



Quality standard implementation in the Thai seafood processing industry

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industry

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Abstract *The key findings on implementing ISO 9000 standard in the seafood industry, which is recognized as the leading export industry in Thailand, have been presented. The purpose of this study was to describe the current situation in ISO 9000 implementation, the characteristics, the strengths, the weaknesses, and problems of implementing a quality standard. Reports the finding of a mail questionnaire survey conducted on 178 selected seafood companies. The analysis of the survey data suggested that about 94 percent of companies obtained at least one quality standard. With further analysis, we also found that there are some different characteristics in terms of product type, production process, and purchasing policies among these selected companies. Results indicated that Thai seafood companies still lack enthusiasm regarding ISO 9000, compared with other countries in Asia. Finally, we found major problems in implementing ISO 9000 such as lack of understanding this quality standard and lack of support from the staff and management.*

Introduction

The globalisation of the marketplace and the rapid improvement in high quality products has brought about a high level of market pressure worldwide. To become efficient, the majority of companies are being forced not only to change their old operational and management styles but also to develop better ways to ensure that customers are satisfied with the products. It is necessary for the industry as a whole to develop or adopt the quality system standard, very often associated with the ISO 9000 series.

In the literature, one can find considerable research related to benefits of companies who were certified ISO 9000 throughout the world. Brown and Van der Wiele (1995) proposed the benefits obtained with the ISO 9000 certification as follows: increase in company quality awareness, increase in product quality awareness, improvement in company management, improvement in customer relations, improvement of the products and services offered, improvement of the relationship within the organisation, and increase in customer satisfaction. Tsiotras and Gotzamani (1996) also found that the benefits of ISO 9000 series have been brought in basically for four reasons:

- (1) to improve the image and the reputation of the company;
- (2) to satisfy external requirement and market;
- (3) to facilitate and simplify the procedures and contracts with the clients; and finally
- (4) to improve productivity.

In much the same way, Tannok and Krasachol (2000) noted that the ISO 9000 series have become important in developing countries. Many countries in Asia such as China, Hong Kong, Malaysia and Singapore as well as Thailand have adopted ISO 9000 series as national standards.

Although much research on ISO 9000 series, particular those in the USA and Western Europe, has consistently been claimed, little work has been carried out in developing countries (Al-Khalifa and Aspinwall, 2000; Tannok and Krasachol, 2000). This is particularly true of the South-east Asian countries and Thailand specifically. The limited research on ISO 9000 series for specific industries raised by National Science and Technology Development Agency (1996), Arphasilp (1980), Butsonorn (1998), Janchai *et al.* (1997), Krasachol *et al.* (1998), Simachokdee (1998), Tababucanon (1993), Tannok and Krasachol (2000), and Thailand Productivity Institute (1997), still lag behind in maturity in terms of the implementation of ISO 9000 series. Therefore, it seems that this area of research in South-east Asia should have more focus on the trend of ISO 9000 series in the future, the quality standards, particularly ISO 9000 series for specific industries in Thailand, including the strengths, weaknesses, and problems of implementing ISO 9000.

This paper attempts to contribute to such issues by using the seafood processing industry in Thailand as an example. A review of the literature on the background of the seafood industry and ISO 9000 in Thailand is presented. This is followed by the research methodology. Finally, the major findings and their implications of implementing ISO 9000 in the seafood industry are discussed.

Background of the seafood processing industry in Thailand

Thailand is a country in the South-east Asia region which has a population of about 62 million people[1]. The majority of the people work and live in the agricultural sector. After several years of economic development in the country, Thailand has slowly shifted from agricultural to industrial sector and later became known as a newly industrializing country. The number one export product during the previous years includes computer and electronic goods. For agricultural products, the top three exporting products comprise seafood, rice, and rubber. Seafood processing products rank seventh among the exporting products and have brought in revenue of about 65,377 million baht during 2000. During 1994-1999, when comparing the export growth rate of fishery products, i.e. fresh or chilled or frozen fish, fresh or chilled or frozen cuttle fish/squids/and octopus, fresh or chilled or frozen shrimps/prawn, and dried salted or in brine or smoke shrimps and prawns, the growth rate continued to rise. From the figures, one can see that the seafood industry is an important export product which brings in revenue of about 6 percent of the total export products. The important trade-partners in the seafood industry include the USA, Japan, Singapore, China, Australia, Canada, Taiwan, Korea, France, UK, and other European countries.

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In Thailand, there are about 56,026 food processing companies, about 462 of which are seafood processing companies or 0.82 percent of the total food processing industry. More than half of them should be classified as trading companies while the rest can be considered as producers.

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The history of quality management started a century ago when a mineral laboratory was established to control quality of raw material and finished products for the Royal Mint (Arphasilp, 1980). Later this laboratory became the Department of Science Service under the Ministry of Science, Technology and Environment. Its responsibility was to analyse raw materials and its functions were expanded to serve other industries and the public (National Science and Technology Development Agency, 1996).

After the first introduction of ISO 9000 to Thailand in 1990, Krasachol *et al.* (1998) noted that the first certification was awarded to a company in 1992. By 1996, the number of certified companies had increased by more than 40 times. ISO 9000 standards have been widely accepted by Thai industry as part of an effective strategy for competitive advantage in the global market (Janchai *et al.*, 1997). When ISO 9000 certified companies are subdivided into specific industries, ISO 9000 is very popular among the electrical and electronic sector. Many of the companies which obtained ISO 9000 standards are joint-venture firms, but, increasingly, Thai-owned companies are accepting the challenge of ISO 9000 and are looking for other new standards.

In terms of benefits of ISO 9000, Krasachol *et al.* (1998) also provided some interesting insights and suggested that the ISO 9000 standard provides internal improvements in the organisation, in global competitiveness, and essentially for the customer. According to the latest number of ISO 9000 certified companies as of January 2001, it shows that there are 2,880 companies in Thailand which have already obtained ISO 9000 standards, compared with 981 companies in June 1999. Even though it seems that ISO 9000 has now become very important for Thai industry, the number of companies which have been certified ISO 9000 is relatively low, compared with some other Asian countries (Tannok and Krasachol, 2000).

Research methodology

In this research, a questionnaire survey was employed as a tool for exploring. As for the survey, 178 questionnaires, together with a cover letter explaining the purpose of the study, were distributed to Thai companies that are involved in the business of seafood processing using the *Federation of Thai Industries Directory*[2]. These questionnaires were usually mailed to either the plant manager or the quality manager. In the questionnaire, companies were asked to provide the following information, i.e. general information, product type, production system including the storage of raw materials, quality control system and purchasing policies. Moreover, questions were asked as to which type of quality standard certification had been obtained, the time taken to

obtain certification as well as the total cost and problems that occur as a result of implementing quality standards. It is very important to note that the basis of the questionnaire is the criteria in the ISO 9000 standards. Sixty-seven per cent of the questionnaires were returned. The high response rate could be the result of the telephone follow up.

Survey findings

Since this was the first study to investigate the extent to which quality standards are practiced for the seafood industry in Thailand, it was important to assess the level of attention from each company to quality standards. From the result, a majority of the seafood processing companies (94 percent) have already acquired and implemented at least one quality standard e.g. ISO 9000, ISO 14000, and Hazard Analysis and Critical Control Point (HACCP), which is particularly appropriate for food, cosmetics and pharmaceutical industries.

Of the companies, 69 percent (see Figure 1) implemented only HACCP; about 28 percent implemented both HACCP and ISO 9000, and 3 percent implemented only ISO 9000. Unfortunately, the result indicates that companies give very little emphasis to obtaining ISO 9000 certification, even though it ensures the quality of the whole production system and brings about high-quality finished products.

In terms of product type, 56 percent of the total products are concentrated in producing frozen seafood compared to nearly 16 percent of the dried salted or in brine. When further subdivided among frozen seafood products, fish comprises the majority (33 percent), and next are shrimp (26 percent), and squid (20 percent). From the result, fish and shrimp were found to be the main seafood processing products in Thailand.

Figure 2 shows the characteristics of production systems in the respondent companies. From the response, it was found that 42 percent of the companies produce in the form of "make-to-order", meaning there will not be a stock of products, whereas 32 percent produce in the form of "make-to-stock", and about 26 percent of the companies take both make-to-order and make-to-stock.

The respondents were further asked to prioritise criteria which they used to choose the suppliers. The data from this study indicated that the main focus for purchasing raw materials was quality, followed by price, lead time, and transportation route, respectively. Regarding the results, many seafood companies, particularly in Thailand, tended to make judgement by employing

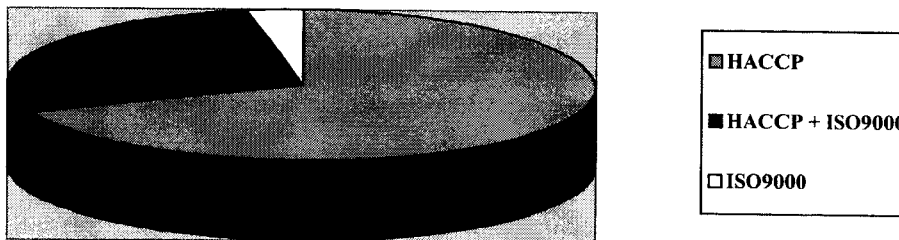


Figure 1.
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quality concept and they tried to use quality control to face the competition in the free trade market.

Obstacles in implementing ISO 9000

In the meantime, respondents were asked to express their opinions on the ISO 9000 implementation process. The finding reveals that about 67 percent stated that they are in the process of implementation while 20 percent are in the internal audit stage. About 13 percent are planning to seek an appropriate quality standard in the future. Furthermore, those firms that had not implemented a quality standard were asked if they were interested in implementing any quality standard. It is interesting to note that ISO 9000 receives the most attention with a high percentage (about 80 percent), followed by HACCP (10 percent), and ISO 14000 which is linked to environmental management (10 percent). From this it can be seen that most Thai companies with no quality standards began to shift their attention to the ISO 9000 series because they realised that the ISO 9000 series is a requirement for their business, particularly for the seafood processing industry.

The obstacles in the ISO 9000 implementation process include lack of knowledgeable specialists in this subject matter; and lack of understanding in the details of quality standards from the enterprises' point of view which caused delay in the implementation process. Another factor is a lack of co-operation of the employees, which invariably results in resistance. Also, threats to English manual and writing procedure are other concerns to delay the process.

Among the respondents who had obtained ISO 9000 certificates, 35 percent implemented them in the entire company and 10 percent did so only in the production unit. This number suggests that many companies expect ISO 9000 to improve their working performances, not only in the production lines, but also in other departments including purchasing, production planning, warehousing, quality control, and engineering. From the survey, those firms that had achieved ISO 9000 certification were asked to state the implementation period. About the same percentage (28 percent) of the companies have obtained quality standards within either one or two years while 21 percent spent three years, whereas 3 percent stated that it took four years to obtain certification. It was also found that approximately US\$10,000 had been invested for the achievement.

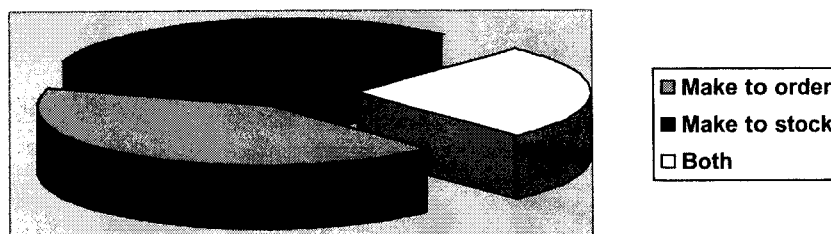


Figure 2. Type of production

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Summarized findings

The findings are summarized as follows:

- Most Thai seafood companies obtained at least one quality standard, either ISO 9000 or HACCP, or both. In this study, HACCP seems to be much more important than ISO 9000 because HACCP is becoming directly responsible for the quality of food itself. Therefore, production control has to concentrate on avoiding any unexpected risks or events that could happen during the production process, which could harm the consumers. However, applying ISO9000 together with HACCP will make the quality control process more complete because the ISO 9000 standard will control the management of the production system. The study and the research also support this idea, that is those enterprises/firms that have not been certified by any standards tend to approach ISO 9000 more than HACCP. This is because ISO 9000 is one of the important factors in exporting business to the world market and ISO 9000 can very well be the complement of HACCP implementation.
- The majority of the seafood processing products in Thailand are in the form of "make-to-order" frozen fish or shrimp. This kind of production method is a direct response to the customer's demand. Therefore, "make-to-order" products are mainly for export because it is not in high demand for local customers. The information regarding product type and production process will be useful for the industries which will implement ISO 9000, specifically for (4.9) process control and (4.15) handling, storage, packing, preservation and delivery.
- As for the companies that have been certified ISO 9000, it should be certified for the whole production system, not just individual section, line, or department. This is due to the fact that for products to achieve the quality standard, the producer has to perform well from the starting point until handling to customers.
- Problems that occur as a result of implementing ISO 9000 are related to lack of understanding of the quality standard and lack of knowledgeable personnel in this subject matter. As a result, firms or enterprises experience difficulty and do not know where to begin or who to contact if there are any problems. In addition, lack of support and cooperation from the staff is another problem in implementing ISO 9000. Materials or manuals in English language can also prevent thorough understanding in implementing ISO 9000.
- The key government agencies should provide relevant and useful information in relation to HACCP and ISO 9000 for seafood processing industry. Key information should include similarity and differences in implementing HACCP and ISO 9000, key factors/criteria for effective implementation of the quality standard, and most importantly, the new

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combined standard (HACCP and ISO 9000) to be used specifically for food industry.

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Conclusion and further research

The trend in quality standard, particularly ISO 9000, observed in the Thai seafood processing industry could be an indication of what is likely to be the direction for seafood processing companies in Thailand and the need to implement quality standards. Relationships among the different characteristics in various areas, including production system and product type, have been established to understand the implementation process of ISO 9000. The findings indicated that there are some major obstacles, which related to lack of understanding of quality system and employees' cooperation. It is also recommended to the Thai government to provide useful information related to HACCP and ISO 9000 to the public. The main contribution of this paper is an updated situation of quality standard implementation in a specific industry in one of the exporting countries, Thailand. Moreover, this piece of research is very practical because it could be used to encourage, support, and promote the implementation of quality standards among Thai industries. This research will be the basis of further study on how the implementation process took place in specific seafood processing companies. The comparison between the companies who implemented only HACCP and the companies who implemented only ISO 9000 will be carried out. Further research could be done on similar lines in several industries within the countries. Also, comparative research between countries and region should be pursued.

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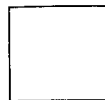
Notes

1. The data throughout the "Background of the seafood processing industry in Thailand" section have been taken from the Office of Agricultural Economics, Thailand (available: <http://www.oae.go.th/>).
2. Federation of Thai Industries (available: http://www.fti.or.th/nfti/index_n.htm).

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