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Quality standards for fish supply chains : the case of organic Pangasius in the Mekong River Delta, Vietnam

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List of Abbreviations

| AFA | Fishery association in An Giang |
|-----------|---|
| BRC | British Retail Consortium |
| ССР | Critical Control Points |
| CTU | Can Tho University |
| DARD | Department of Agriculture and Rural Development |
| EU | European Union |
| GAP | Good aquaculture practices |
| GHP | Good Hygiene Practices |
| GMP | Good Manufacturing Practice |
| GSO | General Statistical Office of Vietnam |
| HACCP | Hazard Analysis and Critical Control Points |
| MOAF | Ministry of Agriculture and Forestry |
| MOFI | Ministry of Fisheries |
| MRD | Mekong River Delta, Vietnam |
| NAFIQAVED | National Fisheries Quality Assurance and Veterinary Directorate |
| PPC | Provincial People Committee |
| SQF | Safe Quality Food |
| SSOP | Sanitation Standard Operation Procedures |
| SCM | Supply Chain Management |
| US | United States |
| VASEP | Vietnam Association of Seafood Exporters and Producers |
| VBARD | Vietnam Bank for Agriculture and Rural Development |
| VINAFA | Vietnam Fishery Association |
| VINAFISH | Vietnam Fishery Society |
| VCCI | Vietnam Chamber of Commerce and Industry |
| VND | VN dong (local currency) |

Abstract

Organic products remain a niche market in most countries and there is relatively little international trade in organic aquaculture products (Smith et al., 2005). Consumers are asking more information on the procedures of food production and processing and they demand for enhanced traceability. The paper looks at some of the opportunities that exist for producers to enter organic schemes and compete in the niche markets. Importantly, the constraints and risks that are involved will be debated. The ability of organic Pangasius farmers to organize and obtain the certification is questioned and the mechanisms to facilitate this will be discussed.

Key words: organic Pangasius, quality assurance, governance, value chains

1. Introduction

Vietnamese aquaculture is a very diverse sector and the distribution of aquaculture systems typically varies from the north, through to the central and the south of the country. Freshwater aquaculture has a long history in Vietnam. It developed from catching wild fish and gradually moved to extensive and intensified aquaculture. The main native species cultured are common carp (mainly for domestic consumption) and Pangasius (nowadays mainly for export). Traditionally Pangasius was cultured in the Mekong Delta in Vietnam since 1950s on a small scale, mainly for subsistence. The farmers collected the fish larvae from the Mekong River during the early flood season. The larvae were nursed in small ponds and provided to local farmers to stock in the integrated farming systems, and the fish were produced for local consumption. However, in 1990s the Pangasius culture developed quickly because the product could be exported to foreign markets, as well as the success of improved culture and management techniques like induced reproduction, feed quality, water management and pond design.

After a series of challeges in the early, the key fishery species that illustrate the various dimensions of international value chains in the MRD, Vietnam are Pangasius. By 2005, the economic growth rate for Pangasius culture in the MRD was 24.9% compared to 19.5% for Vietnam as a whole (MOFI, 2005). In 2006, Vietnam exported Pangasius to 65 countries and territories, fetching a record of 700 million USD. The target of earning over 1 billion USD from exports of Pangasius was achieved in 2007 (VASEP, 2007). Figure 1 shows the development of Pangasius culture production from 1999-2007 in Vietnam (VASEP, 2008).



Figure 1 : The Development of Pangasius culture 1999-2007

Although the economic conditions for the pangasius look promising, there are problems in the pangasius sector in Vietnam. European markets are erecting stricter quality standards for fish products. The major process factories in Vietnam are complying with those quality demands. To ensure a stable income for the farmers, the current and future quality demands need to be met. However, when the quality demands are implemented there must be a benefit to cover the implementation costs. This paper will focus on the organic supply chain of pangasius to the EU, the organic quality demands of Europe and the resulting consequences for the pangasius farmers in Vietnam.

Source : VASEP, 2008.

2. Quality standards for fish products

In this section the different quality standards will be discussed. Firstly the demands will be discussed which give access to enter a market. A distinction is made between quality standards set by the government which are obligatory for the import of fishery products in Europe and the standards demanded by private organizations or preferred by a certain customer group that result into certifications schemes, i.e. ISO9001, EurepGAP or organic labels. When that distinction is made the different certifications schemes and organizations will be presented relevant for the pangasius aquaculture. This will lead to the most relevant organizations and labeling schemes for the pangasius farmers.

2.1 Legal quality standard for food export to the EU

The legal quality standards for food import have to do with the assurance of food safety. The assurance is based on the traceability of the products and control of hazard in the supply chain that may cause damage to humans. The EU introduced new legislation on traceability of food stuffs including fish and fishery products from 1 January 2002. This legislation for traceability requires that all fishery products traded in the EU are labeled with information on the type of the product and the country of origin or catch area (Asche and Khatum, 2006). It could be defined as documents that link the productions to the customer or as administrative conditions for quality assurance. Traceability means excellent control of the production process and associate record keeping.

The new EU rules on food hygiene confirm that all food businesses after primary production must put in place, implement and maintain a procedure based on the HACCP (Hazard Analysis and Critical Control Point) principles. (FVO, 2006). Hence, all food processors in the EU are legally bound to have a HACCP plan or they must be working on a HACCP system. But if an EU importer buys raw food for further processing, the importer becomes responsible as from the moment the products are offered to customs. Therefore, EU importers and require their non-EU suppliers to comply with the standards of the EU. (CBI Market Information Database). Within the aquaculture sector, additional legislation covers items such as approved veterinary products and maximum residue levels (e.g. for therapeutic agents), issues that also have to be included within the concept of quality (www.Feap.com).

All these standards are compulsorily for the import into the EU and according to the directive 91/492 en 91/493 of the EU. The legal obligations in the country of origin of the product can be harmonized with EU laws. There are 3 grades or lists for import. The third level list of countries can't import. If a country is on the second list, each country in the EU can decide if it allows import. At he moment Vietnam is on list one for the harmonized countries. This means that Vietnam applies the same rules as the EU. Vietnam complies with the harmonization demands set by the EU and can import into every country if the EU. The harmonization implies that Vietnamese processors are obliged to have a HACCP plan as well. A competent authority in the country is dedicated to check if the total supply chain for compliance with the EU demands; in Vietnam this is NAFICAVED. They regulate and deploy a third party, e.g. SGS and Veritas, to check the quality within the chain. NAFICAVED determines which chains of companies can import to the whole of Europe (www.pvis.nl).

In Vietnam there has been an increase of number of organizations that were approved by the EU for export to the EU market. Figure 2 shows the growth of seafood exporter appoved by the EU.



Figure 2 : Number of organizations approved by the EU (VASEP, 2006)

2.2 Business-to-business (B2B) and Business-to-Customer (B2C) norms

There are many certification schemes and initiatives related to standards, some are dealing with sustainability and the environment while others are more focused on social matters. Some seek to provide accreditation while some just seek to establish recommendations about best practices or codes of practice. For consumer approval and commercial advantage many supermarkets have established their own criteria for suppliers to meet in order to have an 'independent' quality image. Distinctions can be made between business-to-consumer labels and business-to-business labels. The first one adds extra consumer value to a product, i.e. by the way it is produced which often results in a higher market price. The business-to-business labels can be demanded by the big retailers to ensure extra traceability and food safety. In times of increasing scarcity of resources, the power balance may shift towards the supply side. In times of wealth the power balance tends to concentrate on the demand site towards the retailers. These are seen as the gatekeepers between the producers and the customer (Ruben et al 2007). The last years there has been a shift from the supply driven supply chain to a demand driven chain. Thus, in many well organized supply chains the role of multinationals seams to be predominant. This is justifiable, since it is the large international retailers, supermarkets, traders and industry firms that are leading, if not to say dominating, the majority of global value chains. The smallholders in Vietnam can become a part of these production and service networks. This however can be hard because multinationals like Unilever and Ahold work with private labels or B-T-B standards like EurepGAP, which can be costly to implement.

2.3 The certification schemes and initiatives

The list presented below will first discuss the general certification schemes and organizations relevant for the Pangasius industry. There is a wide range general social/environmental initiatives that have relevance to fish sector.

2.3.1 International Social and Environmental Accreditation and Labelling (ISEAL) Alliance

This is an association of leading international standard-setting, certification and accreditation organizations that focus on social and environmental issues. Taken individually, the standards and

verification systems of ISEAL members represent efforts to define issue -specific elements of social and environmental sustainability. Taken together, they represent a holistic movement, with the ISEAL Alliance providing the framework. Moreover, ISEAL members are striving for performance standards that are more easily understood and measured, and that are consistent across different certification programs. Members include: Fairtrade Labelling Organizations, the FSC, the MSC, IFOAM, the MAC, SAI, and the Sustainable Agriculture Network. While not a responsible trade/ production initiative in its own right, it is relevant given its role as a lobby and information-sharing group for its members. (Macfadyen, 2004).

2.3.2 The International Confederation of Free Trade Unions (ICFTU)/ITS Basic Code of Labour Practice

It is adopted a text for a "Basic Code of Conduct covering Labour Practices" in December 1997. The code aims to establish a minimum list of standards that ought to be included in all codes of conduct covering labour practices. A central idea of this code is that codes of conduct must incorporate freedom of association and the right to collective bargaining. The basic code is meant to assist any trade union organization in negotiations with companies and in working with NGOs in campaigns involving codes of conduct. (Macfadyen, 2004).

2.3.3 Ethical Trade Initiative

This is a multi-stakeholder alliance in the United Kingdom. It has a tripartite structure in which NGOs, unions and the private sector are represented. The ETI focuses on ethical sourcing by companies, in particular retail chains. Members of this initiative are "committed to business ethics and corporate responsibility, promotion of worker rights and human rights in general. In employment, ethical business includes working towards the ending of child labour, forced labour, and sweatshops, looking at health and safety, labour conditions and labour rights. Companies that are members of ETI are expected to adopt and implement the code and monitor and report their use of it in their supply chain. (Macfadyen, 2004). Because there is no organic focus no further research will be done to this initiative.

2.3.4 Fair Trade

The International Federation for Alternative Trade (IFAT) is the international network of Fair Trade organizations. IFAT's membership includes some 111 producer groups, export marketing organizations and brands in 35 Latin American, African and Asian countries. IFATs Code of Practice is based around issues of: commitment to fair trade, ethical issues, transparency, working conditions, equal employment, concern for people, concern for the environment, respect for the producer's cultural identity, education and advocacy, and working relationships. Fair-trade Labeling Organizations (FLO) is the worldwide Fair-trade Standard setting and Certification organization. It permits producers and their dependants to benefit from labeled Fair-trade. (Macfadyen, 2004). The points of reference for Fairtrade Certification are the Fair Trade Standards. These standards are developed by the FLO Standards Committee, in which stakeholders from FLO's member organizations, producer organizations, traders and external experts participate. At the moment Fair trade does not have any fish product standard, nor are they developing one (www.fairtrade.net). This is due to the fact that they do not have any expertise in this field. This is why Fair Trade shall not be considered relevant for the moment.

2.3.5 EUREPGAP

EurepGap is a certification system driven by 22 large-scale retail chains that form the core members of the Euro-Retailer Produce Association (EUREP). EuropGAP is developed by the Euro-Retailder Produce working group. The main focus of the Good Agriculture Practices (GAP) norms are on food safety and traceability. They also include environmental (IPM practices) and social (issues on workers health) norms, although these have been criticized for being rather vague (Macfadyen, 2004). EurepGAP focuses on primary productions level, thus farmer level. At the moment GTZ is active in Vietnam to developing an aquaculture EurepGAP standard for Pangasius, this will be soon be compulsory for the import through Ahold.

2.3.6 ISO 14001 Environmental Management System

Requires that a company develops a policy in relation to environmental performance. No social or poverty emphasis. They use certification but have no label (Macfadyen, 2004).

2.3.7 SQF 1000/2000

The Safe Quality Food (SQF) program is developed by the Food Marketing Institute which is an Australian initiative. It is based on the principles of HACCP, Codex, ISO and Quality Management Systems. There is a SQF1000 program for the primary producers and a SQF2000 for the processors. In the end of 2006 forty-one farms and two producers in Vietnam are SQF certificated.

2.3.8 Global Aquaculture Alliance (GAA)

The Global Aquaculture Alliance is an international, nonprofit trade association dedicated to advancing environmentally and socially responsible aquaculture stationed in the USA. GAA promotes best management practices for sustainable aquaculture through its Responsible Aquaculture Program, conferences and other activities. No certification or use of labels. They are mainly focused on shrimp production, therefore they will be considered not relevant for the Pangasius aquaculture.

2.3.9 NAFIQAVED (BMP, GAP, CoC): These are Vietnamese standards that the Vietnamese government is developing for Pangasius farming. These are not similar to the general standards. BMP should be suited for smallholders and discusses some environmental issues. This BMP hover does not exist yet, neither are any documents available at NAFIQAVED. The GAP is the extended version of BMP and covers environmental, social and health aspects. The implementation is mere costly and therefore only useful for the big farms. It seems that most effort is and has been put into this standard.

2.3.10 Naturland Organic Standards

Naturland e.V. is a German non-profit organization which was set up in 1982 to promote certified organic food production. Its key activity is the development of standards and the certification of qualified products. The general Naturland standards are accredited by IFOAM but have no social or poverty emphasis. However, the specific aquaculture scheme is not. Binca Seafood, Naturland and GTZ work together in Vietnam to produce organic Pangasius in the An Giang province.

2.3.11 Bio-Suissse

Bio Suisse is an umbrella association with more than 30 organic farming organizations and around 6300 farms that engage organic production in Switzerland. (www.bio-suisse.ch) Bio-Suisse was initially founded by Swiss farmers to protect their (organic) farmers. Thomas Sporrer (Catfish 2007) says that it is still very hard obtain this label. For example, to obtain the label a Swiss importer has to apply for the standard. At the moment Binca can import into Switzerland using the Bio-Suisse label. The rules they apply are stricter then Naturland.

3. Research methodology

Our research design is problem solving in nature. The case study and survey methods are using for designing this research. The research approach is problem solving in nature. The reason for selecting this approach is that because our research is mainly aimed at coming up with problems related to quality management of organic Pangasius by investigating the supply linkages between the fish stakeholders. Data for this study were collected from December, 2006 to July, 2007 in Vietnam based on personal interviews. The research initially started as a desk research to investigate the quality demands set by the EU and labels. Reports and internet sites were used to gather information about the demands and the status of labels. In some cases extra information was obtained trough telephonic interviews or email correspondence with the labels or authorities. The first goal was to find out what the minimal EU standard was. The second goal, to inquire how suitable a strategy of each label is for the smallholders, and what their current status is regarding aquaculture in Vietnam. This resulted in the EU and the Naturland demands. Then, we carefully selected our cases from different chain stakeholders (fishery experts, the hatcheries, farm input suppliers, small farmers, traders, and processors/exporters). Most of the interviews were conducted semi-structured with predefined open questions to make sure all topics were covered, meanwhile allowing enough space to elabourate on important issues. Each interview lasted between 60 to 120 minutes.

4. Pangasius organic supply chain

4.1 Current organic value chain

The organic Pangasius value chain is differently organized than the conventional one. Binca, the exporter to Europe, fulfils a strong coordinative function. Binca has a big influence on the procedures on the farm. Figure 3 shows the organic Pangasius supply chain in Vietnam.



Figure 3 : Overview of the organic Pangasius supply chain

4.2 The status of the organic Pangasius project

Binca Seafood, Naturland and GTZ work together in Vietnam to produce organic Pangasius in the An Giang province. Binca Seafood is a relatively small company and imports primarily deep-frozen seafood from Asia to Europe. According to them the organic aquaculture is a growing high-end niche market. The increase of organic food can be seen all over the world. GTZ is an international cooperation enterprise for sustainable development. They promote reforms and change processes. Its corporate objective is to improve people's living conditions on a sustainable basis.

The project started with the development of guidelines for organic Pangasius production and certification by Naturland. The guidelines had to be developed and agreed upon with relevant Vietnamese institutions. Afterwards, a pilot project was introduced for changing the production management of the local companies from conventional to organic practices. In order to help the farmers apply the organic standards, both Binca and Naturland strongly supporting them through the help of IMO and local institutions. The project grew from one enclosure in 2004 to seven in 2007, distributed over two farms. The farms are still owned by Vietnamese owners. The two farmers with which Binca cooperates are both members of The An Giang Fisheries Association (AFA). AFA is a voluntary organization for farming and processing in the Mekong River Delta. In cooperation with AFA they where chosen as most suitable for the organic culture, location was a key factor. The most important aspects of the location are the fact that there is no industry nearby and that the erosion caused by the river is minimal. Erosion forms a problem when pens are used. The river erodes which causes wholes underneath the fence through which fishes escape.

The work on certification and 3rd party quality assurance is carried out by IMO, with a department in Hanoi, strongly reducing certification costs and building up the regional know-how on organic certification. The Naturland and Bio-Suisse label give respectively excess to the German and Swiss organic market.

The project is still in its development phase. An example of this is the organic feed supply. Earlier home made feed was used. The feed consisted out of 50% rice bran, 25% soybean, 25% fish meal. The soybean oil was imported from the Dalian Xinlongken factory in China in loose container loads. For all the supplies certificates from OCIA International were available stating the organic quality. The containers are unloaded in My Thoi Harbour and repacked. The bagging activities were monitored by the Binca representative. After this the bags where transported to the farm by boat.

The rice has to be sourced from organic farming. But this could not be met at that stage of the project. Therefore the rice bran was bought from traditional farming. Each lot of rice supplied to the farm was subject to analysis to verify that the rice was free from residues. This was done by Can Tho University at the Advanced Labouratory for pesticides and chemicals. The problem with the fish meal was that there was no organic certificate for this product. Each time analyses were done to control the quality. It should be clear that the process for certification of this type of feed is very complex which increases the costs and reliability. At the moment (2007), organic industrial Pangasius feed is produced by a qualified organic producer from Israel (Raanan) and imported by Binca.

GTZ claims that the farmers earn more than 15% more then on the conventional market (<u>http://www.sme-gtz.org.vn</u>). In 2006 Binca produced around 1000 tons of organic Pangasius which is approximately 330 tons of fillets.

4.3 Organic Pangasius production

4.3.1 Organic Pangasius farming

There is a high average mortality (60%) which increases the production costs. For conventional farming the mortality is 40%. Table 1 consists of the cost of loss of fingerlings and food put in to the fish (loss of income is not added). According to this calculation more than 18.400 euro are lost each harvest due to mortality.

| Pond | | Enclusure | | |
|----------------------|-----------|-----------------------------|------------|--|
| total feed fed [kg] | 65072,0 | total feed fed [kg] | 96834,0 | |
| growth [kg] | 42837,3 | growth [kg] | 73888,2 | |
| percentage feed lost | 7,52% | percentage feed lost | 1,26% | |
| rough FCR | 1,519 | rough FCR | 1,311 | |
| Technical FCR | 1,405 | Technical FCR | 1,294 | |
| cost organic feed | €1,00 | cost organic feed | €1,00 | |
| cost of fingerlings | €0,04 | cost of fingerlings | €0,04 | |
| | cost | of mortaility | | |
| cost of feed | €4.894,14 | pond feed lost *1/3* | €3.075,54 | |
| cost of fingerlings | €4.332,48 | pond feed lost in enclosure | €6.053,42 | |
| total costs | €9.226,62 | cost of feed | €1.218,67 | |
| | | cost of fingerlings | €1.921,72 | |
| | | total costs | €9.193,81 | |
| | | TOTAL COSTS/Harv. | €18,420,43 | |

Table 1 : Summary of the farming details, FCR and mortality costs

4.3.2 Estimated costs for organic farming.

The cost model for organic farming is not realistic if one applied it to one farm of 1000m². Because of the high cost a cluster of farms is needed to implement scale-benefits. For organic farming there are three extra major costs, namely: feed, licensing costs and the investment costs. Furthermore, all the workers on the farm have contracts and are insured. Their salary is around 1.000.000 dong (50 euro) compared to 600.000 (30 euro) in the conventional sector. But this is only a minor cost.

A. Bui states that the total price of the organic feed (with transportation, etc) from Israel is 1.20 dollar per kilogram compared to 0.33 for normal industrial feed. The feed manufacturer states that the price of Pangasius feed in Vietnam (CIF) is about 900-1,000US\$ per ton. This is a feed of 28% protein. However, the price of transportation and raw materials is constantly increasing, so the prices are only valid for a few months. One dollar per kg will be used as the price per kg feed.

Another huge cost is the licensing cost. Binca has a total amount of 100.000 m³ of farm water. They estimate that they spend around 100.000 dollar a year on licensing and testing the quality of the water and the fish. For this cost it will be assumed that every meter costs two instead of one dollar.

The last big costs are the investments in the new organic farm. According to A. Bui they invested 200.000 dollar in Son's farm. The farm has three enclosures and a pond, with a total surface of more then 20.000 m2. If the costs are proportional to the size of the ponds, a smallholder of 1.000m² would have an initial investment of 10.000 dollar. Considering some costs will not be linear due to the loss of scale benefits, it will be assumed to be 25.000 dollar. The depreciation was calculated by using the straight-line method on initial investment and estimated economic life. If the economic life is 7 years and there are 2 seasons per year, the costs would roughly be 1.800 dollar per 6 months (1350 euro). The two previous costs are a reason to work with a cluster of smallholders. With a cluster it is easier to monitor the environment, which decreases licensing costs and makes the farmers benefit from sharing investments costs.

In the organic model there is an adjusted mortality; in the conventional chain 80% survives and in the organic chain this is only 60% (80% survives the pond and 75% the enclosure). This causes an increase of fingerling loss and feed loss. Table 2 shows the cost of organic Pangasius farming

| Items | Cost (VND) | Cost (Eur) | % |
|------------------------------------|-------------|-----------------|--------|
| Pond preparation | 2.400.000 | 120,00 | 0,82% |
| Pond treatment | 3.400.000 | 170,00 | 1,16% |
| Fingerlings | 13.365.000 | 668,25 | 4,58% |
| Feed | 177.608.320 | 8.880,42 | 60,83% |
| Labor [4 p * 6 mnd] | 24.000.000 | 1.200,00 | 8,22% |
| Fuel | 13.100.000 | 655 <i>,</i> 00 | 4,49% |
| Harvesting | 4.000.000 | 200,00 | 1,37% |
| Operating interest | 14.500.000 | 725,00 | 4,97% |
| labeling costs [dollar / m3] | 39.600.000 | 1.980,00 | 13,56% |
| Total variable cost | 291.973.320 | 14.599 | |
| Fixed depreciation costs | 27.000.000 | 1.350 | |
| Total costs | 318.973.320 | 15.949 | |
| Yield (kg) | 10.024 | 10.024 | |
| Production cost per kg of Tra fish | 31822 | 1,46 | |
| price sold (to get same profit) | 38.000 | 1,90 | |
| profit | 61929179,69 | 3.096 | |

Table 2 : Cost table of organic Pangasius farming

4.4 Organic Pangasius quality management

In general, an organic qualified third party checks the procedures to ensure they are in line with the organic quality standards. The quality of the system is assured and controlled by three levels. The farms control the quality and provide documents. The process and documents are checked by a third party (IMO). This is again is documented and send to Naturland for final approval. In some older documents rules can be found as: no conflict with other land use or other demands such as types of paints that can not be used. An overview of the discussed Naturland demands can be found in figure 4.



Figure 4 : An overview of the discussed Naturland demands for organic Pangasius farming

4.4.1 Acquiring the Naturland Label

The following steps have to be made for the implementation of the Naturland label, it is a summarized and adapted version of the Steps to Organic Aquaculture Certification by Naturland e.V. for the Pangasius producers :

- *Exchange of information:* The first step towards certification is the exchange of information. Naturland provides detailed information about technical and formal aspects of certification. After this a questionnaire has to be filled in. The questionnaire assists in obtaining basic data about the operation, as well as the preconditions and prospects for conversion towards organic aquaculture.

- *Pre-evaluation visit:* This is done to get an impression of the situation on site and to discuss the steps towards conversion with all parties involved, setting up the conversion plan. The pre-evaluation is supposed to assist the farm in preparing for the oncoming inspection. This is done by IMO who currently hires P. Serene.

- *Inspection:* Naturland will order an inspection of the farm by an independent inspection body (IMO). Before the inspection is scheduled, a cost estimation will be issued by the inspection body. Naturland is cooperating with a qualified inspection body from Thailand.

A thorough inventory of the operation will be carried out, covering all aspects of farm management, input materials, documentation, harvest, processing, and export. According to size and complexity of operation, inspection will take one to several days. The inspector will issue a report to Naturland with recommendations regarding certification.

- *Certification:* The inspection report, together with further data and information, is forwarded to the Naturland Certification Committee. The certification committee then decides on the admission and certification of new farms as Naturland members. It also decides on the annual renewal of certification. This is finally communicated to the farm by the certification letter, containing the conditions the certification is subjected to.

- Contracts & Certificates: After this a contractual partnership between a farm and the Naturland Association can be established. A producer contract between the farm and Naturland will be concluded.

The farm/company commits itself to comply with the Naturland standards and is entitled to declare itself a Naturland partner. After this the farm certificate is issued.

4.4.2 Market demand for organic Pangasius

At the moment the EU is the biggest market for Vietnamese catfish with the total quantity of over 120,000 tonnes fillet in 2006 (http://www.globefish.org), with a value of US\$ 340 million. The biggest importers are Spain, Italy and France, closely followed by The Netherlands, Germany and Poland (see figure 5). In France 4% the people buy organic fish, for meat and vegetables this is respectively 10 and 25%. However, the organic market is still a niche market in France in terms of value, representing just over 1.5% of total retail food sales in 2003, compared to 0.5% in 1997. The market has been growing at a rate of 12% per year, and that rate is expected to remain above 6 percent in the near future. In the Netherlands the organic sector is aiming for a market share of organic food of 5% in 2007. In 2006 the meat sector increased by 1.2%, the organic meat sector increased by 10.6% to a total market share of 2.6% of the total market.



Figure 5 : Distribution of Vietnam's total seafood export quantity to the EU in 2006

Source: VASEP, 2007

Because there are no hard numbers of the consumption of organic fish in the EU an accurate estimation has to be made of the market. The total organic meat share in the Netherlands is 2.6%, which is an upcoming market. As we discussed before less people buy organic fish compared to meat (4% compared to 10% in France), this would lead to a market share of 1.4 % of organic fish. Taking in mind that there is less competition in the organic fish market then in the normal market pangasius could penetrate more markets then only a share of the pangasius market. There fore it will be assumed that a nice market of 1.5% of the total volume of pangasius imported in European countries could be sold as organic fish or as a value added organic fish product.

Germany consumes 13% of the total amount of fillet and 1.5% of this is organic this would lead to a market of 252 ton fillet. This means that 756 tons of organic pangasius could be sold in Germany. Because Binca is already active in the German, the organic chain in which Binca participates shall however be used to investigate and understand the general possibilities for organic farming.

5. Conclusion

The organic value chain in Vietnam is very complex and the farmers are the weakest links in the chain driven by exporters and importers. It is more difficult to use smallholders in organic farming. One should not forget the strategy of Naturland, which is organic farming. This is why a price premium is added. Naturland has social aspects included in the label, but it is not a label that emphasizes to work with smallholders. A Fair-trade could offer extra compensation because they work with smallholders. The adoption to fair-trade will be much easier then to organic requirements. There is however no label for aquaculture and one can ask the question is if the market is big enough. It will only be a solution for a small proportion of the smallholders. Still it could be an interesting field to explore.

This study represents one of the first empirical studies with regard to upstream organic pangasius supply chain quality management in Vietnam. Further empirical research should be conducted to gain more insight into the relationship in the downstream part between the processing/export firms and importers or retailers. This will give a clear picture of the organic pangasius value chain quality management.

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