

CHALLENGES AND OPPORTUNITIES OF SPS AND TBT MEASURES FOR INCREASING FOOD AND AGRICULTURAL EXPORTS FROM GUYANA

Dianna DaSilva-Glasgow
Roger Hosein

ABSTRACT

This paper seeks to decipher the challenges and opportunities sanitary and phytosanitary measures and technical barriers to trade may present to the competitive export of food and agricultural commodities from Guyana. This is achieved through the use of scholarly articles and published statistics including border detention data. By and large, the theoretical impact of such measures is ambiguous as they have the potential to both impede and enhance trade. However, their precise impact depends on firms' response. A strategic approach will ensure that costs are minimized and opportunities maximized but necessitates public- private coordination to build capacity for proactivity.

Key Words: Agriculture, Sanitary and phytosanitary, Technical barriers to trade

INTRODUCTION

A former Minister of Agriculture of the Government of Guyanaⁱ noted in 2014 that Guyana is affected by unfair trading practices in Europe, North America and CARICOM. As a result, export markets have decreased. He was making specific reference to the multiple Non-

tariff barriers (NTBs) that exporters face. His remark came three years after another government minister had in 2011 chided CARICOM states for the existence of NTBs and called for their removal at a high level food consultation in Trinidad and Tobago, hosted by the Food and Agriculture Organization (FAO) and the CARICOM Secretariatⁱⁱ. The minister in particular noted that SPS regulations are burdensome and prohibitive of agricultural trade and therefore limit intra-regional trade in food. In the words of the Minister, “it is a monumental task to export food into [countries] right from here in the region (CARICOM).”ⁱⁱⁱ

The expressed concerns of the Ministers reflect a wider phenomenon of growth in NTBs. NTBs are essentially all forms of barriers to trade apart from tariffs, inclusive of commercial trade policies (such as quotas) and behind the border measures (such as production subsidies). Such measures have increased in absolute and relative terms with the lowering of tariffs. Noteworthy are sanitary and phytosanitary measures (SPS) and technical barriers to trade (TBT) which feature prominently among the gamut of measures considered to be barriers to trade. Regarded as ‘new protectionism’ such measures are different from tariffs because of the ambiguity of their impact. Given the goals that they seek to achieve for importing countries, that is, protection of plant, animal and human life and resolving information asymmetry, they offer opportunities for trade by increasing consumer confidence in imported products. However, they may have a negative impact on market entry for exporting countries, either deliberately, through discrimination in their design and application; or inadvertently through the compliance costs that must be borne (Lee, Gereffi and Beauvais 2012; Liu and Yue 2013).

This paper seeks to decipher the collective challenges and opportunities such measures may present to exporters from developing countries with special reference to the competitive export of food and agricultural commodities from Guyana, particularly non-traditional products. The focus on non-traditional products stems from the fact that Guyana needs and has been on a perennial pursuit of agricultural production and export diversification (Ministry of

Agriculture 2013). Diversification initiatives have tended to focus on high-value products which are lucrative products in light of the fact that they carry a higher monetary value in international markets because of higher demand (IPRI n.d.). However, the nature of global marketing for such products has shifted to emphasize specialized channels (commodity chains) focusing on quality-based competition (*ibid* n.d.). Therefore understanding the impact of standards is important to understanding the challenges and opportunities that Guyanese exporters face in increasing and sustaining exports of such products on the global market.

The paper uses mainly secondary data obtained mainly through journal articles, policy studies and published statistics, such as United States Border Detention data and trade statistics from the Statistics Department of the CARICOM Secretariat and the United Nations Commodity Trade Statistics Database (UNCOMTRADE) to understand how SPS and TBT measures impact trade.

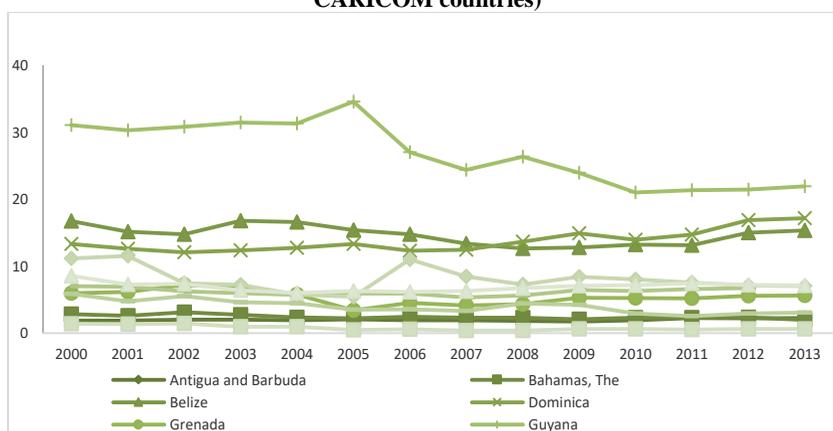
An important conclusion of the study is that the impact of SPS and TBT measures on trade depends on how firms plan for and respond to measures which in turn depends on their internal capacity, the size of the export market, *ceteris paribus*. Firms that choose to deal strategically with SPS and TBT measures are better poised to minimize the challenges and capitalize on the opportunities associated with compliance. However, this requires coordination between firms and policy makers to build capacity for proactivity.

The rest of the paper is structured as follows. Section two provides a brief overview of Guyana's trade in food and agricultural commodities; section 3 provides a brief definition of what are SPS and TBT measures and how they can be situated within the framework of non-tariff measures and non-tariff barriers to trade (NTMs/NTBs). Section 4 then outlines the challenges that technical measures may present to exporters as well as the opportunities they offer for increasing export competitiveness. The paper closes with conclusion and policy recommendations.

OVERVIEW OF GUYANA'S TRADE IN FOOD AND AGRICULTURAL COMMODITIES

Guyana is naturally endowed with an abundance of agricultural resources including; arable land and fresh water resources. Approximately 8.5%^{iv} of the country's total land area is agricultural land. Understandably, given the country's resource endowments, the agriculture sector is an important sector for socio-economic development. Approximately 20% of Guyana's labor force is employed within the agriculture sector^v, a decline from about 34% in 1997. As at 2002, approximately 27% of persons employed within the sector were males while 7% were females.^{vi} Though the contribution of the agriculture sector to GDP has declined over the years (from about 30% in 2000 to around 25% in 2013) it remains of relatively greater national importance to Guyana compared to the country's CARICOM counterparts (see figure 1 below).

Figure 1: Agriculture, value added % of GDP: 2000-2013 (selected CARICOM countries)

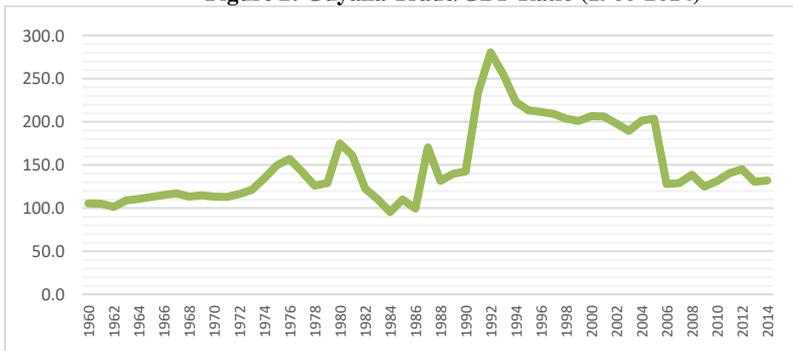


Source: World Bank Development Indicators

As a small economy, Guyana is highly open and very reliant on international trade with a trade to GDP ratio that exceeds 100 (see **figure 2**). Guyana transitioned through structural adjustment (during the early 90s) from a socialist-led economic system during the 70s-80s to an open market economy (1989 onwards) (Williams 2002). This was accomplished by increased trade liberalization and relaxation of restrictions to the movement of capital. Consequently,

Guyana’s dependence on trade increased even further. **Figure 2** below maps the trade to GDP ratio for Guyana from 1960 to 2014. Several things are noteworthy from the figure. Firstly, though subject to fluctuations, Guyana’s trade to GDP ratio has increased from 1960 to 2014. Secondly, trade to GDP falls during the 1980s reflecting declining imports and exports as a result of a dip in the country’s economic performance. Thirdly, the trade to GDP ratio spikes in 1992 at 280.4 reflecting the impact of the implementation of structural adjustment polices. Fourthly, the trade to GDP ratio levels off before falling again in 2006, close to the global financial and economic crisis of 2008.

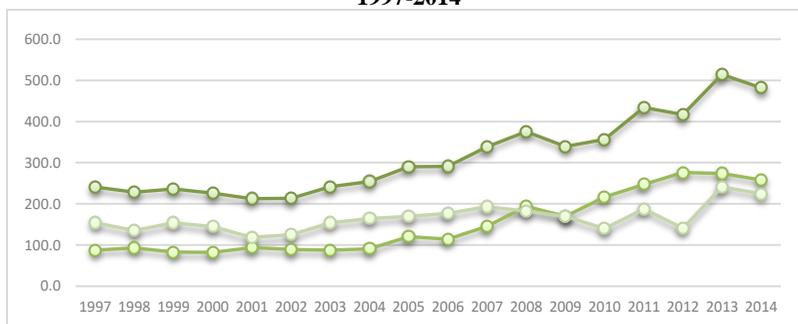
Figure 2: Guyana Trade/GDP Ratio (1960-2014)



Source: Authors based on UNCOMTRADE data

The Heckscher-Ohlin endowment theory posits that a country will export the commodity that uses more intensively, its abundant and cheap factors. Guyana’s pattern of trade conforms to this theorem. In 2014, food and agriculture exports (defined as chapters 01-24 of the HS Classification system) accounted for 41% of the export earnings of the country (US\$1174.05 Mn). **Figure 3** shows exports and imports and balance of trade for food and agriculture commodities. Guyana consistently maintains a positive balance of trade for food and agriculture commodities. However, both exports and imports have risen steadily. From around 2005 onwards, the figure illustrates that the gap between imports and exports widened marginally. This corresponds to the signing of the Petrocaribe agreement and the substantial expansion in the production and export of rice to Venezuela.

Figure 3: Trade in Food and Agricultural Commodities (US\$Mn) (HS 1-24): 1997-2014



Source: Authors based on UNCOMTRADE data

While Guyana maintains a positive trade balance for food and agricultural commodities, the country has a narrow export structure consequent to a narrow production structure, an indelible print left by colonialism. Guyana’s main export commodities are rice, sugar and fish. **Figures 4 – 8** identify the top ten food and agricultural export commodities for five periods; 1997, 2000, 2005, 2010 and 2014. From 1997 to 2005 sugar was the leading export commodity. This is linked to the 1975 ACP/EU Sugar Protocol that saw Guyanese and other ACP producers benefiting from preferential prices for sugar to the EU market. The agreement accounted for 70% of total export sales of sugar from Guyana.^{vii}

Figure 7 shows that from 2010 rice (cereal) became the leading food and agricultural commodity exported from Guyana. In 2014 the country earned US\$247.6 Mn from exports of rice. The decline of sugar is linked to both internal and external factors. Internally, the decline is linked to managerial, technical and other challenges that have resulted in an ailing industry, including a modernization project that has not lived up to its expectations^{viii}. Externally, the decline could be linked to the erosion of preferences consequent to the replacement of the Cotonou agreement, which offered asymmetrical preferences to ACP countries, with a WTO-consistent agreement based on the principle of reciprocity. The growth in exports of rice however, is linked to the secured market in Venezuela under the Petrocaribe agreement. Exports of fish (and fisheries products) also

shows growth over the period examined. Growth may be linked to diversification initiatives such as the Guyana Agricultural Sector Diversification Programme that saw UKaid injecting 1.3 mn pounds into the local economy to bolster aquaculture exports by Small to Medium sized Enterprises.^{ix}

The National Development Strategy^x, which initially sketched a ten-year path (2000-2010) to propelling economic development in Guyana articulated export diversification as a critical strategy to realize improved economic performance in Guyana. A number of other strategies and policy initiatives have subsequently also focused on realizing diversification in the agriculture sector. For instance, the recently concluded 6-year Rural Enterprise and Agricultural Development Project (READ)^{xi} sponsored by IFAD and the Agricultural Export Diversification Program for which Guyana secured US\$6.8 Mn from IFAB and US\$21.9 from the IDB for implementation. In addition, the country has pursued strategies that have sought to prioritize products of focus including; a 5Cs (Citrus, Cassava, Coconut, Cocoa and Cattle) and 4Ps (pepper, plantain, pineapple and pumpkin) initiative (Ministry of Agriculture 2013)

The growth in exports of non-traditional products such as edible fruits, fats and oils suggests that these initiatives have met with some degree of success. However, significant progress has yet to be attained given that exports of non-traditional products is still minuscule compared with traditional export products.

In recent times, the country has articulated the National Agriculture Strategy (2013-2020) which reiterates the need for diversification and identifies priority crops for focus including; vegetables, tubers, fruits, coconuts, and the introduction of new crops to Guyana such as; carrots, spices, corn and soya (Ministry of Agriculture 2013). These crops can be classified as high-value products which the CGIAR (n.d.) defines as “non-staple agricultural crops” that have a higher net return per hectare of land.^{xii}

Figure 5: Top 10 Food and Agriculture Export Commodities (US\$Mn): 1997

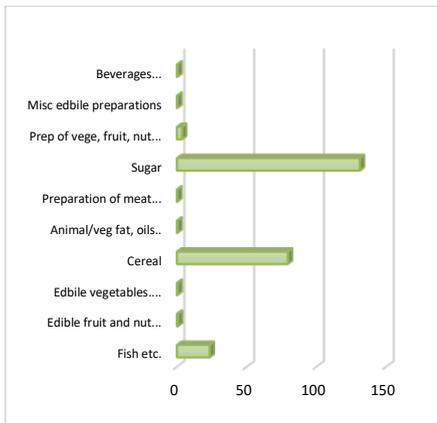


Figure 4: Top 10 Food and Agriculture Export Commodities (US\$Mn): 2000

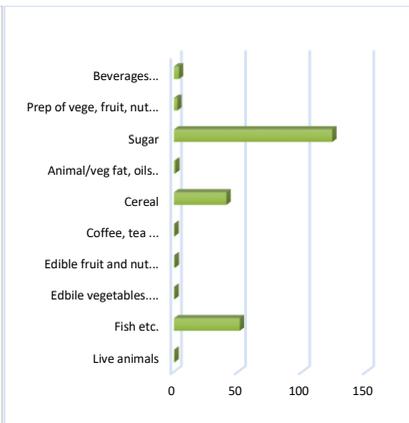


Figure 6: Top 10 Food and Agriculture Export Commodities (US\$Mn): 2005



Figure 7: Top 10 Food and Agriculture Export Commodities (US\$Mn): 2010

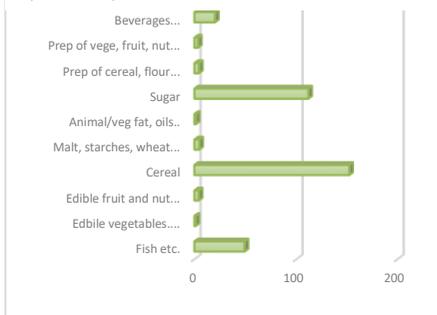
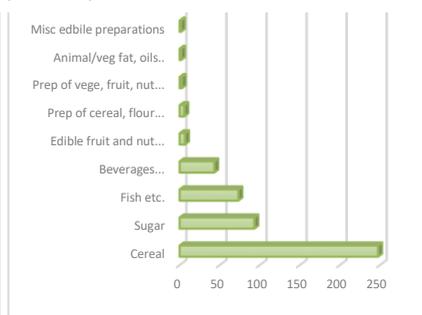


Figure 8: Top 10 Food and Agriculture Export Commodities (US\$Mn): 2014



Source: Authors based on UNCOMTRADE data

Similar to its export base, Guyana has a narrow range of export markets. Guyana's traditional markets are in North America including; Canada and the US; Europe, particularly the UK; and the Caribbean. Trade agreements tell a significant part of the story with respect to trade relations with these countries. Guyana is a party to the CARICOM Single Market and Economy and benefits from the common external tariff. Guyana was also a beneficiary of the Lome Conventions (1975, 1981, 1985, 1989) and the Cotonou agreement (2000) which evolved into the EC-CARIFORUM Economic Partnership Agreement (2008); as well as the 1981 Caribbean Basin Initiative agreement with the USA.

Table 1 shows that the top 15 export markets accounted for approximately 91% of export earnings in 2014. On account of rice, Venezuela has become one of the leading export markets. In 2014, it accounted for 22.3% of total food and agricultural exports.

The US market is an important market for exports of fish. In 2000 78% of exports of fish went to the US (US\$39.8 Mn); 49% in 2014 (US\$36.0 Mn) and; 54% in 2010 (US\$26.6 Mn). The Jamaican market is significant for both exports of fish and rice. The quantity of fish going to this market has increased over the years from US\$6.6 Mn in 2000 to US\$12.1 Mn in 2014. Rice exports have similarly increased from US\$11.2 Mn in 2000 to US\$25.2 Mn in 2014. In spite of the erosion of preferences and the decline in export volumes, the UK continues to be the leading market for sugar. Canada is an important market for exports of beverages, absorbing US\$8.8 Mn in 2014.

For non-traditional products such as horticultural exports (06), vegetables (07), fruits (08), coconuts (oil seed) (12) and, animal and vegetable oils (15) exports are similarly concentrated. The USA, UK and Barbados are the leading export markets for horticultural products, which are very minuscule to begin with, with only US\$48,385 being exported in 2014. 73% of horticultural exports in 2014 went to the UK, whereas in 2010 95.3% of exports went to the USA.

For exports of fruits and vegetables the leading markets are Canada, Barbados and the USA. In 2014 36% of exports of vegetables and 6% of exports of fruits went to Canada; while 43% of exports of vegetables and 9% of exports of fruits went to Barbados; and 9% of exports of both fruits and vegetables went to the USA. The Dominican Republic is also an important market for exports of fruits. In 2014 it accounted for 72% of exports of fruits an increase of 22 percentage points from exports in 2010.

Trinidad is by far the largest export market for oil seeds such as coconuts accounting for 100% of exports in 2010 and 88% in 2014.

For animal and vegetable oils, the leading markets are Trinidad, which accounted for 34.4% in 2014, followed by Dominica with 36.9% and Antigua and Barbuda with 6.3%.

Table 1: Top 15 export markets for food and agriculture products: 2014

Country Code	Country	Rank	Export (US\$ Mn)	% of total
862	Venezuela	1	107.4	22.27
826	United Kingdom	2	88.1	18.27
842	USA	3	47.3	9.81
388	Jamaica	4	41.4	8.59
591	Panama	5	28.6	5.94
780	Trinidad and Tobago	6	27.1	5.62
620	Portugal	7	19.6	4.06
528	Netherlands	8	17.0	3.52
558	Nicaragua	9	12.7	2.64
124	Canada	10	10.6	2.19
484	Mexico	11	9.0	1.87
52	Barbados	12	8.6	1.79
344	China, Hong Kong	13	7.7	1.60
76	Brazil	14	6.5	1.34
251	France	15	6.0	1.24
			437.5	90.74

Source: Authors based on UNCOMTRADE

DEFINING SANITARY AND PHYTOSANITARY STANDARDS (SPS) AND TECHNICAL BARRIERS TO TRADE (TBT)

SPS and TBT measures together are described as technical measures

under the Multi-Agency Support Team (MAST) nomenclature which was adopted by UNCTAD's Group of Eminent Persons in July 2009 and revised in 2012. The MAST nomenclature is one among a list of several classification systems (see **Box 1** in Appendix) that seek to identify all non-tariff measures or commercial policy instrument other than tariffs that may affect trade. The MAST nomenclature identifies two broad categories of NTMs; import measures, which include technical and non-technical measures; and export measures. Technical measures include SPS and TBT measures.

NTMs may evolve into barriers to trade (NTBs) where they are used excessively. SPS and TBT measures, however are different from traditional rent-seeking policies such as tariffs and quotas because they have as their prima facie objective, protecting human, animal, plant and environmental health by correcting market inefficiencies such as information asymmetry between traders and consumers regarding the quality of imported products and addressing situations where goods are consumed under negative externalities.

Annex A of the SPS agreement^{xiii} defines SPS measures as any measure applied;

“(a) to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;

(b) to protect human or animal life or health within the territory of the Member from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs;

(c) to protect human life or health within the territory of the Member from risks arising from diseases carried by animals, plants or products thereof, or

from the entry, establishment or spread of pests; or
(d) to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests.”
(SPS Agreement, Annex A, 77)

The agreement lists the following as constituting SPS measures:

“all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.” (SPS Agreement, Annex A, 77)

TBT measures on the other hand, based on Annex A^{xiv} of the TBT agreement include; technical regulations, standards and conformity assessment procedures. Technical regulations provide mandatory guidelines that cover product characteristics, production methods and process; whereas standards specify non-mandatory guidelines covering product characteristics processes or production methods.

In addition to government stipulations, there also exists an infrastructure of voluntary private standards. These private standards originated in developed countries but their geographic scope and

domain have expanded. Hobbs (2014) identifies three layers of private standards;

1) Voluntary consensus standards implemented by a coalition of firms and industries and possibly involving government. Examples include GlobalGap (initially EurepGap), which is a business to business standard that covers food safety, environmental issues, animal welfare and worker health and safety initially developed by European Supermarket Chains and their suppliers and; Global Food Safety Initiative (Consumer Goods Forum) which attempts to consolidate private food safety standards and certifies existing private standards such as British Retail Consortium, Safe Quality Food (SQF), and International Food Standards (IFS). Other examples include: Assured Food Standard applied by producer organizations in the UK; CanadaGap (Canadian Horticultural Council) and ChinaGap.

2) Proprietary standards that may be applied by individual firms. Examples include Nature's Choice (Tesco PLC); Wholefoods and Starbucks

3) Third party standards applied by NGOs and independent standard-setting bodies such as the International Organization for Standardization (ISO)

CHALLENGES AND OPPORTUNITIES ASSOCIATED WITH SPS AND TBT MEASURES

CHALLENGES

While the intention of the WTO SPS and TBT agreements is to safeguard the interests of importing countries without impeding trade for exporting countries, the reality is that trade from developing countries is often obstructed by these measures. The sections that follow examine the challenges that TBT and SPS measures pose to developing country exporters with special reference to Guyana.

Impact of TBT and SPS measures on market entry

Given the objectives that TBT and SPS measures seek to achieve they are clearly important instruments for entry into foreign markets, because whether privately or publicly stipulated complying with them is mandatory. However their implications for entry into foreign markets is compounded by the fact that with the lowering of tariffs they have increased in absolute and relative terms (Peridy and Ghoneim 2013). In fact, according to Fugazza (2013), and supported by Tran, Wilson and Anders (2012) TBT and SPS measures account for the majority of NTBs that countries face and have been proliferating mainly in the markets of developed countries in response to increased demand by consumers for safer imported food and agriculture products.

Not only have government regulations increased as barriers to trade but private standards also. In fact, Hobbs (2014) posits that private standards have increased much more than government regulations. They are also more stringent than government regulations (Shafaeddin 2007). Beghin (2013) and Blind *et al.* (2013) link the growth in private standards to a restructuring of global markets for food products that sees production activities being internationalized, supply chains extended and quality increasing in importance as a basis for competition. Consequently, private operatives now have greater responsibility for food safety and quality in developed markets. For instance, standards are increasingly being used in the food retailing sector by large supermarket chains (Hobbs 2010). Hobbs (2014) identifies the need for product differentiation, competitive advantage, enhanced supply chain management, reduced liability, achieving ethical/social objectives, lowering transaction costs and negotiation costs among the reasons private operatives have developed private standards. For these reasons, private standards have become *de facto* mandatory despite being voluntary. However, these standards can have a distortionary impact on trade because they are multiple and competing (Hobbs 2014) and can particularly affect small suppliers seeking to enter global supply chains (Henson, Maskure and Laurier 2013).

In fact, empirical research generally indicate that both private and public regulations can create distortionary trade effects for exporters from developing countries *vis-à-vis* capacity for market access (Blind *et al.* 2013). Disdier, Fontagne and Mimouni (2008) for instance, showed that SPS and TBT measures of OECD countries significantly reduce agricultural exports from developing countries. Anders and Caswell (2009) find that in the case of the implementation of a Hazard Analysis and Critical Control Points (HACCP) system for seafood products in the United States leading seafood exporting countries generally experienced a positive trade effect while most of the smaller exporting countries faced a negative trade effect. Further Otsuki, Wilson and Sewadeh (2001) showed that EU-created aflatoxin standard, would reduce health risks by only 1.4 deaths per billion a year in the EU but would decrease African exports of nuts by 64% or US\$670 million in contrast to international standards set by the Codex Alimentarius Commission. Murina and Nicita (2012) also conducted an econometric investigation of the effect of the European Union's SPS measures across 21 broad categories of agricultural goods for 150 countries for the year 2010. The authors found that lower income countries experience a reduction of agricultural exports of about US\$3 billion or about 14% of their trade with the EU. Kareem (2016) also confirmed that the stringency of standards used by developed countries has a negative effect on exports for developing countries. However they argue that the effects are commodity-specific. The authors assessed the export effects of EU standards for Africa using a two-step Helpman model (2008) for two high-value commodities exported over the period 1995 to 2012, fish and vegetables. They found that fish standards are trade enhancing at the extensive margins but standards for vegetables inhibit trade.

Compliance and other costs

Table 2 summarizes the costs associated with SPS and TBT measures. These broadly include direct compliance costs and indirect costs. Compliance costs relate to fixed costs such as investment in infrastructure and recurrent costs such as

administrative costs. It also includes variable costs such as conformity assessment vis-à-vis cost of inspection, testing and certification. Figure 9 shows that in the initial stages the investment cost associated with compliance costs can be high, which can raise the cost of exporting (Hobbs 2014). However, following this, firms will confront only recurrent costs. For instance Manarungsan, Naewbanij and Rerngjakrabhet (2005) noted that in the case of asparagus exporters from Thailand, the tightening of pesticide and other chemical residues requirements in key markets such as Japan, resulted in farmers experiencing an increase in production cost by 165% with yield lowered by 20%. The increased cost was due to the need to conduct private laboratory analyses. Shafaeddin (2007) also noted in the case of Africa, that the operational cost of compliance is somewhere between 2 to 11 percent of the value of exports, taking into consideration factors such as nature of the product, destination, capacity of the country for compliance, among other things. The authors also note that the initial investment cost can be colossal for some commodities given the value of annual earnings from exporting the commodity. In the case of Mozambique for instance, the initial investment cost for fruits was found to be over 7% of total export earnings for all food products (US \$126 Mn) for 2002. For Kenya, the World Bank (2005) found that Kenyan industrial fish processors that needed to upgrade their fish plant faced an average increase in unit production cost of 25% to comply with SPS measures.

Table 2: Costs of complying with TBT and SPS measures

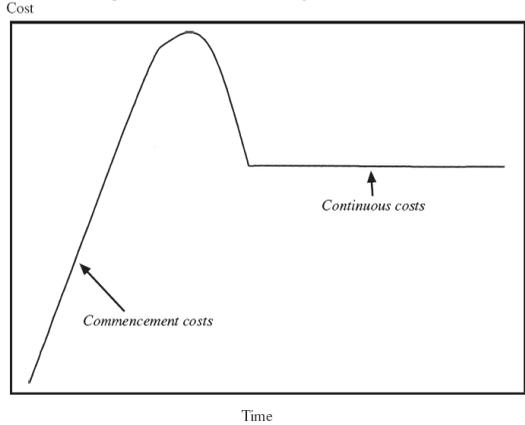
Total Costs of Complying with SPS and TBT Measures		
Direct Compliance Costs		Indirect Compliance Costs
<i>Fixed costs</i>	<i>Variable costs</i>	<ul style="list-style-type: none"> • Information cost • Staff training • Re-organization of supply chain • Delays
<ul style="list-style-type: none"> • Investment in infrastructure 	<ul style="list-style-type: none"> • Conformity Assessment 	
		<i>Opportunity costs of non-compliance</i> <ul style="list-style-type: none"> • Delays and Detentions • Switching costs • Lost reputation • Lost market share • Bans

Compounding factors:

- Heterogeneity of regulations
- Lack of transparency
- Deliberate discrimination

Source: Authors

Figure 9: Cost of compliance with Standards



Source: Baldwin 2000

Mainville *et al.* (2005, 340 in Shafaeddin 2007) note that the “cost of compliance with private standards are higher than that of public standards because they are more complex and are often reliant on “process” than on “performance”.

Shafaeddin (2007) argued that even though some regulations, especially private standards require that exporters comply with the requirements of both the importing and the exporting country, the burden of the cost of compliance is usually entirely on the exporting country. In the exporting country both exporting firms and government bear costs since compliance requires “close cooperation between the public and private sectors” (Shafaeddin 2007, 2). For instance, the government bears costs to provide laboratory services, research and development etc. In some countries the costs are not borne symmetrically. For instance, for Mozambique the authors highlighted that the burden of operational cost is mainly on the public sector whereas the World Bank (2005) highlighted that the burden of investment cost was mainly on the private sector in the case of Indian spice exports.

Compliance costs, may be compounded where measures are different across various markets or change frequently in some markets, or are not transparent (Deardorff and Stern 1997) and therefore impose high information costs or; where exporters face discrimination relative to domestic producers or relative to exporters from other countries (see **table 2**).

Transparency generally relates to; disclosing information on NTMs, influencing their policy-making process, ensuring predictability in their application and minimizing the expropriation risks (Lejarraga, Shepherd and van Tongeren 2013). De Frahan and Nimenya (2013) posit that the lack of transparency in the application of measures can lead to discrimination against importers. Engman (2005) also notes that the lack of transparency regarding administrative procedures, such as may be associated with obtaining licenses or the complicated documentation procedures associated with outdated customs procedures, increases the transaction costs of trade and can lead to firms suffering delays. Shafaeddin (2007) argue that transparency is particularly a concern with private standards because they are not required to be reported to the WTO.

Deliberate protectionism is a challenge that has been experienced with other forms of NTBs such as quantitative restrictions and subsidies. For instance, the Rum industry of the Caribbean is currently confronting the challenge of having to deal with subsidies provided to rum producers such as Diageo, operating in US-Caribbean territories including; Puerto Rico and the US Virgin Islands. The US government transfers to Diageo and other producers 98% of the excise tax it levies on the consumption of rum imported from non-US Caribbean territories (roughly \$41 annually) (WIRSPA 2012). Deliberate protectionism is also a real challenge of SPS and TBT measures. UNCTAD (2005) notes that following the GATT rounds of multilateral trade negotiations, not only have NTBs increased as regulatory trade instruments, but also as protection. Peridy and Ghoneim (2013) argue that because of their technical and scientific nature SPS and TBT measures may be more subject to regulatory capture with less public scrutiny. This is linked to the politically

sensitive nature of food safety issues, as well as the fact that they involve technical policy matters such that producers can lobby governments to use consumer safety as a subterfuge for protection with the possibility of attracting less public and outside scrutiny.

Discrimination is also linked to heterogeneity. For instance, Guyana faces different requirements for export of pineapple to Trinidad compared to exporters from other countries. Trinidad expects pineapple crowns to be removed for fear of importing pests. However, removal of the crown increases the perishability of the product (Sealey-Adams 2016).

TBT and SPS measures may also impose other costs such as indirect costs and costs associated with non-compliance (see **table 2**). These include lost market share, lost reputation and credibility, and in extreme cases, detentions and rejections and the possibility of closure of a market (Shafaeddin 2007). For instance, Trinidad and Tobago currently maintains a ban on the importation of honey from all sources due to fears of contracting the American foulbrood disease. Grenada in 2012 faced rejections of honey exported to Trinidad for fear of this disease even though Grenada has undertaken its own scientific assessments and has concluded that the disease does not exist on the island (CARICOM Secretariat, unpublished). Guyana also recently experienced detention and rejection of rice exported to Belize^{xv} due to the lack of a permit by the importer.

Delays at borders due to the need to conduct inspection to verify compliance of product attributes with established requirements as well as detentions can result in lost revenues. For small firms selling a homogeneous good, delays can mean high switching costs as a result of consumers changing to complying products or commodities deteriorating in storage (Achterbosch and van Tongeren 2002).

Border detentions are a good indicator of the extent to which Guyanese exporters currently face challenges in complying with the regulations of import markets. Table 3 shows detentions that Guyana has faced in the US market from 2002 to 2014. The food and

agriculture sector accounts for the majority of the detentions faced (on average about 70%). In 2012 for instance, when the country faced 63 detentions, 61 or 97% were related to exports of food and agriculture products. By and large, fish is the main agriculture product facing detentions and the concerns are with violations of labeling regulations and adulteration. Other products such as beverages, fruits, vegetables and spices have also faced detentions.

The border detention data reinforce the need to develop firm capacity for compliance with standards, approximately one third of the detentions faced in each year are related to a single exporting firm. For instance, in 2014 40% of the detentions faced were for exports by one firm.

Table 3: Detentions of Guyana’s products at US borders

Year	Total No. of Detentions	No. related to Food and Agriculture	% of Total	Products	Number of Detentions Related to Single Firm (% of total)		
					Food and Agriculture	Manufi ng	Nature of Problems
2002	37	16	43	Noodles, Bread, Fish, Sauces	13	62	Labelling, Unapproved new product
2003	50	43	86	Fish, Beverages, Sauces, Ground Provision	30	71	Labelling
2004	32	29	91	Fish, Sauces, Beverages, Ground Provision	28	100	Labelling, Salmonella
2005	45	33	73	Fish, Confectionary , Beverages	27	50	Misbranding , Adulteration
2006	38	26	68	Fish, Fruits, Vegetables, Sauces, Beverages	19	58	Unapproved new product, Misbranding, Adulteration
2007	7	7	100	Fish, Spices	43		Adulteration
2008	5	3	60	Fish, Beverages, Spices	33	100	Adulteration Labelling
2009	21	10	48	Fish, Cheese, Spices	50	82	Adulteration, Labeling, Unapproved new product
2010	23	17	74	Fish, Pepper, Spices	35	80	Labelling, Adulteration
2011	30	24	80	Fish	60	33	Adulteration Unapproved new product

2012	63	61	97	Fish	97	50	Adulteration Unapproved new product
2013	18	7	39	Fish, oil, coconut	43	73	Misbranding
2014	14	6	43	Fish, Beverages, Fruits	40	70	Misbranding
Source: Authors based on FDA data. http://www.fda.gov/forindustry/importprogram/importrefusals/default.htm							

Impact of heterogeneous regulations on market diversification

As highlighted earlier, heterogeneity compounds market entry costs. Heterogeneity is where the same regulations are designed or applied differently by different markets due perhaps to; differences in scientific justification, risk tolerance and use of the precautionary principle under the SPS agreement (Article V.7), or differences in conformity assessment procedures. Heterogeneity also arises due to differences in the requirements of importing and exporting countries (OECD 2000). Heterogeneity further increases trade costs as exporters face additional costs to export to multiple markets as they must adjust their product or production process to reflect the relevant regulations of each destination market (Beghin 2013). This is tantamount to a duplication of compliance efforts and costs (OECD 2000). This distorts the cost structures of various markets (ibid 2000) and restricts firms from taking advantage of economies of scale in compliance and can consequently affect their productive efficiency and competitiveness.

A study by De Frahan and Vancauteran (2006) (in Liu and Yue 2013) corroborate the effect of heterogeneity. The authors used a gravity model to quantify the effect of harmonization of EU food regulations on intra-EU trade during 1990–2001 and found that harmonization of food regulations has led to more intra-EU trade.

A notable example of heterogeneity is in the difference in the HACCP regulation of the US and the EU for fish processors

“... 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. 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. 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 exports 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." (DaSilva-Glasgow and Bynoe 2012, 206).

Heterogeneity can act as an impediment to trade (OECD 2000) and limit the number of markets that firms are able to export to. With differing regulations firms are essentially forced to make a choice among the most lucrative markets to export to. Two theses help to explain how exporters are likely to make their decision about markets to pursue in light of differing regulations. Based on the scale (market size) hypothesis of Ganslandt and Markusen (2001) where exporters face divergent regulations in export markets they will base their compliance decisions on market size such that exporters would be more willing to comply with the requirements of larger markets in order to accrue the rents associated with such markets. The location hypothesis of Oyejide, Ogunkola and Bankole (2000) makes a similar conclusion. Based on this hypothesis where firms face stringent

standards and regulations in foreign markets, they would be naturally drawn towards markets in geographical proximity. Both theses have implications for Guyana's trade with CARICOM. In the case of the former, the existence of standards and divergent regulations in the individual small fragmented markets of CARICOM countries can see Guyanese exporters preferring to export to larger external markets where the benefits of compliance will outweigh the costs. In the case of the latter, Guyanese firms could be more drawn towards the CARICOM and other markets in proximity where regulations are likely to be laxer.

Structural constraints

The nature and extent of the impact of SPS and TBT measures is influenced by a number of factors such as size of exporting firms, nature of the destination market, economic status of the exporting country and consequently, scientific, legal and other capacity for compliance (Blind *et al.* 2013; Liu and Yue 2013).

Guyana displays a number of the structural constraints identified in the literature including the fact that exporters are predominantly small with export markets being largely undiversified and concentrated mainly in developed countries.

Developing countries generally are more affected by regulations due to constraints *vis-à-vis* administrative, technical and financial capacity to implement standards and technical regulations domestically and to comply with those established by trading partners (Beghin 2013; de Frahan and Nimenya 2013; World Bank 2005). However, among developing countries the cost of compliance is asymmetrical according to Murina and Nicita (2012). For instance, for Kenya, the World Bank (2005) found that Kenyan industrial fish processors faced an average increase in unit production cost of 25% to comply with SPS measures. In contrast for Bangladesh and Nicaragua, the cost of upgrading fish plants was not seen as

significant. Anders and Caswell (2009) also found that in the case of the implementation of a Hazard Analysis and Critical Control Points (HACCP) system for seafood products in the United States (U.S.) leading seafood exporting countries generally experienced a positive trade effect while most of the smaller exporting countries faced a negative trade effect regardless of their status in terms of economic development.

The degree of coordination between the public and private sector also influences who bears the burden of compliance. Shafaeddin (2007) found that for Mozambique the burden of the cost was mainly on the public sector. This is in contrast to findings by the World Bank (2005) that shows that the burden of the investment cost for compliance, in the case of Indian spice exports, was mainly on the private sector.

Smaller exporting firms are more likely to be negatively affected by TBT and SPS measures, particularly private standards. For small firms, TBT and SPS measures may act as a prohibitive tariff that forces them to exit a market and serve only the domestic market or markets with laxer regulations or to switch to products attracting less standards and regulations (Lee, Gereffi and Beauvais 2012). Lee, Gereffi and Beauvais (2012) also note that private standards can cause small exporters to downgrade their activities given the considerable financial and information and network resources required for compliance. DaSilva-Glasgow and Bynoe (2012), for instance, examined this in the case of fish exporters from Guyana. The authors identified two noteworthy trends. Firstly, declining export share of the EU market over the period 1997 to 2002 as a response to EU HACCP requirements. Secondly, increasing exports to the CARICOM market, possibly due to less stringent food safety regimes. For instance, nutrition labelling which is mandatory in the US, is not mandatory in CARICOM markets.

OPPORTUNITIES

Even though the majority of empirical studies have cited a negative impact of SPS and TBT measures, there are studies have cited instances where exporters from developing countries were able to reap gains from complying with such measures in spite of the costs required to demonstrate compliance. According to the World Bank (2005) exporters can gain recurring benefits such as access to more remunerative markets and supply chains, and reduction in costs, as well as non-recurring benefits. The sections that follow expand on the avenues through which TBT and SPS measures may offer opportunities for increased competitiveness and exports.

Upgrading in global value chains

Global value chains reflect a new paradigm in international trade. It refers to the “international production networks of firms investing in productive assets worldwide and trading inputs and outputs in cross-border value chains of various degrees of complexity. Such value chains (intra-firm or inter-firm, regional or global in nature) are shaped by multinational firms and account for some 80% of global trade” (UNCTAD 2013).

This phenomenon has not escaped agriculture and food trade. A lot of food trade is taking place through supply and value chains that are governed mainly by actors in developed countries such as large retailers such as Supermarkets chain (Lee, Gereffi and Beauvais 2012). In fact, the International Food Policy Research Institute (n.d.) posit that the specialized markets has become the norm through which high value agricultural products are traded globally. For instance OECD (2006) note that large retailers purchase about 25% of the fresh fruits and vegetables that developing countries produce. The preeminence of large retailers in trade of high-value agricultural commodities is linked to the nature of such commodities. High-value products benefit from a high income elasticity of demand because of

their perceived health benefits. Therefore demand has been rising in high income countries (*ibid* n.d.). Further, produce prices of high value products are highly sensitive to variations in quality because such products tend to have minimal processing and are therefore typically perishable (*ibid* n.d.). Quality has therefore become the hallmark of competitiveness with retailers using quality-based competition to consolidate and expand their market share and appeal to premium-paying consumers (*ibid* n.d.). As such large retailers are driven to administer their own standards. This has created a paradigm shift in marketing channels as retailers use these standards to select downstream firms with which they will enter into arrangements as a means of reducing risks along the entire supply chain (Lee, Gereffi and Beauvais 2012). Two types of value chains emerge under these conditions. *Firstly*, a buyer-driven chain where retailers exert greater control over the source of products by tightening vertical coordination of the chain through sourcing from cooperatives, contract farming and vertical integration. This trend gives Guyanese exporters to chance to use compliance as a means of gaining the confidence of their clients and tapping into such supply chains. Such arrangements however tend to contribute to a consolidation of suppliers who are able to comply with the standards established. A noteworthy example of upgrading in a buyer-driven chain is in horticultural trade between the UK and Africa. “In response to heightened public safety regulations, British retailers shifted toward greater vertical coordination with fewer and larger UK importers and African exporters, and their use of private standards (e.g., EurepGAP) has led to the rise of large-scale export chains for big supermarkets, using plantations and large contract farmers alongside smallholder-based production.”

Secondly, a supply-driven chain where standards form the basis for buying arrangements but relations between suppliers and retailers occur on an arm’s length basis. Hobbs (2010) also argues that private standards can facilitate access to multiple supply chains and facilitate greater product differentiation. This means that small exporters and farmers need not face marginalization. Lee, Gereffi and Beauvais (2012) note that small farmers have been able to successfully use a “branding from below” strategy to counter the “branding from above”

strategy of retailers by using such attributes as organic or fair trade to tap into markets. They cited the example of small fruits and vegetable exporters from Mexico and Peru who were able to upgrade. For instance, in 2003 in the US a break out of hepatitis A sparked concerns for green onions exported from Mexico. As farmers were already certified as GAP and GMP, rather than exit the market, a group of growers, in collaboration with government agencies developed an export protocol for green onions. Consequently exporters were able to sustain their access to the US market (Lee, Gereffi and Beauvais 2012).

Sustaining demand by increasing consumer confidence

Standards and regulations can enhance trade by providing better information about traded goods (World Bank 2005; van Tongeren, Beghin and Marette 2009; Beghin *et al.* 2013). Certification for instance, helps to reduce information asymmetry and signal commitment to quality production processes, thereby improving the reputation of firms and their performance in international markets (Blind *et al.* 2013). According to the World Bank (2005), without this confidence the market for certain products cannot be maintained, more so increased. The World Bank (2005) describes this as ‘the avoidance of the lemons problem’ since the regulations eliminate the externality that is causing the under provision of safety. The breakout of the bacterium *Escherichia coli* strain 0104:H4 in Germany in 2011 illustrates the World Bank’s point. The break out affected 4000 people and caused 50 deaths and US\$2.84 in billion in human losses. The source of the bacteria (imported or local materials) was uncertain. As a result, demand for fresh fruits and vegetables declined across the entire European Union (EU) with farmers claiming losses of up to 400 million euros per week (Day 2013).

Compliance can seek to enhance the reputation of firms and stimulate demand thereby providing the basis for sustainable trade. Jaffee and Henson (2005) in Xiong and Beghin (2013) showed that Kenyan fresh

vegetable growers were able to expand their exports to EU after successfully meeting EU sanitary standards. Manarungsan, Naewbanij and Rerngjakrabhet (2005) also showed that while Thai asparagus farmers faced higher operation costs to comply with a tightening of pesticide and chemical residue standard requirements in key markets, they were also able to receive a price that was 29% higher for asparagus compared to previously.

Non-price competitiveness

TBT and SPS measures provide scope for competition on the basis on non-price factors such as quality, and non-quality factors including; marketing services after sale, company image, management, branding etc.; technique competition; and social and environmental issues (ethical trade). For instance, with respect to the latter Lee, Gereffi and Beauvais (2012), note that there is scope to differentiate products using attributes such as fair trade and organic. Ma and Lu (2011) hints that non-price factors may be more sustainable forms of competition as price competition has proven to deteriorate terms of trade.

Improving firm productive efficiency

Part of the positive impacts that SPS and TBT measures can have on trade for exporters relates to the internal changes that it can spur within firms. By investing in technological capability and standardizing the production process through investments to demonstrate compliance firms can increase the coherence of functions in the production process (DaSilva 2008). Some measures can have positive externalities such as technology transfer (Beghin *et al.* 2013). This can lead to economies of scale that can result in increased allocative and productive efficiencies allowing firms to be able to sustainably export to various markets. By improving their productive efficiency firms can produce products at a more consistent quality.

STRATEGICALLY RESPONDING TO SPS AND TBT MEASURES

Drawing from the Hirschman Political Economy Framework, Henson and Jaffee (2006) examined firms' response to standards and regulations on the basis of three dimensions:

1. **'Exit', 'voice' or 'loyalty'** options; where firms stop exporting to a particular market, voice their complaints regarding measures or simply comply.
2. **'Proactivity'– 'reactivity'** dimension; where firms strategically stay ahead of regulations or simply comply post enactment of the regulation in importing countries.
3. **'Offensive'– 'defensive'** dimension; where firms seek to complain against standards to have the status quo maintained or use standards strategically as a means of increasing their competitiveness.

Exit is often associated with firms that are reactive to measures put in place. But this effect may still occur for firms that are proactive where the measure is burdensome and may particularly affect small firms. Loyalty is associated mainly with large firms that have the capacity to factor in regulations and stay ahead of those requirements (proactive and offensive) and are therefore better able to comply.

According to the World Bank (2005) the experience of many developing countries shows that they have tended to intervene in addressing SPS measures, *ex post*. This usually occurs after products have been detained by importing countries and trade disrupted.

Shafaeddin (2007: 2) note that the preparation for compliance is "knowledge intensive, requires a learning period, training and a close cooperation between the public and private sector in various stages of the supply chain." This suggests that there is a time process to complying with regulations that requires planning. Therefore reactivity can prove very costly to exporters *vis-à-vis* lost market and the possibility of delays and detentions. Therefore firms ought to have a strategic mindset towards complying with TBT and SPS measures,

especially private standards by using compliance as a means of increasing their efficiency and consequently enhancing product quality and their competitiveness (DaSilva and Bynoe 2012). In fact, Ma and Lu (2011) in analyzing market access in the face of NTBs, using a decision-process framework, makes a number of useful points including that from a management perspective export entry is the result of a strategic choice- some barriers can be easily overcome through planning and staying up to date with changes in NTBs, while others may take longer.

Clearly therefore proactivity is important if benefits are to be derived from complying with standards. It also helps to defray costs such as delays and detentions at the border. OECD (2006) argues that if firms act offensively, they can spur new competitive advantages and investment in technological capability. Acting proactively means investing in building capacity. The UNDP (2010 in Day 2013:15) defines capacity as “the ability of individuals, organisations and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner”. This suggests that capacity “is a property of a system comprising a range of different actors and the formal and informal linkages between them” (Day 2013: 15). Therefore capacity is herein assumed to be the ability of personnel, firms, government agencies and the entire supply chain and the food safety system of the country to effectively and sustainably comply with SPS and TBT regulations. The World Bank (2005) for instance, notes that developing countries that have faced problems in export markets often lacked control at various levels of the supply chain. Acting proactively also means strategically reorganizing the supply chain if necessary to ensure that small farmers and exporters are not marginalized from export markets (Shafaeddin 2007). Lee, Gereffi and Beauvais (2012) note for instance that the success of small farmers in buyer-driven global value chains depends on public institutional support as well as their relationship with larger exporters. They cited the example of stagnant exports of non-traditional agro exports from Jamaica as an illustration of why local efforts are necessary to support upgrading.

Manarungsan, Naewbanij and Rerngjakrabhet (2005) cites the example of Peru with asparagus to show the benefits of proactivity. During the 1990s when asparagus exporters were affected the botulism scare that was triggered by canned asparagus in Peru, in order to maintain its exports and its position as the world's largest exporter of asparagus, the industry and government took proactive action by implementing the Codex Alimentarius Protocol on food safety. In addition, a newly established national body published national technical standards for asparagus. Producers also obtained GAP, GMP, HACCP and EurepGAP certification. These actions improved the quality and safety of asparagus from Peru.

Manarungsan, Naewbanij and Rerngjakrabhet (2005) also gave an example of a Thai horticultural exporter that was proactive when faced with changes to British Retail Consortium (BRC) and EUREPGAP standards. The company invested in lands that were compliant with Good Agricultural Practices, and training of staff, among other measures. As a result, "the company's sales grew from US\$3.3 million in 1999 to US\$8.5 million in 2003 and to an estimated US\$11.5 million in 2004" (Manarungsan, Naewbanij and Rerngjakrabhet 2005, 6)

CONCLUSION AND RECOMMENDATIONS

High-value products offer opportunities for Guyana to diversify its production and export base in the food and agriculture sector. However, the *modus operandi* of marketing for such products on the global level is that trade is increasingly taking place through large retailers, who for their own competitiveness, emphasize quality. Complying with these regulations is critical to being able to be secure buyers and facilitate sustained trade. Publically-established regulations are also mandatory for goals that they seek to achieve, protecting human, animal and plant life and resolving information asymmetry which means that they will continue to be critical requirements to accessing export markets. Research has clearly

established that the opportunity costs of non-compliance is significant from a socio-economic perspective and can stretch across both the short and long run. Strategically responding to measures helps to minimize the costs and maximize the gains from compliance. Strategically approaching compliance simply means to act proactively or offensively towards standards and regulations. This requires a collaborative approach between the public and private sector to build capacity for effective compliance with measures

The following recommendations will help to increase the capacity of Guyana to tap into global high value markets through compliance with TBT and SPS measures.

- Understanding the local supply chains for major non-traditional products including who are the main players, how the chain is governed and the role of small farmers and exporters, and the relevant SPS and TBT issues that will impact value chain development.
- Understanding thoroughly the current capacity of producers and exports of non-traditional products to effectively comply with SPS regulations in order to be able to identify deficits.
- Prioritizing interventions for compliance based on needs and gaps of exporting firms, supporting institutions and the entire quality system and infrastructure of the country.
- Ensuring that an integrated approach is maintained where quality is emphasized at every stage of the supply chain, farm, processing, port facilities etc.
- Providing training and disseminating critical information to firms where necessary.
- Investing in capacity for market research *vis-à-vis* TBT and SPS requirements for value chains for non-traditional products.
- Building scientific, legal and other capacity through investment in infrastructure and relevant public institutions.

- Being a strong advocate for a harmonized SPS regime at the regional level (to counter the trade debilitating impact of heterogeneity in the CARICOM market).

ENDNOTES

- ⁱ Trade barriers stymieing expansion of exports– Dr. Ramsammy. GuyanaTimes, October 30, 2014./ <http://www.guyanatimesgy.com/2014/10/30/trade-barriers-stymieing-expansion-of-exports-dr-ramsammy/>
- ⁱⁱ Guyana calls for suspension of barriers to intra-regional food trade. June 16, 2011. Agriculture Minister Robert Persaud. <http://www.guyanatimesinternational.com/?p=7662>
- ⁱⁱⁱ *Ibid* 2011
- ^{iv} See World Bank, World Development Indicators. <http://data.worldbank.org/data-catalog/world-development-indicators>
- ^v *Ibid*
- ^{vi} *Ibid*
- ^{vii} See http://www.guysuco.com/about_gsc/gscoday/sugar_agreements/default.asp
- ^{viii} See Stabroek News. January 8, 2014. <http://www.kaieteurnews.com/2015/06/14/those-economic-time-bombsbooming-rice-sector-could-still-go-bust-dr-clive-thomas/> and Kaieteur News. June 14, 2015. <http://www.kaieteurnews.com/2015/06/14/those-economic-time-bombsbooming-rice-sector-could-still-go-bust-dr-clive-thomas/>
- ^{ix} See <https://devtracker.dfid.gov.uk/projects/GB-1-202441>
- ^x See http://ctrc.sice.oas.org/TRC/Articles/Guyana/NDS_Ch1_8.pdf
- ^{xi} See <http://narei.org.gy/wp-content/uploads/2016/06/Climate-Smart-Training-Manual.pdf>
- ^{xii} See http://www.cgiar.org/www-archive/www.cgiar.org/pdf/cp_cn_highvaluecrops.pdf
- ^{xiii} see https://www.wto.org/english/docs_e/legal_e/15-sps.pdf
- ^{xiv} see https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm and https://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm
- ^{xv} “Guyana rice to land in Belize tomorrow...without a permit”. Kaieteur News, December 16, 2015. <http://www.kaieteurnews.com/2015/12/16/guyana-rice-to-land-in-belize-tomorrowwithout-a-permit/>

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