

## **Development Key Fishery Industries Cluster in Mekong Delta River and Some Policy Recommendations (Case Study of the Fish Pangasius)**

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### **Abstract**

*On the basis of the theory of industrial groups or clusters and the development status of key fisheries industry clusters (pangasius and shrimp) in the Mekong Delta, with the results of surveys and field studies, On the topic of the pangasius industry cluster (pangasius), the article focuses on commenting on the situation of developing the pangasius industry cluster in the Mekong Delta, on that basis, proposes a number of policy solutions to contributing to promoting the development and improving the efficiency of the fishery industry cluster in general and the pangasius industry cluster in particular in the Mekong Delta.*

**Key-words:** Key Fishery Industries Groups, Clusters, Pangasius, Vietnam, Mekon Delta.

### **1. Introduction**

The concept and role of industrial clusters.

#### **a) The Concept of Industrial Clusters**

The theory of industrial clusters or industrial clusters has been widely applied in industrialized countries, emerging industrial countries as well as many developing countries. However, industrial cluster is still quite new in Vietnam, often translated and understood with many different names such as industrial cluster, industrial cluster or industry cluster (Nguyen Dinh Tai, 2017).

According to Michael Porter, an industrial cluster is a geographical concentration of related companies and organizations in a particular sector, consisting of a range of industries linked to each other. and other actors that are important to competition, including governments and other organizations (such as universities, research institutions, financial institutions, etc.) information and technical support (Nguyen Ngoc Son, 2015).

According to Kuchiki (2007), an industrial cluster is a geographical concentration within a country or region of interconnected companies, specialized suppliers, services and related organizations in a particular sector.

Thereby, we can understand that an industrial cluster is a form of production organization in a specific industry/field, in which the participating components include enterprises, solution providers and suppliers. technical solutions, service providers, and related institutions are linked and clustered in a certain geographical space, with the core role being business-associated enterprises.

Overview of the pangasius industry and the development situation of the pangasius industry cluster in the Mekong Delta.

The Mekong Delta region (the Mekong Delta), also known as the Southwest Region, includes 13 provinces/cities: Can Tho city and 12 provinces: Long An, Tien Giang, Ben Tre, Vinh Long, Tra Vinh, Soc Trang, Bac Lieu, Ca Mau, Kien Giang, Hau Giang, Dong Thap and An Giang, with a natural area of nearly 40,000 square kilometers, a population of about 18 million people. The Mekong Delta is the largest aquaculture area in the country with an area of 70%, an output of 65%, and contributes over 60% of the country's seafood export turnover, in which pangasius (pangasius) and shrimp are two key products of the seafood industry, both in terms of farming area and output, processing output and export.

## **2. Methodology**

Authors mainly use qualitative analysis, synthesis and inductive methods, together with dialectical materialism methods.

Beside, this study also use statistics and analysis in order to make policy recommendation.

### 3. Main Results

#### 3.1. Situation of Raising, Processing and Consuming Pangasius

##### a) Status of Pangasius Farming Nuôi

Pangasius farming and processing in the Mekong Delta (Mekong Delta) developed rapidly after 2000. In 1997, only pangasius was raised in Tien Giang and An Giang provinces, with an area of 1,290 ha; by 2002, pangasius farming had developed in 5 provinces with an area increased to 2,413.2 ha; and by 2018, the pangasius farming area in the whole Mekong Delta will reach 5,400 hectares, with an output of 1.42 million tons. Currently, there are over 200 enterprises raising, processing and exporting pangasius, of which there are 20 large enterprises accounting for about 80% of the whole industry, processing enterprises hold about 70% of raw material output.

Table 1.1 - Pangasius Farming Area and Production in the Mekong Delta in 2015-2018

Area and output of pangasius in the Mekong Delta (2015 – 2018)		
Year	Area (ha)	Quantity (tons)
2015	5.623	1,12 triệu
2016	5.548	1,19 triệu
2017	6.077	1,25 triệu
2018	5.400	1,42 triệu

Source: Vietnam Association of Fisheries (VASEP)

Regarding the total area of pangasius farming in the Mekong Delta so far, the provinces/cities with the largest pangasius farming area are: Dong Thap (29.1%), An Giang (24.7%), Can Tho, respectively. (13.7%), Ben Tre (10.6%), Vinh Long (9.5%), Tien Giang (3.5%), Hau Giang (3%), other localities (6%).

##### b) Status of Pangasius Processing and Consumption

Currently, there are nearly 100 pangasius factories in Vietnam, mainly in the Mekong Delta. Most of these facilities are equipped with advanced equipment and technologies that allow the automation of some stages of the production line and the production of value-added products.

Processed pangasius products comply with strict international quality management and food safety standards such as Global GAP, ASC and BAP, etc. Pangasius is increasingly popular in the world thanks to its nutritional value. its.

Table 1.2 - Pangasius Processing Output in the Mekong Delta in 3 years (2017 - 2019)

Year	Total feeding pangasius quantity (tons)	Produced pangasius quantity (tons)	Processed quantity/ Feeding quantity (%)
2017	1.122.000	1.160.900	khoảng 95%
2018	1.309.000	1.243.500	khoảng 95%
2019	1.263.000	1.199.800	khoảng 95%

Source: Vietnam Pangasius Association (VINAPA)

Processed pangasius products, including: Frozen Pangasius, Frozen Fillet, Breaded Pangasius, Dried Pangasius Pangasius, Fish Skin, Bubbles, Stomach, Processed Pangasius Fat, etc. ... In which: Main products: frozen pangasius fillets, frozen pangasius,... By-products: value-added processed products, fish skin, bubbles, stomachs, fat of processed pangasius,... Estimated processing rate/farming output (%): 95%

Table 1.3 - Pangasius Consumption in the Mekong Delta in 2017 - 2019

Year	Consumed quantity (tons)	In which: Export (ton)	Note
2017	1.122.000	720.000	Pangasius products for export are processed pangasius products
2018	1.309.000	780.000	
2019	1.263.000	740.000	

Source: Vietnam Pangasius Association (VINAPA)

Pangasius in the Mekong Delta has been exported to 133 countries and territories, such as China, the US, the EU, Mexico, Brazil, Australia, Japan, Canada, etc. In 2018, pangasius exports had a spectacular development. item, with an output of 876.7 thousand tons, valued at USD 2.26 billion, up 5.41% in volume and 28.3% in value compared to 2017.

Table 1.5 - Top 20 Largest Pangasius Exporters in 2019

Export firms	Export quantity (tons)	Export value (USD)
CT CP Vĩnh Hoàn, Đồng Tháp	1.016	5.209.659
CT CP Nam Việt, An Giang	964	2.077.374
CT CP TS Trường Giang, Đồng Tháp	587	1.513.295
CT TNHH TS Phát Tiên, Đồng Tháp	433	939.474
CT TNHH Hùng Cá, Đồng Tháp	415	1.171.128
CT CP TS Hải Hương, Bến Tre	400	1.032.315
CT CP Gò Đăng, Tiền Giang	399	1.037.714
CT TNHH CB TP XK Vạn Đức, Tiền Giang	358	1.532.686
CT CP XNK TS Cửu Long, An Giang	270	685.602
CT TNHH XNK Cỏ May, Đồng Tháp	240	590.023
CT TNHH MTV Trần Hân, TP. Hồ Chí Minh	225	491.100
CT TNHH Đại Thành, Tiền Giang	192	612.699
CT CP TP Bạ & Tôi, An Giang	176	323.240
CT TNHH MTV CB TS Hoàng Long, Đ. Tháp	171	460.170
CT CP TS Hà Nội – Cần Thơ	166	512.050
CT CP PT Hùng Cá 2, Đồng Tháp	155	337.053
CT CP CB & XNK TS Hòa Phát, An Giang	150	329.550
CT CP TS Anh Vũ Avfish, Tiền Giang	129	217.580
CT CP CB & XNK TS Cadovimex II, Đ. Tháp	121	420.586
CT TNHH CN TS Miền Nam, Cần Thơ	120	323.410
Others	2.701	6.363.823
<b>Total</b>	<b>9.388</b>	<b>26.180.531</b>

(Source: General Department of Customs)

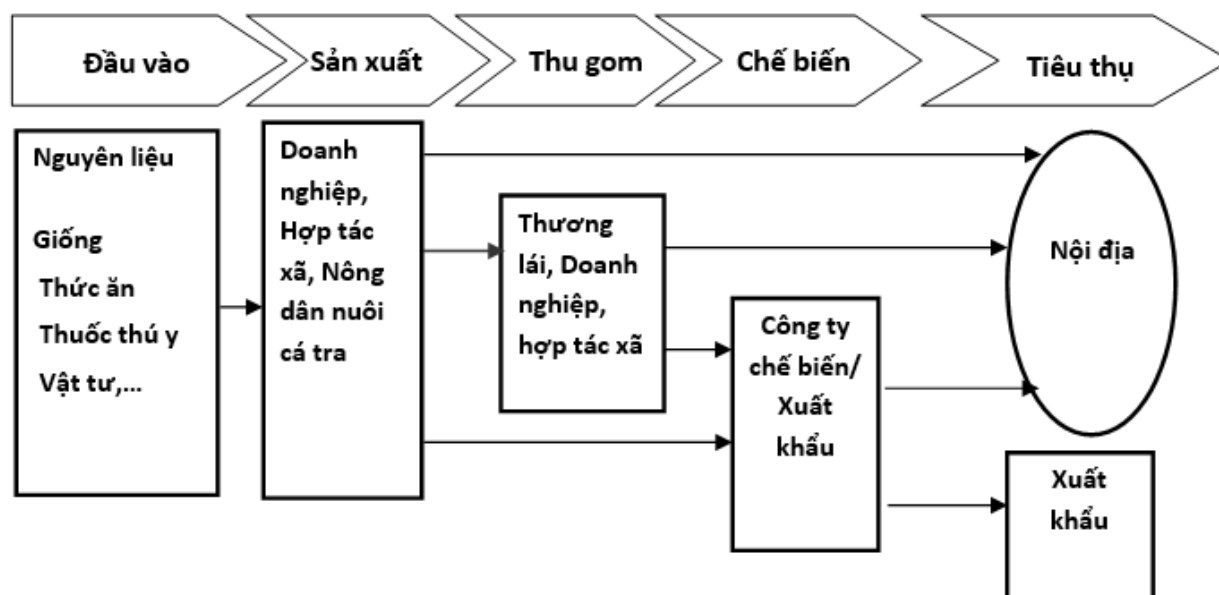
The table above shows that, in the Top 20 largest pangasius exporters in 2019, there are 19 enterprises in the Mekong Delta. There is 1 business in the city. Ho Chi Minh City is Tan Han Co., Ltd., but pangasius raw materials are also provided from localities in the Mekong Delta.

### 3.2. The Situation of Linkage and Development of the Pangasius Industry Cluster in the Mekong Delta Region

To identify the actual situation of developing the pangasius industry cluster in the Mekong Delta, based on the theory of the industrial cluster, there are four factors of the formation of the industrial cluster, which are: (1) Regions with competitive advantages to develop industrial clusters; (2) The degree of geographic concentration and distance; (3) Concentration of competitive enterprises; and (4) Linkages between businesses and other relevant organizations.

Accordingly, the practice of developing the pangasius industry in the Mekong Delta follows 4 factors of the industrial cluster, which are:

1. Region with competitive advantages for cluster development: The Mekong Delta includes localities with similar natural conditions, natural resources and socio-economic characteristics., strengths and opportunities, challenges posed. In particular, for pangasius, it is a freshwater fish suitable for growing throughout the Mekong River basin, where the river water is not contaminated with salt from the sea. With this feature, the provinces located along the Tien and Hau rivers are very favorable for pangasius farming. At the same time, the fact that the region also has a lot of potential and experience in pangasius farming, processing and export, these are competitive advantages to develop the pangasius industry compared to other regions in the country, including in Vietnam. out.
2. Geographical Concentration and Distance: The provinces and cities in the Mekong Delta region are relatively close to each other (the average distance between neighboring provinces/cities is approximately 50 km) and have a high concentration of enterprises and cooperatives., institutes, universities, industrial zones/clusters, clusters of farming, processing, consuming and exporting pangasius.
3. Concentration of Competitive Firms: The localities that are key to developing the pangasius industry in the Mekong Delta have a high concentration of pangasius processing and exporting enterprises, especially key enterprises in the Top of Vietnam's leading export enterprises. (Of the total of the Top 20 leading exporters of Vietnam, 19 are in the Mekong Delta region), enterprises with high competitiveness in the market, especially the export market. In order to actively zone raw materials and link production stages along the value chain, large companies have also established subsidiaries that link together, directly raising, processing, consuming and exporting pangasius., such as: Vinh Hoan Joint Stock Company, Sao Mai Group, Cuu Long Import Export Joint Stock Company, etc.
4. The linkage between enterprises and other related organizations: Pangasius enterprises and related organizations have links and support each other according to the following links:
  - Linking by value chain:  
Pangasius (ca tra) fish value chain diagram



Linking along the pangasius value chain between pangasius enterprises, cooperatives and households and pangasius processing, consumption and export enterprises. The linkage of production stages, from pangasius farming, collection to processing and consumption and export of pangasius products, was previously usually undertaken by different entities, such as: pangasius farming is mainly households and some cooperatives/enterprises; collectors are usually traders and some enterprises that process and consume; and processing is undertaken by enterprises investing in processing technology. However, at present, many companies invest in a closed loop between the stages from pangasius farming to processing, consumption and export. Especially large enterprises, such as Vinh Hoan Company, Sao Mai Group, Ben Tre Seafood Import Export Joint Stock Company, etc. At the same time, businesses also closely associate with businesses and cooperatives. , households raise pangasius in pangasius farming associated with processing, consumption and export.

In terms of processing, in the past, pangasius was exported mainly in the form of frozen fillets, but up to now, most businesses have invested in processing technology lines with diverse products, in addition to other types of products. Fillet, also has products such as: fish cakes, breaded, pangasius cut with lemongrass salt, cut into pieces, sandwiches, sesame cakes, baby corn bags, tomatoes stuffed with pangasius, squash stuffed with pangasius, stomach stuffed with rolls seafood, sausages, fillet rolls stuffed with shrimp, pangasius stuffed with salmon,... Besides, some businesses also have dried processed pangasius products such as: dried tra fish bubble, dried pangasius pangasius. In particular, many businesses also take advantage of processing scraps into high value-

added products such as fish oil, collagen, fishmeal, etc., which increases value and efficiency. and limit environmental pollution, such as Vinh Hoan Company, Sao Mai Group, etc.

Pangasius processing factories are distributed according to concentrated raw material areas, forming pangasius processing clusters such as: processing cluster of pangasius products in Dong Thap province (Vam Cong industrial cluster, Lap Vo district; Binh Thanh Industrial Cluster, Thanh Binh District, My Hiep Industrial Cluster, Cao Lanh District, Sa Dec Industrial Park,...); An Giang province (Binh Long Industrial Park, Chau Phu District; Binh Hoa Industrial Park, Chau Thanh District; ...); Can Tho City (Tra Noc Industrial Park, O Mon District; Thot Not Industrial Park, Thot Not District; Co Do Industrial Park, Co Do District,...); Ben Tre Province (An Hiep Industrial Park, Chau Thanh District; Phu Thuan Industrial Park, Binh Dai District; ... ); Tien Giang province (My Tho Industrial Park, My Tho City; Long Giang Industrial Park, Tan Phuoc District,...); Vinh Long province (Binh Minh Industrial Park, Hoa Phu Industrial Park, ...).

- Pangasius processing enterprises have cooperated with pangasius enterprises, cooperatives and households in the form of support for seed, feed, farming techniques, etc. and product consumption. Banks and credit institutions in supporting capital for businesses and people in raising, processing and consuming pangasius.
- The association and support of relevant organizations, such as: Can Tho University, An Giang University, Cuu Long University, Research Institute for Aquaculture 2; aquatic breeding centers; agriculture and fishery extension centers (under the Departments of Agriculture and Rural Development); standards-measurement-quality technical centers (under the Departments of Science and Technology);... supported and coordinated with pangasius enterprises in research, technology transfer, training and training. on farming techniques, disease prevention and processing; building and applying quality, hygiene - food safety management systems; product branding;...
- The supporting role of associations: Vietnam Fisheries Association (VASEP), Vietnam Pangasius Association (VINAPA), and local Fisheries Associations have mobilized to organize joint production of pangasius products. along the value chain, ensuring the quality of export products and increasing the proportion of value-added products, building the pangasius brand, and providing information on the pangasius export market; coordinate well with specialized agencies to take advantage of the State's funding, have relationships with institutes and universities to organize training, transfer technical advances, and provide training to improve knowledge, expertise and professionalism. for members...



- The role of the State in orienting and promulgating policies to promote the formation and development of the fishery industry in general and the pangasius industry cluster, in particular in the Mekong Delta, such as: Decision No. 644/QD- TTg dated May 5, 2014 of the Prime Minister approving the Scheme to support small and medium enterprises to develop clusters of industry linkages in value chains in the agricultural and rural areas; Decision No. 32/QD-TTg dated January 13, 2015 of the Prime Minister approving the Synchronous Program to develop and upgrade clusters and value chains for the production of products with competitive advantages; Decision No. 3885/QD-BNN-TCTS dated September 11, 2014 of the Ministry of Agriculture and Rural Development approving the master plan on raising and processing pangasius in the Mekong Delta until 2020, Decision No. 987/ QD-BNN-TCTS dated March 20, 2018 of the Ministry of Agriculture and Rural Development approving the project on linking production of high quality 3-level pangasius seed in the Mekong Delta; The Ministry of Agriculture and Rural Development, the Southwest Steering Committee in coordination with the People's Committees of 13 provinces and cities in the Mekong Delta, Can Tho University and related organizations develop production and consumption programs. selling key products according to the model of clusters of industries, including clusters of fisheries (mainly shrimp and pangasius);

The supporting role of the Department of Agriculture and Rural Development, the Department of Industry and Trade, the Department of Science and Technology of the provinces in the Mekong Delta in the proposal of planning, research and technical transfer, technology for breeding pangasius, processing industry, attracting investment, promoting trade, exporting markets, providing information on technical barriers to trade (TBT), ... supporting linkages and cooperation in developing the pangasius industry cluster and enhance added value in the value chain of the pangasius industry in the Mekong Delta.

#### **4. Discussion**

##### **The Role of Industrial Clusters**

The construction and development of industrial clusters that increase linkages between businesses in the same value chain becomes one of the basic solutions to ensure competitiveness not only for one enterprise, but also for the whole country. a system, chain of businesses involved in the creation of products in order to ensure quality, enhance value and match the requirements of the

market. At the same time, the industrial cluster also creates an innovative environment through the combination of universities and research institutes in the cluster, bringing many benefits to businesses in the region with spillover effects. knowledge and technology, synergistic effects in creating competitiveness for localities and economic regions and contributing to improving national competitiveness.

This has been proven through the practice of industrial cluster development and state policies to support the development of industrial clusters in countries around the world, especially developed industrial countries such as the US and Germany. , Japan, Korea, .. and emerging economic countries such as China, Malaysia, etc. However, besides the advantages of industrial clusters as above, if developing industrial clusters without planning, orientation and lack of regulation may result in overlapping, stomping and increasing costs for businesses and cluster operations, with low efficiency. To avoid this phenomenon, there should be orientation and policies of the government and local authorities in cluster development, defining criteria and limits (in each period and for each region) to support development. efficient industrial cluster development.

In recent years, the Government of Vietnam has paid attention to the development of industrial clusters and initially has a policy of developing industrial clusters of a number of industries with advantages and potential, such as Decision No. /QĐ-TTg dated May 5, 2014 of the Prime Minister approving the Scheme to support small and medium enterprises to develop clusters of industry linkages in the value chain of agricultural and rural areas; Decision No. 32/QĐ-TTg dated January 13, 2015 of the Prime Minister approving the Synchronous Program to develop and upgrade clusters and value chains for the production of products with competitive advantages: Electronics and information technology, textiles, food processing, agricultural machinery, tourism and related services.. In which, the development of fisheries clusters in the Mekong Delta is mentioned.

## **5. Conclusion**

Pangasius industry is one of the key fishery industries of the Mekong Delta as well as in the whole country. In recent years, the pangasius industry has always developed, both in terms of farming area, processing output and export. The association of production along the value chain of the pangasius industry is increasingly interested in expanding and gradually deepening; pangasius processing industry has developed and most products meet export standards; The export market is expanding. The pangasius industry cluster of provinces and cities in the region has been gradually

formed and developed, contributing to improving the economic efficiency and competitiveness of the pangasius industry, especially competition in the market. export market.

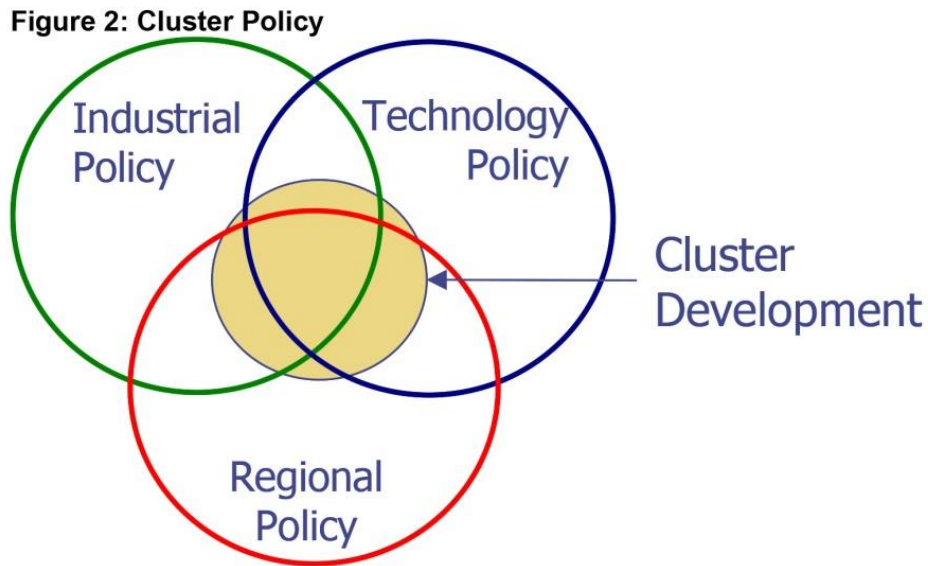
However, besides that, the development of the pangasius industry and the pangasius industry cluster has the following limitations:

- Regarding policies: Decision No. 644/QD-TTg dated May 5, 2014 of the Prime Minister approving the Scheme to support small and medium enterprises to develop industry clusters in the value chain of the agricultural sector. rural agriculture; Decision No. 32/QD-TTg dated January 13, 2015 of the Prime Minister approving the Synchronous Program to develop and upgrade clusters and value chains for the production of products with competitive advantages: Electronics and information technology, textiles, food processing, agricultural machinery, tourism and related services. However, the implementation of this decision in practice is still very low and effective, there is no policy on the development of the fisheries industry cluster of the Mekong Delta (including the fishery industry cluster). check).
- Regarding production linkage: The association between enterprises and enterprises, cooperatives, people, as well as with scientific and technological organizations (universities, research institutes) and other relevant organizations. related to farming in farming, processing, consuming, building and developing product brands, although some results have been achieved, but not really linked and harmonized in terms of interests in the product value chain. and the efficiency is still low and unsustainable.
- Regarding farming techniques and processing technology: The pangasius industry is still facing difficulties in seed quality, has not been proactive in food production, processing industry and product diversification. high value-added products are limited...

## **6. Policy Recommendations**

According to a report on the role of universities and the development of industrial clusters by the Center for Economic Development, Carnegie Mellon University, sent to the Department of Economic Development, US Department of Commerce. On page 3-4 of the document, it was mentioned that Cluster Policy promotes the development of industrial clusters, including Industry Policy, Region Policy and Technology Policy. Technology Policy).[9e]

Figure 3 - Policy Linkages for Cluster Development



According to the approach of the Cluster Policy mentioned above, in order to promote the development of clusters and improve the competitiveness of the fisheries sector in the Mekong Delta in general, the pangasius industry in particular, a cluster policy is needed. Cluster Policy), with related policies, such as: regional linkage policy, industrial policy, technology policy, etc. At the same time, it is necessary to have planning and solutions to develop pangasius farming areas and technology. pangasius processing industry in the direction of focusing on developing clusters.

**a) Policy on Regional Linkage, Linking Businesses and Related Organizations in Developing the Pangasius Industry Cluster**

Pursuant to the Government's Resolutions and Decisions on linkages for socio-economic development, linkages to develop clusters of industries and value chains for the production of products with competitive advantages in the Mekong Delta, Relevant ministries and local authorities in the Mekong Delta need to develop and issue policies on regional linkage and linkage of related businesses and organizations in developing the regional pangasius industry cluster. Mekong Delta, such as:

- Develop and promulgate policies to encourage and support, programs and projects to link, develop and upgrade pangasius clusters and value chains in the Mekong Delta.

- To plan the pangasius farming and processing area of the whole Mekong Delta and each locality in the direction of linking and developing the pangasius industry cluster on the basis of potential strengths and strengths in farming and processing. pangasius export market, avoid spontaneous situation in planning and investment in farming and processing of localities in the region, lack of linkages along value chains and development of clusters, negatively affecting the development and competitiveness of the pangasius industry in the Mekong Delta.
- Linking localities and businesses in the Mekong Delta with Ho Chi Minh City in investing in farming, processing and consuming pangasius, such as providing raw materials for processing factories (canned food, canned food, etc.). , value-added products), providing products for the system of supermarkets.
- Promote linkages between the State, enterprises, institutes/schools and farmers: The State supports enterprises and farmers of pangasius through the planning of farming areas, processing industry clusters, and promotion policies. fishery, industrial promotion, trade promotion and development and implementation of scientific and technological programs, projects and projects on breeds, farming techniques, disease control, processing, etc., in order to improve productivity, output, quality and efficiency of the pangasius industry. Encourage enterprises to support and cooperate with farmers (pangasius farmers) in building material areas for the processing industry and exporting pangasius of enterprises, such as signing product sales contracts and supporting invest in raising pangasius (seeds, feed, aquatic medicine, ...). Banks create favorable conditions for farmers to borrow capital to raise pangasius with preferential interest rates. Encourage cooperation and support of scientists in research activities, technology transfer, and training for businesses and farmers on pangasius farming and processing techniques.

Linking between the state, businesses, scientists and farmers in the development of the pangasius industry, which is essentially a form of market linkage and benefits through policies that help harmonize the interests of the parties. participation, especially in the relationship between businesses and farmers, between scientists and businesses and farmers, and the role of the state, especially local authorities in promulgating policies and supporting developing the pangasius industry (through programs, projects and supporting activities of specialized agencies, such as: Department of Agriculture and Rural Development, Department of Industry and Trade, Department of Science and Technology).

## **b) Policy on Development of Seafood Processing Industry**

- Promulgating policies to encourage investment in the development of key fisheries clusters in the Mekong Delta, in general and pangasius industry clusters in particular, such as tax incentives, infrastructure development infrastructure, credit, attracting investment to develop processing and export industrial clusters.
- Encourage large pangasius groups and companies in developing a network of subsidiaries and member units in pangasius farming and processing in localities in the Mekong Delta according to the price chain. value and direction to form a pangasius industry cluster.
- To disseminate to businesses and farmers in aquaculture and seafood processing about Free Trade Agreements (FTAs) that Vietnam has signed with organizations and countries, such as: EV FTA, CPTPP, Agreement Vietnam's trade with Korea, Japan, the US, etc. and guidance on regulations, technical barriers (TBT), standards and technical regulations of each country to help guide in processing and exporting, participate in the global value chain. At the same time, develop technical services (analysis, product testing, ...) for processing and exporting seafood, as well as pangasius, in particular.

## **c) Technology Policy**

The Government, the Ministry of Industry and Trade, the Ministry of Science and Technology and the authorities of the provinces and cities should issue policies to encourage investment attraction in the direction of developing industrial clusters, transferring advanced technologies, modernize pangasius processing to promote pangasius processing, especially deep processing, to produce products with high added value, diversify products and ensure food safety and quality standards, especially standards for products exported to the markets of industrialized countries (USA, EU, Japan,...)/.

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*Documents reported by the Department of Agriculture and Rural Development of the provinces/cities with pangasius farming and processing in the Mekong Delta.*

*Documents and survey forms of pangasius enterprises;* Pangasius Association, Department of Agriculture and Rural Development, Department of Industry and Trade, Department of Science and Technology; relevant research institutes and universities in the Mekong Delta.

Website of enterprises farming, processing and exporting pangasius in the Mekong Delta.