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EU Food Safety Standards, Traceability and Other Regulations: A Growing Trade Barrier to Developing Countries' Exports?

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**Invited paper prepared for presentation at the
International Association of Agricultural Economists Conference,
Gold Coast, Australia, August 12-18, 2006**

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1 Introduction

Within the World Trade Organization (WTO), traditional trade barriers such as tariffs are steadily being reduced, while food safety standards, regulations related to traceability, product certification, environmental standards and other regulations are increasing in scope and significance as international trade in food opens up. Unclear, however, remain the effects these regulations and standards actually have on developing countries.

This paper will therefore start out by briefly defining and classifying different kinds of existing standards and regulations in the food sector, and analyzing the international framework which influences the national standard-setting process in the second and third chapter. The fourth chapter describes several country case studies in the field of fishery products and fresh vegetables from African countries to assess likely impacts of stricter food safety regulations on the international competitiveness of developing countries. Chapter 5 summarizes the main findings and concludes.

2 Definition and Classification of Food Safety Standards

There is a wide range of different standards and regulations in the food sector like hygienic standards, sanitary and phytosanitary standards, or maximum levels related to the content of aflatoxin or pesticides. Josling, Roberts and Orden (2004) suggest a classification scheme based on the four dimensions goals, attribute focus, breadth (across products), and scope among domestic and foreign goods). Other possible criteria for classifying standards are whether they

are private or public, voluntary or mandatory, product standards or standards related to production and processing methods (PPMs), or what kinds of motivations they pursue (Grote and Kirchhoff, 2001).

A more comprehensive approach to standards is certification consisting of a number of different standards and regulations relating to food quality, environmental or social issues. Certification generally aims at providing consumers with better information about the characteristics and quality of food products, thus enhancing market transparency. Many companies take, for example, the EUREPGAP¹ standards as the baseline for doing business in the food sector. In addition, traceability has been added as a component to certification. The new European Union Traceability Regulation No.178/2002 which came into force in January 2005, defines 'traceability' as "the ability to trace and follow a food, feed, food-producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution" (EU, 2006). While most value chains allow only a one-forward and one-back trace, a deeper traceability system back to the seed is required e.g. for ensuring that products have not been genetically modified (Golan, Krissoff, Kuchler, 2004). In Japan, for example, a traceability system was established for beef allowing consumers to trace beef on the internet. By entering a 10-digit code at a specific website, consumers can obtain information on the purchased beef like location of the farm where the cattle was raised (Clemens, 2003).

In many developing countries, traceability initiatives have been started in the last decade. They mainly refer to perishable and high-risk food export products like beef and fish, fruits and vegetables, but also coffee or wine. All these products have become of utmost importance in the export business of numerous developing countries accounting for more than 50% of their total agri-food exports (Jaffee and Henson, 2004).

¹ EUREPGAP sets a framework defining essential elements for the development of good agricultural practices (GAP) for the global production of selected food products (e.g. fruits and vegetables, fish).

Next to standards and certification, also inspection, testing, metrology and accreditation are needed to be able to produce a safe and high-quality export product. Thus, the whole quality infrastructure system relies on certain private and public activities which are interrelated and have to work efficiently at the national or regional level (ITC, UNCTAD/WTO, 2005).

3 The International Framework

Food regulations are based on domestic law and practice. However, they also operate within an international framework of rules and agreements. This institutional framework used to be weakly developed and enforced in the past. In the last 20 years, however, the multilateral rules have become much more stringent on the development and use of standards (Josling, 2006). In addition, also multinational companies play a growing role in shaping the landscape of standards.

3.1 TBT and SPS Agreements

In order to prevent standards from being misused as non-tariff trade barriers, the WTO has adopted two agreements: the Agreement on Technical Barriers to Trade (TBT), and the Agreement on Sanitary and Phytosanitary Measures (SPS). TBT measures comprise technical standards, along with regulations on test and inspection procedures and certification. They are developed by organizations such as the International Standard Organization (ISO). Sanitary and phytosanitary standards, as covered under the SPS Agreement, include health and hygiene standards or regulations to avoid the spread of animal and plant diseases and epidemics. These are adopted by the Codex Alimentarius Commission (CAC) of the Food and Agriculture Organization (FAO) and the World Health Organization (WHO), the World Organisation for Animal Health, and organizations collaborating within the framework of the International Plant Protection Convention. For the development of their own standards, WTO member countries are encouraged to use international standards where they exist. They are only allowed to use higher SPS standards in case there is scientific justification for doing so.

The TBT and SPS Agreements both contain elements which pose problems to many developing countries. It has been pointed out repeatedly, that their participation in activities of the Codex is only possible to a limited extent. Typically, only Argentina, Brazil, Chile, China, India, Malaysia, Mexico, Thailand, and South Africa participate regularly in the activities of the CAC (Henson and Jaffee, 2006).

The delegations from industrialized countries are generally much bigger and thus more influential. Nevertheless, it has been found to be important for developing countries to participate in the activities of the international standard-setting organizations. Those countries which were actively involved in the standard setting process were able to materialize gains in terms of competitiveness and cost savings (DIN, 2000). Participation enables developing countries to influence the standard-setting process in sectors which play a bigger role for their own exports. Furthermore, since it takes generally around three to five years until international technical standards are developed, enough time is given to inform the respective domestic enterprises about the planned changes so that these can adapt beforehand, instead of reacting only once the standards have been developed. Adjusting to the new standards before they become law, results in considerable cost savings for the respective enterprises (ITC, UNCTAD/WTO, 2005).

Key principles like on equivalence and mutual recognition encourage countries to accept each others differing SPS and TBT measures and conformity assessment procedures as equivalent. However, there are often problems of accepting testing, monitoring and certification results, especially from developing countries. Several cases are known where tested products from developing countries are not accepted by the exporting country. Thus, in 1997, egg products from Bangalore, India were not allowed into Japan due to increased BHC beta isomer-values in the food products. Comparable samples were tested in laboratories in India and Belgium. Both laboratories found respective values below the critical level. Thus, a great level of insecurity exists with respect to the export business (Wilson, 2002).

3.2 Dispute Settlement Understanding (DSU) and Counter-Notifications

Some influence on the development and enforcement of standards can be also exercised by the use of the DSU or by counter-notifying through the SPS Committee. Dispute cases can be brought to the dispute settlement body and a formal timetable for action will be set for each case. In comparison to the old system under GATT, the establishment of the panel has been simplified under the DSU of WTO, an appellate process was introduced and panel reports cannot be blocked by third parties anymore (Josling, 2006). Countries which do not comply with the decisions of the dispute settlement body face trade sanctions. In the last 10 years (Jan.1995–March 2005), about 120 formal complaints related to food regulations were tabled. These are 35% of the total formal complaints under the DSU. Of these 120 complaints, about a quarter refers to the SPS and another quarter to the TBT Agreement (Rudloff, 2006). Argentina, Brazil, Chile, India and Thailand – all big exporters of fish, meat, fruits and vegetables – are the countries, which typically dominate the WTO complaints.

Counter-notifications through the SPS Committee are made when the disputants have reached an impasse after some technical discussions. Then, the complaining member has the possibility of using a forum as provided by the SPS Committee for a formal review and complaint process. During the period 1995 to 2003, about 270 counter-notifications were made – predominantly by Argentina, Brazil, Chile and Thailand, but also low and middle-income countries were involved through multiple complaints. Half of the counter-notifications related to food safety concerns especially related to beef and horticultural products, and were based on the “lack of scientific evidence” (Henson, 2006). More than three times as many complaints were addressed to the EU than to the US. Henson (2006) explains this by mainly three reasons: (i) the harmonization process of SPS measures within the EU which often leads to the adoption of the most stringent standards which have been used previously in individual EU countries; (ii) the frequent use of the ‘precautionary principle’ when adopting food safety standards; and (iii) the complex administration of the EU.

3.3 Private Standards

While the WTO has contributed to a stricter discipline on the use of standards by promoting transparency and by developing internationally harmonized standards, there is also a trend towards the use of more private standards and codes of conduct in the value chains. The increasing power of retailers like big supermarkets increasingly set their own company-specific standards and codes of conduct. A problem arises from this, because these private standards and codes are not covered under WTO. Thus, conflicts arising from the use of private standards cannot be solved under the DSU of the WTO.

4 Illustrative Case Studies from Selected African Countries

Whilst developing countries have gained an increasing share of global trade in fish and fishery as well as horticultural products, there is evidence that exporters are facing growing challenges meeting food safety requirements in industrialized countries. The EU, for example, sets harmonized hygiene standards throughout the supply chain. Each processing industry in the producing country must be individually inspected and approved by a specified “Competent Authority” which again will be regularly checked for its compliance and satisfactory performance by the European Commission (Henson, 2006). The following case studies illustrate the significant impacts that stricter food safety requirements can have on export-oriented supply chains. In the fisheries sector, case studies, carried out for Uganda, Kenya, South Africa, and Namibia, illustrate the potential impacts of EU food safety and traceability regulations on the performance of these countries (Ponte, 2005; Henson and Mitullah, 2004; Ponte, 2006; Meyn, 2005). In the fresh vegetable export sectors, two case studies analyze the challenges and opportunities for Kenya and Morocco in the context of uprising regulations (Jaffee, 2003; Aloui and Kenny, 2004).

4.1 Fishery Exports into the EU

Most of the fish and fishery production takes place in developing countries, i.e. almost 77% of 132.5 million tons in 2003. The value of fishery exports from Africa has doubled during the last decade to US\$ 3.2 billion (Ponte, 2005). The EU is one of the major markets for these fish exports. At present, the predominant requirements for fish and fishery products relate to food safety, in particular hygiene in production and marketing, and limits on levels of microbiological and environmental contaminants in the end product. More recently, fish exporters are increasingly under pressure to match private quality standards set by their main costumers, such as processors and leading supermarket chains.

4.1.1 Nile Perch Exports from Lake Victoria

The Nile perch fisheries of Uganda, Tanzania and Kenya provide a particular good example for this issue, because temporary product bans imposed by the EU present a before and after context, suitable for a concrete impact analysis. Nile Perch was first exported to the EU in 1992. During 1997 and 2000, the EU had imposed a number of import bans to exports from these countries. Table 1 illustrates the total and structural changes having taken place in Tanzania, Uganda, and Kenya, partly as a result of the bans.

Table 1: Total exports of Nile Perch fillets from Lake Victoria into the EU by the three exporting countries over the period 1997 to 2003 (in t and in % of total exports)

Country	1997	1998	1999	2000	2001	2002	2003
Kenya (in t)	7488	2447	1121	30	2747	3972	5086
(in %)	30	10	13	0	7	10	11
Tanzania (in t)	9015	12506	4581	26857	23063	23119	26965
(in %)	36	52	54	89	57	59	60
Uganda (in t)	8621	8894	2731	3451	14776	12213	13062
(in %)	34	37	32	11	36	31	29
Total	25124	23846	8433	30338	40586	39303	45113

Source: <http://www.globefish.org/index.php?id=2405> (accessed on 14.07.2006)

All three countries dramatically suffered from these bans. However, from 2001 onwards, exports have recovered, though the regional composition of exports has changed significantly. Prior to

the import bans in 1997, all three East African countries showed comparable export shares of fish from Lake Victoria. By 2003, Tanzania increased its export share to 60%, Uganda more or less recovered its export share, reaching about 30% in 2003, while Kenya's export share declined considerably to 10% in the post-ban period. These numbers reveal the different strategies the countries applied to comply with EU food safety requirements. Tanzania reacted in a stringent pro-active manner and was the first country to comply with EU standards; by 2000 it had recovered from the ban and today dominates the Nile perch export industry. Uganda followed in 2001, but not as successful as Tanzania. Kenya was not able to get back to its previous export share.

In *Tanzania*, the government became aware of its role of monitoring and regulating, and also the performance of the organizations checking adherence to existing standards improved after the ban had been imposed (Musonda and Mbowe, 2001). In addition, the supply chain seems to be better organized in some parts. In a study on Tanzania's Lake Victoria fishery, published in 1997 before the EU imposed its import bans, the FAO estimated the total costs to upgrade Tanzania's Nile perch fishery sector to about US\$10 million. This estimate includes private sector investments for technically advancing processing plants, establishment of new ice and chilling plants, and improved artisanal equipment (about US\$8 million) and public sector investments such as improved infrastructure, services and training (about US\$2 million). This early cooperation with an international organization may partly explain the faster response of both the public and the private sector observed in Tanzania.

Despite the significant efforts made to upgrade the hygiene standards of fish processing plants and landing sites, covering, for example, cooling facilities, fish handling equipment, and the availability of fresh potable water, the *Kenyan* fish-processing sector as a whole is characterized by low levels of added value (most exports are in form of block frozen bulk packs). Henson and Mitullah (2004) characterize the reactions of the fish processing sector in Kenya to meet the terms of EU hygiene requirements as 'reactive compliance' and 'reactive exit' implying that

enterprises either comply with the standards or exit the market, however, only after the standards have been imposed on them. Finally, the increased competition from new modern processing plants set up in Tanzania and Uganda hampered the recovery of the fish export sector in Kenya. The estimated expenditures for compliance increased unit production costs by 25%. This number includes investments as well as operating costs. The total non-recurring cost of compliance is estimated at US\$ 557,000 for the entire fish processing sector in Kenya. Given an export value of US\$ 33.52 million in 2003, this equals 1.66% (Kurien, 2004).

In *Uganda*, EU import bans also had wide -ranging negative effects in the short-run. Three plants closed their business as a result of EU rejections; the remaining plants worked at 20% capacity; 60-70% of the employees were laid off. However, within a period of 23 months, the ban led to the restructuring of Uganda's entire regulatory and inspection system, with the Department of Fisheries becoming the 'Competent Authority' with respect to all fish safety issues. Today, all the companies (nine in total) with their 15 plants are HACCP compliant. In addition, an internationally accredited private laboratory was established, and 14 landing sites were upgraded to handle fish for export. The latter project was funded by the EU. Ponte (2005) points out, that, in general, the reform process resulted in enhanced cooperation between the regulatory agency and the fish processing industry, the formulation of a new fishery policy, and regional efforts concerning the harmonization of controlling procedures in the three countries sharing Lake Victoria.

In contrast to Kenya, some companies in Uganda have taken a pro-active strategy, trying to place high quality value-added lines by manufacturing products such as fish fingers, cakes, and burgers. However, market response until now has been poor since in Europe there is no market acceptance for a manufactured food product prepared in Uganda. As reported by Ponte (2005), one Ugandan company, the largest fish processor in East Africa, has changed its strategy and is developing marketing operations in consortium with a large South African fish processor. The aim is to offer a diversified range of fish products to European supermarkets. Today, a majority

of plants in Uganda prepare small fish fillet portions and loins (20-80g). These are re-packaged in Europe to prepare ready-to-eat meals for the upper market segments sold in supermarkets. Looking at the complete fish supply chain, changes have only occurred in the field of raw material collection and processing. Fish safety management and traceability systems are de facto established at only one half of the Ugandan value chain - from the landing site to export. The fishery in Uganda is still operated by small artisanal fishermen using low-cost methods such as gill-netting, and long-lining. The hygiene conditions onboard do not satisfy the obliged standards, but at the moment, these facts are ignored by EU inspectors. Thus, a second crisis is predetermined and would impact the fisheries at the catch level. These problems are further intensified by illegal unreported unrecorded (IUU) fishing. Many experts argue that the sustainability of fishery resources on Lake Victoria - and as a direct consequence, the economic performance of the export-oriented supply chain - is uncertain.

4.1.2 Hake Exports from South Africa and Namibia

The South African hake fishery is an example for the pro-active strategy of some market leaders to manifest market power at the expense of national and international competitors. Recently, specific eco-labels are emerging such as the Marine Stewardship Council certification on Sustainable Fisheries (MSC), the main third-party certified eco-label that covers wild-catch fisheries. The world's largest frozen fish buyer and processor Unilever e.g. promotes MSC certification among its suppliers and is committed to buy fish only from sustainable sources by 2005 (Ponte, 2006). The MSC certificate refers to a well defined production process or fishing technique, not to a particular fish species or an individual stock of species. Operators along the supply chain of the MSC certified fishery can apply for certification and the use of the MSC logo. The MSC label is required by processors and retailers due to its stringent traceability system from vessel to point of sale. Certified and not-certified fish is segregated from catch to the supermarket. Ponte (2006) notes, that these schemes offer a preferred access to certified

suppliers but rarely offer a direct price premium. The costs of MSC certification have varied between US\$ 35,000 for a small fishery and US\$ 350,000 for a large fishery.

At present, Namibia is a strong competitor for South Africa's fishery industry. In this respect, certification of the South African trawling hake fishery may serve as a political tool to support the preferred supplier status in the national and international field by anticipating the emergence of new minimum requirements. However, it has been found that the MSC certification has a discriminating impact on smaller-scale hake fishery enterprises (Ponte, 2006). Standards do not only cause additional costs, but also require huge supplementary information. This also provides immense disadvantages for data-deficient smaller-scale producers and becomes particularly relevant, once private standards are the necessary qualification for market access.

In a study on the export performance of the *Namibian* hake fishery (Meyn 2005), surveyed companies pointed out that their strongest competitive advantage arises from their product quality. Quality standards and food safety requirements applied by the EU do not provide a hindrance for surveyed firms. Instead, high quality standards are judged as comparative advantage because they offer the chance to get price premiums. Company managers mentioned that it is also no problem to meet the rules of origin and traceability requirements. However, 60% of total exports to the EU are still unprocessed offshore produced fish, i.e. sea-frozen fish which is capital-intensive and offers fewer employment and opportunities to create forward-linkages and value-addition than onshore processed fish. Therefore, the incentive for upgrading activities in the sector is still low. In addition, trade channels in the EU are centralized and difficult to enter, especially with own brands.

4.2 The Horticultural Export Sector

Both, Morocco and Kenya are major African suppliers of fresh fruits and vegetables to the EU. *Morocco's* reputation with respect to horticultural exports is seen as the result of strict public implementation of mandatory SPS regulations. The export sector has a long tradition of technical regulations, and during the first 30 years after independence (1956-1986), farmers and exporters

were trained by public institutions about issues of food quality and marketing. Since the mid 1980s, the state monopoly of food exports has been liberalized and private exporters have taken the leading position in the export business of citrus and vegetables (Aloui and Kenny, 2004).

In Morocco, tomatoes are produced mainly on small specialized farms using 50% to 70% of their farm land to grow tomatoes. The remaining area is allocated for the most part to cucumber, melon, zucchini, and increasingly to green beans. Tomatoes are further processed in 200 private, cooperative and state-owned packing houses. They obtain the raw product from cooperative members or non-affiliated farmers. Tomato trade is dominated by large integrated companies controlling production, processing and export. Alternatively, in the traditional supply chain, farmers sell to exporters that manage backward the processing and packing. The already existing high degree of vertical integration makes it relatively easy to implement the required traceability system within the tomato supply chain.

In Morocco, the EUREPGAP standard is being widely implemented at the farm level on medium-sized and large-sized farms. Due to the calculations presented in the country case study, the estimated costs to comply with EUREPGAP for a medium-sized tomato farm managing 10 ha with a workforce of 60 people were altogether US\$71,000; that is about 8% of the production costs per ha and equivalently 3% of the FOB value of the farm's exports. Affirmed by a number of interviewed farmers and packing house managers, compliance with multiple standards, namely EUREPGAP and BRC, is the most serious problem, particularly for smaller-scale farmers, leading to higher compliance costs because they cannot economize on scale.

From a technical point of view, Morocco's farmers have most difficulties to comply with the allowable maximum pesticide residue limits (MRLs) and preharvest interval requirements. In addition, the tolerance varies among different importing countries. This bears a high risk for products to be rejected at the border. It is expected that compliance costs will be more pronounced for small-scale farmers, thus standards will favor relatively large-scale integrated companies. Some managers pointed out the spillover benefits of standards such as ISO 9001 in

the field of better working conditions, increased demand for trained staff, and more permanent jobs. Compared with tomatoes, Morocco's citrus market is much more diversified and includes destinations in Eastern Europe and Middle East with less stringent food safety requirements. The case study reveals the importance of public and international assistance to improve agronomic education of small- and medium-sized farmers and the availability of technical information in rural areas. Finally, the adaptability of the technical standards to developing countries' socio-economic and environmental conditions must be taken into account (Aloui and Kenny, 2004).

Kenya's status is supposed to be the result of a synergy in logistics between the cut flower and fresh vegetable sectors, the quick adoption of market requirements such as the expanding demand for labor intensive pre-packed vegetables, and adopted process quality standards such as ISO and EUREPGAP (World Bank 2005). The leading firms in Kenyan fresh produce industry invested in product diversification, internal control systems, and full supply-chain traceability to service the premium-quality end of the market. Those products include French beans, ready-to-eat salads, and semi-prepared mixed vegetable products. The most significant challenge remains the development of governance systems to enable smallholder farmers to further participate in export supply channels. However, generally, experts do not fear the marginalization of Kenyan smallholders due to economic and agronomic reasons. Leading companies have developed smallholder out-grower systems to spread the risk of raw material sourcing and to make use of the labor productivity which might be higher on small owned farms compared with hired workforce on large-scale farms. The need for traceability has been an important factor contributing to more vertical integration. Jaffee (2003) concludes that given evolving competitive pressure and the relative high incurred freight costs, the Kenyan industry seems to be embracing standards and using them to further improve competitive advantage rather than be endangered by the escalation and proliferation of standards.

It is emphasized that the accelerated growth in the value of exports has occurred precisely during the period when regulatory requirements have been becoming more stringent and complex

Exporters have perceived the disconnection of increasingly stringent regulations on paper and actual capacities to enforce these rules. As a consequence, reputation of a country and of particular products will probably minimize official inspections and detentions. The growing concentration of fresh fruit and vegetable distribution systems in OECD countries presents additional constraints. In a number of case studies, analysts have referred to the possibility that due to screening and monitoring systems put in place by major supermarkets chains and their affiliated industries, smallholder farmers will be crowded out, as well as small-scale exporters from the fresh produce trade. However relating to Kenya's fresh fruit and vegetable export sector, the case study exposes the overall participation that continues to expand, most especially with respect to the steadily increasing demand for labor on exporter farms and forward-linkages of processing.

5 Summary and Conclusions

Major country- and product-specific differences exist in complying with international and EU standards. In general, standards have a stronger impact on the fishery sector than on the horticultural sector, sometimes even resulting in import bans from developing countries. This is mainly due to the nature of the products, with fishery ones being extremely high-risk food. It has also been found that there are substantial behavioral differences: while authorities and enterprises in some countries act pro-actively, others wait until the standards become official law in their countries and try to comply only then. The pro-active behavior clearly leads to competitive advantages.

Compliance costs may be significant in absolute terms but they are often small relative to the value of exports or domestic spillover effects. Nevertheless, especially small-scale firms may face substantial costs they cannot raise. These distributional aspects of standards should be considered to support particularly the integration of small-scale suppliers in developing countries. Finally, it needs to be stressed that very often public and private management and

governance problems lead to poor compliance of countries. A holistic approach is needed which promotes private and public cooperation in establishing an efficient quality infrastructure.

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