and covering ponds with canvas. Men are responsible heaping earth around ponds.

Aspirations: Being able to borrow capital of 5-10 mil.VND/ household to do business.

4.5 Processing

Before 2000, in Quang Tri, there were 2 processing units: Cua Tung freezing company and Viet Ha freezing factory with the female labourers of 250-300. Due to some difficulties in management, these 2 units stopped operating in 2000. The female labourers had to change into other jobs; some of them have involved in raising shrimps. Their life is hard in general.

4.6 Input and Output Services

Women work for middlemen: Their income does not differ from that of men. They still take care of children and household jobs. If they are able individuals, they will be respected and selected as leaders in mass organizations.

4.7 Small businesses

Majority is women; they decide all business activities. Men are responsible transporting goods.

Affecting factors: small businesses are those with the most benefit when epidemic diseases occur (because there are many small and disease-infected shrimps). If there are no small businesses, farmers will be the most heavily affected because they cannot sell their shrimps.

5. COMMON PROBLEMS IN THE MARKET CHAIN

5.1 Markets

- Markets: Trieu An, at present, lacks markets for shrimps. Price is controlled at low level even when the price on market has increased.
- The table of events above shows that in August, 2003, shrimp price fell down at the level of 83,000VND/kg. To March, 2004, the price was 73-73,000 VND/kg which is not enough to compensate to the cost. This plus white spot epidemic has made many households unable to pay debts.

5.2 Environment

- Natural disasters: From May to June: drought, heavily-saltlized water. From September to December: flood and rain, which is not suitable for raising shrimps.
- Diseases among shrimps: From February to May, from the beginning of July to early September (red body, white spot, white excrement). White spot, white excrement diseases are of the most dangerous because they kill all shrimps in the lake once they occur.
- Aspirations:
 - Shrimp raising households do not understand clearly about the techniques in raising and the ways to protect natural benefit sources and environment; the people hope to learn about techniques and science to apply to their work.
 - Already being advised via mass media on some issues such as water treatment before releasing to the environment but they cannot afford to follow.
 - Having no tools for measuring environment. Already being offered short-term training courses, but they hope to have longer ones to master the techniques. If long-term training courses (1-3 months) are organized, the people are willing to contribute their money.
 - Being consulted by technicians in time and having sufficient workforce.
 - Lack of techniques in environment and disease treatment stages.
 - Environment treatment when white excrement disease occurs and fighting the disease.

5.3 Techniques and food safety

Information about food, and foodstuff safety is introduced to the people such as the Decree numbered 2 by the government (on prohibiting medicines) and is applied by the people.

One week before selling shrimps, all the households feed shrimps with fish and good-quality food.

Raising shrimps on the areas, which are changed from agriculture land, does not affect food safety because the shrimp raising areas are salted fields with low productivity of rice. Profit from shrimp raising is higher than that from agriculture.

Now, people hope that they are allowed to change salted land and fields with low rice productivity into areas for shrimp raising. The people do not want to plant rice anymore because this depends much on the nature.

Some farmers said that management of input services is poor. Low-quality medicines are still sold on the market which cause damages on the farmers because they can not recognize this until the medicines are used. They just buy medicines; they can not know the safety of these ones.

5.4 Socio-economic conditions

People in Tuong Van Hamlet benefit from the project 773 on building channel system. People in other places have to build infrastructure by themselves.

Raising shrimps now is not strongly developed. Raising households with unprofitable business are in debt of about 10-30 mil VND/household.

When facing great risks, they will change to other jobs.

Raising shrimp in Tuong Van is not developed due to water pollution, and in Ha Tay is slowing down because farmers can not borrow more capital.

Raising shrimp is a sustainable job but its potential to develop is not much.

Policies affecting shrimp raising job are those on flavored loans, shrimp raising investment projects such as the project 773.

Development of shrimp raising is partly because of agents lending food and chemical substances which help the people continue their business.

Policies strongly affecting shrimp raising job are assisting techniques of the province fishing promotion association; supporting with chemical substances from Aqua-product Department, fishing promotion center and NN-DC Service of the district to fight the white spot disease.

Regulations that cause negative impacts: None.

5.5 Accessibility to sources of benefit:

According to some farmers:

In terms of ability to exploit sources of benefit: Potential of raising shrimp has not been fully exploited (on-sand area and transformed land has not been used; but they don't have money to

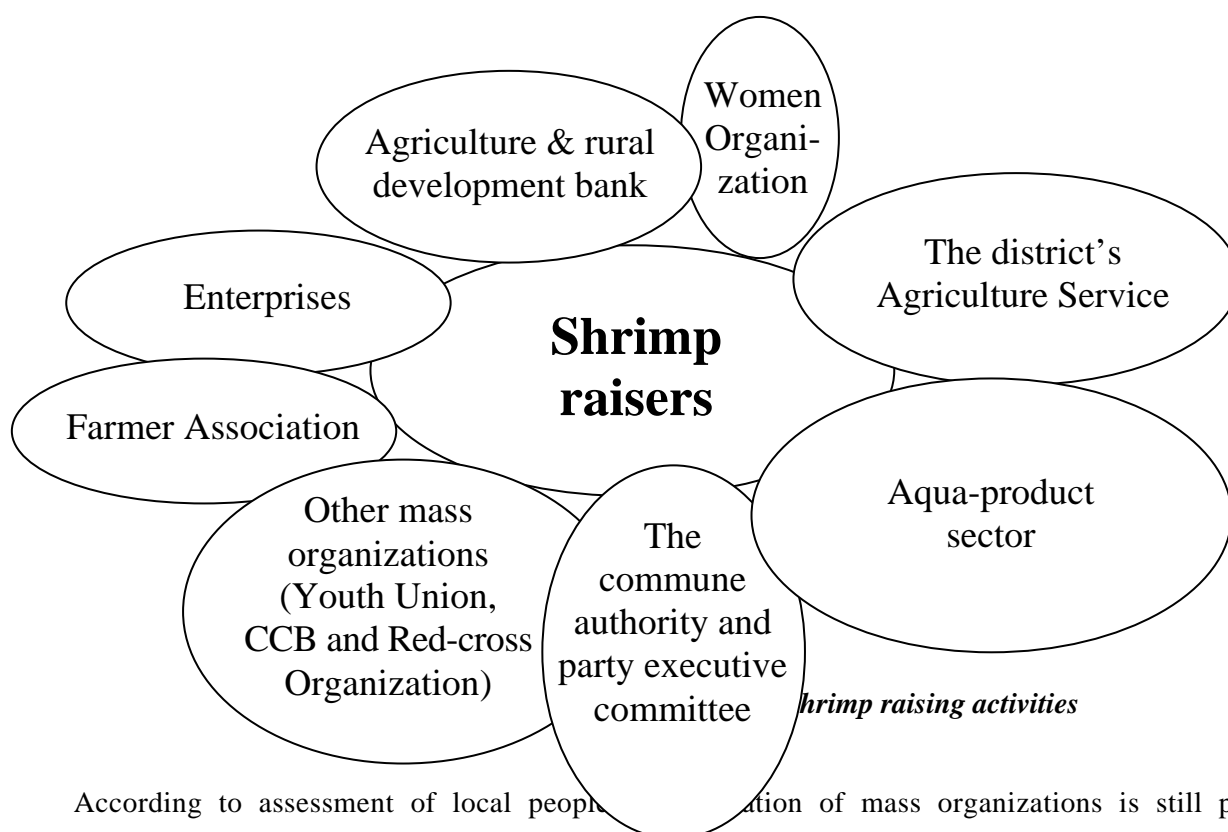
invest. Besides, raising shrimps now is not as profitable as in the past so they stop developing the business).

In terms of capital sources: if they can borrow more money, they will continue to raise shrimps because they don't know how to do other jobs.

5.6 Accessibility to social resources and other assistance services:

Get access easily

Assistance services (capital, technique, information): have ability to get access to.



According to assessment of local people, the participation of mass organizations is still poor; members do not have self-consciousness and sense of community. The authority has not been fully concerned about some issues such as the disease information propaganda.

Aqua-product Department and Fishing Promotion Center have assisted farmers and provided them with training courses, conferences, information about planting and breeding aqua-products on TV. However, the capability of the people to get access to information sources is still limited.

Enterprises operating in the commune are CP, UNILONGS, Hoa Chen, 3 Golden Coins, Tomboy, UP, Profeed, Long Sinh... These enterprises mainly provide food, medicines via a network of 1-level agents. They do not buy and consume shrimps; however, they still organize some training courses on raising shrimps, upgrading ponds and provide farmers with technical documents.

The role of Farmer Association is organizing cultural, art and literature activities; offering some training courses on planting and raising twice every year for 10-15 households. Households taking part in training are also provided with fertilizers and tools (for raising pigs, chickens...).

Women Organization of the commune offers loans from credit fund for its members (the lending level as stated above) so that the members can raise pigs, upgrade their ponds, and buy breeders. Meetings are held once every month at which topics such as planned reproduction, family economy, culture, art and literature are discussed.

6. CONCLUSION, RECOMMENDATIONS, AND SOLUTIONS

6.1 Conclusion

The people in Trieu An commune are characterized by working hard. However, so far, they have not received enough both technical and scientific knowledge and capital for expanding their business to increase their income and stabilize their livings. Demonstration models for the people to follow have not been formed.

According to the community of shrimp farmers in Trieu An, raising aqua-products has created 3,600 working days for the poor with the total working value of 108 mil. VND.

6.2 Recommendations and solutions

Management

Establishment examining committees for feed and chemicals.

Formation community shrimp farmer groups.

Information

Providing direct techniques: At district level, there are few technicians (only one in Trieu Phong).

Organizing training courses combined with offering materials. The authority should copy these to deliver to the people for application. The training quality is rather good (application rate of 60%).

Increasing the broadcasting times of programs on agriculture and fish promotion on the local radio.

Providing information about daily markets, raising and harvesting seasons.

Markets

The State should give out relevant policies to stabilize the market. Processing factories should come into operation so that shrimps will be bought on the spot.

The network on checking and controlling prices should be established.

There is a need for the intervention of the State so that middlemen can not control prices (hindering business, unfair competition...).

Environment

- Limiting pollution from fish ports (oil from boats).
- Clearing lopped rivers in Trieu An.
- Finalizing the water drainage network (lakes for treating water).
- Trieu Phuoc: Limiting the release of toxic chemical substances used in agriculture (insecticide...) into shrimp ponds which cause serious effects.
- Fishing on rivers in Trieu An has sharply decreased due to pollution (since 2001); therefore, the policy on granting/contributing capital for water treatment should be given out.

Finance

The loaning period should be lengthened, while the loans (below 100%) for households with unsuccessful business should be refinanced so that these households can pay their debts later.

Techniques

- Broodstock supply sources must be tightly controlled by using machines and chemical substances to ensure of breeder quality.
- Limiting the possibility of transmitting white spot disease through an intermediary.
- Treating water source used for raising shrimps.
- Diversifying home-raised sea-products (the people do not want to plant rice because of its low efficiency).

7. ANNEX

7.1. Annex 1: Calendar for activities involving in shrimps raising job in Quang Tri

Activities	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Exploitation												
Artificial reproduction												
Shrimp raising												
Diseases among shrimps												
Product Consumption												
Processing and export												

7.2 Assessment of farmer households on the role of production activities

	Capital	Income	Labourer	Risks	Time	Total
Planting Agricultural Products	2	2	3	-1	3	9
Raising Pigs	2	2	1	-1	3	7
Raising Chickens and ducks	1	2	1	-1	3	6
Raising Buffaloes and cows	3	3	3	-1	3	11
Exploiting		2	2	-1		3
Building		2	3		2	7
Raising shrimps for owners		1	1		1	3
Doing Small business	1	1	1	-1	1	3
Planting Rice	3	2	3	-2	2	8

7.3 Calendar on production crops in a year

Production activities	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Planting Agricultural Products												
Planting Rice												
Raising shrimps for owners (5 days/crop)												

Making coffee for owners												
Exploiting												

7.4 Classification of the rich and poor among households which take part in raising shrimps.

Criteria	Poor	Medium	Wealthy
Assets	No vehicles Bumping machines Water fans Slate-roofed houses Ponds are covered with a penetration-proof layer	Having vehicles Bumping machines Water fans Slate-roofed houses, or built (90%) Having TVs, Buffaloes, cows Ponds are covered with a penetration-proof layer or surrounded with stone embankments	Well-operating motorbikes, Bumping machines Water fans Built houses with multiple floors (2-5 ones/hamlet) Color TVs Buffaloes, cows Fridges, gas cookers Ponds are surrounded with cement embankments
Capital borrowed	Large loans (30-40 mil.VND) Have no ability of borrowing more.	Small loans (20 mil.VND) or can pay loans right after borrowing.	Have already paid loans and borrow back. Often be able to pay all loans and have profit.
Their own capital	none	20%	50%
Income	Suffering losses of below 300,000VND/month (50% of the households)	Two crops are successful with the profit of 300,000-700,000VND/month (20% of the households)	Two crops are very successful with the profit of more than 700,000VND/month (30% of the households)
Risks	Occur often (crop failure, shrimp die), have little ability to prevent	Less than	Least, ability to prevent is best.

7.5 Classification of the rich and poor among households working for hire

	Poor	Medium	Wealthy
Land:			
Dwelling land	3-4 Sao/household	5-6 Sao/household	3-4 Sao/household
Agricultural land	average of 2-3 Sao/household	5-7 Sao/household	5-6-4 Sao/household but do not use for production (for the poor hiring to prevent weed).
Assets	Bicycles, pigs, thatch cottages or houses with roof of sheet iron.	Tables and desks, TVs(some households do not have one), slate-roofed houses, Buffaloes, cows	Fidges, TVs, Motorbikes, multi-floored houses, slate-roofed houses, tables and desks
Income	200,000VND/month	Average of 300,000VND/month; 100,000VND/month in winter; 500,000VND/month in summer.	900,000VND/month/household.
Ability to send children to school	Children finish secondary schools (can not afford for them to go to high schools).	Children finish high schools and work in factories.	Children can learn until they feel unable to do anymore.
Children	Too many (Average of 4 ones).	Less than	
Capital borrowed	2-3 mil.VND (Have no ability of borrowing more).	Depending on their ability of mortgage.	
Total	40% in which 20% has poor registers, the rest has none.	50%	10%

7.6 Assessment of farmer households on the role of different production activities

	Capital	Income	Labourer	Risks	Time	Total	Classification
Planting Agricultural Products	2	2	3	-1	3	9	2
Raising Pigs	2	2	1	-1	3	7	4
Raising Chickens and ducks	1	2	1	-1	3	6	5

Raising Buffaloes and cows	3	3	3	-1	3	11	1
Exploiting		2	2	-1		3	6
Building		2	3		2	7	4
Raising shrimps for owners		1	1		1	3	6
Small business	1	1	1	-1	1	3	6
Planting Rice	3	2	3	-2	2	8	3

7.7 Assessment of women on the role of production activities in farmer households

Occupations	Capital	Income	Labourer	Risks	Time	Total	Classification
Raising shrimps	3	2	1	-3	3	6	2
Making salt	1	2	1	-3	1	2	5
Planting Rice	2	1	2	-2	2	5	3
Planting Agricultural Products	1	1	1	-1	1	3	4
Raising Pigs	2	1	1	-1	2	5	3
Raising Buffaloes and cows	2	1	2	-1	2	6	2
Making wooden products	2	2	2	0	1	7	1
Building	0	3	1	0	1	6	2
Doing Small business	1	1	2	-1	2	5	3

7.8 Daily activities of women in shrimp raising households

Time	Women's activities
5-7 a.m	Cooking food for pigs, preparing breakfast and having breakfast with the whole family, washing and tidying up the house.
7-8.30 a.m	Going to market.
8.30-10 a.m	Cooking lunch
10-11p.m	Having lunch
11-13.30 p.m	Taking a snap
13.30-17 p.m	Doing gardening (rooting up weed), making salt or feeding buffaloes.
17-19 p.m	Cooking and having dinner with the family, cooking food for pigs.
19-20 p.m	Watching TV (if they like).

20p.m –5a.m	Watching and feeding shrimps for husbands.
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7.9 Contribution of women and men to the family income (%)

Activities	Women's Contribution	Men's Contribution
Raising shrimps	20-30	70-80
Making salt	50	50
Planting Rice	50	50
Planting agricultural Products	70	30
Raising Pigs	100	0
Raising Buffaloes and cows (1)	20	10
Doing Small business	100	0

(1) 70% of which is done by children; because of the nature and tradition of this job, the main tasks of children are feeding buffaloes, cows and helping their parents.

7.10 Impacts of the market on the income of shrimp farmers over the years (arranged in order)

	2001	2002	2003	2004
Yield	3	4	1	2
Price	3	1	2	4
Income				
Raising breeder shrimps				
Raising shrimps	3	4	1	2
Contractual work	4	3	2	1
Doing small business	4	4	2	1
Processing				
Collecting and buying shrimps	4	3	1	2
Agents	4	3	1	2
Middlemen	Not yet	Not yet	1	2

REPORT

Analysis of market chain and the livelihood for the poor in shrimp raising in Thua Thien Hue

1. General overview of project and selection of research location

1.1 General overview of project

(not applicable)

1.2 Research purpose

Under the EC-PREP, the research team of Thua Thien Hue has carried out the research and analysis at the pilot commune of Phu Da with the purpose of:

- Seeding the market chain of shrimp raising, determining poor households taking part in the market chain
- Seeding, analyzing the livelihood of the poor and the woman
- Determining recommendations to support the livelihood for the poor

1.3 Members of research team

- Vo Thi Tuyet Hong - Department of Aquiculture, Thua Thien Hue
- Van Thi Thu Vinh - Center of KN, Thua Thien Hue
- Nguyen Xuan Sang - Officer of Phu Da Commune
- Nguyen Van Buu - Officer of Phu Da Commune

1.4 Research time

From 15/5/2004 to 30/10/2004

1.5 Research methods

Information is gathered with following ways:

- Short surveys in rural areas with community participation
- Gathering and analyzing primary and secondary data
- Personal interviews
- Group interviews

Determining the pilot communes on base of following criteria:

- A commune where has strong movement of shrimp raising and is a poor commune
- Its shrimp raising community that have a lot of different participants, its market chain is featured to represent to that of the province.

1.6 Research plan: carried out with 6 steps

Process (order) for analyzing the market chain and livelihood as follows:

Step 1: Determining the pilot commune as the starting point for research, then determining and charting participants and people relating to the market chain

Step 2: Determining location, role of every participant group in the market chain.

Step 3: Interviewing representative of participant groups (even poor participants) at every link of the market chain. The interview contents will be based on a pre-determined chart.

Step 4: Analyzing the livelihood thoroughly of the poor in the market chain

Step 5: Research members will review the chart of market chain, make amendment or supplements on base of the results of interviews (step 3).

Step 6: Holding meetings with group representatives, getting feedback about the drawn chart of market chain, if required. In these meetings, the team and representatives agree on the final chart of market chain and discuss supporting solutions for the poor participants.

1.7 Process (order) to analyze market chain and livelihood with following contents:

Researching resources and documentation:

Human resource

Social resource

Material base (assets)

Natural resource

Financial capital

Risks

Results of the livelihood

Outside impacts

Research contents:

1. Market chain

1.1 Stage of parental shrimps

Breeding stage

Raising stage

Processing stage

1.4 Export market

2. The livelihood of the poor in the market chain

- 2.1 Stage of parental shrimp exploitation
- 2.2 Breeding stage
- 2.3 Raising stage
- 2.4 Processing stage
- 2.5 Exporting stage
- 3. Completing the market chain

2. BASIC INFORMATION ABOUT PHU DA COMMUNE

2.1 Geography, natural resources

Phu Da is sandy area beside the Lagoon, located in Phu Vang district, Thua Thien Hue Province. The center of commune is 15km far from the district, located on the provincial road Hue-Phu Thu. The total area of natural land is 2,813,8ha in which:

Agricultural area: 733,3ha

Forestry area: 65,5ha

Special used area: 287,5ha

Non-used area: 1,727,5ha including :

- Area with water surface: 276,3ha
- Wild land area: 526ha
- Other: 925,2ha

2.2 Socio-economic information

Economic information:

The GDP of the commune of 9,268 billion VND, GDP per capital of 881,239VND coming from main revenues as follows:

- Rice planting :	2,466,5 tones /617,5ha	=	4,933,000,000VND
- Shrimp raising:	71,5 tones /65ha	=	3,932,000,000VND
- Vegetable cultivation:	326 tones/163ha	=	326,000,000VND
- Short-term industrial trees, bean:	71ha	=	142,000,000VND

Social information

There are 2085 households with 10,517 inhabitants in Phu Da Commune, in which there are 4,443 labourers, 2,367 ones are male and 2,076 ones are females of which. Phu Da commune's natural soil is poor and exhausted, and there are difficulties to produce, plant and husbandry.

There are 7 villages in Phu Da commune, of which 3 villages along with the Lagoon with 709 households (they are the poorest villages), including:

- Luong Vien Village with 80 poor households/209 ones in the village accounting for 38,37%.
- Vien Trinh Village with 130 poor households/420 ones in the village accounting for 30,95%.
- Dinh Cu Village with 50 poor households/135 ones in the village accounting for 37,03%.

According to the opinion of the Commune's People's Committee, the determination of poor households, the average income is under 881,239VND per capital per year. Those who are classified into the poor are lacked of capital, of manpower, of labour and knowledge to apply science, technology and are of large number of small children. They cultivated on poor soil, there are no extra works, so it is limited to use leisured labourers.

Social security and order: this is traditional revolution commune, the situation of security and order is safe. Evils such as stealing, thievery, gambling causing disorder are limited and solved thoroughly. Its people live in harmony. These are basic conditions to Phu Da people develop and test the model of community based environmental management.

2.3 Infrastructure in past 20 years

1985: The government allowed the Luong Vien, Vien Trinh villages who were living on water to settle on land and established new villages for 120 households (752 inhabitants).

1996: Electricity was supplied to the commune (now there are 1864 households have electricity)

2001: Building water drainage canals, traffic roads

2002: Planting forest to prevent sand.

2.4 Risks in past 20 years

1985: Heavy storms, wind level 12, 35 people killed, 152 houses destroyed, 730 ones seriously damaged.

1994: the most serious draught, failure of harvest accounting for 70%.

1999: On November, a fierce flood causing loss of human, poverty and vegetables. There were 3 people killed, 15 ones injured, 51 houses collapsed. The total loss was 9,015,000,000VND.

2002: suffered from a drought.

2.5 Shrimp raising history at Phu Da Commune

1993: Starting to raise shrimps on 6 ponds (2 ha) at the Phu Da cooperative under the model of extensive culture

1995-1996: realizing two experimental pond - 1ha (supported by the Department of Aquiculture)

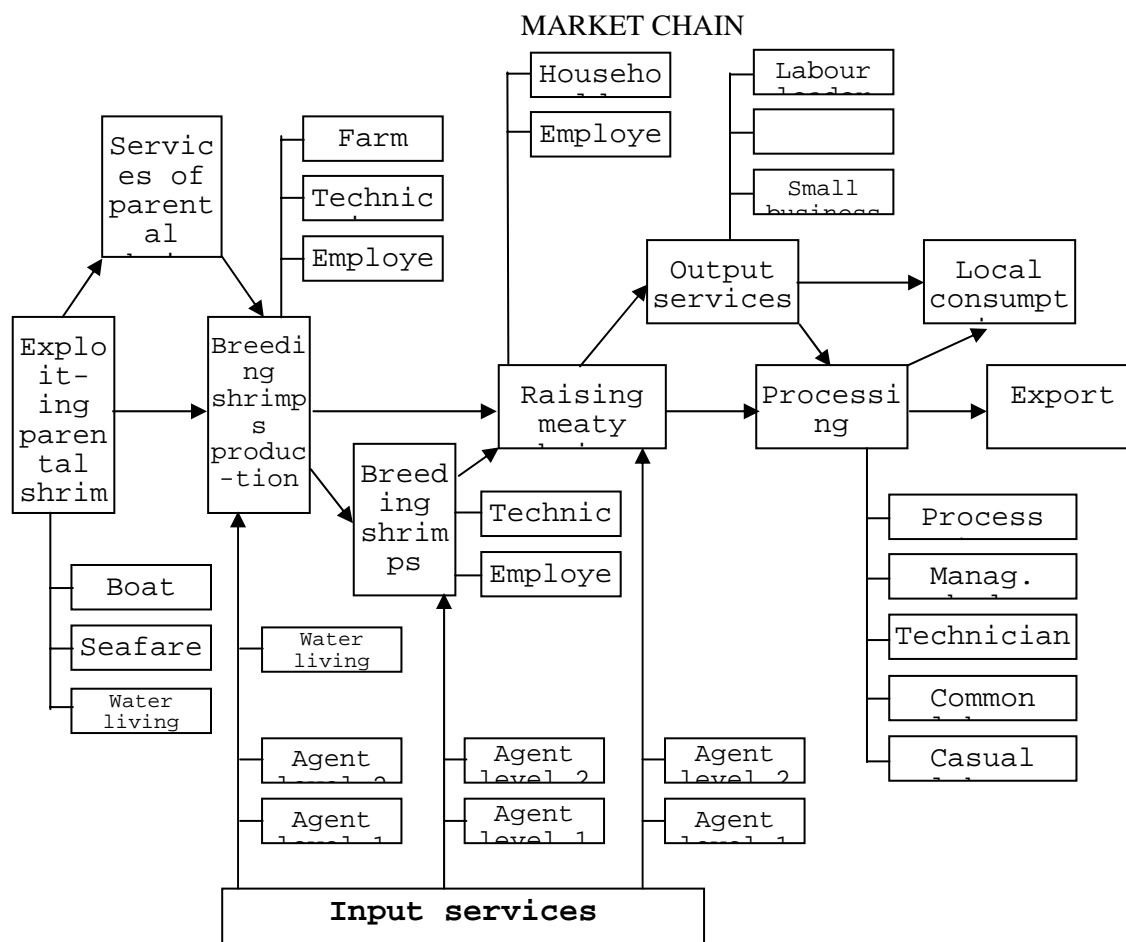
2001: Weather was not convenient, dirt water with disease germs from Vinh Xuan, Phu Dien. The model of flow based culture applied, 30% household got big benefits.

2002: 50% household lost from 1-1,5millionVND/ha. Shrimps had bumper crop, quite stable price. At the end of 2002, being supported by the project “Environmental management of coastal Aquiculture raising”, Phu Da commune took part in piloting the model of self-governing communities of shrimp farmers.

2003: On January, the self governing group of Luong Vien village was established; October 2003, there were more 03 self-governing groups established under the control of the commune co-operative. The model of community based environmental management applied. Shrimp raising was developed strongly, 90% household enjoyed benefit.

2004: 220 ponds- with total area of 65ha managed by 92 households, in which there are 36 semi-intensive culturing ponds, 17 renovated extensive culturing ponds. There are 1300ha/3,700ha of pond contaminated disease in Thua Thien Hue, but at Phu Da not effected, 80% households got benefits, the average output reached 1,1ton/ha.

3. MARKET CHAIN



3.1 Parental shrimp exploitation

The main supply resources from fishing boats: Hue, Quang Binh, Quang Tri, Da Nang, Quang Nam, Quang Ngai, Binh Dinh, Nha Trang (these boats are usually small ones under 45CV that usually fish inshore and do a lot of works, mainly fishing. Parental shrimps are exploited at random with other products.

In addition, the source of parental shrimps may come from lagoons (exploited by poor people- living on water) with fishing tools such as small square fishing net, trawl, shrimp net...

Exploiters: boat owners and boat members

The poor: who exploited shrimps in lagoons (who living on water) and member of fishing boats.

3.2 Services of parental shrimps

There are two main type: boat owners exploit and labour leaders' service to supply parental shrimps from exploiters to the center of breeding shrimps.

Income: unstable but very high 50-70 million VND/year.

At present, there are two private households, Mr. Nguyen Van Long and Mrs. Truong Thi Bup supplying 60% parental shrimps to breeding farms thank to their entrepot boats to purchase shrimps directly at sea.

There are no poor people taking part in because they not employ labourers but carry out by themselves.

3.3 Artificial production of breeding shrimps

Relevant subjects: farm owners, technicians, employees and service suppliers

Artificial production activities: farm owners buy parental shrimps to generate; employ (or not) technicians to produce and employees (permanent or casual) to do other works in farms.

The source of parental shrimps can be supplied by labour leaders or exploiters to farms. Feeds and chemicals for production usually bought by farm owners of their reliable employees at agencies level I, II.

Farms of artificial production: 41 farms, the annual output is 150-250 million shrimps meeting 40-50% demand for breeding shrimps in the Province.

The rested demand is met by supplies from Dang Nang to Ninh Thuan

The poor: casual employees, those who are living on water exploit feeds for parental shrimps (at artificial production).

2.3 Shrimp Breeding

Activities: there are two ways: 1. those who both breed and produce meaty shrimps and 2. those who just breed for service (there is no poor; they are average households, if they meet risk, they would be re-poverty, but very few).

There are 15 breeding households to serve for shrimp raising ones in the low tidal area and for those raise shrimps at the wrong time and for neighbouring communes (Vinh An, Phu Xuan...) in the total area of 7,5ha.

They are usually well off or rich households. They employ labourers to improve, take care and protect ponds.

The poor: are casual employees for breeding households (improving ponds- working seasonally). These employees are not poor.

Working labour: 80labouers/ha. The total of labourers are 600 labourers, in which the number of employees accounting for 45%.

3.5 Meaty shrimp raising

At present, there are 92 households raising shrimps, in which 62 ones are poor (accounting for 67,39%), almost are those are living on water, farmers raising at low tidal area, there is only one shrimp raising household at the high tidal area.

Regarding to up and middle-stream ponds, there are usually 2 crops per year (there are 35ha raising from February to October every year).

Regarding to downstream ponds, there are usually 1 crop per year (there are 30ha raising from April to August, September every year)

In the crop of January, 2004, Phu Da has produced 71,5 tones goods of prawn valued 3,9 billion VND this has raised the living standard to the Phu Da people.

The agencies level I, II and III at localities have supplied services relating to raising shrimps such as industrial feeds, chemicals to regulate and stabilize the pond environment for shrimp raising.

Their selling measures are giving debit by debit as that of wholesalers level with their subsidiaries.

Employees: 3000 working hours/crop. They will dig ponds, improve ponds, transport limes, fertilize, culture shrimps, protect shrimps and gather shrimps to sell.

Participators: households, technicians of the State and of private (enterprises, agencies), employees, and agencies supplying inputs.

The poor: they are low income ones and employees.

3.6 Domestic consumption

It is very difficult to estimate the domestically consumed volume. Besides, alive high quality shrimps consumed by restaurants, hotels serving for tourism in Hue City, there are some processing trades developed such as processing dry shrimp, sour shrimps...

Small scaled business: one part of labourers purchased products at lagoons or through labour leaders to purchase low quality products, small shrimps that are not enough condition for exports to sell at small markets. Female labourers accounts for 90% in this part.

Local restaurants and hotels purchase alive products through labour leaders to serve fellow dinners. The in-stitu consumed products (dry shrimps, sour shrimps...) include small shrimps classified.

The domestic market is quite small, because consumers don't like frozen goods.

3.7 Processing and Exporting

Shrimps that raised in Phu Da are transported to processing factories in Da Nang (Freezing Factory F10, F14, F86, F131) or in Ho Chi Minh City.

However, the volume of shrimps purchased from Thua Thien Hue is quite small, 100-150 tones/factory, mainly purchased by factory staff or through some big labourer leaders.

After processing at factories in Da Nang, products can be transported to other processing factories or sold to markets.

Export markets are Japan, Taiwan, EU and America

The poor: seasonal employees (at site or at other localities)

3.8 Input services

Agency of input service: agency of feeds, chemicals employing labourers but there are not poor people. There are only agency level I, level II (not purchase from factories or there is no agency level III). Almost are agency level II.

Serving for chain links: artificial production, breeding shrimps, raising meaty, storing and processing...

Almost are private enterprises.

These services also give technical guidance to people.

Providers of input services such as chemicals, feeds, drugs, tools are not poor households.

3.9 Output services

Small business (transported to markets): very few, female labourers account for 90%, they are not belong the poor

At the locality, there are 9 people who gather and purchase 40% total output of the commune.

Outside private businesses and processing factories purchase the remaining of 60%. The purchased by Aquiculture Development J.S.C is only 7-8% total output of the province. The volume purchased by labourer leaders is estimated as 50%, and the rest from factories from Da Nang, and other cities.

The poor: work as employees (at site or at other localities) for labourer leaders in the province or outside provinces.

4. THE LIVELIHOOD OF THE POOR

4.1 Exploitation of parental shrimps

4.1.1 Actual subjects

Employees for fishing boat owners and *those who live on water*.

4.1.2 Labour features

Business line: the only job (fishing). Parental shrimps are products at random from fishing. There are average 15-20 days per month. In-shore fishing, not offshore, (25-30 nautical miles away from seashore).

Education level: low (primary - secondary), but healthy, experiential (due to working from small). 100% are male. They have a lot of children (3-7 children). Now, thank to the program of Family Planning, now the amount reduce to 3-4 children.

4.1.3 Assets

Residential land: 150-200m².

Household tools: domestically made TV, radio, bicycles

Income: regarding to employees, income divided into vesselments, 60% for boat owners. The day working salary changes as follows:

<i>Year</i>	2000	2001	2002	2003	2004
Working day	15,000VND	15,000VND	20,000VND	25,000VND	25,000VND

Regarding to those who are living on water, their income is about 20,000VND/day

Accumulation: No

No loan

4.1.4. Influential elements

Seasonal works (8-9 months).

Natural calamity: flood and stormy seasons (September- October), northeast wind (November- December).

Market: large productivity but low price will impact on income

Weather forecast information is very important to fishing boats.

4.2 Breed production

4.2.1 Actual subject

Working as employees in farms (accounting for a small rate<20%) and *those who are living on water*

4.2.2 Labour features

Labour at site or come from different place (from Da Nang to Nghe An), including relatives. There are two types: permanent labourers (stable in 9-10 months) - accounting for 70% and casual ones (seasonally) - accounting for 30%.

Work: cleaning tanks, working miscellaneous things, preparing food for larva and motherly shrimps, protecting. Low skill, not trained.90% are male.

4.2.3 Assets

They have no assets (only huts), land tenure (100-200m² on hard areas such as sandy areas, no trees, lacking of water, no convenient traffic road).

Income: quite stable for permanent labourers. The daily pay as follows:

Year	2000	2001	2002	2003	2004
Permanent	20,000VND	20,000VND	20,000VND	25,000VND	25,000VND
Casual	15,000VND	15,000VND	20,000VND	20,000VND	20,000VND

Accumulation: No

Expenditure: for living in family, seedy fees of children (primary and max secondary levels)

No application for loan (because they don't have assets as collateral)

4.2.4 Influential elements

There no labour contracts, not ensured rights according to the labour law

Not influenced by market, disease and natural calamity (only employers influenced).

No way to approach information and fishing encouragement services.

4.3 Breeding shrimps

4.3.1 Actual subjects

Employees for households of breeding shrimps.

4.3.2 Labour features

Works: digging ponds, improving ponds, feeding shrimps, and harvesting for sales.

Education levels: higher than the last stage, some pupils at 9th or 10th grade participating (if they don't pass the high school entrance examination).

Age: 25-50; 50% are male.

After two breeding cycles (3-4months); those permanent employees may be asked to continue to raise shrimps (there is no such service required in raising shrimps households).

Family status: middle peasant class, peasant or those who are living on water.

4.3.3 Assets:

The middle-aged: they have houses, fields that are divided according to the State's standard; young employees have no worthy assets.

The middle-aged: they have houses, fields that are divided according to the State's standard; young employees have no worthy assets.

Income:

Year	2000	2001	2002	2003	2004
Permanent (VND/month)	300,000 VND	300,000 VND	300,000 VND	400,000 VND	500,000 VND
Casual (VND/day)	15,000VND	15,000VND	20,000VND	25,000VND	25,000VND

Accumulation: the middle-aged is about 2million VND per month, young employees not accumulate much.

Expenditure: the minimum living things

Loans: the middle-aged houses apply for loan for husbandry (Bank for the poor- the loan is 1-3million VND). Young employees not apply for loans.

4.3.4 Influential elements

Natural calamity, disease, market usually impacts on demand of job but not on income.

No labour contract signed

Pay less attention to weather information, epidemic disease, market of breeding shrimps, information about fishing encouragement.

4.4 Raising meaty shrimps

4.4.1 Raising shrimp households

They are poor households according to the classification of local people, not according to the national standards (they are out of poverty). The total accounting for 70% raising households in the commune, they are located at low tidal areas and 15% at high tidal area.

4.4.1.1 Labour features:

- Occupation: raising shrimps shifting from agricultural ones and from fishing ones
- Education level: at primary- secondary. There is few ones with higher level, and even some are illiterate.
- Labour numbers: one labourer have to support 2-3 others. If they don't take part in raising shrimps, they can fish in additionally.

4.4.1.2 Assets:

- They have own land, water surface to raise shrimps
- Their houses are by makeshift, have pump. Some have secondhand TV, radio
- Income: Low (2-10million VND/crop, hardly have successful crop.
- Accumulation: at low rate
- Expenditure: for living and buying basic things
- Loan: they have no savings book, and they have to apply for loans to banks or rich houses in the commune.
- Overdue debts: 20-25million VND, no assets as collateral, no way to have further loans.

4.4.1.3 Influential elements:

- strongly impacted by market (price of materials, finished shrimp product). If prices are changeable, farmers don't feel assured to produce and not bravely apply for loans as well as invest in. Moreover, because, they are poor, they are very easy changeable. Depending much on labourer leaders (price maker).
- Environment: water environment is very difficult because there is no standard waste water drainage systems. If there is risk of natural calamity and disease, poor households are heavily damaged.
- Natural calamity and epidemic disease: easy get risk.
- Policy, law: the program 773, program of raising aquatic products, and program of aquatic product for export, program of breeding aquatic products, program of preferential loans, program of shifting crop plans creating some households out of poverty: land granted by the State, and they are given credit loans by assistance funds.

- The role of self-governing groups: contributing 200,000VND/ha/year, taking part in working out measures to manage environment and control risks. In 2004, there is no disease although more than 1/3 raising shrimp areas get disease in the province.
- Tradition and fishing encouragement: the poor are trained and they want to seedy about capital management, raising techniques. However, due to their low education levels, they should be given more priority (holding classes trained in understandable language). This activity have positive impact on the poor.

4.4.2 Households as employees.

4.4.2.1 Labour features

- Occupation: Beside working as employees, they cultivate, husbandry, fish when they are not employed.
- Work: those who live on water dig, improve and embark ponds, transport and harvest shrimps; others (cultivation) can look after of ponds, and transport materials.
- The shorthanded (20%) or the weak or those get accident suddenly. They are not able to work in distant places.
- Education level: Low (the secondary level and lower)
- Age: 40 years old and more.

4.4.2.2 Assets

- Houses are by makeshift, not valuable assets.
- having land (average 4 sao/household) but giving no effectiveness or difficult to produce (sandy land)

And for permanent residential households, their land is 200m²

- There are few those living on water (having less land, almost unable to cultivate).
- Income: very low, 88,000 - 100,000/capital/month.
- Accumulation: No
- Capital resource: no loan from banks, no savings books. Be given loans from poverty reduction and hunger elimination but unable to pay. the average is 2 million per household.

4.4.2.3 Influential elements:

- Market: When prices raise, salaries raise according to the general level. But when prices reduce or products are hard to be consumed, salary is paid as fixed without any extra pay.

- Weather: When the weather is convenient, they can be employed, but when the weather is in changeable or fierce conditions, they have to cultivate and husbandry at home or fish with small sized scales.
- Social policies: thank to projects, they are assisted to reinforce their houses (bamboo ones), supported to settle (be granted land to build houses, supported capital initially for production: 2 million VND/household). Social organizations, projects give non-refundable loans. Credit funds give loans for production.
- Fishing encouragement: taking part in training courses of raising techniques.

4.5 Processing and purchase services

4.5.1 Actual subjects

They are casual employees at processing workshops. Transporting (mainly done by man), preliminary processing (mainly done by woman) and small businessman (30-35% total households).

4.5.2 Labour features

- Education level: Very low (primary or illiterate)
- Rate between male and female: female accounting for about 80%.
- They are large families (3-5 children)
- The participation rate of the poor in preliminary processing stages such as skinning cover of shrimps or skinning squids is estimated to account for 10-20% total employees.
- Others: doing business or transporting seaproducts at fish parkings or markets.
- The local people or urban poor ones.

4.5.3 Assets

- They rent a house or live with the large family (grandparents, parents...)
- Having some cheap living things such as domestically made TV, radio, bicycles...
- Income: 15,000-20,000VND per day; working time: 7-8h/day, 15-20 working days per month at processing workshop and the rest is at fish parking or markets.
- Accumulation: Very little, almost no
- Expenditure: for living
- They no assets as collateral, no cultivation land or they have little land but don't know way to produce.

4.5.4 Influential elements

- Natural calamity and market are the most basic influences: if there is calamity, they can't buy shrimps, no shrimp for sales or preliminary processing. if market price changes, they are impacted because they are small businessman. If prices are high, they can't sell products and if price is too low, they don't want to sell products.
- Policy: policies for aquatic product development give processing factories more materials to create more jobs.
- Paying less attention to issues of fishing encouragement

4.6 Livelihood of those living on water

4.6.1 Labour features:

They are those who live on water.

- Regarding the stage of parental shrimps- they are exploited on lagoon - they are only extra-products of fishing
- Regarding the stage of breeding shrimps. These households catch proper snails to feed parental shrimps.
- Regarding the stage of breeding and raising shrimps. They are employed to dig, improve, harvest breeding shrimps - meaty shrimps, transport shrimps to consumption places (refer to the income at each items).
- Fishing is the main occupation, but due to resources exhausted, income is more and more reduced. They usually catch on about 15 days per months.
- The awareness of these people is not high in water environment management: using extermination tools (explosive, electrical searchers...) popularly.

4.6.2 Assets

Boats (as house), no land to cultivate, they are only granted land to live from 100-200m².

Income: it is come from various sources, but very low (20,000-30,000VND/day). They apply for loan to purchase fishing nets and fishing tools.

4.6.3 Influential elements

Supporting organizations, bodies; referring to the 7.6.

5. ROLE AND ACTIVITIES OF WOMEN IN THE MARKET CHAIN

5.1 Exploitation

- Women in well-off families such as boat owners, breeding farm owners, raising farm owners (have assets); agencies of input services or out put ones who only take part in market indirectly. They are housekeepers, housewife so they are not suffered from unequal treatment with man.
- Regarding to families whose male member going out to fish, woman mainly do houseworks and sell the divided products. Some have extra works (doing small business, transporting fish, carrying fish) to support their family with the pay of 300,000-450,000VND/month. Their role is not equal in family.

5.2 Seed production

- Working as direct employees account for 10%, they prepare foods for parental shrimps. 30% are casual employees so, their income is not stable (about 400,000VND/month), only 5-6months per year (there are a lot of employees in production season). Their income is only an addition of their husband's income.

5.3 Breeding and exporting shrimps

- At breeding households: women is one who pay
- Women who are employed to improve, process foods for larva and parental shrimps is 50%.

5.4 Raising meaty shrimps

- Labour features: improving ponds and processing foods for shrimp bred, taking care of ponds; buying necessary materials to raise shrimps.
- Role of family: housewife, taking care of children. There is no full equality to man. In raising shrimps, man decide activities relating to production such as pond, investment forms.... Woman have lower levels so they are not strong as man to decide. This is not by inequality.
- In addition, there is a female labour force to work as employees on occasion of improving ponds. They may be households those are living on water are settled, no land to cultivate. Both husband and wife work as employees. Pay to women are always lower than that of man (25,000VND/labour against 30,000VND/labour) because their work is not as heavy as man although with the same time. However, the common feeling is that an employer doesn't prefer woman. Number of woman working as employees accounting for 70% total households working as employees of shrimp raising households. In a year, they work as employees about 7 months, 20 working days per month and paid 500,000VND/month. Regarding to the shorthanded households, besides working as employees, they don't have extra work, and regarding to the fishing households, besides working as employees, they participate in exploitation with their family.
- Works: improving ponds, harvesting, classifying shrimps (50%), and transporting (30%).

- Woman those are in well-off families carry out less heavy works, they have conditions to take part in social activities And those are in poor families don't have condition to take part in social activities in the commune because partly, they don't have free time and partly their awareness is low, so they don't want to take part in. They are given priority in loans (100%), however, it is non-refundable loans, and regarding to refundable loans (through the Women Association), they have to carry out husbandry to have reliable collateral.

5.5 Processing

Female labourers in processing factories account for 80-90% total labourers. Their work is primary processing, processing and storing processed products. Living standard of labourers in processing factories is quite stable, they are given social and health insurance and enjoyed trade preferences.

And for woman those work as seasonal employees at preliminary processing stages, transporting are mainly poor without any preferential policies, unstable life, and no permanent works.

The salary of female workers at processing workshops are based on their productivity. Salary is 400,000VND - 800,000VND.

The income of seasonal female labourers is not stable. The working day is based on their productivity but depend on seasons and input materials. They regularly have 13-20 working days per month.

The main role is housework, and earning extra work to add into their family's income. They don't have role of making decision on important things in family.

Risks that are seasonal elements, weather and price of processing products in the market chain have great impacts on them. They may have no job if there is rough sea, less materials or processing contracts in delayed time.

Influential elements: social policies such as preferential loans, capital program 102 to create employment having positive impacts on them and giving them employment and income. Policies that seem very strange to them such as anti-dumping policy on shrimp of America make them unemployed about 3 months (from 3 -6 months).

5.6 Small business households

The female labour account for 90-95% total of small business households.

Work: running business of necessities and aquatic products that not able to export.

Their life is quite stable because they deal with variety of goods

Their daily income is quite high: 20,000VND- 40,000VND/day \approx 0,6- 1,2 million per month. Their roles are very important in their families because they have free time to take care of family, have high

and stable incomes, in addition, they contact with more society so, their ability of awareness is higher than that of others.

Risks: These women hardly meet risks because they exchange information and goods every day but elements of weather, productivity of raising shrimps, and prices also have influences on them.

Outside influences: policies giving loans for husbandry of Women Association, policy to shift crop trees and castles also have impact on them.

6. GENERAL ISSUES OF THE MARKET CHAIN

6.1 market

Having strong impacts on raising shrimp households

Market impacts on incomes of raising shrimp households in years (in order)

	2001	2002	2003	2004
Productivity	3	3	2	1
Price	3	2	1	3
Income	4	4	2	1

Having less impacts on households working as employees regarding to income but impact on the demand of employment.

The benefit of the aquaculture is more higher than that of cultivation.

Market price depends on elements: quality, quantity, consumption demands

Quality of input services: difficult to know, almost consumers are interest in cheap products.

The price of parental shrimps is reduced but that of meaty shrimps is stable.

The State's role is not developed actively in controlling prices, processing enterprises don't buy directly. Shrimp prices are still controlled by individual businessman (there is inter-provincial link to fix prices among businessman).

6.2 Environment

Environment: the self-consciousness of people is not high. It is necessary to establish and maintain the self-governing groups. The sea-water source, ... should be stored closely, because it will be very difficult to treat if happening epidemic diseases. At present, the waste water is not treated yet.

Due to the aquaculture is developed rapidly and the commune has no planning, so the situations of pond overlapping pond, no ditch to supply and drain water are very popular.

6.3 Techniques and food security

At present, the poor has given knowledge. There is propagation of raising safe shrimp, but very few people knowing which chemicals prohibited. Households are introduced about food security, no use prohibited chemicals. However, poor households still use because they are illiterate or they use to reduce risks.

6.4 Socio- economic conditions

Processing stage plays an important role in purchasing fully shrimp products with stable prices. While there is no processing enterprise in the province.

The policy of aquatic product development, of shifting crop trees and animals have shifted the salty field, fallow down-tide areas into shrimp raising areas, with low investment, creating conditions to the poor to take part in aquaculture and contribute the increase of income to the poor, help them get rid of poverty.

All Phu Da commune has 80ha salty cultivation land along the lagoon, there is only one rice crop every year, the revenue of successful crop is only 1,2-1,3 tones/ha excluding labour or 0,4-0,6million/ha/crop. The life of people at three areas along the lagoon is very difficult, and needy. Since 2000, when shifting into aquaculture areas, the life at three areas has been improved.

6.5 Ability to approach benefits

Through the annex 1: Schedule of aquaculture crops and activities relating to shrimp raising activities in Phu Da commune drawn shows periods of environmental impacts on farmers such as salinity change, sensitive time to get diseased. So, people can work out plan to control time, season to raise and manage environment properly to avoid damages.

Through the annex 2: The diagram of natural benefit in section drawn by Phu Da Community shows natural resources and ability to use these natural resources of each group: the rich, the middle, the poor and those living on water.

So, we can see that the poor and those who live on water are only able to produce on bad fields, rice field 1 along lagoon and fishing at lagoon sides. This is sensible because the rich and the middle are wise having knowledge and economic potentials, so gradually, they have appropriate and accumulated good fields.

Almost the poor and those living on water are lacked of knowledge, no economic potentials and don't know how to struggle and self-opinionated so they are pushed to bad fields or land along lagoon.

From the annex 3 to annex 6: These annexes are opinions of shrimp raising households in Phu Da commune reflecting conveniences, difficulties and proposals of the Phu Da fisherman to resolve these difficulties:

- The most interest thing of shrimp farmers is source serving shrimp raising such as credit capital, preferential capital, capital from other sources... and approaches to these sources.
- the second interest is raising environment, in their opinions, this is the decisive element of effectiveness, although in 2004, the Phu Da community has managed the environment of raising ponds not contaminated and spread disease.

But they still feel not assured to invest in when there is not tools to measure exactly changes of environment, there is no reliable and scientific forecasts to prevent and treat effectively.

- the third interest is the market price and way to purchase meaty shrimps, they wonder about the four processing enterprises but they have not put into operation for 02 years. The markets of shrimps are depended on labour leaders, mechanists and controlled by them in term of prices. They propose the State to have active influences to put these two factories in operation again.

- the fourth interest is the infrastructure for aquaculture should be invested synchronously to have effectiveness.

The annex 7: This is summary table of opinions of household groups about the importance of natural resources and ways to use these sources by the rich and middle and the poor.

Through this, the common interest is plans, policies of the local government relating to the shift land along the lagoon, the one rice crop land into raising land. This proves that the Phu Da people, at present, are intending to expand areas to raise shrimps.

The annex 8: The criteria given out by the community to classify the rich and the poor of shrimp raising households. These criteria are much higher than that of the Government and when comparing to the average GDP at Phu Da commune. This proves that shrimp raising is one trade to help people who live along the lagoon out of poverty, and have stable and comfortable life.

If comparing the annex 8 and annex 9, it is possible to say that the life of the poor of shrimp raising households is much higher than that of employees and having more opportunity and ability to get rid of poverty or reach to comfortable life.

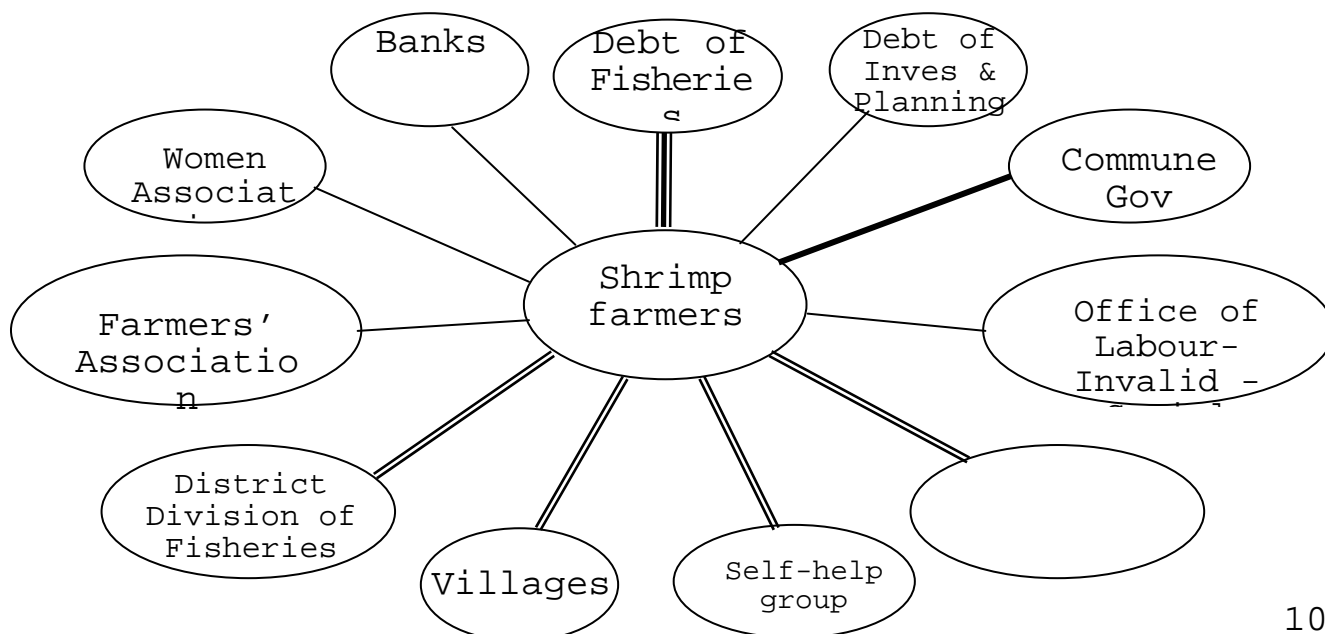
6.6 Ability to approach social resources and other supporting services

People group	Bodies, organizations	Fields to support
Households living on water	The provincial government	Policy of settlement and residence
	Commune government	Guarantee of loans from banks
	Policy based banks	Giving loans about 3 millions
	Projects on agriculture and rural development	Giving loans with simple procedures (no collateral required)

	Individual household with financial ability	Giving loans (at higher level than banks)
The poor and employee of households	Depts of Agri & Rural Development, . of Aquatic Products, Agricultural Division of District	Training courses about husbandry, planting and shrimp raising techniques
	Agriculture and fishery extension system	Introducing and propagating information about knowledge to get rich
	banks for Agriculture	Giving loans up to 20 million VND (collateral required)
	Projects on agriculture and rural development	Developing the shrimp raising (giving loans, training techniques)
	Self- governing groups	Taking part in environment management
Woman	Commune's women Association	Realizing the program of anti-malnourished program for children
	Commune's Population Division	Program of Population
	Environment Body	Environmental Hygiene
	People's Committee	General conduction

The role of self-governing groups: these groups had discussed measures to manage environment generally with the contribution of 200,000VND/year/ha in order to limit risks in aquaculture. Thanks to this, in 2004, the province has 1,300ha ponds of shrimps got infected diseased out of 3,700ha of shrimp ponds, the most serious cases are in low tidal areas, but the good management kept ponds in Phu Da from affection, as a result, successful crops were harvested.

Diagram of bodies and organizations supporting shrimp farmers



Roles of every organization and body: according to the public opinions of shrimp farmers at Phu Da commune, these organizations have important roles as follows:

1. The commune government: shown with red line is the decisive body to the development and existence of shrimp raising. Some say that “wherever having commune officer raise shrimps, that will develop the shrimp raising very rapid and stable”.
2. Community organizations: are basic elements to stabilize and strengthen shown by two blue lines: including villages, self-governing groups, aquatic product enterprises...

Wherever having strong community that acting closely, supported and participated actively by people, this will develop shrimp raising stable and effective.

3. The special body of Service of Aquatic Products shown by yellow lines. this is impacting element to help the shrimp raising develop in right direction and effectiveness.
4. The other bodies are shown by black lines. They have direct or indirect impacts on the shrimp raising as supporting, assisting and creating conditions to the development of shrimp raising as planned.

7. CONCLUSION, RECOMMENDATION AND SOLUTIONS

7.1 Conclusion:

The features of the Phu Da people are heroes in resistance wars and diligent in production, but due to lack of scientific knowledge, lack of model representation for people seedy, apply, and lack of capital to invest in order to raise income and stabilize people’s living standards.

According to the public opinions of shrimp farmers in Phu Da commune, the aquaculture has created 3,600 working days for the poor at the locality creating labour value estimated 108 million VND/crop.

7.2 Recommendations and solutions

- Proposing to the Government to issue regulations that not approve farmers without waste water treatment system. No focus on development of quantity but effectiveness and quality
- Equipping knowledge: technical training (especially for the poor, because they have no knowledge). The training measures should be designed suitable for trainees, having materials (measuring PH, alkali, lime...)
- Shrimps should be verified right at the breeding farms, people will accept if the quality of shrimps are ensured.

- Stabilizing life for the poor participants in raising shrimps (as their extra-jobs): loans (time, amount), suitable technical training, diversifying cultivation forms, employment promotion (vocational training). Establishing economic households (gardening, pig raising, cultivation).
- the poor should be given guidance on career, vocational training, preferential loans (for example, small business, civil woodworks, fine-art handicraft for the young, and economic households for the middle-aged).
- Strengthening equipment of technical knowledge for farmers through training classes about raising techniques; treating environmental hygiene; environmental observation and survey.
- Giving the poor loans with preferential interest rates, not require collateral and supported by the community in selecting proper raising models, giving hands to the poor households who wish to raise aquatic products; the State should support infrastructure and give them priority to rent. In high tidal area, there should have electricity pump hatcheries to ensure the water volume in ponds.
- The processing factories in the Province should be put into operation rapidly, directly purchasing shrimps from the farmers avoiding pressing prices by dealers.
- the breed source should be controlled closely, breeds should be inspected.
- Boosting policies of encouragement, of development of aquaculture and completing issuance of land use rights to shrimp farmers so they feel assured to raise shrimps.

8. ANNEXES

8.1 Annex 1: Crop schedules of activities relating to shrimp raising in Phu Da commune

<i>Activities</i>	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
I. Breeding shrimps												
At the low tidal area (mainly breeding natural breeds such as shrimps, fish)												
At high tidal area (serving for the downstream)												
II. Disease									Brackish seasons			
Diseases caused by management of ponds (at low tidal areas)												
Diseases caused by virus, bacteria (high tidal area)												
Diseases caused by environment (low tidal area)												
III. Shrimp raising									Stormy season			
At low tidal area (crab, prawn, shrimps, fish). Catching and adding supplemental												
High tidal area-crop 1												
High tidal area-crop 2												

8.2 Annex 2: Benefit resources at Phu Da Commune

Diagram of benefit resources (part I):

			Tam Giang Lagoon
Agriculture, crop 1	Raising shrimps at high tidal areas (intensive, extensive renovation)	Raising shrimps at low tidal areas (intensive, extensive renovation)	Naturally catching, (nets..) Water pumping, circulating
The poor	The rich, the well-off	the well-off, the poor	the poor

Diagram of benefit resources (part II):

Dai Giang River

Catching fish	One Rice crop,	-Vegetable: cassava, potato, vegetable - Industrial plants: red pepper, peanut - living houses - Forestry: sea pine, eucalyptus, - graveyard	- Vegetable - Plants - Rice
The poor	The poor		

Diagram of benefit resources (part III):

Rice: 2 crops + 1 crop Rice + fish Rice + vegetable	Sea pine, eucalyptus, Natural forests Graveyard	House level 3, level 4 Bamboo huts Bodies	Rice: 01 crop, salty Rice + Vegetable Potato, red pepper, cassava, peanut Vegetables
Duck husbandry	Grass hills to raise buffalo and oxen	Schools	
3 pumping hatcheries Water pipes		Clinic System of roads, electricity, and market	Raising cattle, poultry
Mean of transport to the fields			

8.3. Appendix 3 - Opinion of people about convenience in trade of breeding shrimps

- Tran Duc Viet: Boat, vessel, net for catching, etc...
- Dang Thi, Nguyen Van Tuyen: Natural resources of available land, available manpower.
- Mai Ba Bay, Phan Thi Thoa, Phan Thi Be: Natural resources of land, water and manpower.
- Nguyen Dat: Adequate manpower for doing business, good water source in 2004, capital is lacking.
- Mai Tuyen, Tran Tuan: Adequate manpower, good swamp, low price of breeder shrimp, stable food, good security and order.
- Diet: Most convenience recently is sufficient water to move in and out lake.
- Khuyen: Adequate labour in family, good water source in 2004 but lack of capital.
- Ruong: Adequate manpower for cultivation.
- Phan Thanh Quang: Having natural resources of land, water, stable manpower (available, good climate).
- Having mechanism of the government and the direction on development and investment of capital to pays ant, fisherman, with natural terrain and brackish water, having edge land to break up the salt contamination, having a traffic to zone of breeding and abundant manpower source.
 - To Thai: Breeding shrimps near river, water without epidemic disease in 2004.
 - Mai Thanh Hung: Work for labour, land, bamboo for driving piles.
- Phan Thanh Be, Truong Van Cu: Land, abundant labour.
- Tran Hai, Phan Van Hien: Land, labour timely in crop.
- Vo Hien: Having labour for working, having land for cultivation, having clean water source.
- Le Quang Quan: Land, manpower, convenient environment.
- Near swamp, abundant labour, stable land.
- Near swamp of brackish water, manpower, land.
- Mai Ba Mot: Breeding shrimps in lake near the river and water.
- Communication, means manpower, near swamp.
- Near the supply place of breeder shrimps.
- Van: Land, water source, manpower.
- Near the river.
- Near water.

- Phan Xuong: Near the river, having water source and condition of work. Convenient weather for 01-02 crops authority of levels and branch of water products.
- Near the river, having manpower, land.
- Land, water source, manpower.

8.4. Appendix 4 – Opinion of people about difficulties in trade of breeding shrimps

- Capital, environment, product consuming market, unstable price.
- Capital, water environment, product consumption.
- Truong Van Cu, Tran Dang: Capital, water environment, material facilities, machine, technics of aquaculture.
- Phan Huu Dai: Capital source, water source, production machine, unstable market price, severe weather environment.
- Large expense, with many works, unstable price (affected to market) price forced by private trader, food.
- Huynh Cong Thuan: Capital for procurement of instrument, price, selling shrimps but price forced by private trader.
 - Phan Thi Thoa, Phan Thanh Dung, Phan Thi Be: Severe polluted water, lack of investment capital, material basis, irrigation ditch system, breeding technis is not high, lack of tool for breeding (such as *** may nen khi, water pump, pipe for measuring water temperature), food price is still high, production output is unstable, epidemic control is not synchronous yet, lack of general policy.
- Sen: Polluted water source, unstable price lack of material basis, loan capital, technics and science.
- Tran Xuan Khai: Capital sources, technic and science due to low degree of people, material basis, unstable price, polluted environment.
- Nguyen Duy Sinh: Polluted water environment, shrimps price sold is unstable, interest rate is too high.
- Tran Lu: Pulluted environment, unstable price, not take the initiative of breeder shrimps.
- The most difficult condition is capital in aquaculture. Unstable market price affected to paysants, difficulties in procurement machine and breeding crop.
- Diet: Difficulties in capital: food, drugs, all purchase by debt.
- Mai Thanh Hung: Capital sources, technic, machine, environment are unstable and clean.
- Dang Thi: Capital, tool and machine, market price, technics.
- To Thai: Production capital, technics, unstable market price, price forced by private traders.

- Phan Xuong: Lack of capital, environment between fresh water and salt water when meeting the natural calamity, breeder shrimps must purchase far away from Da Nang unstable prices, only have private traders sometimes high, sometimes low.
- Khuyen: Too lack of capital, technics, shrimp price is very low, purchasing only when without frozen (shrimps).
- Van: Polluted water source, unstable price material basis, capital loan, technics and science.
- Difficulties: Loan capital, technics, polluted water, unstable market price, breeder shrimps have not been epidemic controlled, the paysant is worried when taking care of shrimps are still small, but when shrimps are big, the price is forced by private traders.
- Difficulties: Capital sources, assistance of technics.
 - Huynh Cong Trai: Polluted environment, unstable price, not take the initiative of breeder shrimps.
- Phan Van Hien: Capital soruces, water environment, material basis – machine, technics of aquaculture.
- Ruong: Lack much of capital, technics, market price is difficult in predict.
- Mai Ba Mot: Capital, technics of breeding, tool for controlling water environment, water source is polluted easily, unstable market, unstable buying and selling, without product factory for consumption to paysants.
- The producer of breeding shrimps has to run to market mechanism, so the quality is not satisfied.
- The consciousness of people is not high in environmental protection, putting out epidemic disease when occurred, lack of capital, without place of stable shrimps consumption (tradesman cooperated in decision of price, not by competition each other).
- Mai Tuan, Tran Tuan: Lack of capital water environment is not circulated, limited technics, difficult in material basis, lack of production land.
- Tran Hai: Capital sources, water environment tool, machine, unstable price.
- Difficulties: Loan capital sources need to change... to people.
- Le Van Quan: Capital in cash.
- Mai Hong: Capital, land for production.
- Capital, canal, ditch system, environment, unstable price.
- Mai Van Bay: Technics, lack of material basis, invested capital is not accuracy, irrigate canal is not satisfied, water source and environment are polluted easily, infected.

- Nguyen Van Tuyen: Lack of material basis, machine, capital, materials for building pond, lake, lack of technics, price of food and selling price are unstable.
- Tran Duc Viet: Water source is polluted by discharge from shrimp lake, lack of capital for buying net.
 - Huynh Duy Cu: Difficult in natural resources of environment, technics, material, capital sources.
- Capital sources, knowledge, polluted water source, material basis, market price (bought by other).

8.5. Appendix 5 – Aspiration of people for trade of shrimps raising

- Tran Dang: Asking for capital loan, stable price.
- Ruong, Khuyen: Incentive capital loan, low interest rate for aquaculture.
- To Thai: Asking for incentive capital loan and stable price for stable business of fisherman.
- Mai Hong, Dang Thi, Tran Hai, Mai Tuan, Tran Tuan, Tran Van Lu, Truong Van Cu: Asking for incentive capital loan, agriculture training.
- Tran Huu Dai: Asking for incentive credit capital, fertilizer, electricity, irrigation canal, machine for measuring environment.
- For agriculture, loan source with encouraging policy on breeding, breeder shrimps have been, epidemic controlled, ensuring to people, who breeds well.
- Incentive capital loan from invested state: road, irrigation canal, electricity, environmental sanitation, stabilizing price, investing in shrimp breeders.
- Vo Hien: Asking for incentive capital loan, stable environment.
- Nguyen Duy Sinh: The province must have water product processing factory, asking for granting red card of shrimp raising pond.
- Mai Ba Mot: Asking for incentive capital loan from state, investment and assistance of technics, stabilizing market price, directly organizing the shrimp purchase from paysant, avoiding price forced by private trader.
- Phan Xuong: Asking for incentive capital loan with low interest, on output, there is will be an export – import company with stable price, at the high water level, there will be electric pump hatchery to ensure water source for breeding pond.
- Nguyen Trai: Asking for incentive capital loan from the state treasury to people who has difficulties because they are not be borrowed, although falling into debt so that they can do new business and repaid to the sate later.

- The government must have a consuming place, purchasing products of paysant fisherman, stable price, especially must have incentive policy (for the poor). In aquacultural planning, it must have a waste water treatment system.
- Nguyen Quang Quan: Asking for incentive capital loan to paysants.
- Thanh Hung: Asking for capital loan, training on breeding, guiding in science of shrimp raising assisting in equipment such as diesel motor gas stirrer, food according to state standards.
- Asking for long term incentive capital lona, stable price, shrimps raising zone from the government, training on breeding technics, treating environmental sanitation, building infrastructure supported by the government.
- Tran Xuan Khai: Asking for capital loan with low interest, training on aquacultural technics to paysants, there will be a purchasing and processing enterprise with stable price, means of receiving, classifying shrimps convenient and suitable with breeder shrimps, material facilities, concretion of irrigation canal, mainly the low voltage hatchery for breeding shrimps in Phu Da.
- Phan Thi Thoa, Phan Thi Be and Phan Thanh Duy: It is necessary to have an incentive capital loan's policy, credit capital, clean water source, epidemic control, irrigation ditches, asking for technics, stable food price and stable market price.
- Phan Van Hien: Asking for incentive capital loan, machine, stable price.
- Tran Duc Viet: Asking for forbidding all electric motors (??); destroying lakes near the bank, incentive capital for procurement of production materials.
- Thanh Dat: Asking for incentive capital loan with low interest for aquaculture.
 - My aspiration is to be borrowed an incentive capital, technics of breeding shrimps.
- Asking for incentive capital loan to people and land improvement.
- My aspiration is to be borrowed an incentive capital, technics of aquaculture, stable price.
- Asking for incentive capital loan with low interest, organizing a place of purchasing shrimps, place of epidemic control, appropriate food service.
- Van: Asking for a long term incentive capital loan, stable market price, technics of aquaculture.
- Asking for incentive capital loan, technicians, stable price, mother shrimp farm.
- My personal aspiration: Asking for incentive capital loan from the state.

- Huynh Duy Cu: Asking for capital loan to the people for aquaculture.
- Nguyen Van Tuyen: Asking for incentive capital loan credit capital loan, building a hydro-electric hatchery for water supply.
- Mai Van Bay: Asking for incentive capital loan for procurement of equipment, investing in periodic control technics and training to paysant, having clean water source, stabilizing price of shrimp.
- Huynh Cong Trai: Asking for breeder shrimps, have been epidemic controlled, stable price, loaning capital right the beginning of crop, technical training.

8.6. Appendix 6: Accessible ability to income source of population groups in Phu Da

Local natural resources	Classification							
	Total	Classification	Rich household group		Rather good household group		Poor household group	
- Kinds of land in use								
Rice field giving 1 crop	238	2	43	18.6	107	44.95	88	36.97
Rice field giving 2 crops	217	5	60	27.64	109	50.23	48	22.12
185	100	10		27.02	84	45.40	51	27.56
Land tenuse	93	11	30	32.25	31	33.33	32	34.46
Forest land	6		1	16.6	3	50	2	33.33
Rice field converting to breed shrimps	259	1	78	30.11	99	38.22	82	31.66
Silvicultural land	6		2	33.33	2	33.33	2	33.33
Area of pond, lake for breeding shrimps	239	3	91	38.07	109	45.60	39	16.31
Area for breeding fresh water fish	109	9	24	22.01	57	22.29	28	25.68
Catching aquatic products	81	13	0	0	22	27.16	59	72.83
- Cultivation	235	4	51	21.70	112	47.65	72	30.63
Planting rice	112	8	1	8.92	53	47.23	58	51.78
Planting mushroom	11		1	9.09	5	45.45	5	45.45
Forestry trees	9		1	11.11	3	33.33	5	55.55
Afforestation	5		0	0	3	60	2	30
Planting eucalyptus	13		1	7.69	5	38.46	7	53.84
Planting cajeput	42	16	6	14.28	17	40.47	19	45.23
Planting willow	48	15	9	18.75	23	47.91	16	33.33
Planting agricultural products	152	7	21	13.81	82	53.49	49	32.23
Breeding poultry	157	6	23	14.64	80	50.95	54	43.39
Pig husbandry	68	14	13	19.11	41	60.29	14	20.58
Cow, bull husbandry	90	12	16	17.77	51	56.66	23	25.55
Breeding duck	21	17	18	85.71	3	14.28	0	0

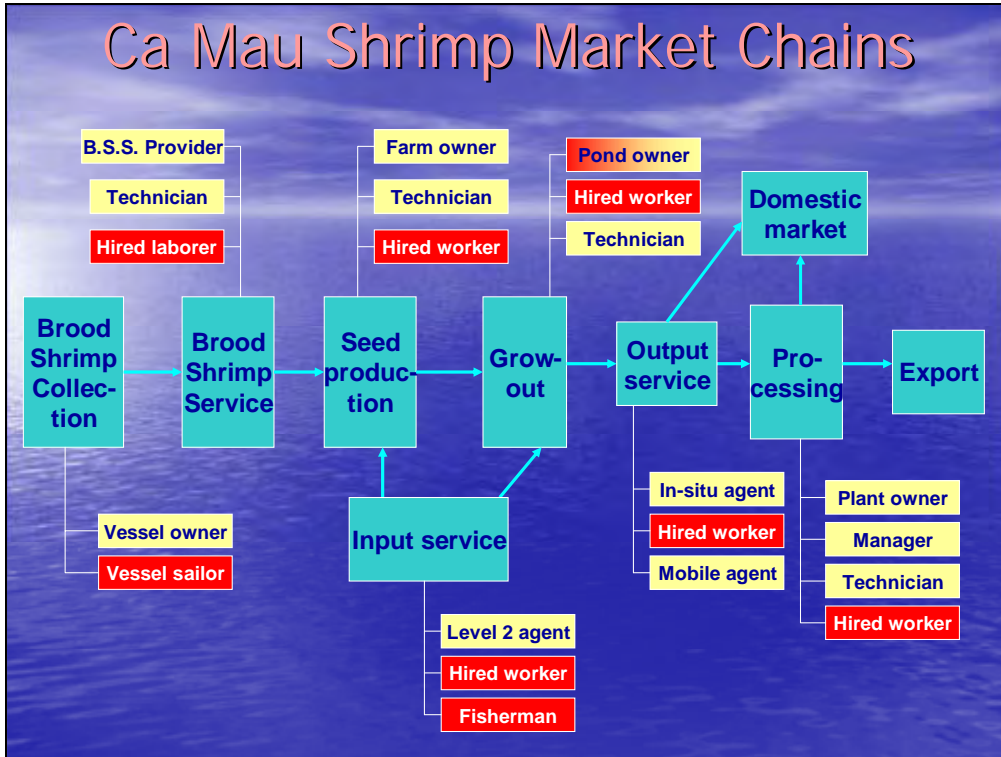
8.7. Appendix 7 – Classification of rich, poor among nursing, breeding households group

<i>Criteria</i>	Poor household	Rather good household	Rich household
Manpower	With manpower but lacking of knowledge	With manpower, and knowledge but not be stable yet	With manpower, knowledge and plan for stable business
Property	Provisional housing, with water pump	House roofing with tiles, having domestic TV, motorcycle with old model, water pump	Strongly built house, good motorcycle, sufficient production tool good living means.
Loan capital	Overdue debt from 20-25 million VND, having no mortgage property, can not additional loan	Debt is not over 10 million VND by having a crop failure, payable debt.	Pay off but borrow again, often pay off and borrow again in next crop, and having interest after breeding.
Land	With small low water lake is from 0.3-0.4ha	With low water lake or high water lake but an area is not large and unstable	With stable high water lake equipped synchronous machines
Development capital	Without	Having but poor from 25-40% liquid asset for breeding crop.	Having from 40-80% liquid asset for breeding crop.
Risk	Meeting risks caused by lack of technical knowledge	Having risks caused by lack of technical knowledge but hard loss is rare	Having risks but overcoming and not be often lost.
Income	Low (2-10 million VND/crop) but having a heavy crop is rare	Average, fair (5-20 million VND/crop) sometimes having 2,3 continuous heavy crops.	High (25-70 million VND/crop) having often continuous crops.
Factor impacted from outside	Severe affected by impact of market (price of shrimp, food) environment (low water raising)	Affected by impact of market (price of shrimp, food) environment but may have interest.	Affected by impact of market (price of shrimp, food) environment but not be significantly, having interest if breeding.

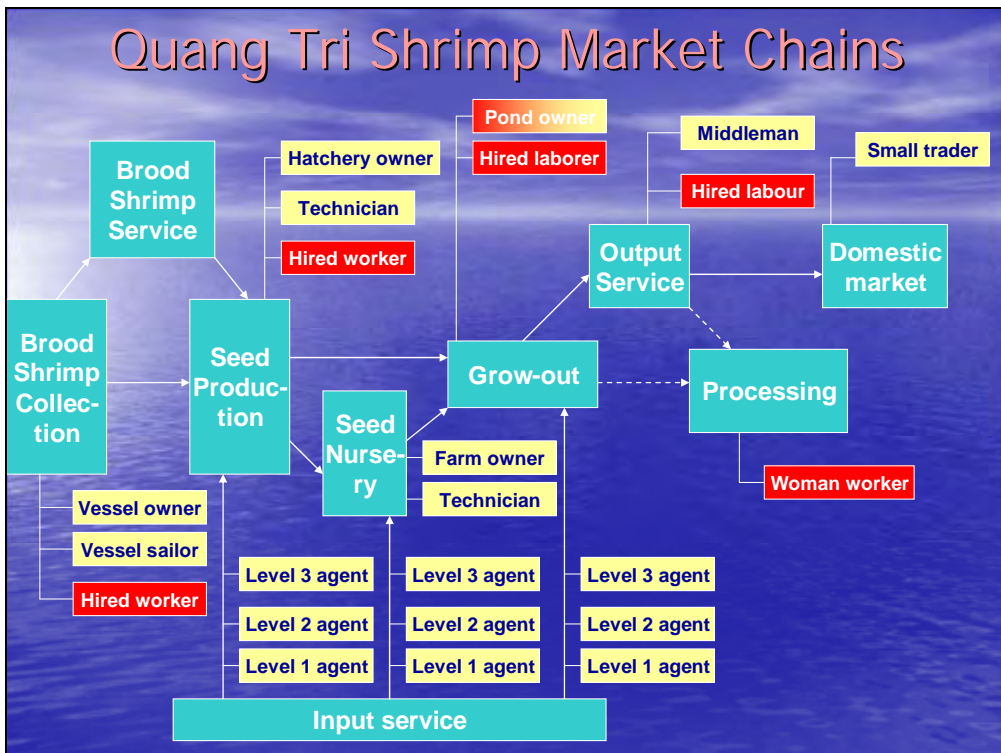
8.8. Appendix 8 – Classification of rich, poor among hired labour households group

<i>Criteria</i>	Poor household	Average, rather good household	Rich household
Manpower	Lack of manpower (accounting for 20%) the remaining has not often capital and knowledge	Dependent crowded family.	Labourers in large family, having capital and knowledge.
Property	Provisional housing or thatched cottage without valuable property.	House roofing with tiles, having bicycle, valuable property	Strongly built house, having motorcycle, property, valuable family living tool.
Land	5 one tenth of mau (360m ²) household but ineffective in business	5-7 one tenth of mau/household, invested technics and science	5-7 one tenth of mau/household, invested technics and science combined with breeding
Loan capital	Lack of debt, without mortgage property, unpayable.	No debt, or debt but payable	No debt, having accumulation.
Development capital	Without	Having but little	Having in abundance.
Risk	Illness, unexpected accident	Healthy, normal business	Having a heavy crop or having income source from abroad.
Income	Low from 88,000-100,000VND/month/month	Average, rather good > 200000VND/month/month	High > 500,000 VND/month/month
Factor impacted from outside	Severally affected by impact of market, weather, social policies	Few affected by impact of market, weather, social policies	No affected by impact of market, weather and changed policies.

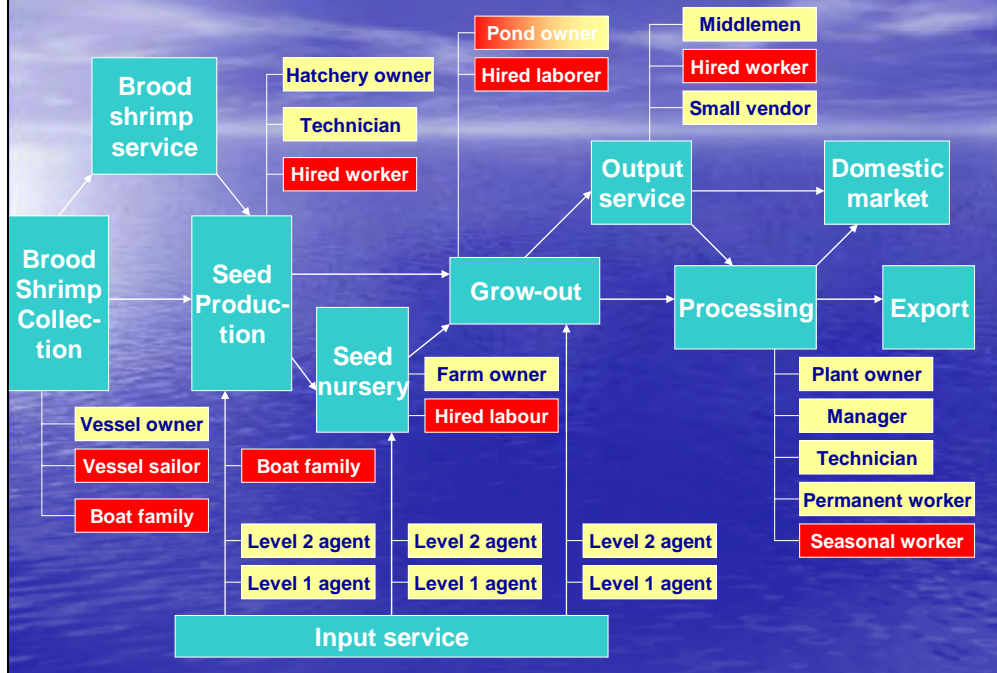
Ca Mau Shrimp Market Chains



Quang Tri Shrimp Market Chains



Thua Thien Hue Shrimp Market Chains



Tables of trade barriers faced by Vietnam seafood products, presented by NAFIQAVED.

Year of application	Types of barriers	Countries of imposition	Imposed group of commodities	Details
1991	TBT, SPS	EU	Fisheries animals	The third countries who export fisheries products to EU must satisfy 3 conditions as below: - Organization and capacities of safety and hygiene control body - Legal system on safety and hygiene issue. - Production conditions of fisheries processing entities.

Year of application	Types of barriers	Countries of imposition	Imposed group of commodities	Details
1991	SPS	EU	Bivalve mollusk	Exporting countries are requested to implement control program for bivalve mollusk harvesting zones.
1996	SPS	EU	Culture fisheries	Implementation of toxin residue control program for culture fisheries.
9/2001	SPS	EU	Fisheries animals	Strengthened inspection of banned antibiotic residues.

Year of application	Types of barriers	Countries of imposition	Imposed group of commodities	Details
1997	SPS	USA	Fisheries animals	Enterprises are requested to implement HACCP. HACCP implementation in enterprises are inspected periodically by FDA

	SPS	Japan	Fisheries products	Radioactivated/Gene-changed foods are requested to be labeled.
Year of application	Types of barriers	Countries of imposition	Imposed group of commodities	Details
1996	TBT	USA	Shrimp	Requirement on inspection and certification of origin for every exported shrimp lot to the USA.
12/2003	SPS	USA	Fisheries animals	Against biological terrorization through food products.
2000	SPS	South Korea	Fisheries animals	It regulates that exporting countries must register their exporting enterprises to South Korea. The exported lots must be enclosed with deeds.

Year of application	Types of barriers	Countries of imposition	Imposed group of commodities	Details
2000	SPS	South Korea	Processed fisheries	The exporting countries must be capable to control safety and hygiene criteria for processed fisheries products.
30/6/03	SPS	China	Fisheries animals	Exported enterprises are requested to be inspected and accepted by the due authorization of the exporting countries. Exported fisheries products to China must be quarantined for safety and hygiene in accordance with Chinese regulated criteria

Year of application	Types of barriers	Countries of imposition	Imposed group of commodities	Details
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1/1/03	SPS	Switzerland	Fisheries animals	Only products from EU-listed enterprises are allowed for import.
2002	SPS	Canada	Fisheries animals	100% of fisheries products are requested for anti-biotic test.
2000	SPS	Australia	Shrimp	Certificate for free of disease shrimp is requested
2004	SPS	EU	Fisheries	Disease certificate is requested
2005	TBT	EU, Japan, South Korea	Fisheries	Traceability must be coded

Year of application	Types of barriers	Countries of imposition	Imposed group of commodities	Details
2003	SPS	New Zealand	Dried fisheries products	CaO must not be used for dehumidification in dried fisheries products.
2002	SPS	Thailand	Shrimp	Certificate is requested for shrimp without white spot virus; for shrimp harvested not upon disease outbreak; or shrimp not contaminated with banned matters.
1996	SPS	Taiwan	Fisheries animals	Certificate of safety and hygiene by the due authorization of the exporting country as per the official registration of the Ministry of Fisheries of Vietnam is requested.