

# Developing Country Responses to the Enhancement of Food Safety Standards

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## 1 Introduction

Food safety standards have become a more prominent issue for global trade in agricultural and food products (Jaffee and Henson 2004; Josling et al. 2004). Of particular concern is the potential impact of food safety standards on the ability of developing countries to both gain and maintain access to markets for high-value agricultural and food products, especially in industrialized countries. In part this reflects the growth of these standards, but also more widespread recognition of the degree and manner in which trade flows can be affected. Concerns are greatest in the case of low-income countries, given their typically weaker food safety and quality management capacities that might thwart efforts towards export-led agricultural diversification and rural development.

This paper explores the impact that food safety standards are having on the performance of developing countries with respect to agricultural and food product exports, drawing on a program of research work at the World Bank (see World Bank 2005). While recognizing that food safety and quality standards can act to impede exports, an attempt is made to ‘rebalance’ the policy debate in this area. The paper outlines how the proliferation and increased stringency of food safety standards are creating a new landscape that, in certain circumstances, can form a basis for the competitive repositioning and enhanced export performance of developing countries. In particular, the basis for this competitive repositioning is discussed and related, in turn, to the manner in which developing country governments and/or private sector suppliers respond to evolving standards.

## 2 Drivers of Food Safety Standards

The expansion of international trade in high-value agricultural and food products has served to highlight the extent to which national food safety standards diverge, as well as the differential capacities of both public authorities and private sector suppliers to comply. For many higher-value

agricultural and food products, international competitiveness is no longer driven by price and quality grades (Jaffee and Henson 2004). Rather, safety concerns have come to the fore and the dominant modes of competition in many agricultural and food markets are based around quality rather than price (Busch and Bain 2004). There is greater scrutiny of the production or processing techniques employed along the associated supply chains (Buzby 2003; Unnevehr 2003) and a number of meta systems, for example hazard analysis and critical control point (HACCP), have increasingly become global food safety norms.

There are various reasons why food safety standards may differ between countries (Unnevehr 2003; Henson 2004). First, distinct tastes, diets, income levels and perceptions influence the tolerance of populations towards the potential risks associated with food. Second, differences in climate and the application of production and process technologies affect the incidence of different food safety hazards. Food safety standards, in turn, reflect the feasibility of implementing alternative mechanisms of control, which itself is influenced by legal and industry structures as well as available technical, scientific, administrative and financial resources. For example, some food safety risks are greater in developing countries due to weaknesses in physical infrastructure (for example efficacy of hygiene controls) and the higher incidence of certain infectious diseases. Further, climatic conditions may be more conducive to the spread of particular pests and diseases that pose risks to human health.

The intrinsic risks associated with the production, transformation and sale of agricultural and food products, combined with different standards and institutional capabilities, can pose major challenges for international trade. This is exacerbated by on-going and rapid changes in the landscape for food safety standards. Over the past decade, there has been increased public awareness and concern about food safety within industrialized countries in the wake of a series of highly publicized food scares or scandals (Henson and Caswell 1999). In some countries, these events have shaken the confidence of consumers in national systems of food safety regulation. In response, there have been significant institutional changes in food safety oversight and reform of associated regulations. For long-held concerns (for example, the potential environmental and health impacts of pesticides), there has been a tightening of standards in many countries. At the same time, new standards are being applied to address emerging and/or formerly unregulated hazards (for example, Bovine Spongiform Encephalopathy or heavy metals). Increased emphasis is being given to product or raw material traceability, plus increased resources have gone into border inspections of imported food products.

In parallel with the evolution of regulatory standards and oversight have been efforts by the private sector to address food safety risks and otherwise attend to the concerns and preferences of consumers and civil society (Henson and Reardon 2005). Much of the motivation behind this trend has been the mitigation of reputational and/or commercial risks. Further, for some products private food safety standards have become the basis of competitive processes of market differentiation. This has resulted in a rapidly expanding plethora of private standards and other forms of supply chain governance. While these efforts have been especially prominent among major food retailers, food manufacturers and food service chains in industrialized countries, such systems of private food safety governance are also being applied more widely in middle-income (and even some low-income) countries. This later phenomenon reflects, in part, the investments undertaken by multinational retail or food service chains and the broader development of the supermarket sector in low and middle-income countries (Reardon and Berdegue 2002).

### **3 Alternative Perspectives on the Trade Effects of Food Safety and Quality Standards**

The proliferation and enhanced stringency of food safety standards has fomented considerable concern among low and middle-income countries and development agencies aiming to promote trade as a means to agricultural and rural development (see for example Henson et al. 2000; Unnevehr 2000; Wilson and Abiola 2003; Otsuki et al. 2001). Indeed, there is a widespread presumption that food safety standards are used as a protectionist tool, providing 'scientific' justifications for prohibiting imports of agricultural and food products, or discriminating against imports by applying higher and/or more rigorous regulatory enforced standards than on domestic suppliers. Such concerns have become heightened as traditional barriers to trade, for example tariffs, have been eroded through progressive rounds of multilateral trade negotiations. Even where standards are not intentionally used to discriminate against imports, there is concern that their growing complexity and the lack of harmonization between countries impedes the efforts of low and middle-income countries to gain access to potentially lucrative markets in industrialized countries.

There is also concern that many low and middle-income countries lack the administrative, technical and scientific capacities to comply with strict food safety standards, presenting potentially insurmountable barriers into the medium-term (Henson et al. 2000). Further, the associated one-off and

recurring costs of compliance can undermine the longer-term competitive position of exporters and/or diminish the profitability of high-value agricultural and food exports. It is argued that the combined effects of these institutional weaknesses and costs of compliance costs contributes to the further marginalization of smaller and/or poorer countries and weaker economic players therein, including small-scale producers and micro and small enterprises (Wilson and Abiola 2003).

An alternative and less pessimistic view, however, emphasizes the potential opportunities provided by evolving food safety standards and the likelihood that certain developing countries can utilize such opportunities to their competitive advantage (Jaffee and Henson 2004; World Bank 2005). From this perspective, public and private standards are viewed, at least in part, as a necessary bridge between increasingly demanding consumer requirements and the participation of international suppliers. Many food safety standards provide a 'common language' through the supply chain, in turn reducing transaction costs, and promote consumer confidence in food product safety, without which the market for these products cannot be maintained and/or enhanced.

The costs of complying with food safety standards may also provide a powerful incentive for the modernization of export supply chains in low and middle-income countries. Compliance with stricter food safety standards can also stimulate capacity-building within the public sector and give greater clarity to the appropriate management functions of government. Further, through increased attention to the spread and adoption of 'good practices' in the supply of agricultural and food products, there may be spill-overs into domestic food safety systems, to the benefit of the local population and domestic producers. Thus, the associated costs of compliance are offset, at least in part, by an array of benefits, both foreseen and unforeseen, from the enhancement of food safety management capacity. Rather than degrading the competitiveness of low and middle-income countries, therefore, the enhancement of capacity to meet stricter food safety standards can potentially create new forms of competitive advantage. While there will inevitably be losers as well as gainers, this view suggests that the process of standards compliance can conceivably provide the basis for more sustainable and profitable agricultural and food exports in the long-term. In turn, it redirects the debate to the conditions under which developing countries are able to derive gains from evolving food safety standards.

This rather crude dichotomy between 'standards as barriers' and 'standards as catalysts' suggests a complex reality in which close attention is needed to the specifics of particular markets, products and countries to understand how food safety standards are providing challenges and oppor-

tunities for low and middle-income countries. Further, there is a need to understand the strategic options and patterns of performance of developing countries in meeting these challenges and their ability to exploit emerging opportunities. The following section provides a commentary on the varied concerns associated with standards and agricultural and food exports from low and middle-income countries, noting the availability of evidence that supports or opposes prevailing claims and the assumptions on which they are based. The result is a varied picture, partially supporting both of these opposing perspectives. In turn, this highlights the dangers of making overly generalized conclusions and the need to differentiate analyses and strategies in relation to food safety standards.

#### **4 Food Safety Standards and Trade**

During the Uruguay Round of multilateral trade negotiations, agricultural exporters voiced concerns that food safety, as well as animal and plant health measures (generally referred to as sanitary and phytosanitary or SPS measures) were sometimes used to restrict import competition to domestic producers and that such protectionist measures would likely increase as traditional trade barriers declined (Henson and Wilson 2005; Marceau and Trachtman 2002). The Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) was negotiated in order to provide a set of multilateral rules that would both recognize the legitimate need for countries to adopt SPS measures and, at the same time, create a framework to reduce their potential trade-distorting effects.

The SPS Agreement built upon the Standards Code introduced in the 1947 General Agreement on Tariffs and Trade (GATT) (Marceau and Trachtman 2002). It permits measures that are ‘necessary to protect human, animal or plant life and health’, yet requires regulators to: (1) base measures on a scientific risk assessment; (2) recognize that different measures can achieve equivalent safety outcomes; and (3) allow imports from distinct regions in an exporting country when presented with evidence of the absence or low incidence of pests or diseases. In addition, the SPS Agreement encourages the adoption of international standards, making explicit reference to those of the Codex Alimentarius Commission (CAC) in the case of food safety. Importantly, the Agreement protects the right of a country to choose its own ‘appropriate level of protection’, yet guides members to minimize any associated negative trade effects (Henson 2001).

The SPS Agreement thus sets out broad ground rules for the legitimate application of food safety standards, many of which could affect international trade. Yet, the Agreement gives countries fairly broad latitude in setting and applying such measures. Scientific justification is called for wherever standards are deemed not to be based on established international standards. In practice, complications are inevitable given the wide range of areas for which no agreed international standards exist and given broad (and emerging) risks for which the state of scientific knowledge is incomplete (Roberts 2004). Hence, many of the controversies which have occurred surround the legitimacy and/or appropriateness of measures in the context of scientific uncertainty.

Important underlying objectives of the SPS Agreement are minimization of the protectionist and unjustified discriminatory use of standards and the promotion of greater transparency and harmonization. In both regards, experience has been mixed (Roberts 2004). The difficulties encountered are probably less due to specific shortcomings of the SPS Agreement itself, than the intrinsic complexities of the management of food safety protection and rapidly-evolving markets for agricultural and food products. Further, it is evident that WTO Members vary widely, both in their understanding of the Agreement and their ability to take advantage of the rights and responsibilities it defines.

The SPS Agreement has not eradicated the differential application of standards and it is, perhaps, unrealistic to expect it to do so. Indeed, differentiation in the application of food safety standards is a necessary part of any risk-based food safety control system. At the country, industry and enterprise levels, there is a need to prioritize the hazards to be monitored and associated control measures that are implemented, given resource limitations. Further, priorities are inevitably set, not only on the basis of scientific evidence, but also political factors, for example where consumers and other interest groups are showing most concern (Henson 2001). As resources are limited and the implementation of food safety standards is often costly, an effective risk management system will go beyond the prioritization of potential hazards to differentiate explicitly between alternative sources of supply based on distinct conditions of production, past experience and assessments/perceptions of risk management capabilities through the supply chain. Indeed, many countries operate systems of automatic detention for products imported from countries (or particular companies) with a history of non-compliance with food safety standards.

In circumstances where regulators have wide discretion and various forms of differentiation are required for cost-effective management of food safety, there remains scope for 'mischief'. Yet separating legitimate

differentiation from non-legitimate discrimination is problematic. It is even more difficult to attribute particular food safety standards to protectionist designs, considering that in most circumstances where protectionism is alleged, there are at least partially legitimate food safety concerns at play. The case of European Union (EU) standards for aflatoxins in nuts and cereals is a poignant example (see for example Otsuki et al. 2001a; 2001b). In other cases, trading partners have differing perspectives on the current state of scientific knowledge and/or the need to make allowance for uncertainty. Perhaps the most prominent case is the dispute between the EU and United States (US) over restrictions on exports of beef produced with the use of hormones (Paulwelyn 1999; Bureau et al. 1998).

Thus, there are remaining concerns over the degree to which there is systematic discrimination against imports in the application of food safety standards. One question is whether importers must comply with higher requirements than domestic suppliers. No systematic research has been undertaken on this subject, although a great deal of anecdotal evidence is presented by those that purport to have been adversely affected by food safety standards. Thus, 241 complaints were raised by WTO Members in the SPS Committee over the period 1995 to 2002 (Roberts 2004). On the basis of general impressions, it would appear that many countries, both industrialized and low and middle-income, do have a lower tolerance for food safety risks from imports than from domestic sources. For example, the US has long complained that a broad array of countries have a near zero tolerance for *Salmonella* in imported poultry products, yet this pathogen is widely present in the domestic supply chains of these countries (Jaffee and Henson 2004).

Currently, there is a paucity of systemic research that compares the modes and intensity with which food safety standards are enforced for domestic versus imported supplies. In discussions with high-value food exporters in low and middle-income countries, one frequently hears accusations that the controls they face are more rigorous than those imposed on domestic suppliers (Jaffee and Henson 2004). Frequently, however, this perception appears to emanate from the intensive oversight and monitoring provided by private entities, especially supermarkets and their buying agents, rather than from official systems of surveillance and product monitoring. Further, in many ways the methods of official control they can face are more 'visible' in their effects, in that compliance is assessed at the border and on this basis entry is possibly denied. Domestic suppliers, however, are typically regulated through inspection of their processing

facilities with a focus on system-based controls and/or market surveillance.<sup>1</sup>

While it is not possible to denote generalized trends in relation to the justification for discrimination in the application of food safety standards, it is apparent that, at the very least, the transparency of official regulatory measures has improved in the period since the SPS Agreement entered into force. Around 85 percent of WTO members have established an 'Enquiry Point' as a conduit through which other WTO Members can obtain further information on proposed SPS measures. Between 1995 and 2002, WTO members submitted around 3,220 notifications of new SPS measures. These notifications provide advanced warning of new or modified measures and an opportunity for trading partners to raise questions /objections to the proposed measures, both bilaterally and through the SPS Committee. While it is evident that industrialized and developing countries may differ in their ability to respond to notifications, over time it is evident that an increasing proportion of WTO members, including developing countries, have taken advantage of this opportunity to raise their concerns (Roberts 2004).

While the notification process has increased the transparency of food safety standards, there remain considerable variations in standards between countries and widespread uncertainty over how certain countries are implementing/enforcing their standards. Roberts et al. (1999) note the paucity of international standards for many agricultural and food products. They indicate that, over the period 1995-1999, the vast majority of SPS measures notified to the WTO were ones for which no international standard existed. Jaffee (2003) notes that, despite efforts to harmonize Maximum Residue Levels (MRLs) for pesticides in fresh fruit and vegetables imported into the EU, *de facto* there remain wide variations in operative standards due to different country approaches to surveillance and enforcement.

Variations in standards are also common in other sectors. Henson and Mitullah (2003) contrast the varied standards that low and middle-income countries must meet in order to gain and maintain access to US, EU and Japanese markets for fish and fishery products. While there are some

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<sup>1</sup> There is also a paucity of systematic research comparing the intensity with which private buyers and distributors enforce their own food safety standards among domestic suppliers versus suppliers in other countries. Anecdotally, one would assume that they would have less opportunity to observe directly the food safety control systems employed by low and middle-income country suppliers and place particular emphasis on end-product testing and/or require that suppliers obtain (third-party) certification of their food safety management systems.



overlapping requirements, especially the increasing emphasis on application of HACCP, there remain significant differences in both regulatory and private requirements. Likewise, Mathews *et al* (2003) highlight the range of product and process standards required by countries to minimize the risk of *Salmonella* in poultry and poultry products. Dohlman (2003) and Otsuki *et al.* (2001) discuss the significant differences among countries, not only in the maximum permitted level for aflatoxins in cereals and nuts, but also the sampling methods used to assess conformity. This lack of harmonization in both standards and conformity assessment procedures can result in increased production and transaction costs for low and middle-income country suppliers, necessitating duplicative testing and reducing their ability to achieve economies of scale in certain production or food safety management functions.

Two further trends are contributing to the increased complexity of the food safety standards environment. First, a growing number and proportion of food safety measures are risk-based process standards, relating to production, post-harvest and other procedures and/or the manner in which compliance is assessed. This reflects both the inefficiency and inefficacy of end-product testing, particularly in view of the levels of risk deemed acceptable and the emergence of 'new' food borne pathogens. Roberts (2004) notes that, over the past decade, the major international standards organizations have devoted more of their attention and resources towards the development of common approaches to risk identification, assessment, and management (i.e. meta-standards) than to international standards *per se*.

A second trend is the proliferation of private standards, encompassing both product and process specifications. Some of these are essentially food safety or food hygiene protocols, as with the British Retail Consortium (BRC) Technical Food Standard. Others combine a mixture of food safety, environmental and social dimensions, as exemplified by the most recent EUREPGAP Fruit and Vegetable Standard. These examples are all private protocols that have been codified and are available to the public (or at least to would-be suppliers). They represent attempts to harmonize varying food safety standards formerly applied by individual private companies. Yet, there still remains a plethora of private standards that are simply communicated through individual supply chains and can vary widely in their specific requirements.

Continued variations in food safety standards alongside the progressive shift towards process-based measures have enhanced the importance of 'equivalence' of national standards and systems. A related issue is the mechanism through which equivalence is recognized, involving bilateral or multilateral agreements. Currently, there is no systemic recording of

equivalence agreements although, at least anecdotally, those that have evolved appear to be between industrialized countries. However, even agreements between industrialized countries are limited and can take a great deal of time and effort to establish. For example, the Veterinary Equivalence Agreement between the US and EU took seven years to be established and arguably has had little tangible impact on differences in food safety requirements as they influence bilateral trade in livestock products. Certain low and middle-income countries, including those which have become highly successful agricultural and food exporters, have highlighted an array of difficulties in gaining recognition for the equivalence of their food safety and other controls to those of their major trading partners (WTO 2001). However, perhaps, one of more successful and wide-ranging example of 'equivalence' is the recognition by the EU that a broad range of developing and industrialized countries have established systems of hygiene control for fish and fishery products that offer a level of protection at least comparable to its own legislation (Henson and Mitullah 2004).

A parallel trend, reflecting the proliferation of private food safety standards, is the heightened importance of certification. Certification is the process by which buyers assess the compliance with defined standards and is typically undertaken by a third party agency that the buyer recognizes as 'competent'. In this context, a crucial issue for low and middle-income countries is the establishment of certification capacity and parallel institutions through which certification bodies are accredited. Exporters in countries that lack an accredited certification system may be forced to use the services of an accredited body in another country, most commonly an industrialized country, the cost of which can be considerable (El-Tawil 2002; WTO 2005)

While the process of notification under the SPS Agreement has contributed to increased transparency of official food safety standards, this has been accompanied by the proliferation of private standards that fall outside of the purview of the WTO. Thus, the overall picture for food safety requirements in international trade is becoming increasingly complex and dynamic as standards are promulgated in multiple spheres at industry, national, regional and international levels. Further, the complexity of this issue stems not only from the variability of standards on paper, it is magnified by differences in the ways, means and intensities by which the standards are monitored and enforced, which themselves are changing over time. Thus, for a developing country exporter, the operative 'rules of the game' are derived by a combination of factors including the prevailing standards themselves, enforcement capacities and predilections of official agencies, nature of private standards and oversight arrangements such as

certification, and the prominence of particular concerns among consumers and civil society organizations at any point in time.

## 5 Food Safety Standards as a Strategic Issue

The complexity of the food safety standards environment highlighted above poses enormous challenges for low and middle-income countries in general, and stakeholders involved in export-oriented agricultural and food supply chains in particular. Embedded within these challenges, however, are a plethora of strategic decisions that policy-makers and private sector entities need to make in identifying the emerging set of requirements with which they must comply and any associated threats or opportunities. In so doing, they must trade-off the available options through which compliance can be achieved and manage the chosen processes of capacity-building and adjustment. The notion of ‘strategic options’ is quite novel in the context of food safety standards and trade, especially in the context of low and middle-income countries. The more typical assumption is that low and middle-income countries are ‘standards takers’, facing essentially all-or-nothing decisions regarding compliance with few, if any, alternative approaches to achieving their trade goals. The perspective presented here, however, focuses instead on the ‘room for maneuver’ available to low and middle-income countries in complying with food safety standards.

Figure 1 presents a simple conceptual framework that aims to characterize alternative strategic responses to food safety standards. This framework draws on the concepts of ‘exit’, ‘loyalty’ and ‘voice’ developed by Hirschman (1970). Hirschman’s framework was originally used to examine economic and political behavior as responses to the decline of firms, organizations and states, but has since been extended to quite different contexts, for example microfinance for micro and small enterprises (Lepenies 2004). Depending upon the context, exit could involve leaving an organization, emigrating, or ceasing to buy a company’s products. Voice involves protest or otherwise lobbying for changes in rules and laws. For Hirschman, loyalty involves deepening one’s participation in, and alignment with, an entity’s goals and processes. A second ‘proactivity’-‘reactivity’ dimension relates to the time when efforts to comply commence, which is our own innovation.

The predominant dialogue on food safety standards, especially relating to low and middle-income countries, presents a single strategic option of complying with (official and private) food safety standards in focal markets, i.e. ‘loyalty’. This can take a variety of forms, including the adop-

tion of legal/regulatory reforms, changes in production technologies, shifts in the structure of supply chains, additional measures for conformity assessment, etc. This approach to compliance can be implemented at the time a standard comes into force, that is 'reactively', or ahead of time in view of expectations as to how standards are likely to evolve in the future, that is 'proactively'. Everything else being equal, a 'proactive' approach affords greater potential to manage compliance in a manner that brings about strategic gain. This relates to the existence of 'first mover' advantage, for example through earlier sunk costs or reputational effects, as well as the greater flexibility afforded by longer time periods over which compliance can be pursued. In a 'pro-active' mode, there is greater scope to test and apply alternative technologies and employ varied administrative and institutional arrangements.

	<b>Reactive</b>	<b>Proactive</b>
<b>Exit</b>	Wait for standards and give up	Anticipate standards, leave particular markets or market segments, and make other commercial shifts
<b>Loyalty</b>	Wait for standards and then adopt measures to comply	Anticipate standards and comply ahead of time
<b>Voice</b>	Complain when existing standards are applied or new measures are adopted	Participate in standard creation and/or negotiate before standards are applied

**Fig. 1.** Strategic response to food safety standards

In practice, however, there are other strategic options beyond 'loyalty'/compliance. On the one hand, countries or individual private sector exporters can 'exit', choosing not to comply with the food safety standards being imposed in a particular market. This implies switching customers, in the case of a private standard, or exiting particular export markets altogether. The producer and/or exporter may choose to switch to different products for which the food safety (or agricultural health) standards are less problematic or costly, for example certain processed rather than fresh products or meat rather than live animals. Such a strategy might be em-

ployed where compliance will yield a fundamental loss of competitiveness and/or negative economic and social impacts, where resources might be better spent elsewhere, and/ or where profitable alternative markets exist that have less demanding standards, for example the higher quality segments of domestic markets or in other developing countries. Thus, 'exit' should not be construed as a loser's strategy; it can take the form of a carefully considered re-direction of commercial strategy.

In parallel with strategies of 'loyalty' or 'exit', low and middle-income country governments and/or exporters can adopt a strategy of 'voice', seeking to influence the prevailing rules or responding to new standards by negotiating or complaining. For example, WTO members may raise their complaints through a cross-notification in the SPS Committee or engage in bilateral negotiations with their trading partners regarding the specific actions required to achieve compliance. Individual exporters may question the food safety standards being imposed by their customers and attempt to come to some compromise that reflects their own circumstances alongside customer's demands. Across both 'exit' and 'voice', being 'proactive' is considered more strategically advantageous than being 'reactive'. Typically in any one industry, a combination of all three types of strategies is likely to be observed, yet in differing proportions and perhaps involving different stakeholders.

Besides the two dimensions in Figure 1, there are further ways to characterize the responses of low and middle-income countries to new food safety standards in export markets. One distinction is between 'defensive' and 'offensive' approaches. 'Defensive' strategies are aimed at maintaining the status quo and minimizing related impacts. The aim is normally to limit the actions (and often also the investments) needed to achieve compliance. This is often pursued under conditions of resource limitations and risk adversity. 'Offensive' strategies involve attempts to utilize standards as a means to gain competitive advantage, even where this may require additional investments beyond the minimum required to achieve compliance.

A final dimension relates to the locus of strategic response. Measures can be taken within the public or private sectors, involving either individual entities (for example single exporters or producers) or various forms of collective action. Where both the public and private sector are adopting measures, the leadership or driving force behind this process could come from either side. Traditionally, relatively clear distinctions have been made between aspects of food safety management that are the domain of the public and private sectors. Increasingly, however, these demarcation lines are being challenged. For example, the potential role of self-regulation through industry-level 'codes of practice' and commercial

laboratories for product certification is being acknowledged. Further, there is recognition of the potential efficiencies associated with collective and collaborative actions. These can include inter-ministerial task forces seeking to avoid duplication of efforts where multiple tiers of government are involved and/or trade and industry associations that build on the compliance investments made by individual enterprises. Collective action can also take place across the public and private sectors, for example through joint task-forces. More broadly, it is recognized that both the public and private sectors have a role to play in responding to new food safety standards, and that national standards capacity should be viewed from this holistic perspective.

In the context of this framework, the most positive and potentially advantageous strategy combines 'voice', 'proactivity' and 'offensive' orientations. Everything else being equal, this approach is most likely to turn the challenges associated with new food safety standards into a competitive opportunity and to yield positive social and economic benefits. Conversely, the most negative approach is a combination of 'exit', 'reactivity' and 'defense'. Indeed, there may be considerable costs associated with such an approach related to sunk investments, and the social and economic consequences for supply chains that are export-oriented. In turn, the strategic opportunities available to countries and/or exporters within countries will reflect prevailing capacities, specifically related to SPS management but also more generally, the nature and *modus operandi* of supply chains, nature of specific SPS standards, etc. In this context, the focus of capacity-building should be on the enhancement of strategic options.

## **6 Strategic Approaches to Food Safety Standards in Developing Countries**

In examining the strategic response to evolving food safety standards by low and middle-income countries, a distinction is made between the ways in which countries have reacted to new standards at the international level, for example through the WTO, and the specific compliance efforts of both the private and public sectors. While far from exhaustive, these provide some salience to the strategic perspective being presented here. Each is discussed in turn below, in the case of specific compliance responses through the examples of fish, horticultural and spice exports from India and Kenya.

## 6.1 International 'Voice'

An indicator of the degree to which developing countries are able to exhibit 'voice' when new food safety standards are proposed by trading partners is provided by the number and nature of complaints and counter-notifications made through the SPS Committee. Admittedly, this is a rather 'reactive' mode of 'voice', as discussed above, but our analysis is constrained by the non-availability of data on other responses, for example bilateral complaints and negotiations. Table 1 provides a summary of the pattern of counter-notifications according to regulatory goal (covering not only food safety but also plant and animal health) and the country group raising the issue or being the subject of a complaint (Jaffee and Henson 2004; World Bank 2005). These data suggest that low and middle-income countries have used the formal review and complaint processes of the SPS Committee quite actively since its inception in 1995 to register their concerns with respect to a significant number of notified measures, both by industrialized and other low and middle-income countries. A more detailed look at the individual complaints, however, yields a more complex picture, as described below.

Complaints by developing countries are dominated by a small number of middle-income countries, in particular Argentina, Brazil, Chile and Thailand. Each of these countries has issued or supported multiple complaints. These four countries have been involved, in one way or another, in the vast majority of complaints by low and middle-income countries. Very few other low and middle-income countries have been involved in multiple cases. This pattern of participation reflects the prominence of certain countries in the trade of a few product categories, especially beef and horticultural products, rather than the overall structure of low and middle-country agricultural and food trade. Low-income countries are weakly represented in the pool of counter-notifications, issuing or supporting complaints in only five cases. This could partly be a reflection of the structure of their exports, which are concentrated in commodities for which SPS measures are of lesser importance, or their limited capacity and/or confidence to participate in the SPS Committee. The lack of formal complaints by low-income countries is, however, no reflection of their ability to resolve effectively their concerns bilaterally. Thus, these data alone provide us with very little information regarding the extent to which SPS measures are inhibiting the exports of low-income countries.

Food safety-related complaints account for half of all counter-notifications of SPS measures. These are a mixture of quite specific concerns with no large clustering around any particular theme. The rationale behind counter-notifications related to food safety standards is predominantly the

purported 'lack of scientific evidence'. Among low and middle-income countries, the EU has been the subject of the largest number of complaints related to food safety. For example, there were more than three times as many complaints against the EU than against the US over the period 1995 to 2003. Several reasons might account for this. First, the process of harmonization of SPS measures within the EU has often resulted in the adoption of the most stringent standards previously applied by individual Member States. Second, the EU has more frequently and most visibly embraced the 'precautionary principle' when adopting food safety standards, sometimes giving rise to controversies over the scientific basis for its actions. Third, due to the complex administrative structure of the EU, some countries reportedly find it difficult to resolve concerns through bilateral discussions and therefore resort more readily to the venue of the SPS Committee to take up concerns with the European Commission.

The growing number of recorded complaints or counter-notifications by developing countries, however, provides only a crude indicator of the extent to which they are able and willing to exhibit 'voice'. These complaints probably represent the 'tip of the iceberg' with a greater proportion of concerns and disputes being raised bilaterally. At the same time, however, it could also indicate that low and middle-income countries in general lack the capacity to complain or negotiate when new food safety standards, as well as SPS measures more broadly, are applied. Further, the apparatus of formal complaints through the WTO relates only to mandatory standards set by public agencies. As described above, a growing array of food safety standards are being set privately, either through consensus within particular industries or by the 'gate keepers' of the dominant supply chains. While many such standards are ostensibly voluntary, they are becoming the *de facto* standards with which compliance is required to gain or maintain access to particular buyers or market segments. 'Voice' relating to these standards will occur through the private bilateral negotiations between supplier and customer. These private negotiations cannot be empirically aggregated.

Data are available on developing country participation in international standards-setting organizations in the area of food safety, notably the Codex Alimentarius Commission. These data provide some evidence of the degree to which low and middle-income countries are able to exhibit 'voice' at the international level through participation in international standards development. Around 80 percent of developing countries are members of Codex Alimentarius (Henson et al. 2001; Henson 2002). However, their participation in the Codex Alimentarius Commission itself, which ratifies all new standards, remains limited. Thus, in 2004 only 39 percent of low and 47 percent of middle-income country Members of



Codex attended the Commission meeting. Indeed, regular participation in Codex Alimentarius is typically limited to a group of larger and/or middle income countries including India, China, South Africa, Brazil, Argentina, Mexico, Malaysia, Thailand and Chile. While some other low and middle-income countries, for example Kenya and Egypt, have made efforts to enhance their participation, most countries attend meetings irregularly at best. Further, standards development itself takes place in a series of General Purpose and Commodity Committees that generally meet on an annual basis. Low and middle-income country participation in these meetings is typically very low, suggesting that, even where they do participate in Codex, it is very much in a 'reactive' mode.

**Table 1.** Counter-notifications relating to new measures in the SPS committee, 1995-2003

Complaints Against Measures of	Regulatory Goal of Contested Measure				Total
	Plant Health	Animal Health	Human Health	Other*	
Number of Complaints by Developed Countries					
Industrialized Countries	18	11	49	3	81
Low/middle- income Countries	19	15	41	4	79
Multiple Countries	-	2	1	-	3
Sub-total	37	28	91	7	163
Number of Complaints by Developing Countries					
Industrialized Countries	14	14	38	2	68
Low/middle- income Countries	8	19	7	2	36
Multiple Countries	1	2	-	-	3
Sub-total	23	35	45	4	107
Total	60	63	136	11	270

\* Includes complaints about horizontal regulations (such as those regulating products of modern biotechnology) that reference human, animal, and plant health as objectives.

Source: Jaffee and Henson (2004) updating Roberts (2004)

In conclusions, it is evident that many low and middle-income countries face considerable constraints that limit their participation in both the SPS Committee and Codex Alimentarius which, in turn, mutes their international 'voice'. In many cases, the necessary resources are not available to attend multiple meetings each year, most of which are in industrialized countries. In the case of the WTO, a number of smaller low and middle-income countries do not even have permanent missions in Geneva. Further, even where attendance at meetings is possible, many countries lack the technical know-how, background scientific data and/or experience to utilize these fora to address their interests and concerns related to food safety standards.

## **6.2 Some Case Studies**

More concrete and in-depth evidence of strategic approaches adopted by developing countries in complying with food safety standards for agricultural and food products in international trade can be provided by, and in fact requires, in-depth case studies (World Bank 2005). Here the cases of fish, horticultural, and spice exports from India and Kenya to the EU are presented as illustrative examples (for more in-depth analysis see Henson and Mitullah 2004; Henson et al. 2005; Jaffee 2003; Jaffee 2005).

### ***Fish and Fishery Products***

Over the last decade, developing country exports of fish and fishery products have increased at an average rate of six percent per annum (Delgado et al. 2003). However, one of the major challenges facing low and middle-income countries in seeking to maintain and expand their share of global markets is progressively more strict food safety requirements, particularly in major industrialized countries. Previous studies suggest that exporters in a number of countries have experienced considerable problems complying with these requirements (See for example Henson et al. 2000; Rahman 2001; Musonda and Mbowe 2001; UNEP 2001a; 2001b; Zaramba 2002). While the associated costs of compliance can be significant, however, the returns in terms of continued and/or expanded access to high-value markets often more than compensates (Cato and Subasinge 2004; Ponte 2005).

The EU lays down harmonized requirements governing hygiene throughout the supply chain for fish and fishery products. Processing plants are inspected and approved on an individual basis by a specified 'Competent Authority' in the country of origin, whether an EU Member State or a Third Country, to ensure that they comply. The European

Commission undertakes checks to ensure that the Competent Authority undertakes this task in a satisfactory manner. Imports from Third Countries are required to have controls that are at least equivalent to those of the EU<sup>2</sup>. Countries for which local requirements have been recognized as equivalent are subject to reduced physical inspection at the EU border. Countries that have not yet met these requirements, but which have provided assurances that their control are at least equivalent to those of the EU, are currently permitted to export, subject to higher rates of border inspection. Initially the deadline for all countries to be fully-harmonized with the EU's hygiene standards was December 31, 1996. However, this has been extended on numerous occasions and the current deadline is December 31, 2005.

While India and Kenya differ in terms of the specific products exported - India mainly exports shrimp, squid and cuttlefish, while Kenya's exports are dominated by Nile perch - they share common experiences with enhanced food safety standards. Both provide examples of longer term efforts to comply with the EU's hygiene standards for fish and fishery products, overlaid with the necessity to overcome restrictions on trade relating to immediate food safety concerns. In the case of Kenya, restrictions related to general hygiene standards in processing establishments alongside specific concerns relating to microbiological safety and pesticide residues were applied on-and-off over the period 1997 to 2000. India was subject to similar restrictions related to hygiene standards in fish processing during 1997. In both cases the restrictions served to significantly restrict access to EU markets.

In both India and Kenya the dominant strategic approaches to emerging food safety standards have been 'reactive', 'loyal' and 'defensive', both by government and the private sector. Thus, hygiene and/or antibiotic controls have been largely up-graded in response to regulatory change in the EU and the demands of major customers. Further, in the cases of Kenya, little action was taken until inspection visits by the European Commission, which led to restrictions on imports to the EU. In India's case, the government had undertaken some initial reforms to its regulatory framework, although these were insufficient to comply with the EU's requirements. In both cases the substantive drive to up-grade hygiene controls occurred suddenly.

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<sup>2</sup> The European Commission has presented its controls on hygiene for imports of fish and fishery products as a practical example of the application of equivalence (WTO 2002). Thus, rather than laying down specific requirements, the Commission focuses on the conditions under which products will be equivalent to those produced in the European Union.

Across both India and Kenya there were examples of exporters that adopted 'proactive' and 'offensive' strategies; these firms had seen the drive towards higher food safety standards and had made substantive efforts to up-grade their controls in a bid to meet these standards ahead of their competitors. While in most cases these represented a relatively small part of the total industry, they clearly stuck out as industry leaders. At the same time, however, there were exporters that had exited the industry in response to the imposition of stricter food safety controls; some withdrew from the business altogether, while other processors re-focused towards markets with lower food safety standards. Standards-related pressures were not the sole factors in this exit. Other on-going issues, including resource management and broader competitive and capacity pressures, served to exacerbate the impact of needed investments in order to comply with the new food safety standards. All of these firms had exited in a 'reactive' and 'defensive' manner.

In both India and Kenya there were some attempts to implement 'voice', although this has been in a 'responsive' and 'defensive' mode in response to restrictions already imposed or threatened by the EU. Both the government and industry were involved in such efforts, which clearly were designed to 'put out fires'. While on-going negotiations may have taken place between individual exporters and their customers, none of the exporters interviewed as part of the case studies alluded to these, suggesting that they were not a major element of strategic responses to evolving standards.

### ***Horticultural Products***

Over the past 30 years, developing countries have experienced rapid growth in their exports of fresh produce, mainly consisting of fruit and vegetables. This trade has spread from an initial base of traditional tropical fruits to include a broad array of products, stimulated by growing consumer interest in health and demand for fresh produce variety, freshness and year-round availability. At the same time, this trade has been facilitated by advances in production, post-harvest and cold chain logistical technologies and by increased levels of international investment. On every continent there have been notable 'success stories' in this field alongside a range of other countries which have struggled to maintain or improve their positions in international markets. This reflects the highly competitive and rapidly-changing nature of the industry, with multiple factors impacting on competitiveness (Diop and Jaffee 2004).

The regulatory and private governance systems for international fresh produce markets are becoming increasingly complex. This changing regu-

latory environment appears to be raising the bar for new entrants while throwing new challenges in the path of existing developing country suppliers. Many analysts and practitioners are expressing concern about the inability of small and/or low-income countries to meet rising public and private standards, and thus their capacity to remain competitive in international fresh produce markets. (Dolan and Humphrey 2000; Chan and King 2000; Buurma *et al.* 2001). Certain high-profile food scares and highly publicized instances of violative levels of pesticide residues have created an impression of extreme vulnerability on the part of developing country suppliers. Yet, experiences are mixed; Kenya's recent experience is one of absolute and relative success, reflecting either 'proactive' or 'reactive' approaches towards compliance/'loyalty' that have been aimed at exploiting real or perceived strategic gains.

Kenya's fresh produce trade dates to the mid-to-late 1950s, when small quantities of temperate vegetables and tropical fruits were supplied in the European winter 'off-season' to up-market department stores in London. This off-season trade continued and was later joined by year-round-supplies of high-quality green beans and a broad array of vegetables that comprised part of the traditional diets of the UK immigrant population from South Asia. Most of these products were air-freighted in small boxes for sale through wholesale markets or to distributor/caterers.

For many years, the industry functioned with very simple supply chains, involving little investment in infrastructure, product development or management systems. Around 12 medium-sized firms alongside large numbers of small, part-time operators handled the exports, frequently trading with relatives or similarly small-scale companies in Europe. Fresh produce was purchased from large numbers of small and larger growers. Produce was generally collected from farms or along roadsides, from where it was brought to a basic central warehouse, sifted and re-graded if necessary, cooled a little and trucked to the airport for shipment in the evening. Some limited inspection of produce was undertaken by Ministry of Agriculture officials at the airport. With relatively few exceptions, this was more or less the 'model' within the industry from the 1960s through to the mid-to-late 1980s. The Kenyan fresh produce industry remained competitive in some markets and for some products, but not for others. While experiencing some growth in the 1970s, the fresh produce exports from Kenya more or less stagnated in the 1980s.

Since the early 1990s, however, the Kenyan fresh produce industry has been reshaped and transformed, both 'proactively' and 'reactively', in response to and in anticipation of commercial, regulatory and private governance changes within its core external markets. Commercial pressures came in the form of saturated markets for certain products and

increased competition from various suppliers which had improved their supply capabilities and had less expensive sea or air-freight costs than did Kenya. Commercial changes within Europe also required a shift in the dominant approach. In many countries, large supermarket chains were in ascendancy while wholesale markets were declining in importance or taking on more specialized roles. Consolidation was also occurring among importers, packers and distributors. Hence, the growing segments of the fresh produce market were being managed by fewer players. On the regulatory front, there was a steady wave of activity geared toward strengthening and harmonizing EU and Member State regulations and monitoring systems for food safety, quality conformity and plant health. Interspersed in this wave of regulatory activity were progressively-refined private sector standards (or 'codes of practice') governing food safety, among other things, plant health.

Several of the leading Kenyan exporters caught an early glimpse of this 'new world' fresh produce market and began to re-orient their operations in an 'offensive' manner. With the encouragement of several UK supermarkets, they began to experiment with new crops. New consumer packaging was introduced and different combinations of vegetables were included. An increasing proportion of product was directed to selected supermarket chains. The latter began to send 'audit' teams to Kenya to check hygiene and other conditions on farms and in pack-houses. Improvements and investments were recommended, and in some cases required. With renewed confidence in the future of the industry, several exporters made considerable investments in new or up-graded pack-houses and related food safety management systems for the packing of ready-to-eat, semi-prepared products. Systems for crop procurement have also been transformed with many of the leading companies investing in their own farms and/or inducing major changes in the production practices of out-growers. There has been an array of joint public/private sector initiatives to train growers in all aspects of 'good agricultural practice'. Through both 'reactive' and 'proactive' offensive strategies of 'loyalty'/compliance, Kenya thus moved beyond being a commodity supplier, with mixed salads, stir-fry mixes, vegetable kebabs and other value-added products now accounting for more than 40 percent of what has been a burgeoning trade over the past decade. Between 1991 and 2003, Kenya's fresh vegetable exports increased from \$23 million to \$140 million.<sup>3</sup>

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<sup>3</sup> Not all of the industry has transformed itself. There remain around 25 smaller exporters who lack the financial resources to invest in modern pack-houses and continue to supply 'loose' produce to commission agents and others in European wholesale markets and the Middle East.

Rising private sector and public standards have posed challenges to the Kenyan fresh produce industry, yet at the same time they have also thrown a 'life line' to the industry. Due to its location and relatively high air-freight costs, the Kenyan fresh produce sector cannot compete with many other players on a unit-cost basis. Margins have been squeezed in the market for mainstream and 'commodity' vegetables. With rising labor costs in Europe, the Kenyan industry has repositioned towards higher level; of preparation, including sliced vegetables and salads, which involve labor-intensive functions. To date, this market segment has grown fastest in the UK, although there is increased buyer interest and consumer demand in the rest of Europe. This suggests that well-organized industries in low-income countries can indeed use stricter standards as a catalyst for change, and profit in the process.

### **Spices**

Historically, international trade in spices was governed by a system of quality grades and cleanliness parameters. Since the early 1990s, however, health and hygiene specifications have gradually been incorporated into commercial spice supply chains and, to a lesser extent, into official regulatory systems. The vast majority of these product and process standards were not designed specifically for spices, but derive from general food standards related to microbiological contamination, pesticides, food additives, and food labeling. The changing commercial and regulatory requirements are well illustrated by the case of dried chillies and the challenges posed to India's continued supply of this product to the EU market.

Chillies are one of the few spices produced in India for which agro-chemicals are commonly used. Chillies are vulnerable to a variety of pests and diseases and are commonly grown in rotation with other commercial crops. While there have been periodic concerns or campaigns to address the risks that agro-chemicals pose to farmers and agricultural workers in India, there has not, until recently, been much mention of pesticide residue concerns in spices. This began to change in the early 1990s in the context of the broader program within the EU to harmonize the permissible MRLs in food products. Initially, questions were raised on spices by regulators and/or buyers in Germany. In 1994/1995, several consignments of Indian dried chillies were rejected by Spanish authorities because the detected pesticide residues exceeded the permissible MRLs for fresh/green chillies. In the late 1990s, additional consignments of Indian chillies and other

spices were rejected in Europe and elsewhere, frequently because no established tolerance level existed for particular pesticides and spices.<sup>4</sup>

India's response to this challenge has combined elements of 'voice', 'loyalty' and 'exit', mostly in a 'reactive' mode. For example, the industry there has sought to influence the prevailing 'rules of the game'. Working in conjunction with various other country spice trade associations, the India Spices Board and the All India Spice Exporters Forum established an International Organization of Spice Trade Associations (IOSTA), which obtained observer status at the CODEX Committee on Pesticide Residues. The IOSTA has actively sought to gain recognition of new MRLs based on monitoring (rather than the more expensive field trial) data and acceptance of multiplication factors for MRLs for spices which are the dried form of vegetables for which established MRLs exist (i.e. for pepper, garlic, onion).

In parallel to this exercise of 'voice', the Indian spice industry has made various adjustments to comply with EU Member State requirements, even though such countries continue to account for only a small proportion of India's total exports of chillies. Among the measures taken have included a program of supervised field trials to establish a wider range of national MRLs, extension programs in major production areas to encourage adoption of integrated pest management practices and/or promote organic production of chillies and public and private sector investments in laboratory equipment to test chillies for a broader range of agrochemical residues. Contract farming arrangements have also evolved in which exporters provide seeds, detailed pest management guidelines, supervisory help (and policing) and premium prices for pesticide residue-free supplies. Exporters have also undertaken increased screening of intermediary vendors, giving preference to those which maintain proper purchasing records and provide oversight on farmer production practices.

'Exit' has also been a strategy pursued by certain Indian spice exporters. These firms have withdrawn from selected European markets and have redirected their sales of chillies to other markets, especially in developing countries. While Indian exports of chillies to Europe have been stagnant in recent years, exports to developing countries have experienced very sharp increases. While little attention is given to pesticide residue matters by buyers or regulators in these other developing countries, some of the measures taken by the Indian industry have improved its overall competi-

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<sup>4</sup> There exist only a handful of CODEX standards for MRLs related to agrochemical use on spices. Individual countries have set MRLs themselves, generally for particular spices that are grown domestically in small quantities. Most of the spice and pesticide MRLs which do exist vary between countries.



tiveness in those markets. There are also small but growing consumer segments within the large Indian domestic market for spices that are demanding more 'safe' and 'sustainable' production practices.

## 7 Conclusions

This paper has put forward and examined the concept of 'standards as catalysts' in the context of food safety standards in international trade and the 'room for maneuver' that low and middle-income countries may possess in the face of an ever-changing and increasingly complex standards environment. This contrasts with the 'standards as barriers' perspective that has dominated the literature on food safety standards and agricultural and food trade. In so doing, however, the aim has not been to deny that food safety standards do not sometimes impede agricultural and food exports from low and middle-income countries. Rather, the dominant theme is the need for a strategic orientation when considering the trade effects of food safety standards.

This paper has presented evidence that is both limited in its scale and scope. However, it illustrates the range of strategic approaches employed by low and middle-income countries, both at the level of nation states in challenging regulatory standards and/or participating in international standards-setting. Further, the paper highlights the specific actions taken at the country and/or exporter levels when faced with enhanced food safety standards. These illustrate the ways in which strategic responses vary across countries and between exporters therein, reflecting prevailing capacities and perspectives on emerging standards. Overall, these responses are typified by strategies that are 'reactive' and 'defensive'. At the same time, however, there are exporters that are 'proactive', complying ahead of their competitors and often deriving competitive advantage as a result. Across these various scenarios there is evidence of 'voice', although it is less evident that this has a major 'pay-off', while efforts in this regard are severely curtailed by capacity constraints.

An important implication of the strategic perspective presented here is the need for capacity-building efforts related to food safety to be recast away from the conventional focus on problem-solving and coping strategies, often centered on the development of technical infrastructure. Instead, capacity-building should be geared towards maximizing the strategic options available to both government and the private sector in low and middle-income countries when faced with new or more stringent food

safety standards and enhancing their ability to employ strategies that generate gains in terms of export competitiveness.

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