INNOVATION ACTIVITIES IN AQUATIC PROCESSING ENTERPRISES IN KHANH HOA PROVINCE

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Abstract:

During more than 10 last years, aquatic processing sector in Khanh Hoa Province has passed a clear shift in development. The traditional economic sector has shifted to market driven economy and catching- up with integration trends contributing to efforts to turn it to a leading economic sector of the province. However, in order to enhance technological capacities of enterprises then to make them the platform for developing competitiveness it is necessary to have innovations and management of innovations in these enterprises.

This paper reflects main features of the shift and factors for activities of innovations of aquatic processing enterprises. This would help administrators to keep practical insights for supporting these enterprises during their development process. At the same time the enterprises would note their week points when setting up plans and strategies for future stable development.

Keywords: *Aquatic processing enterprises; Activities of technological innovations; Technological capacities.*

1. Approaching to some notions

1.1. Activities of innovations

Today the notion of innovations gets popular over the world, in developed and developing countries, with various approaching methods. In his theory, Schumpeter says that the innovations are not compulsorily to be absolutely new activities or processes. The combination of existing things could create also innovations. In this study, the notion of innovations is limited in the context of enterprises where activities of innovations include innovations of products, producing processes, exploration of new markets and new material supply sources, new organization and management methods [12, p.46]. In addition, innovation products are not also compulsorily to be in world scale but in fact of comparative nature: new for enterprises themselves, sectors, domestic markets or geological regions etc. *(Lunvall, 2009)*. This concept was proposed in his studies for innovation systems of developing countries.

In Vietnam aquatic processing enterprises, activities of innovations are considered under light of three theories of innovations: (i) new links for enhancing the product value, (ii) innovations for enhancing technological

capacities (including producing capacities, investment capacities, linking capacities, marketing capacities, capacities for small-sized improvements and capacities for innovations), (iii) creation of new products.

Activities of innovations in enterprises always have exterior and interior factors impacting their innovations. The Government, research institutes and universities (called together as S&T organizations) and enterprises inter-act according to Triple-Helix models. Another important factor in impacts from clients including material suppliers and importers in chain of product values.

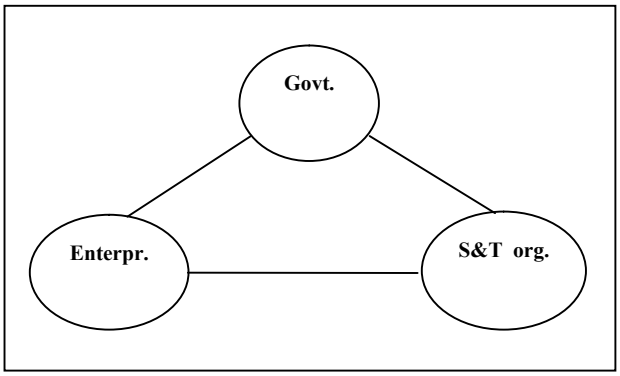


Fig. 4: Triple - Helix models

1.2. Technological capacities

Technological capacities include a group of capacities related to activities such as to transfer input materials to output products and purchase-sale activities in markets. In Vietnam, technological capacities are reflected through 6 categories, namely: investment capacities, producing capacities, capacities for small-sized improvements, marketing capacities, linking capacities and capacities for innovations *(Ernst & Mytelka, 1998)*.

2. Actual situation of innovations in aquatic processing enterprises in Khanh Hoa province

Since 2000, almost all aquatic processing enterprises in Khanh Hoa Province concentrated efforts to enhance producing capacities through investment for equipments, machines production chains imported from Japan, Germany, USA etc. In addition, infrastructure was built up following advanced models, organization and management schemes to meet requirement of export market. In terms of equipment, about 70% of enterprises made investment for ice production, vacuum drying chains, most advanced frozing IQF chains [7]. In terms of management technologies, 100% of enterprises applied quality management system according to HACCP Standards, ISO 9001:2000 and other standards such as BRC, ACC, IFS,… (*NAFIQAD, 2010*).

Enterprises made technological innovations to enhance producing capacities in processing plants. However, the practice shows that the efforts for investment and development are not the same for all aspects. They were focused mainly for hardware while other software aspects of technologies such as investment capacities, improvement capacities, marketing capacities and linking capacities did not get adequate attention to create stable and sustainable competitiveness in future. Results gained from the project Assessment of actual situation and technological level of aquatic sectors by Ministry of Science-Technology in 2007 show the fast development of the aquatic sector during 2000 - 2007 period but the development was not equal. Namely, the fast development was seen in frozing processing technologies, commercial frozing warehouses while the low development was seen in production of conserves and dried products and other supporting technologies.

Also, results of assessment of technical effectiveness in 40 aquatic processing enterprises in Khanh Hoa Province show that only 10 of them conducted effective activities and there exists a large gap in enterprise structure and that the competitiveness mainly is based on advantageous positions in material supply and cheap labor [10, p.6]. Statistic figures of 2005 - 2010 of export value of aquatic products of Khanh Hoa Province (Table 1) show an increasing trends but the development was low in comparison to actual demands.

Table 1: Export values

Year	2005	2006	2007	2008	2009	2010
USD million	230	245	265	280	295	305

Source: Department of Agriculture and Rural Development, Khanh Hoa Province

Results of assessment of actual situation of 3 large enterprises of Khanh Hoa Province [11] and the comparison of changes of every enterprises in their innovation process during 2004 - 2010 period reflect the actual situation of innovations in the3 enterprises (Chart 1)

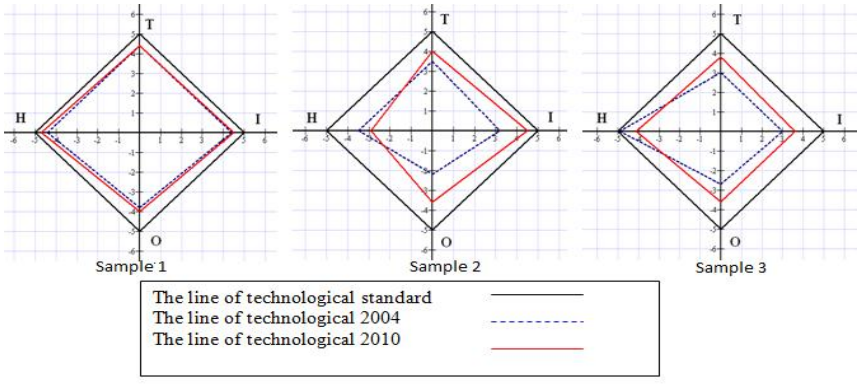


Chart 1: Lines of technologies **of** 2004 and 2010

The actual situation of technologies was assessed for 4 technological components T-H-I-O proposed by Sharif (1993) and the tool kit for assessment of actual situation of technologies set-up by the project Assessment of actual situation of technologies in Khanh Hoa Province, 2004.

Technoware (T): indicators for resources, capabilities of machines, equipment and production chains.

Humanware (H): indicators for human resources of capacities of management, operation, application of machines and equipments, and R&D.

Inforware (I): indicators for management information and documents, use and excgange of information in business activities.

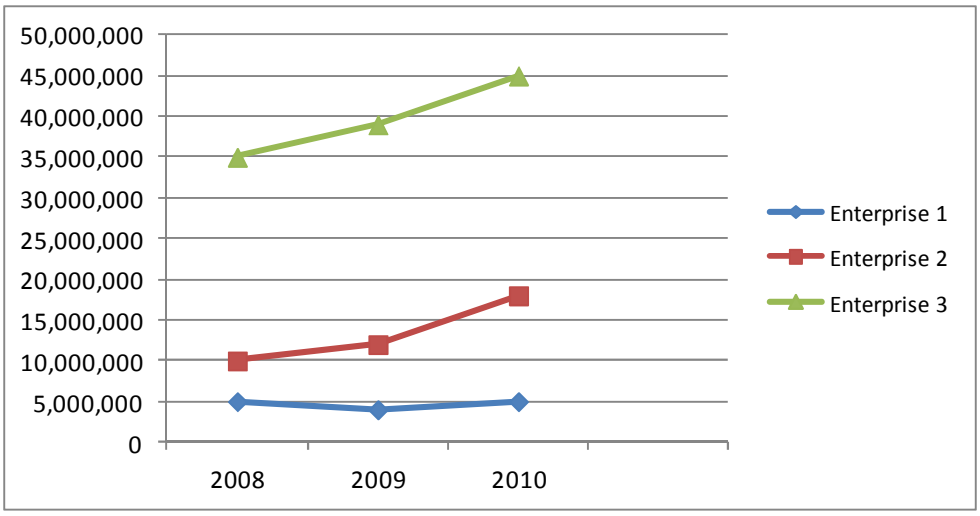
Orgaware (O): indicators for organization, policies for development of human resources and linking activities.

Table 2: Technological indicators of enterprises of 2004 and 2010.

Technological indicators	Sample 1	Sample 2	Sample 3
2004	4.3	3.1	3.4
2010	4.4	3.8	3.8

Source: Huynh Thi Kieu Chau. (2011). Management of innovations of export aquatic sector of Khanh Hoa Province. Thesis of Master of Science Degree, Science-Technology Management Science.

The table shows the technological indicators of 2010 are higher than the ones of 2010. For Samples 2 and 3, indicators for T - I - O components have increasing trends but the lowering trends for H component which reflects a lower attention for human resources (Chart 1). Sample 1 shows the integrated investments for the 4 technological components. They are almost equal and therefore create stable competitiveness of enterprises which are seen clearly through comparison of figures of Samples 1, 2 and 3. However, surveys show that research investment was made for small sized improvements, namely production processes, improvement of machines and equipment, while the development of new products and market studies did not get a proper attention. Actually, more than 90% of products made by enterprises in Khanh Hoa Province are half-processed commodities which are ordered by distributing and exporting enterprises (figures being gathered from feedbacks of enterprises).



Source: Huynh Thi Kieu Chau. (2011). Management of innovations of export aquatic sector of Khanh Hoa Province. Thesis of Master of Science Degree, Science-Technology Management Science.

Chart 2: Total export turnover of three large enterprises, 2008 - 2010 period.

As seen through this actual situation, aquatic processing enterprises over the whole country, in general, face many difficulties in export market: dependence on purchasing capacities of buyers (importers), pricewise competition between local enterprises, technical barriers, source of origin, limited access to new technologies and, on top of all, short material supply for production.

Therefore, actual activities of innovations made by enterprises could not yet help to overcome difficulties and to create stable competitiveness. Innovations to enhance technological level are only necessary conditions while innovations to enhance technological capacities turn out to be sufficient conditions for long-lasting development of competitiveness for enterprises in general and for aquatic processing enterprises in particular.

3. Factors impacting activities of innovations

First, the impacts from export market remain main factors impacting technological renovation of aquatic processing enterprises.

Demands of export markets through orders and standard requirements by buyers (importers) require enterprises to enhance producing capacities which are positive impacts from buyers to producing capacities. However, these impacts produce also negative effects limiting other capacities for technological renovation by enterprises such as investment capacities, R&D capacities, marketing capacities for exploration of new markets, training and upgrading of human resources, studies for new products, studies of markets to

produce and diversify new products, highly added value products, enhancement of competitiveness and extension of markets, etc. Surveys show also that products of aquatic processing enterprises are mainly half-processed ones which are sold through distributors but not directly to consumers. Particularly only a few enterprises can sale products of their own trademark on consuming markets. These limitations lead to large dependence of enterprises to clients which in fact is in conformity to the theory by Michael Porter for 5 competing capacities.

Second, influences from policies and mechanisms which did not yet create links among enterprises, between enterprises and researchers, between enterprises and material suppliers. These links, once established, will produce interactions which help to enhance learning capacities and other capacities of human resources such as investment capacities, R&D capacities, marketing capacities and capacities for technological renovation and etc.

Third, impacts from management and business point of view of owners of Vietnamese enterprises which are leaders deciding all matters of operation and organization of enterprises. For example, policies to training and application of human resources and the policies towards clients (product buyers or material suppliers) have close links to long-term strategically planning activities of enterprises. Results of the research project *Management of innovations of export aquatic sector of Khanh Hoa Province* by Huynh Thi Kieu Chau (2011) show that enterprise owners pay attention only to actual benefits: their business plans are set-up year by year, no investment funds for R&D, no open policies to attract labors. Actually, the production in enterprises remains unstable because of dependence to orders from partners.

4. Problems of attention

There exist many problems put down for sustainable development of aquatic processing enterprises in present time and future time if the attention of investment remains focused on machines and equipment for technological innovation which cannot reduce the dependence to clients, creation of competitive advantages and stable development. This is the question toward researchers, administration agencies and enterprises themselves.

4.1. Enhancing technological capacities in activities of technological renovation

Today no one denies the role of technologies in production process and technological capacities in competitive advantages of enterprises. Studies of the US economic growth of 1909 - 1949 period show that the main contributions (9/10) come capacities to absorb new technologies. By end of the XX century the growth rate in developed countries is mainly from

technological capacities, namely, 50% for the US, 76% for France, 78% for Germany and 55% for Japan. For developing countries, technological capacities are established and upgraded from technological transfer joint with upgrading of human resources for better learning and absorbing of technologies for their own enterprises [3, p.22]. Thailand aquatic processing sector was upgraded from policies by the Government to support R&D capacities, capacities of links between aquatic growers and processing plants [8, p.19]. Policies to enhance technological capacities of every nation are implemented in the innovation process. In this context enterprises play the role of central factors while the State owned S&T organizations and NGOs, education and training organizations, intermediate organizations, financial and policy institutions, S&T knowledge are component factors which create favorable environment for enterprises to enhance technological level as well as technological capacities.

4.2. Enhancing capacities of human resources

The human resources play the key role to govern the three remaining technological factors. The human capacities, if limited, would lead to the limitation of all the other capacities including capacities of use of machines and equipments, capacities of organization and operation of production activities and business efficiency. Surveys for Sample 1 show that, during 2004 - 2010 periods, enterprises conducted integrated investment for the 4 components T - H - I - O. Thanks to these efforts, they remain in close synergy which lead to the indicators of Sample 1 very much higher than the ones of the two remaining samples, namely 3.5 time higher than Sample 2 and 7 time higher than Sample 3 in marketing capacities for exploration of new markets (ref. Chart 2). Therefore, it is possible to say that the efforts by enterprises to pay attention and integrated investments for technological components would enhance technological capacities.

4.3. Creating and promoting links

We can refer to the case of Thailand aquatic processing enterprises. In terms of linking capacities, they develop close links in all the segments of chains of product value to maintain competitive advantages. They develop the contractual links between farmers and producers where they support each other to settle problems of material sources and access to original sources of materials and products. R&D contracts develop links between enterprises and S&T organizations to meet requirements of enterprises. And also, there exist always supporting policies from the Government and authorities to promote these links. In case of aquatic processing enterprises in Science-Technology these links are very rare except only single consulting contracts between individual researchers and enterprises or between enterprises and buyers./.

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