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### Strategic Response to Evolving Food Safety Standards: A Case Study of Guyana's Fish Export Sector

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The extent to which food safety standards negatively affect the ability of firms in developing countries to export to the markets of developed countries depends on their approach to compliance. A case study of Guyana's fish export industry tests this hypothesis. The analysis generally reveals a defensive/reactive approach by exporters, which has resulted in an erosion of their ability to export to some markets and their inability to gain access to others. However, firms can sustain market access and enhance their competitiveness in the long term if they adopt a more proactive approach to compliance with food safety standards.

Keywords: defensive, developing countries, food safety, response, strategy

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#### Introduction

The 1980s marked an era of reformation of food safety systems in developed countries from a focus on end-product quality management to integrated management of health risks along the food chain [mandatory preventative Hazard Analysis Critical Control Point (HACCP)–based safety and quality systems] (Ababouch, Gandini and Ryder, 2005).

HACCP systems are designed to incorporate five broadly defined fundamental principles, embodied in the World Trade Organization's Sanitary and Phytosanitary Standards (SPS) and Technical Barriers to Trade (TBT) agreements. These include (i) risk analysis; (ii) traceability; (iii) harmonization of safety and quality standards; (iv) equivalence in food safety systems; and (v) 'risk avoidance or prevention at source' within the entire food chain (Ababouch, Gandini and Ryder, 2005). However, developed countries have employed these precepts differently in the construction of their food safety systems, resulting in heterogeneous food safety system requirements governing international fish trade. Developed countries also constantly make amendments to general food safety regulations that exporters from developing countries must comply with.

These developments have become necessary to minimize growing health risks (such as bovine spongiform encephalopathy, or BSE, and Hepatitis A) associated with the growth in international food trade and to address consequent increased consumer demand for safer products (Roberts and Unnevehr, 2003). However, empirically they have been proven to present insurmountable challenges to the export capacity of developing countries interested in the enlargement of their agricultural sector for food security, rural development and other purposes (Otsuki, Wilson and Sewadech, 2001; Wilson and Otsuki, 2001) – more so, given that developing countries continue to face scientific and institutional handicaps that hinder their domestic food safety systems from keeping pace with growing health risks.

Theoretically though, the impact of the principles embodied in HACCP-based systems is *a priori* uncertain (Hufbauer, Kotschwar and Wilson, 2001), as they can act either as barriers or catalysts to trade (World Bank, 2005). Food safety standards can act as catalysts to trade where exporting firms adopt a strategic approach towards compliance by using compliance as a way of upgrading production systems and thereby contributing to increased product quality and long-term competitiveness. However, they can act as barriers to trade where the cost of compliance is a significant proportion of the total cost function of firms, such that they have a tariffication effect; or, where they are heterogeneous across markets.

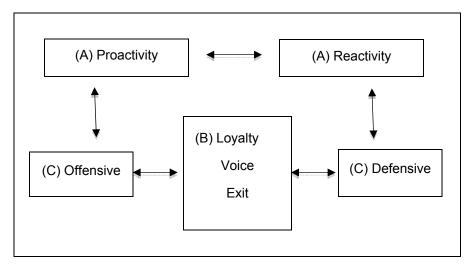
This article investigates the response of exporters of fish and fishery products from Guyana towards food safety standards, specifically, the implementation of the HACCP system by the U.S. and EU markets. The article utilizes export flows (between 1997 and 2006) and qualitative data obtained through interviews and telephone contact with exporters and other stakeholders to undertake this analysis for Guyana's fish export sector.

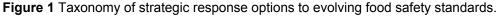
Section one briefly reviews the strategic options for responding to evolving standards. Section two undertakes an empirical analysis of the fishery sector of Guyana. Section three concludes the article by offering recommendations that would allow exporters to move away from cost-minimizing response strategies towards strategies that would enhance their competitiveness over the long run.

## 2. Taxonomy of Strategic Response Options to Changing Food Safety Standards

Based on the 1970 Hirschman framework, the options for compliance with food safety standards can be categorized along three tiers (see figure1):

- 'Exit', 'voice' or 'loyalty' options<sup>1</sup>
- 'Proactivity'- 'reactivity' dimension
- 'Offensive'- 'defensive' dimension





With a strategy of 'voice', governments/exporters seek to influence the rules and regulations set by simply negotiating for changes in their interest at the multilateral/bilateral/enterprise level or through formal complaints (World Bank,

2005). At the multilateral level, the SPS committee facilitates formal complaints regarding standards through cross-notifications by countries. The WTO dispute settlement regime, under Article 23 of the General Agreement on Tariffs and Trade (GATT), also supports bilateral talks that countries can invoke to address standards that pose difficulties.

'Loyalty' entails undertaking adjustments to reflect conformity with the requirements of export markets, such as adoption of legal/regulatory reforms or changes in production technologies (Henson and Jaffee, 2006).

'Exit' entails withdrawing from a particular market by ceasing operations altogether in that market, by focusing on other markets with less difficult standards or by switching to products with more lax requirements. With respect to private standards, 'exit' can characterize a situation where exporters switch customers within the same market.

All three strategies can at any point in time fall along the continuum of the 'proactivity' – 'reactivity' dimension. A proactive exporter seeks to always keep pace with developments in standards in the export market; a reactive firm will respond to changes in standards *de facto*, that is, after a crisis has occurred or products have been detained and substantial costs incurred.

With 'defensive' strategies, exporters seek to maintain standards as they are, in order to restrict the scale of investment needed to achieve compliance (Henson and Jaffee, 2006). Defensive responses are cost-minimizing strategies in the short run but over the long run may have a minuscule impact on firm competitiveness and growth. With 'offensive' strategies, exporters seek to utilize standards to gain competitive advantages, even where this may require additional investments beyond the minimum necessary to achieve compliance (Henson and Jaffee, 2006).

The three tiers of strategy options are not mutually exclusive but rather are complementary in many respects. A synergy of these approaches may be required in varying proportions to garner maximum benefits from standards compliance. However, the strategy option(s) actually adopted in a particular circumstance will vary in accordance with structural, institutional, financial, organizational and other factors.

Combinations of the 'voice', 'pro-activity' and 'offensive' orientations offer the greatest opportunities for maximizing the potential competitiveness gains that may be associated with compliance due to first-mover advantages (flexibility). In contrast, the 'exit', 'reactivity' and 'defensive' orientations offer less flexibility in responding to standards and may result in enormous costs to exporters due to lost market share.

#### 3. Empirical Analysis

## *3.1* Strategic Response of Fishery Exporters to Food Safety Standards

Trade flows give evidence of the strategic responses of exporters to changing food safety standards. The pattern of Guyana's trade flows for fish and fishery preparations (FFP) implies that proportions of all strategies have been employed in the fish export sector in response to standards.

Figure 2 shows trade flows to four of Guyana's largest export markets: the United States, CARICOM (Caribbean Community), Canada and the EU. The United States has consistently been the predominant export market for FFP since 1997. In 1997 alone, exports to the United States represented approximately 74 percent of total exports of FFP from Guyana. On the other hand, exports to the EU were low and somewhat stagnant between 1997 and 2002 but have risen steadily thereafter.

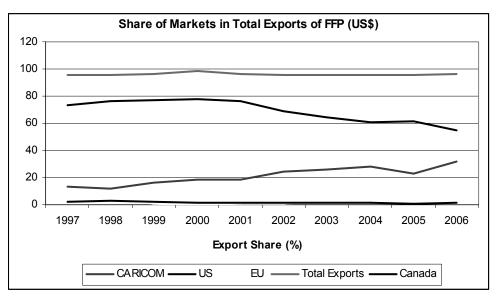


Figure 2 Share of major markets in total exports of FFP (\$US).

Source: Author's calculation based on data obtained from the UN COMTRADE database.

Undoubtedly, the disparity in trade flows with the United States and the EU is related to their food safety regulations. Differences exist in the food safety systems of the United States and the EU with respect to border control systems; type of biological, chemical or physical tests to which samples are subjected, as well as the methods of analysis and standards applied; documentation requirements; and certification procedures (Ababouch, Gandini and Ryder, 2005). The EU's requirements are far more complex than those of the United States. It is noteworthy that, despite their regimes being based on the same principles, the EU has more *Estey Centre Journal of International Law and Trade Policy* 

advanced prerequisite hygiene requirements that must be implemented before the HACCP system can be pursued compared to the requirements of the United States. For example, the EU has added requirements with respect to the design of facilities and also requires water quality tests for harvesting areas, which are not mandatory requirements of the United States.<sup>2</sup> The EU also has a two-tiered certification system. On one level, the entire country must be certified (domestic laws harmonized with EU food safety regulations) before exporting to the EU.<sup>3</sup> On another level, individual exporters must also be certified. The United States looks only at individual exporters, though it requires third-party certification. The EU's approach to the quality management system is also more integrated than that of the United States, which looks at individual regulations/standards. Therefore the EU is more concerned about the layout of facilities, sources of freshwater and points of disposal, disposal of waste, treatment of workers, etc. These added requirements are prohibitive to export from Guyana, reflected by the fact that all major FFP exporters are certified to export to the United States but only one is certified to export to the EU.

Declining export share of the EU market over the period 1997 to 2002 can be seen as a decision by exporters to de-emphasize the market rather than undertake the additional investment required to comply with EU requirements. The response of exporters to the EU's HACCP requirements can also be characterized as defensive, since, given significant investment outlays to comply with EU requirements, exporters prefer the status quo over making the changes to meet the new requirements. Of course, other factors, such as transportation costs, also affect trade between Guyana and the EU more significantly than they affect trade between Guyana and the United States.

Consultations also revealed that exporters, notably small firms, have in times past voiced concerns, at local fora, over the prohibitive nature of the EU's HACCP requirements, which narrow exporters' market options to the domestic and regional (CARICOM) markets. However, large-scale operators view enhancing product quality by compliance with standards as a positive step towards bolstering their long-term competitiveness and have therefore not been vociferous regarding evolving standards.

'Exit' is also apparent in relation to the U.S. market, evidenced by the declining share of total exports going to the United States (2001 onwards). Simultaneous with this decline has been an increasing export share going to the CARICOM market due to less stringent food safety regimes. For example, a notable difference in the food safety requirements of the United States and CARICOM market is in nutrition labeling. Nutrition labeling is not mandatory in CARICOM countries<sup>4</sup> but is a

mandatory requirement of the United States that came into force with the enactment of the Nutrition Labeling and Education Act of 1990.

Arguably, Guyana's ability to maintain high exports of FFP to the United States despite changing U.S. food safety standards relative to other markets reflects the loyalty orientation. Guyanese exporters have maintained access to the U.S. market despite the fact that Anders and Caswell (2006) found, through a gravity model, that introduction of mandatory HACCP (in 1997) in the processed seafood market in the United States has had a significantly negative effect on trade flows across all exporting countries. This loyalty is also somewhat apparent with regard to the requirement that turtle excluder devices (TEDs) be used in the fishing nets of firms exporting to the United States. This requirement resulted in exports declining in 2003, but not necessarily ceasing, as some trawler owners were able to amply implement TEDs and so sustain market access.

Another notable adjustment in the domestic fishery sector to ensure compliance with U.S. food safety standards has been the establishment, by large-scale exporters, of standards for fish purchased from fishermen under contract purchasing arrangements and the conduct of training programmes for such fishermen.

Continued and growing exports to the EU market also reflect loyalty, given the prohibitive nature of EU certification requirements relative to those of the United States. Loyalty is further evidenced by the fact that several exporters are seeking to make internal adjustments to production systems in order to become EU-certified. For instance, Pritipaul Singh Investments, one of the largest processors in the sector, made adjustments to fishing vessels to ensure certification.

#### 3.2 Factors Influencing Response Options

The response of firms to standards is influenced by a number of factors. These can be categorized as follows:

#### 3.2.1 Geographical distance

This is an important factor influencing firms' response to standards and therefore whether they remain in or withdraw from a market. Distance determines available market alternatives. Exporters in Guyana have distance-related cost advantages in the U.S. and CARICOM markets relative to the EU market. This advantage has been conferred because of the existence of a large Guyanese Diaspora, language and culture similarities, and lower transport costs. Trade is deeper between Guyana and the United States, and between Guyana and CARICOM, because they are geographically closer than the EU and culturally closer than South America and other markets.

The logistics of transportation together with shipping costs make the U.S. market a more feasible option over individual CARICOM markets, which are small and fragmented. The U.S. market is also a more feasible option over the EU market due to the availability of and access to reliable transportation services. There are daily flights to Miami and New York from Guyana. There is also access to charters to the United States. This is not the case for EU markets, for which there are mainly only passenger flights, giving precedence to passengers rather than commercial cargo. This poses a challenge to exporters seeking to get to that market, as there are no facilities for cold storage at the Timehri airport and therefore no way to guarantee products will remain wholesome in the event that a passenger flight is unable to carry the commercial cargo.

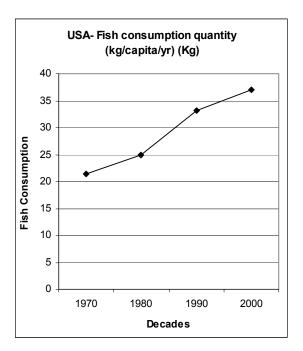
#### 3.2.2 Existence of a preferential trading arrangement

The participation of countries in a preferential trading arrangement also influences their response to standards, as the tariff benefits may outweigh the cost of complying with standards. Guyana is a beneficiary of the Caribbean Basin Initiative, initiated by the United States in 1983 by the Caribbean Basin Economic Recovery Act to provide tariff and trade benefits to the countries of Latin America and the Caribbean. Hence, continued exports to the U.S. market may be more significantly influenced by these tariff benefits than by recognition of the importance of food safety standards for long-term competitiveness.

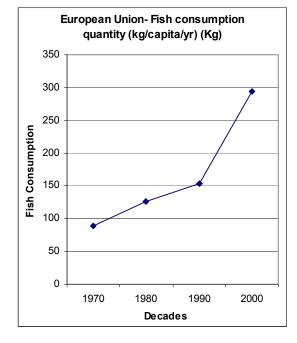
Similarly, the intensification of exports to CARICOM may also be related to preferential access and protection from external competition afforded to exporters by the common external tariff (CET).

#### 3.2.3 Economic pull factors in overseas markets

Undoubtedly, the size of the U.S. and EU markets is the more readily apparent economic pull factor influencing efforts to comply with the requirements of these countries. This is corroborated by the fact that, despite having distance-related cost advantages in exporting to CARICOM, in addition to benefits of more lax standards, exporters continue to export predominantly to the U.S. market and are pursuing certification for export to the EU market. The size of these markets is attractive both in physical and economic terms. For instance, besides having a very large population (approximately 300,000,000), globally the United States is one of the largest importers and consumers of fishery products. Over the last four decades the United States has had a consistently high demand for fish and fishery products (see Source: Author's calculation based on data obtained from the FAO Fishery database3a). Consumption of fish is also rapidly increasing in the EU (see figure 3b). Growing consumption of



fish in these countries reflects the high income elasticity of demand in developed countries.



*Figure 3a* U.S. per capita consumption of fish and fishery products (1970-2000).

*Figure 3b* EU per capita consumption of fish and fishery products (1970-2000).

**Figure 3** U.S. and EU annual per capita consumption of fish and fishery products. Source: Author's calculation based on data obtained from the FAO Fishery database.

The United States also has a trade deficit for fish that was estimated at US\$9.7 billion for 2008, which means that imports will remain an important source for satisfying domestic consumption. Anders and Caswell (2006) also divulge that the demand for high quality fish by developed countries generally exceeds the supply capacity of developing countries and has contributed to increasing prices.

The availability of substitutes as well as the market share of countries are also economic factors in export markets that influence the choices exporters make. Guyanese exporters supply a very small share of the U.S. market compared to larger suppliers such as Canada, which provide substitute commodities that importers can readily switch to if Guyanese exporters are unable to comply with standards. In fact, a survey of U.S. fish importers conducted by the United States Agency for International Development (USAID) revealed that U.S. importers consider Guyana's fish/shrimp to be products for which substitutes are available (Zweig, 2004).

Other important pull factors include access to overseas banking services through which funds can be deposited at lower transaction costs, and the greater value and stability of the U.S. dollar and the British pound than the currencies of Caribbean currencies.

These factors enhance the attractiveness of the EU and the United States and provide sufficient incentives for exporters to comply with those countries' food safety requirements.

It should be noted however, that there are economic pull factors in the CARICOM market as well. There is a high and growing demand<sup>5</sup> for fish in CARICOM countries due primarily to two facts: (1) the increase in per capita income in CARICOM countries due to positive growth rates, and (2) the growth in the tourism industry.

#### 3.2.4 Domestic market conditions

Increasing supply to the domestic market to avoid compliance costs has been a strategy used by small operators who lack the wherewithal to comply with evolving standards. Arguably, export markets remain lucrative options relative to local markets. Nevertheless, the domestic market is a viable option given high demand for fish, which is still an important source of protein among poor communities, especially in rural areas. Domestic and international statistics reveal that local consumption of seafood is increasing. In fact, based on FAO data, Guyana's consumption of fish between 1990 and 2000 was 8.4 times greater than the Latin American average (101.8 kg/capita/yr) for the same period.

#### 3.2.5 Firm size and market experience

The fish export sector in Guyana is dominated by approximately five large business enterprises: Pritipaul Singh Investment Limited, Noble House Seafood, B.M. Enterprise, Guyana Quality Seafoods and Trading Company Limited and B.E.V. Processors. These enterprises have integrated operations along the supply chain, from production to export. They account for approximately 90 percent of all seafood exports.

The nature of the operations of these entities means that they already possess a fairly large asset base that would allow them to benefit from economies of scale in compliance. Further, the fact that the United States has consistently been the main export market for fish also means that exporters have the know-how with regard to accessing information pertaining to adjustments to U.S. requirements. In contrast, unfamiliarity with compliance with EU import requirements means that higher transaction costs would be incurred to obtain certification and other information pertaining to this market.

Furthermore, given that exporters would have already undertaken the fixed investment necessary to demonstrate compliance with U.S. food safety requirements, they would be confronted only with the recurrent costs of regular testing and inspection and would therefore have the flexibility to respond to changing and emerging requirements. This is summarized by Roberts and Unnevehr (2003), who assert that "where an industry has already made substantial progress in relation to quality control, logistics management, and so on, the capacity to meet emerging SPS requirements is normally adequate."

Additional fixed investment must be undertaken to export to the EU given the relative infancy in exporting to that market. This investment mainly entails modifications to existing buildings to improve layout and allow for efficient management systems for the chain of operations.

Compliance with U.S. standards is also made easy because experience with exporting to that market means that legal or organizational measures already exist to support compliance, and somewhat effective private-public cooperation for enhanced standards compliance exits. This is evident in the fact that the Ministry of Agriculture and the Veterinary Public Health Unit conduct regular inspection and training to support effective compliance by exporters.

#### 3.2.6 Firm ownership structure

Firms managed or partially owned by overseas investors, through joint ventures and foreign direct investments, have the know-how and capital resources to effectively comply with the food safety requirements of their countries. For instance, the only EU-certified exporting firm is affiliated with Heiplog, a Dutch company which controls major processing plants in Europe.

#### 3.2.7 Industry leadership

Two formal cooperation arrangements can be identified within the fish industry: the Georgetown fishermen's cooperative and the Guyana Association of Trawler Owners and Seafood Processors – headed by the second-largest exporting firm, which is also the only EU-certified firm. This exporting firm can be seen as the first mover in testing new technologies/organizational approaches/documentation requirements associated with EU HACCP requirements and can therefore be considered to be an influence on other exporters' efforts to become EU certified.<sup>6</sup>

#### 3.2.8 Domestic capacity weakness

Capacity weaknesses also affect the ability of exporters to be first movers in compliance with standards, that is, to adopt a proactive stance. Further, capacity constraint is one reason large-scale exporters have cautiously evaluated the challenges

embedded in standards. Exporters have acknowledged that their inability to keep pace with standards is a result of their own technical and other capacity constraints as well as general weaknesses in the domestic quality control infrastructure (NQI). Nevertheless, they view compliance with the requirements of trade partners as a force that may initiate improvements in the domestic NQI.

#### 3.2.9 Compliance history

The compliance history of exporters is important to how they are perceived and how their concerns regarding standards are received in export markets. Several U.S. and EU requirements, directly or indirectly, stipulate checks into the compliance history of exporters. For instance, in the United States and the EU, physical checks at the border depend on the status of the country of origin and the compliance history of the exporting firm (Ababouch, Gandini and Ryder, 2005). While Guyana has reached a level of maturity in exporting to the U.S. market and has been able to comply with U.S. requirements, its compliance history has been a little short of perfect. Guyana has had a few detentions at U.S. borders for non-compliance with standards for reasons related to contamination (filth and salmonella) and improper labeling.<sup>7</sup>

#### 4. Conclusion

The response of Guyanese exporters has largely been reactive with regard to evolving food safety standards. Noteworthy are three market access impacts standards have had on the fish export industry:

- 1. Increased domestic supply by small-scale operators unable to comply with export requirements.
- 2. Increased export share of the CARICOM market, where food safety requirements are less strict and not constantly amended as they are in the United States and the EU, and where preferential access exists.
- 3. Continued large-scale, though declining, export to the U.S. market and growing, though still relatively small, share of the EU market.

These changes reflect not only the impact of evolving food safety standards but also other factors. Nevertheless, given more demanding standards and their importance to the competitiveness of high-value agricultural commodities, enhancing the long-term competitiveness of the fishery industry necessitates adopting a more proactive approach to standards compliance.

In order to expand and sustain external market access, especially in developed countries, it may be useful for firms to pursue the following strategies:

- 1. Establishment and pursuit of more joint venture arrangements to benefit from experience and expertise in complying with regulations.
- 2. Diversification of the fish product for greater competitiveness and improved productivity and efficiency of the entire production process to increase capacity to respond to standards.
- 3. Enhancement of quality management systems. However, this necessitates collaboration with public agencies, as the NQI influences the capacity for effective quality management at the firm level. The NQI is important in promoting the adoption of international standards and best practices. However, the NQI in Guyana faces capacity weaknesses that need to be addressed to support firm-level initiatives.
- 4. Increased sensitization and training of small producers under purchasing agreement contracts with larger processors.
- 5. Emphasis on an industry approach to information gathering and dissemination to benefit from the experience of firms that have successfully gained and are sustaining market access.

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#### Endnotes

- 1. For further analysis and application of the 1970 Hirschman framework to sanitary and phytosanitary standards see the World Bank (2005) study "Food Safety and Agricultural Health Standards: Challenges and Opportunities for Developing Country Exports"; see also Henson and Jaffee (2006), "A Strategic Perspective on the Impact of Food Safety Standards on Developing Countries".
- 2. Health and Consumer Protection Directorate General (2005). Guidance Document Implementation of procedures based on the HACCP principles, and facilitation of the implementation of the HACCP principles in certain food businesses. European Commission.
- 3. Guyana as a country is certified to export to the EU and appears on its list I (EC Directive 91/493/EEC) of countries certified to access the market.
- 4. Barbados, however, requires that each package of fish display an appropriate health mark.
- 5. Annual per capita consumption of fish increased from about 235 kg per year in the 1970s to about 260 kg per year in the 1990s.
- 6. The World Bank (2005) and Henson and Jaffee (2006) identify the existence and/or effectiveness of industry cooperation/integration arrangements as an important factor affecting the compliance, voice, and proactive strategy options. An industry leader may be able to galvanize support and make effective representation on behalf of the industry.
- 7. U.S. Food and Drug Administration, Import Refusal Reports for Oasis, http://www.fda.gov/ora/oasis/12/ora\_oasis\_c\_gy.html