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## Enhancing the Value Added for Enterprises in the Supply Chain of Vietnamese Aquatic Products Export in Current Period

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**Abstract:** On the basis of inheriting and developing value chain theories, global value chains, fisheries supply chains, value added, and value added enhancements in the supply chain of aquatic products export. The paper has systematically and hinted at the urgency of the issue of how to increase value added for enterprises in the aquatic products export supply chain. With the results of the research and from the point of view of increasing value added for enterprises in the aquatic products export supply chain, the paper has established the scientific and practical arguments of enhancing value added. Thereby, this research proposing solutions to increase value added for enterprises in the aquatic products export supply chain. Value added solutions for enterprises in the aquatic products export supply chain are focused on three main groups of solutions: Value added solutions for fish seed business; Value-added solutions for aquaculture business; Value added solutions for export processing business. In addition, there are solutions to the Government and Associations.

Thus, in order to increase value added for business in the fisheries supply chain, firstly, priority should be given to the elements of the business as (i) Group of fish seed companies (ii) Factors of aquaculture business; (iii) Factors of processing business for export. Second, the group of factors belongs to the Government. Third, the elements belong to the association. In addition, there should be proper government attention and coordination with industry associations to maximize value added for business in the aquatic products export supply chain. Finally, the paper can't avoid certain limitations. The paper author wishes to receive the comments of scientists, the Council and those who are interested in this field so that they can continue to complete the paper.

**Keywords:** Added value, the aquaculture enterprises, value chain and LHU.

### INTRODUCTION

Vietnamese aquatic products sector exports essential and advantageous aquatic products. The volume of consumer goods, as well as the value of goods, is highly increasing. However, it's not only the quality of food and food safety and hygiene; the safety for consumers and environment have become important issues for the production and the export of aquatic products; but the Government also care about the issues related to supply chain management and value chain analysis, sustainable development, because they do increase the value added, competitive advantage for enterprises. Although very active, the aquatic products industry is still only in the segment of raw materials production and exports. In the aquatic products value chain, there are product ideas, branding, and distribution, which is increased value added still belong to foreign businesses. Therefore, the export of aquatic products in our country is still low and businesses are ineffective.

At present, the value added of enterprises in Vietnamese aquatic products export chain is lower than other aquatic products enterprises in the region. Other while, in the supply chain of export aquatic products, there are input costs such as seed costs, feed costs, chemical costs, which make the value added very low. It has directly affected the performance of enterprises.

These are issues that need to be addressed soon to raise the value of corporate and export earnings of Vietnamese aquatic products. Based on this fact, I chose the topic "*Enhancing the value added for enterprises in the supply chain of Vietnamese aquatic products export in current period*" as a

research topic, to increase the value added in export supply chain and export performance of Vietnamese aquatic products in the coming period.

### LITERATURE REVIEW

The competitive advantage of Michael Porter (1985). This theory is an activity-based theory of the company. "Competitive advantage" provides a concept of a value chain - a fundamental paradigm for thinking strategically about activities in a business; also evaluate their costs and relative roles in differentiation. Thus, in the analysis framework of Porter, the value chain applies only to business, resulting from analysis the value chain primarily to support management decisions and operational strategies.

Gereffi and Korzenniewicz (1994), Kaplinsky and Morris (1999) used a framework for value chain analysis to find out how corporations integrate into the world economy and to assess determinants intended to distribute global income. The value chain approach has demonstrated the advantages of this tool in economic analysis. The advantages of the value chain research tool are well documented by the research literature. Among them, most notably Kaplinsky, R, and M. Morris (2001), "A Handbook for Value Chain Research" systematized theoretical issues and set forth the procedures for applying this tool. According to Kaplinsky, R and M. Morris (2001), global value chain analysis need to clarify sector entry barriers, trade restrictions and income distribution.

Strategic Supply Chain Management of Shoshanah Cohen & Joseph Roussel (2005) provides guidance for creating value

and competitive advantage in each process of supply chain. Supply Chain Excellence by Peter Bolstorff & Robert Rosenbaum (2007) gives the best practice tools in supply chain management.

EBusiness & Ecommerce by Andreas Meier & Henrik Stormer (2009) gives a new approach to the content of the value chain in e-business through the value added chain theory framework, which businesses can bring to their customers.

Essentials of Supply Chain Management by Michael Hugos (2010) gives the concepts and methods of supply chain operations, adjusts supply chains to market needs and develops supply chains for competitive advantage.

Supply Chain Management Best Practices by David Blanchard (2011) gives the trouble and provides the right solutions for supply chain managers in today's global business environment.

Kenyan Exports of Nile Perch: The Impact of Food Safety Standards on an Export-Oriented Supply Chain by Spencer Henson and Winnie Mitullah (2004). The author focuses on the export of fish and fishery products in Kenya, particularly the analysis of the export chain of Nile perch.

Revenue Distribution through the Aquatic products Value Chain by Eyjolfur Gudmundsson's & cs. (2006) studied "Distribution of income in the aquatic products value chain" in four countries Iceland, Tanzania, Morocco,

The Value Chain of Farmed African Catfish in Uganda by Ssebisubi Maurice Farmed (2010). The study analyzed in detail the participants in the aquaculture value chain in Uganda, particularly in African catfish.

The Value Chain Of Yellowfin Tuna In Sri Lanka by Helgi Gestsson, Ögmundur Knútsson, Gunnar Thordarson (2010). The author has found two different structures in value chain of Sri Lanka's yellowfin.

Value Chain Analysis of Black Tiger Shrimp Culture In Cox'sbazar District, BangLaDesh by Mamunul Quader (2012). The author analyzes the value chain of black tiger shrimp in Cox, Ašsbazar district, BangLaDesh. There are four main factor directly involved in shrimp production, exports and contributes to economic value.

Enhancing the capacity of Vietnamese agricultural products to participate in the global agro-food value chain in the Vietnam's current context. Experience participating in the global value chain of agricultural products" Assoc. Dr. Dinh Van Thanh, Trade Research Institute (2010). The author presents value chain of Vietnam's agricultural commodity, factors that influence the development of the global value chain.

Improving Competitiveness of Vietnamese Aquatic products Processing Industry, PhD thesis by Bui Duc Tuan (2010), the thesis evaluates the current state of competitiveness of Vietnam's aquatic products processing industry, identifying

the factors affecting the competitiveness of the entire aquatic products processing industry in Vietnam.

Enhancing the value added for coffee in the global coffee value chain, PhD thesis by Le Huy Khoi (2011), the author has given a guiding view on increasing the value added for Vietnamese coffee in the global coffee chain.

Quality management of fisheries food supply chain: improvement of shrimp quality - prospects of aquatic products companies in the Mekong Delta, Vietnam PhD thesis by Vo Thi Thanh Loc (2006). The author has outlined the viewpoints of supply chain quality management through a management approach.

Research on the shrimp supply chain in Quang Nam province" PhD thesis by Le Van Thu (2015). The research undervest the level of positive and negative impact of each factor on the operation of the shrimp supply chain in Quang Nam.

Analysis of Market Structure and Marketing Channels, Case: Catfish and Basa fish in the Mekong Delta by Thai Van Dai, Luu Tien Thuan and Luu Thanh Duc Hai in The basis for the development of small and medium enterprises and smallholders in the Mekong Delta, (2008). This topic researched, analyzed of how to distribute catfish, basa fish from producers to consumers and evaluate the value added of components involved in marketing channel.

Industrialization of catfish farming and processing in Cuu Long Delta - Trends inevitable by Huynh Van (2009), this topic has analyzed the current status of production and consumption of catfish, basa fish in the Mekong Delta and the requirements of the export market.

Value analysis of Black Tiger Shrimp (*Penaeus monodon*) in the Mekong Delta by PhD. Le Xuan Sinh (2011), the analysis is based on the inputs, the main actors of the chain and the chain support groups, which outlines the distribution of benefits - costs. Farmers contribute a great deal to value added and also enjoy a significant percentage of value added.

Value chain analysis of Catfish in the Mekong Delta, which is part of the project "Mekong Fisheries Value Chain Analysis" with foreign funding, to evaluate profitability and the distribution chain of income is not reasonable among actors in the chain, mainly focused on the processing company.

## **METHODS OF RESEARCH**

This paper used of quantitative research methods to survey the State factor affecting the added value chain of the aquaculture enterprises in Vietnam. The results obtained from quantitative research processed by SPSS statistical software version 20.0. Quantitative research methods describe and measure the level of occurrences based on numbers and calculations. Quantitative research is the collection of numerical data and exhibiting the view of relationship between theory and research as deductive, a predilection for natural science approach, and as having an objectivist conception of social reality. Therefore, this

specific form of research uses the quantitative data to analysis.

After preliminary investigations, formal research is done by using quantitative methods questionnaire survey of 180 enterprises related the added value chain of the aquaculture enterprises in Vietnam and answered nearly 21 questions. The reason tested measurement models, model and test research hypotheses. Data collected were tested by the reliability index (excluding variables with correlation coefficients lower  $< 0.30$  and variable coefficient Cronbach's alpha  $< 0.60$ ), factor analysis explored (remove the variable low load factor  $< 0.50$ ). The hypopaper was tested through multiple regression analysis with linear Enter method. The results of the study can be generalized to portray the added value chain of the aquaculture enterprises in Vietnam. We had the results following:

The term value chain was first popularized in a book published in 1985 by Michael Porter, who used it to illustrate how companies could achieve what he called “competitive advantage” by adding value within their organization. Subsequently the term was adopted for agricultural development purposes and has now become very much in vogue among those working in this field, with an increasing number of bilateral and multilateral aid organisations using it to guide their development interventions.

At the heart of the agricultural value chain concept is the idea of actors connected along a chain producing and delivering goods to consumers through a sequence of activities. However, this “vertical” chain cannot function in isolation and an important aspect of the value chain approach is that it also considers “horizontal” impacts on the chain, such as input and finance provision, extension support and the general enabling environment. The approach has been found useful, particularly by donors, in that it has resulted in a consideration of all those factors impacting on the ability of farmers to access markets profitably, leading to a broader range of chain interventions. It is used both for upgrading existing chains and for donors to identify market opportunities for small farmers.

**Research mission:**

- Systemizing the theories of enhancing the value added for enterprises in the supply chain of aquatic products export.

- Analyzing the situation of enhancing the value added for enterprises in the supply chain of Vietnamese aquatic products export.
- Proposing measures to enhance the value added for enterprises in the supply chain of Vietnamese aquatic products export.
- Objects and scope of the research:
- Objects: Theory and practice of enhancing the value added for enterprises in the supply chain of Vietnamese aquatic products export. The author studies about aquatic products export-chain.
- Research scope
- + Scope of content: The paper focuses on enhancing the value added of enterprises in the supply chain of Vietnamese aquatic products export.
- + Scope of places: The paper focuses on studying three types of enterprises: seed enterprises, processing enterprises and export processing enterprises. The author selected to survey catfish export chain in the Mekong Delta.
- + Scope of time: The research focuses on enhancing the value added for enterprises in supply chain of Vietnam's aquatic products export from 2010 to 2016, solutions to 2020, visions by 2030.

**RESEARCH RESULTS**

**The status of aquaculture in Vietnam:** According to the statistic data from Minsistry of Industry and Trade, recent time, Vietnamese aquatic products production experiences an upward trend account for 12,7% /year. In 2016, the production reached 6.726 thousand tons, increased 2.5% compared with 2015; in which, the exploit and cultivalue addiedion production was 3.076 and 3.605 thousand tons increased 1.7% and 3.3% respectively.

**Vietnamese aquatic products export turnover:** In 2016, was slowly development with too much difficult and challenges at the earlier of this year. However, due to the support and lead of authorities and general affords, the export turnover reached 7,053.08.m USD, raised 7.4% compared with 2015. The growth rate of Vietnamese aquatic products export's turnover on period of 2003-2004 attained average 16% per year. With this number, aquatic product remained the 4<sup>th</sup> rank in exporting products in Vietnam and was in top 10 the largest aquatic products export countries over the world. The exporting aquaculture production mostly was preprocessing and simple ingredients. The main products include: shrimps, catfish and cephalopod.

**The Structure of Vietnamese aquatic products export market:**

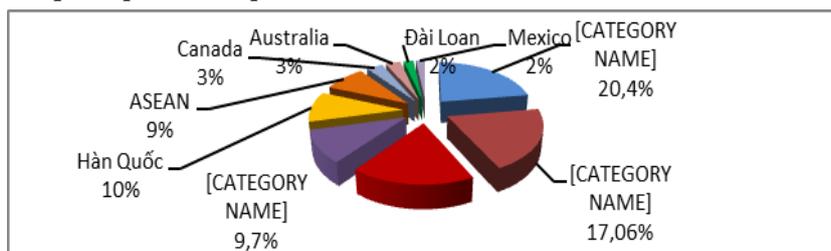


Figure 1: The Structure of Vietnamese aquatic products export market in 2016

Source: Vasep

**The seed enterprises:** Hatchery enterprise was sold higher price over 3000 VND/ton in 2016 and higher 8.57% 2015. Moreover, in 2016, production fee was also much more 1,502VND/ton with 5,08% led to the value added in 2016 touch 1,498 VND/ ton equal as 27.34% higher in 2015. The reason was the increased price of catfish's meat therefore, the hatchery's cost also raised. The households bought small catfish to raise but the supply chain is very little and not enough to supply the market. Moreover, the production of catfish hatchery in many enterprises, farmers also did not achieve productivity and yield compared to the previous year, the hatched catfish was death of disease, heat, inconvenient weather had pushed the price of catfish increased dramatically.

**Aquaculture Enterprise:** In 2012, the value added reached 2,975,000 VND/ton, respectively, increased 11.46% in comparison with that of the year 2010. In 2014, the value added reached 3,403,000 VND/ton, respectively, up 14.39% in comparison with 2012. Due to the sale price of catfish increased to 500.000 VND/ton, while the production cost of catfish increase 72000 VND/ton. In 2016, the sale price of pangasius increase VND 1.300.000/ton respectively; increase 5.78% compared to 2015, while the production cost of catfish increase by 140.000 VND/ton, respectively 0.69% increase. The aquaculture business reached 3,520,000 VND per ton, up by 1,160,000 VND/ton, up 49.15% year. In the period of 2013 - 2015, the value added in cultivalue addition enterprises and households is likely to decrease significantly due to the low price of catfish compared to the production cost, besides the selling price, the feed price is the most difficult nowadays as it is uncontrolled, high feed prices have impacted on increased the production costs, some cultivalue addition enterprises and farming households suffered losses leading to many cultivalue addition enterprises and households have to let the pond empty.

**Processing and Exporting Enterprises:** In 2012, the value added of processing and export enterprises reached 4,200,000 VND/ton, respectively, down 41.56% compared to 2010. In 2014, the value added was 4,443 thousand VND/ton, respectively, up 5.79% against 2012. The average selling price is 3.45 \$ per kg in fillet form (22,980 VND/USD), equivalent to 66,640 VND/kg raw material (2.8 kg gross catfish) How to make 1 kg of fillet fish). At this price, the value added of processing enterprises is VND 6,537 per kg correspondingly, down 11.31% compared to 2015.

**Analysis of value added of enterprises in the Catfish exports chain:**

In this market channel, the first factor in the chain is the direct seed supplier, or through the seed distribution channel of the company, to the farmers at an average selling price of 33,000-35,000 VND/ton, after subtracting the costs, the value added is from 2,000 to 6,000 VND per ton of fish seed, accounting for 36.02% of the total value added in the chain. The second factor is the catfish business that directly sells, the average price of the processing company is from 18,500 to 23,500 VND per ton of catfish. After deducting the costs, the value added by catfish farmers on average is from 2,000-3,500,000 VND/ton, take 15.52% of the total value added in the supply chain. After that, the processing company exports at an average price of \$ 3,100-3,450 per tonne in fillet form. At this price, the value added by the processing company

generates an average of 4,200-7,500 VND/kg, takes 48.46% of the total value added in the chain, 4.2 times that of the catfish companies. Thus, in the export pangasius supply chain, it is found that the value added of export processing enterprises accounts for the highest of 48.46%, the second is the seed enterprises accounting for 36.02%, the raising enterprises with the lowest value added 15.52% of the total value added in the chain.

**EVALUATE OF VALUE ADDED BY CRITERIA**

**The assessment index of the enhancement of value added by labor:**

This indicator reflected the amount of value added generated by the enterprise from the labor performance in the enterprise. According to the analysis, it is found that in 2016, the value added of export processing enterprises was 1,320 VND/labor, the value of value added was 5,590 VND/labor and 8,070 VND/labor for aquaculture enterprises. This implies that the amount of value added generated by export processing enterprises on labor is lower than the breeding and aquaculture enterprises in the aquatic products export supply chain.

**The assessment index of the enhancement of value added by capital:**

This indicator shows how much money for business can get about how much value added. This is the indicator used to measure the level of value added of the business. It can be seen that in 2015, the value added of export processing enterprises reached the highest of 6,412.5 VND/kg, takes for 46.04% of the total value added in the chain. After that, the breed enterprises have an value added of 6,003 VND/kg accounting for 43.10% of the total value added in the chain. Raising process with the lowest value of 1,512 VND/kg accounted for 10.86% of total value added in the chain. However, in 2016, the selling price of the seed business increased to 3,000 VND/kg in comparison with that of 2015, this lead to the highest value added to the seed company was 6,977,000 VND/ton, accounting for 40.96% of the total value added in the chain. Then, export processing enterprises 6,537,000 VND/ton accounted for 38.37% of total value added in the chain. Raising process with the lowest value of 3,520,000 VND/ton accounted for 20.66% of the total value added in the chain. This means that one dollar spent on the business of the seed business will bring more value added than the export processing enterprise, which is the business capital of the aquaculture business that produces the lowest value added in the export aquatic products supply chain.

**The assessment index of the enhancement of value added by selling price:**

This index represents the value added is generated by the selling price of the enterprise during a fixed period. According to the analysis, in 2015, the value added of export processing enterprises reached the highest rate of 0.23%, followed by the value of value added of 0.16% of the raising process gets the lowest value added is 0.10% in the chain. This means that the selling price of the export processing enterprise will bring more value added than the seed company, and the selling price of the aquaculture enterprise brings the lowest value added in the value chain of export aquatic products.

**The increase speed of the value added by labor:**

By analyzing the increasing speed in the value added of labor of enterprises in the supply chain of catfish exports in 2010-2016, we see that in 2011, the seed industry decreased by 20.95% compared to 2010; Aquaculture enterprises increased by 113.49%; Export processing enterprises decreased 64.81%. Throughout the crisis period, catfish exports have been restored and developed, so the increase in the value added of labor has also increased, by 2015, the seed companies increase by 12.49%; Aquaculture enterprises decreased by 30.65%; Export processing enterprises increased 65.23% compared to the year 2014. In 2016, the price of raw materials increased high so that the value added of export processing enterprises decreased compared to 2015, so the increase of the value added on labor Decreased by 11.42%; The rate of increase of value added on labors of seed companies increased by 26.52%; Aquaculture enterprises increased 46.07%.

**The increase speed of the value added by capital:**

By analyzing the increase in value added of capital of enterprises in the supply chain of catfish exports in the period 2010-2016, we see that in 2011, compared to 2010, the seed business decreased by 18.72%; cultivalue addition enterprises increased by 76.54%; Export processing enterprises decreased 72.42%. Throughout the crisis period, catfish exports were restored and developed, so the increase in value added of capital also increased, by 2015 the seed enterprises increased 17.03%; cultivalue addition enterprises decreased by 30.8%; Export processing enterprises increased sharply by 71.30% compared to that of 2014. In 2016, due to the high price of raw materials of aquaculture enterprises, the value added added up by 49.15% value added on capital of this enterprise increased 49.06%; Seed business increased by 26.86%; The increase in the value added of capital of export processing enterprises has decreased by 11.47% compared to 2015.

**The increase speed of the value added by the selling price:**

By analyzing the pace of increase in sales prices of enterprises in the supply chain of catfish exports in the period 2010-2016, we see that in 2011, compared to 2010, seed enterprises decreased by 17.1%; Aquaculture enterprises increased 58.81%; Export processing enterprises decreased 65.65%. Throughout the crisis period, catfish exports have been restored and developed, so the increase in value added on sale prices has also increased, by 2015 the seed companies will increase by 14.37%; Aquaculture enterprises decreased by 27.57%; Export processing enterprises increased sharply by 54.63% compared to that of 2014. In 2016, the price of raw materials of aquaculture enterprises increased by 23,800 kg on average, thus raising the value of aquaculture enterprises by 3,520 VND. The increase in value added on the selling price of aquaculture enterprises was the highest, at 41.01%, followed by the seed company at 17.29% and the export processing enterprises at the same price. The high increase in input causes the increase in value added on sale prices to decrease by 12.71% compared to 2015.

**Factors affect growing value added of seed enterprises:**

**Input factor:**

**Brood fish:** At present, There are about 230 fingerling farms with 1 million kg brood fishes at Cuu Long River Delta. The

entire catfish's product increases dramatically from about 500 millions fishes in 2000 to 25 billions fishes in 2015, providing approximately 2 billions brood catfishes there.

**Quality:** The quality of brood fish is decreasing sharply at production farms. The original of brood fish is not clearly, the majority of brood fish choice from fish pond.

**Price:** The price of brood fish is increasing, essentially the brood fish import from foreign country, therefore many cultivating breeds catch brood fish from Tien river, Hau river, at the same time they constrain brood fish for increasing breeding cycle in year a lot.

**Food:** Currently, food of brood fish is mainly modern processed food which provided by oversea business (such as Cargill, Green Feed, Proconco, Anova, Uni-President..), therefore, the price is very expensive, fluctuating and increasing year by year, it has an effect on production and fingerling expense and the progress for improving value added of business.

**Quality:** The quality of foods is not stable so it affects the quality of fingerling.

**Price:** The cost of food is very expensive and fluctuating, fingerling's producer is mainly using processed food which provided from foreign company.

**Veterinary and aquatic animal drugs:** There are a lot types of veterinary and aquatic animal drugs, the diversity of drugs include: treatment drug, growth-stimulated drug. However, these drugs inadequate about the quality, cost and safety in growing and breeding cultivation.

Quality of veterinary and aquatic drugs decide to the quality of breeds, the quality of these drugs are not good and food safety and prohibit matter content, so it has difficulty growing and breeding cultivation of farmer.

The price of veterinary and aquatic drugs affects production cost and value added of business. It takes a large of money in the total cost of production breed, performance and increasing value added of business.

**Investment capital:** Aquatic breed of business are limited by investment capital, the facilities have to borrow money from banks or credit institutions with high interest rate. Consequently, it makes increasing production cost, decreasing profit and value added of breeding business.

**Factor of Production process:** Growing and breeding cultivation technique, cultivation quality management system  
 Growing and breeding cultivation technique  
 Cultivation technique has an effect on quality and quantity of breeds. Output quality of breeds depends on technique element a lot.  
 Cultivation quality management system

At present, the cultivating breed facilities manage cultivation quality by traditional method primarily, haven't apply modern standard of cultivation quality management system such as: GlobalGap, VietGap... Therefore, during the cultivation process, the facilities used chemical bio-products

for processing the wrong way of pond, using large doses of vitamins, minerals, probiotics, healing without staff's advice at local area. In effect, the lower of survival bad quality of breed can't ensure the quality standard.

**Output factor (Quality, price, delivery of breeds):**

- **Quality of breeds:** In recent years, the quality of breed resource decrease significantly with symptoms: high rate of deformities, under grown, vulnerable and the survival low, it affects production breeding and quality of material fish.  
Bad quality of catfish affects developing of aquatic breeding.  
Quality of breeds influences productivity and value added of business.
- **Price of breeds:** Over the years the price haven't stable, increasing average from 6% to 12% year by year, the production cost also increase each year, showing business activity inefficient, low - interest. This one affect raising value added of producer.  
The price of breeds makes up for production cost of business. However, in fact there is no producer get the price, even they lose because of cat's fish die. The result, cultivation breeds will change to another fingerling, it makes lacking of breeds and rising of cost. It is inconvenient for growing and breeding and rising value added of business.  
Breeds cost unstable and effect on activity and value added of business
- **Breeds delivery:** Currently, the delivery and transport of breeds is not good, storage technique can get the right standard. The damage after cropping is large because of keeping from breed facilities to growing facilities not good, using mainly traditional method. Otherwise, the survival rate is not high because of low technique.

**Analyze the result of factors affect rising value added of cultivation breeds:**

Through analyzing the result of factors affect rising value added of cultivation breeds, when input factors (brood fish; veterinary drugs and epidemic; foods; investment capital) increase 1 unit then value added of business rise 0,269 unit. Similarly, factor of production process (growing and breeding technic; breeds quality management system) expand 1 unit then value added of business grow 0,436 unit; output factor (breeds quality; price; delivery of breeds) raising 1 unit then value added of business increase 0,439 unit. The condition is that other factors don't be changed.

**Factors affect growing value added of growing and seed enterprises:**

**Input factor (breeds, veterinary and aquatic drugs, foods, investment capital):**

**Breeds:** Breeds influence directly to creating value added of growing and breeding business. It decides the quantity and quality of growing and breeding business, provides the fresh materials for import processing company.

**Price:** At this time, Cuu Long River Delta lack brood fish. Viet Nam Cat's fish Union recognizes that brood fish shortage is serious, selling price unstable and go up from 6%

to 12%.

**Quality:** There is a small place providing fresh brood fish at Cuu Long River Delta. It is difficult for growing and breeding business separate the breeds provided by breed facilities, breed companies, commercial.

➤ **Foods:** Foods for cat'sfish make up a high proportion (about 86-87% of cost). It is one of the most important factors and direct effect to productivity, quality, profit and advanced value added of growing and breeding business:

**Price:** Foreign companies provide foods for aquatic production, accounted for 60% of supply of the aquatic food, price of cat'sfish average growth of 8-10% per year. This reason contribute increasing production cost of farmer.

**Quality of foods:** There are a lot of food production companies with different cost and quality. They just cheat a little about quality of protein then farmer can lose a profit of 300-400 vnd/kg food.

➤ **Veterinary and aquatic animal drugs:** The fee of veterinary and aquatic drugs make up a large in the total fees of growing and breeding cultivation. These drugs can be provided from more than one sources, both domestic and foreign. The quality and price of drugs depend on types of drug.

➤ **Investment capital:** Investment capital of fishery loan by bank primarily. However, aquatic breeding business has profit but high risk. Credit banks just meet 32% capital requirement. Aquatic breeding business meet a problem in reclaimed and improved production of growing and breeding. It is difficult for extend scale of production and invest modern technic for creating fresh, quality materials with large cost and value added of breeding business. High interest rate influence production cost, effective and value added of business.

**Factor of Production process: Growing and breeding technique, breeding quality management system:**

Quality of aquatic materials depend so much on technique factor. At present, just a little breeding business apply standard GlobalGap, VietGap, ASC, BAP include: Hung Ca business, An Giang business, Nam Viet business... breed yield increasing, quality of fish's material getting the international standard, it is easily to know thoroughly original of aquatic's export. However, just a few business apply standards GlobalGap, ASC, BAP, VietGap because they must have a large aquatic breeding area, high investment capital. Small businesses are difficult to apply.

**Output factor (Quality, price, delivery of aquatic material)**

➤ **Quality of aquatic material:** quality of cat'sfish material is very low, it affects export processing business.

➤ **Price:** Price of cat'sfish is unstable, farming facilities depend on supply and demand of market. These facilities can't decide selling- price, depending on season, market, export price.

**Delivery of aquatic material:** This delivery is unstable. The condition for keeping material doesn't follow the technique leading to lost wages of delivery and processing. This is a problem of aquatic process business.

**Analyze result of factors influence to improving value added of growing and seed enterprises:**

Table 1: Factors affect rising value added of growing and seed enterprises.

Model	Unstandardized Regression Coefficients		Standardized Regression Coefficients	Value t	Meaning (Sig.)	Multicollinearity statistics	
	B	Standard deviation	Beta			Tolerance	Value VIF
(Constant)	-3.686	.149		-24.708	.000		
NT1	.245	.067	.235	3.667	.000	.307	3.262
NT2	.459	.081	.410	5.638	.000	.238	4.197
NT3	.368	.063	.334	5.855	.000	.387	2.585

Source: Investigating and processing from SPSS by author

Through table 1, when input factors (breeds; veterinary drugs; foods; investment capital) increase 1 unit then value added of business rises 0,245 unit. Similarly, factor of production process (growing and breeding technique) expand 1 unit then value added of business grow 0,459 unit; output factor (quality of aquatic material; price; delivery of aquatic material) raising 1 unit then value added of business increase 0,368 unit. The condition is that other factors don't be changed.

**Factors affect rising value added of export processing business:**

**Input factor (investment capital, processing material):**

- **Investment capital:** Currently, the average of investment capital for export processing business is about 230 billions dong, owner capital accounted for 1/3 investment capital, the rest capital will borrow from banks or credit institutions. Almost these businesses are limited by financial, investment so they just use simple technique, lack of equipment to producing high value added product.
- **Processing material:** it is an important process of import aquatic production processing for processing business, stabilize the export production activities, processing new products, improving product quality, making high value added of products, reduce the cost for export processing business.
- **Quantity:** the area for breeding catfish have downward trend at Cuu Long River Delta because of breeding facilities loss. The breeding area decrease leading to the lack resources of material in export processing business. It is a big issue for export processing business.
- **Quality:** quality of cat'sfish material is very low, it affects export processing business.

The quality of fish material doesn't satisfy the demanding requirement of market. Fish material unclean, infection, exceed antibiotic have an effect on the processing of export production.

**Price:** Price of fish material is high because of lacking material during this time. It has a negative effect on the export processing of business such as: growth the input cost, high export product cost, decreasing profit of business and value added of export processing business.

**Factor of Production process (processing and labor technology, model export aquatic chain link)**

- Factor of processing and labor technology  
Processing technology is outdated method, old equipments, simple and primitive aquatic production, so

limiting about value added and low production revenues

- Factor of model export aquatic chain link

In our country model production chain link between producer and business has been executed for a long time by vertically integrated majority with positive effect. However, model chain link has a lot of problems, unresolved.

Product organization and product link: With developing breeding area too fast, focusing on production otherwise production consumed. Therefore, the expence of material unstable and depend on processing export business.

Planning: slowly and can't keep up production, lacking of solution for sustainable production. So the problem between supply and demand always be surplus and deficiency local, with high risk because of changing market quite large.

Production and consuming: Small model is majority, exchanging the experience, therefore, when having a changing about price, companies have a chance for pricing pressure, producers can't protect by themselves.

**Output factor (Quality of export production, cost, export distribution system):**

- **Quality of export production:** At present the production quality of aquatic export in Viet Nam can't satisfy the requirement of importer. There are a lot of aquatic shipments of Viet Nam is warming about infection of antibiotic, containing germs and returning.
- **Price:** Over the years the export of catfish to Australia and UE's market is developing but the price is low and unstable about 3,38-3,45\$/kg. The reason is that the business sale with low price and quality. Therefore, they banned the import of cat'sfish from Viet Nam for a logn time.
- **Export distribution system (Brand's production; competitive factor)**

Brand's production: Creating brand for fishery is very difficult, because the business don't realize the benefit of organization brand. Some business afraid that organization brand overwhelms the individual brand

**Competitive factor:**

The competetive of export processing business is poor. Mainly exploiting the available advantages without innovation investment technology, renovation of thinking production management, renovation of aquatic products

compared with export processing business such as Thailand, Indonexia, India.

**Analyze result of factors influence to improving value added of export processing business:**

Table 2: Factors influence to improving value added of export processing business

Model	Unstandardized Regression Coefficients		Standardized Regression Coefficients	Value t	Meaning (Sig.)	Multicollinearity statistics	
	B	Standard deviation	Beta			Tolerance	Value VIF
(Constant)	-3.782	.139		-27.288	.000		
CBXK1	.360	.051	.333	7.085	.000	.479	2.090
CBXK2	.297	.054	.266	5.453	.000	.443	2.255
CBXK3	.457	.055	.431	8.253	.000	.387	2.586

Source: Investigating and processing from SPSS by author

Using regression analysis method of table 2, when input factors (investment capital; processing material) increase 1 unit then value added of export processing business rises 0,360 unit. Similarly, factor of production process (processing and labor technology, model export aquatic chain

link) expand 1 unit then value added of business grow 0,297 unit; output factor (quality of production material; price; promotion; delivery of aquatic material) raising 1 unit then value added of business increase 0,457 unit. The condition is that other factors don't be changed.

Table 3: Factors of strategy, planning, controlling, supporting of the government influence value added of business

Model	Unstandardized Regression Coefficients		Standardized Regression Coefficients	Value t	Meaning (Sig.)	Multicollinearity statistics	
	B	Standard deviation	Beta			Tolerance	Value VIF
(Constant)	-3.371E-016	0.035		.000	1.000		
CL	0.278	0.035	0.278	7.960	.000	1.000	1.000
QH	0.804	0.035	0.804	22.982	.000	1.000	1.000
CS	0.256	0.035	0.256	7.313	.000	1.000	1.000
HT	0.182	0.035	0.182	5.212	.000	1.000	1.000

Source: Investigating and processing from SPSS by author

Using regression analysis method of table 3, when strategy factors increase 1 unit then value added of business rises 0,278 unit via government's factors. Similarly, planning expand 1 unit then value added of business grow 0,804 unit; main factor raising 1 unit then value added of business increase 0,256 unit; when supporting policy increase 1 unit then value added of business go up 0,182 unit. The condition is that other factors don't be changed.

**Factors belong to Union which affect rising value added of business:**

The Union doesn't develop the collection role with businesses about organizing export promotion programs. The Union doesn't apply vertically integrated model and horizontal in aquatic production and processing, fresh from selecting breeds, uninsured providing fresh aquatic, existing infection and pollution. The Union doesn't provide full information on time when having variable on market for aquatic export processing of business. The Union doesn't provide good support for business in seeking export market. The Union doesn't figure out the supply and demand status of market on the world, competition pressure, define main items and main market. The Union doesn't deploy aquatic business strategy by system, in which focusing on studying the business environment, marketing research, developing new product. The Union doesn't development and promotion general product brand such as "National brand", marketing strategy inefficient.

**The general assessment of the value added enhancement of enterprises in the Vietnamese aquatic products export supply chain:**

**The achievements:**

- Firstly, the value added of the export processing enterprises accounts for the highest percentage in the aquatic products export supply chain, and the second is the seed enterprises and the lowest value added is the aquaculture enterprises.
- Secondly, the export processing enterprises have got high values added in the export supply chain due to the impact of inputs (such as investment capital and raw materials). Process factors (such as processing technology & labor, the pattern of linking aquatic products export chain); Outputs (such as the quality of export products, selling price, trade promotion and export distribution systems), the rest are the other negligible factors.
- Thirdly, the value added of the seed enterprises have ranked 2nd in the export supply chain due to the impact of inputs (such as parent breeds, feeds, aquatic veterinary drugs, investment capital); Production process factor (hatchery technology); Outputs (eg seed quality, selling price, seed distribution).
- Fourthly, the value added of the aquaculture enterprises have ranked 3rd in the export supply chain due to the impact of inputs (such as breed, feeds, aquatic veterinary drugs and diseases, investment capital);

Process elements (such as aquaculture technology); Outputs (such as quality of aquatic raw materials, selling prices, distribution of aquatic raw materials).

- *Fifthly*, based on the labor productivity index, the value added of the aquaculture enterprises is higher than the value added of the seed enterprises and the export processing enterprises.
- *Sixthly*, based on the capital productivity index, the value added of the export processing enterprises is higher than the value added of the seed enterprises and the third is the value added of the aquaculture enterprises.
- *Seventhly*, based on the price index, the value added of the export processing enterprises is the highest, the second is the value added of the seed enterprises, and the third is the value added of the aquaculture enterprises

#### **Problems:**

However, in addition to the above analysis, there are still signs of the risk of unsustainable in increasing the value added for the enterprises in Vietnamese aquatic products export supply chain.

*Firstly*, in the field of technology: genetics; breeding; biotechnology; environmental treatment technology; disease diagnosis and prevention technology.

*Secondly*, the use of drugs and chemicals banned in aquaculture still occur.

*Thirdly*, the feed production, the bio-preparations and aquatic veterinary drugs are left.

*Fourthly*, the current structure of Vietnamese aquatic products export products is still focused on some processed products with low value added content (mostly frozen and semi-processed products). That the products are less innovative leads to competition for export products more and more highly.

*Fifthly*, the export price of Vietnamese aquatic products is not high, it tends to decrease over the years in most major markets.

*Sixthly*, the forecast for domestic and foreign consumption market is very limited.

*Seventhly*, it doesn't form a supply chain for aquatic products exports and closely coordinated between the breeding enterprises, aquaculture enterprises and the aquatic products export processing enterprises.

*Eighthly*, the lack of modern business culture, the linkage between businesses in the same association is not sufficiently influential to form a healthy competitive environment.

*Ninthly*, the Vietnamese aquatic products export processing enterprises have not paid enough attention and invested properly for promotion, brand building, export promotion and market expansion.

*Tenthly*, the management system of food safety and hygiene control, traceability has not been completely developed in

each locality. The legal documents are not completed, synchronized and implemented effectively.

*Eleventh*, the foreign direct investment in Vietnam aquatic products processing industry is very limited.

#### **Solutions:**

Solutions of enhancing value added for businesses in Vietnam's aquatic products export supply chain

Solutions for businesses

- Solutions to improve supply and quality of fish seeds.
- Solutions to improve the capacity of aquaculture feed supply, aquatic veterinary medicine and improve the effectiveness of disease control of the environment.
- Solutions to support investment capital for aquaculture and processing of Vietnamese aquatic products export.
- Solutions to improve aquaculture technology under Global Gap model and sustainable development in raw materials for production.
- Solutions to create a vertical linkage of the export supply chain
- Solutions to increase investment to reduce post-harvest losses and reduce production costs
- Solutions to limit the intermediate stage when exporting goods and setting the floor price of raw materials, export price policy
- Solutions to shift the structure of products processing to develop products with high value added and make a difference for export aquatic products.
- Solutions to enhance trade promotion activities, enhance competitiveness to overcome international trade barriers
- Solutions to build and promote the brand aquatic products export, form the national aquatic products brand.

The solution for the Government

Solutions to promote policy reform and improve the system of legal documents

- Promote reform of institutions and policies.

- Complete legal documents

Complete solutions to plan production, processing and export aquatic products

- Aquaculture planning

- Planning the system of aquatic products processing enterprises for export.

Solutions for fish seed control and aquaculture technical assistance.

- Complete the research and development of fish seed and the process of producing disease – free aquatic seeds.

- Strengthen research activities, import modern technologies, especially bio – technologies, produce disease – free seeds and main seeds; perfect the technology of rising main kinds of fish.

- Promote international cooperation in research on fish seeds production

- Strengthen the capacity of the management system. Strengthen the inspection and supervision of farming conditions, epidemic environment, feed quality, feed supplements, bio-preparations, and environmental treatment and improvement products.

Solutions for Government support investment in technological renewal, raising the level of equipment of aquatic product-processing enterprises

- The government should continue to support aquatic processing enterprises for upgrading production conditions,

apply the food safety system based on HACCP and GMP principles.

- The State should have policies which encourage research activities, especially those on product design, alternative materials, utilizing raw materials and increasing added value of processed products.

- The state should develop and implement Food Traceability Management System.

- The state should create favorable conditions to attract foreign investment in the aquatic processing industry in order to raise the technological competitiveness of the industry, thereby raising added value for enterprises.

Solutions for Government encourages the development of supporting industries for the aquatic product processing industry

- To step up the master plan on development of supporting industries.

- Renovate policies to encourage investors to develop supporting industries

- Improve the quality of human resources for supporting industries

- Enhance the link between enterprises in the development of supporting industries.

- Modernizing the infrastructure system, creating conditions for supporting industries to develop.

- The State should organize a division responsible for monitoring and directing the implementation of the development of supporting industries

Solutions to promote trade in aquatic products exports at the state level

- Trade promotion activities are not merely market seeking or market expansion, thus we should pay attention to the promotion of the image of Vietnamese aquatic products associated with safe and environmentally friendly attribute in all stages of the production-consumption chain.

- The government should give top priority to trade promotion with the establishment of the Department of Export Promotion.

- The trade promotion activities of Vietnam should be conducted with the participation of multinational marketing companies in conducting market research, product promotion activities and especially in controlling the production chain.

- Building a strategy to develop the seafood export market to set a roadmap and long-term plan to support seafood trade promotion in foreign markets.

- Building an Export Market Development Reserve Fund by using the resources of enterprises with the support and patronage of the State.

Solution to the Association of Aquatic products Exporters and Producers (VASEP)

- Developing the role in gathering enterprises, conducting export promotion programs, cooperating with Vietnamese Embassies, Consulates and Vietnamese Chamber of Commerce in foreign countries in organizing trade fair and trade promotion activities.

- Implementing food quality assurance programs such as GMP, SOP, HACCP, ISO effectively and coordinating with local fisheries quality management agencies in enhancing control of feed, veterinary medicine, bio-products in aquaculture and processing aquatic products.

- Implementing vertical and horizontal linkages in the production and processing of aquatic products, ensuring hygiene from the selection of fingerlings, ensuring the supply

of clean aquatic products, reducing the risk of disease and environmental pollution.

- The association should provide sufficient and timely information when there are fluctuations in the market for aquatic export processing enterprises.

- The association should assist enterprises in finding export markets.

- The Association needs to change the ways of trade promotion to avoid internal competition and enhance the competitive ability of the industry.

- The association should establish good relationships with associations in the same industry sector to access new technology and management experience in developed countries, and to minimize disputes with other countries.

## REFERENCES

- [1]. Ahmed N. (2007). *Value chain analysis for Hilsa marketing in coastal Bangladesh*, *Aquaculture News*. University of Sterling, Sterling, UK.
- [2]. Alex Phil (2014). *The food wastage phenomena: An overview of the current situation in three countries: France, Finland Taiwan*. *Journal of Asian Economics*.
- [3]. Alexander, R. (2000). *Culture and pedagogy: International comparisons in primary education*. Oxford, Blackwell.
- [4]. Angel Gurriá (2012). *The Emergence of Global Value Chains: What Do They Mean for Business*. G20 Trade and Investment Promotion Summit. Mexico City: OECD.
- [5]. Ardjosoediro I. and Goetz F. (2007). *A value chain assessment of the aquaculture sector in Indonesia*, U.S. Agency for International Development, USA.
- [6]. Ary, D., Jacobs, L., Sorensen, C. & Razavieh, A. (2009). *Introduction to research in education (8th ed.)*. Belmont, CA: Wadworth.
- [7]. Balat, J., Brambilla, I. and Porto, G. (2009). *Realizing the Gains from Trade: Export Crops, Marketing Costs, and Poverty*. *Journal of International Economics*.
- [8]. Becket, N. & Brookes, M. (2006). *Evaluating quality management in university departments*. Quality Assurance in Education.
- [9]. Bell, J.E. (1989). *Projective Techniques: A Dynamic Approach to the Study of Personality*. New York: Longmans.
- [10]. Benjamin, D. and Brandt, L. (2002). *Agriculture and Income Distribution in Rural Vietnam under Economic Reforms: A Tale of Two Regions*. William Davidson Institute Working, University of Michigan.
- [11]. Berg, B. (2001). *Qualitative research methods for the social sciences*. Boston: Allyn and Bacon.
- [12]. Bernstein, William (2008). *A Splendid Exchange: How Trade Shaped the World*. New York: Grove Press.
- [13]. Bui Nguyen, P.T. (2011). *The value chain of white leg shrimp exported to the U.S market in Khanh Hoa province, Vietnam*. Master Paper in Fisheries and Aquaculture Management and Economics. University of Tromso, Norway.
- [14]. D. Russell and S. Hanoomanjee (2012). *Regional training on value chain analysis - manual on value chain analysis and promotion*. ACP FISH II Programme. European Union.

- [15]. Dubay K., Tokuoka S., and Gereffi G. (2010). *A Value Chain Analysis of the Sinaloa, Mexico Shrimp Fishery, Center on Globalization, Governance and Competitiveness*. Duke University.
- [16]. Edakkandi, M. R. (2012). *Value Chains and Small Enterprise Development: Theory and Praxis*. American Journal of Industrial and Business Management.
- Egyptian aquaculture*. Project Report 2011-54. The WorldFish Center, Penang, Malaysia.
- [17]. Hobbs J.E. (2010). *Public and Private Standards for Food Safety and Quality: International Trade Implications*. The Estey Centre Journal of International Law and Trade Policy.
- [18]. Hussein, S.M., Abouzied, R.M., El Naggar, G.O., (2011). *Value-chain analysis of*
- [19]. Jennifer Keeling Bond (2009). *What Influences Consumer Choice of Fresh Produce Purchase Location*. Journal of Agricultural and Applied Economics.
- [20]. Kaplinsky, R. and Morris, M. (2001). *A handbook for value chain Research*. Ottawa: International Development Research Centre.
- [21]. Kaplinsky, R., Morris, M., (2000). *A handbook for value chain research*. IDRC, Canada. Journal of Food Products Marketing.
- [22]. Norshamliza Chamhuri (2013). *Exploring the Factors Influencing Consumers' Choice of Retail Store When Purchasing Fresh Meat in Malaysia*. International Food and Agribusiness Management Review.
- [23]. Nguyen Thi Bach Tuyet (2016). *Recommendations enhancing the value added chain of the aquaculture enterprises in Vietnam*. European Journal of Business and Social Sciences.
- [24]. Nguyen Thi Bach Tuyet (2016). *Reliability statistics for relationship the state factor and the added chain of the Aquaculture enterprises in Vietnam*. European Journal of Business and Social Sciences.
- [25]. Nguyen Thi Bach Tuyet (2016). *The Factors Affecting the Value Added of the Chain of Exporting Aquaculture Enterprises in Vietnam*. Journal of Business Management and Economics.
- [26]. O. Laguerre (2013). *Experimental investigation and modeling in the food cold chain: Thermal and quality evolution*. Journal of Food Microbiology.
- [27]. Pegah Amani (2010). *Shelf life extension and food waste reduction*. Technical Research Institute of Sweden - Food and Bioscience, Gothenburg, Sweden.
- [28]. Suwannaporn, P. and A. Linnemann (2008). *Consumer Preferences and Buying Criteria in Rice: A Study to Identify Market Strategy for Thailand Jasmine Rice Export*. Journal of Food Products Marketing.
- [29]. Sylvain Charlebois (2014). *Supply-Based Food Waste in the Food Service Industry: The case of Delish Restaurants*. World Journal of Agricultural Sciences.
- [30]. Tran, T.C., Do, H.L. and Le, M.N. (2013). *Who Has Benefited From High Rice Prices in Vietnam?* Oxfam International, Hanoi.
- [31]. Vo, L.T.T. and Nguyen, S.P. (2011). *Part 1: Analysis of Rice Value Chains in the Red River Delta Region*. Scientific Journal.