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Shafaeddin, Mehdi

Institute de recherches économique (Institute of Economic research),
University of Neuchatel, Switzerland

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**Who Does Bear the Costs of Compliance
with Sanitary and Phytosanitary Measures in Poor Countries?**

*Mehdi Shafaeddin**

Working Paper

*The author is development economist and freelance international consultant affiliated to the *Institut de recherches économiques, (IRENE) Université de Neuchâtel* (Institute of Economic Research, Neuchatel University, Switzerland). He is the former head of Macroeconomics and Development Policies Branch, UNCTAD. This article is the first of twin articles based on a study financed by UNDP to which goes his thanks. The author has benefited from comments by Mr. I. Williamson of USAID and the audience of a workshop organized by UNDP in Addis Abba. He can be contacted at: M.Shafaeddin@Gmail.com.

Abstract

This article is a part of a twin study. Drawing on the available evidence, in this paper the author examines the cost of compliance with Sanitary and Phytosanitary (SPS) measures for poor countries with reference to Africa. He shows that the burden of cost of compliance is entirely on the exporters despite the fact that their capacity for the compliance is limited. He further indicate that that, in fact, the literature often disregards the cost of loss of exports, or rejection of products at the border of an importing country, let alone the cost of reorganization of the supply chain; the existing organization of supply chain in poor countries would result in the lack of export expansion. The purpose of the paper is not to have an exhaustive literature survey, but to draw on the scanty evidence related to the main argument of the study. More specifically, it is shown that the main characteristics of the SPS Agreement and the related measures applied by main importing countries are such that they require a complex, difficult and high cost “SPS” system. Such a system involves regulatory measures, policy re-orientation, and development of the necessary infrastructure, re-organization of the supply chain, enhanced capacity building and a forward looking strategy, particularly for exports. The preparation for the compliance is also difficult for the poor countries as it is knowledge intensive, requires a learning period, training and a close cooperation between the public and private sector in various stages of the supply chain. Yet the socio-economic cost of the lack of compliance is enormous. Generally speaking, the operational cost, alone, of compliance is estimated to be between 2 to 11 percent of value of export in the case of Africa; in each case it depends, however, on the type of product, the destination of exports, the capacity of the country for the compliance and the size of farm holdings and exporting enterprises and the organization of the supply chain. Further, the investment cost can be colossal; in some cases (e.g Mozambique) exceeding the total food exports of the country. The available studies provide estimates for the administrative cost of control, inspection, testing and certification at the border; but disregard more important costs such as the costs of delays in exportation or rejection at the port of importing countries. Thus they downplay the need for taking preventive measures and the related cost of reorganization of the supply chain. In a separate paper the author proposes alternative organization of the supply chain for reducing the cost of compliance while increasing its benefits (Shafaeddin, 2007).

Introduction

Developed countries resist reducing Trade Distorting Subsidies (TDS)-the so-called Blue Box subsidies- on agricultural goods and tariffs on their imports. Further, even when they do agree to some reduction in their tariffs and TDS, they try to compensate it by increasing the Green Box subsidies¹. These subsidies are not regarded as trade distorting measures under WTO rules. Nevertheless, they do in fact distort trade, reduce their imports of agricultural products and affect their international prices to the detriment of developing countries². Nevertheless, this is not the only way exports of agricultural products from developing countries are affected. They, also introduce trade restrictive measures through mounting Sanitary and Phytosanitary (SPS) measures, on these products³

Scanty evidence is available in the literature on some costs of compliance with SPS measures. Most often, however, the cost resulting from the delay in exports, or the rejection of the product at the port of the importing country, due to the lack of compliance are disregarded-let alone the most important costs related to the need for the reorganization of the supply chain. Nonetheless, it will be argued in this paper that for poor countries, the compliance with SPS measures is not only difficult but it is also highly costly, in relation to their export earnings, and per capita income level; even when judged on the basis of the underestimated cost. It will be also shown .that as their capacity for the compliance is limited, such difficulties and cost would result in slow export expansion in the absence of the compliance. The policy proposals for coping with the compliance with cumbersome SPS measures are considered in a separate paper where

we discuss, how to reduce costs of compliance while increasing its benefits in the particular case of least developed countries.

In the first section, we will argue that the main characteristics of the SPS Agreement and the related measures applied by developed countries are such that they incur high cost on the exporting developing countries, as the burden of proof is on the exporters and the lack of compliance would result in restriction of their exports to those destinations. In the second section the need for a complex SPS system will be highlighted. In the third sections we will discuss the nature and the diversity of the measures needed for effective compliance and provide some rough estimates of the costs of various activities required for the compliance with SPS measures for a number of products. The impact of the SPS measures on exports of agricultural products to main developed country market will be the subject of the last section before concluding the paper.

I. Main characteristics of the SPS Agreement

The main characteristics of the SPS Agreement are such that , to be able to benefit from its implementation requires a complex, difficult and high cost “SPS” system involving regulatory measures, policy orientation and enhanced physical and knowledge capacity for implementation.

i. Complexity and wide coverage

The stated objective of the SPS Agreement is to protect human, animal, or plant life or health by taking “any” sanitary or phytosanitary measures necessary (Para 2 of Article 2

of the SPS Agreement). Accordingly, the requirements and guidelines of SPS measures are diverse and complex entailing three sets of international standards provided by the so-called “three sister organizations” These organizations include, Codex Alimentarius Commission, International Plant Protection Convention (IPPC) and the Office of International des Epizooties(OIE).They provide technical regulations for a vast number of activities in the supply chain of exports of agricultural products from input to production and harvesting, storage, transport, processing, packing and labelling, port facilities and international transport. The implementation of the SPS Agreement requires various scientific, technical and legal skills and capacities. For example, in the case of plants alone, they include about 50 different activities and measures ranging from adaptation of rules, regulations, guidelines, standards of the country in conformity with SPS Agreement and international standards, pest management and surviance, establishment of pest free areas, inspection, certification, accreditation, development of laboratory facilities etc. The requirements for food products and animal health are also similarly diverse and complicated.

In addition to standards set by “three sister organizations”, governments of importing countries often have their own standards comprising a set of large number of regulations. For example, EU has 24 Regulations and directives (CTA, 2003:1). Further, there is a growing number of commercial (private) standards set by retailers in importing countries (see e.g. Henson, 2006⁴ and various sources in *Food Policy*, Vol, 30, No.3, 2005) e.g. EurepGAP, Tesco and British Retail Consortium (BRC). These standards are not only often more stringent than the official Government standards, but they are less transparent than the official SPS measures as they are not reported to WTO. Private firms

have incentive to set their own standards (Hatanaka et al., 2005:356)⁵ not only to differentiate their products and create, or improve, reputation (Fulponi, 2006), but also to be able to choose the form of standards, as against public standards, to minimize their own costs (McCluskey, 2006). As the retail food sales market in developed countries becomes more concentrated and the “quality-centered competition” becomes more important the role of private standards in food imports increases (Henson and Readon, 2005; 242 and Jaffee & Masakure, 2005). For example, in the case of Europe, in 2003, , the five-firm concentration ratio for retail food sales varied between about 18 in the case of Italy to over 60 in the case of Portugal and Finland and nearly 80 in the case of the UK (Henson (2006,7). Private retailers purchase about a quarter of fresh fruits and vegetables sold in developing countries.(OECD, 2006). The role of large retailers in sales of foods is also increasing in some developing countries. For example, Carrefour accounts for 25 % of all food retail sales in Argentina ((Henson and Readon, 2005; 247). UNCTAD correctly distinguishes between government [and WTO] regulations aiming at “outcomes”[finished products] and private sector standards focussing on the “process” [of production and exports of a product in the supply chain](UNCTAD; 2007; 3).

Another factor which adds to the complication of implementation of the Agreement is a tendency towards the lack of harmonization of the standards and regulations. Different countries implement different SPS measures. For example, out of 154 notifications on tropical fruits and vegetables by EU, Japan, USA and Canada during 1995-2004, 59 per cent were non-harmonized, and another 19 per cent were only partially harmonized (Pay, E.2005: 44, table 14). Even within EU sometimes the measures applied to a product, for example to fruits and vegetables, may differ from one country to another

(World Bank, 2005:22, 24 and 29). While Codex has set up over 2500 maximum residual levels (MRLs) for pesticides, the EU, the USA and Japan have over 22000, 8600 and 9000 MRLs, respectively (Dong and Jensen:5). The new harmonized 1998 EU standards for Maximum level of Aflatoxin B1 is 2 pbp (part per billion)⁶ as compare with 9 pbp for Codex International Standard (Lacovone, 2004:35, table 4). Moreover, some private-sector standards, e.g. EurepGAP require compliance with the regulations of both exporting and importing countries involving food safety, occupational health and safety and even non-food safety related issues such as some social conditions. The burden of all costs is, however, imposed on the exporting countries. One implication of the diversion from Codex for the exporting countries is that while according to WTO's SPS Agreement, the acceptance of Codex standard will be sufficient for imported products, the country has to observe a more restricted standard for its exports imposed by the importing countries, involving higher cost of compliance (see below).

ii. Speed of change

The rapid change in SPS measures, regulations and notifications of new regulation is another factor which causes not only difficulties in preparation for the compliance, but it also imposes extra costs on exporters and creates uncertainty for them as well as for investors. In the case of break up of a disease importing countries may also give "emergency notices". The total number of notifications of new SPS measures to the WTO increased from about 100 in 1995 to over 4600 in 2005 (Henson, 2006, 10). During 1995-2004, in the case of fruits and vegetables, it increased more sharply from 29 to 888, by

over 30 times; for the tropical fruits and vegetables, exported mostly by developing countries, increases from 2 to 197 during the same period. (Pay, 2005: P 12, table 12).

iii. Importance of reputation and the risks of disguised trade protection

Reputation in the observation and compliance with the regulations and standards is extremely important. If the importers discover deficiencies in a product originating from a specific country in their random inspection, they may put ban on imports of that product from that country. While the SPS measures are meant to protect health and life of human, animals and plant, the experience shows that the discovery of a case of deficiency in compliance may be used as an excuse for banning imports from a country. Therefore, an exporting country should be endowed with technical, scientific and legal knowledge and information to be able to defend itself in a possible dispute case in WTO. One example is the ban imposed by Saudi Arabia in 1998, and more recently by Egypt, on imports of live animals from some East African countries⁷.

iv. Need for learning and the importance of time

Preparation for the implementation of SPS measures is knowledge intensive, it involves a learning process requiring time and training. Similarly the capacity building from “farm-to-fork” also requires a long period of time as there is a need not only for a control system throughout the supply chain but also for a change in the method of organization of production and distribution in the supply chain, including the choice and the use of inputs such as fertilizers and pesticides.

The domination of small and scattered holdings, particularly in large poor countries, the low degree of literacy, particularly in the rural area, the lack of means of information dissemination and poor infrastructure, transport system, processing and packing facilities are among features of poor agricultural exporting countries. For these reasons the capacity building for compliance with SPS for the entire agricultural area would be a very long and expensive process even if the necessary resources were available.

v. The involvement of the private sector and the difficulties of coordination

In the supply chain, and in the control system, apart from the government, a number of actors in the private sector are involved, ranging from importers, farmers, dealers, traders, industrialists, exporters, owners of means of transport, etc. In the public sectors, the implementation of SPS measures touches a number of government organizations, including the ministries which deal with trade, industry, agriculture and rural development, health and transport as well as the custom authorities, the food and drug administration and control, and standard organization etc. Therefore, the need for a close coordination among various agencies in the public sector as well as between the public authorities and the private sector increases the complexity and difficulties of compliance with SPS measures.

II. The need for a complex SPS system and a forward-looking strategy

The characteristics of the SPS Agreement outlined above, therefore, requires a SPS system with a forward looking strategy, proactive policies and preventive measures rather

than defensive actions by an exporting country. Such a system necessitate an efficient compliance policy, adaptation of rules and regulations, a mechanism and set-up for coordination among the stakeholders, and an effective capacity for implementation and compliance. It therefore, entails various requirements throughout the supply chain including knowledge, information, information dissemination and awareness raising, technical, legal, institutional and managerial training, as well as physical capacity and infrastructure for control, inspection, testing and certification. Chart I shows a framework for the general requirements of the compliance to the SPS Agreement and various stages of the supply chain, from farm to the port of exportation, for which actions are necessary. The left hand side of the chart show the facilities and requirements for the compliance, while the right hand side of the chart indicates the targets for compliance in the supply chain. It is clear that the system is complex for a least developed country with limited financial resources, government bureaucratic capacity and particularly with scattered small holdings and fragmented supply chain.

Insert Chart I here

The studies so far conducted on the SPS issues have often concentrated on the need for the provision of facilities, mainly in the public sector, as means of control at the stage of exportation; that is they have been concerned with the “*outcome*” They have not made a clear distinction between the facilities and the targets in the supply chain; they have paid little attention to the complexities of applying the SPS measures to the targets in downstream activities of an export product before it reaches the port. In other words, while they have discussed what should be done; they have not addressed the practicalities and difficulties of the application of their recommendations at various stages of the

supply chain in poor countries, particularly at the farm and transport levels. One example is the recommendation made by the World Bank (2005) for the implementation of Good Agricultural Practices Codes of OECD to poor countries. We have discussed this issue in more details in a separate study where we have proposed an effective organization of the supply chain. In the rest of this paper we will consider the implication of the complexity of the SPS system for the cost of compliance and exports, particularly for least developed African countries.

III: The cost of compliance

The requirements of SPS Agreement

The costs of compliance with SPS measures are related to both imports and exports. Nevertheless, the burden of the cost is mainly on the export side for three main reasons. First, the changes necessary for compliance with the standards of the importing countries is necessary for export expansion, irrespective of the membership of WTO. In other words, if SPS measures required by importing countries are not applied to exports, the exporting country would lose its market in those countries whether it is a member of WTO or not. The only difference is that after the accession to WTO, the application of SPS measures becomes a legal obligation for the contracting parties

Secondly, by contrast, according to the SPS Agreement, applying standards to imports are not obligatory, but if technical regulations are applied to imports they should confirm with international standards or related rules of SPS and be applied equally to similar domestic products.

Thirdly, for the accession to WTO, with few exceptions, requirements for imports are the same as that of exports (see Appendix A). The establishment of the National Notification Authority (NNA) is required for the accession. It, however, has a double function as it not only notifies other countries on changes in the country's regulations on imports, but also receives notifications on changes in the regulations and standards of imports of other countries, which have bearings on the country's exports. Risk assessment for developing standards for some import items, requires scientific capacity which has to be developed and it is costly. But the country can base its risk assessments on those of the international organizations, or borrow them from other countries. Establishment of an enquiry point (EP) is almost a total requirement on import side, but the cost is not significant as compared with the cost of preparation for compliance with SPS measures for exports.

The "standstill" clause (item I of the check list in appendix A) is the major source of the cost on the import side as it involves changes in the rules and regulations governing standards. Nevertheless, the requirement for the *implementation of the Agreement for export products* also necessitates changes in the "law and other regulations" of the country on food safety.

In short, the main burden of the cost results from the need to comply with SPS measures for export products. The aim of compliance on the export side is not compliance for the sake of compliance, but as a means of improving market access and export expansion and development. In the following discussion, however, we do not separate the related costs for SPS measures related to exports and imports.

A few general points

The precise socio-economic costs and the impact of the implementation of SPS is not easy to measure and studies undertaken so far have not been able to go beyond certain rough estimates as a number of hypothetical and unquantifiable factors are involved. According to a World Bank study: “while there is general agreement that food safety and agricultural health measures do indeed strongly impact international agro-food, there is no consensus on the relative importance of individual measures and in relation to other trade distorting measures, nor their aggregate net effect”(Jaffee and Henseon (2004:17) Nevertheless, the experience of developing countries and the results of studies undertaken, particularly on least developed and/or other low income countries, lead us to the following points.

- The burden of the cost of compliance is imposed on exporting countries.
- The cost of compliance is relatively high in relation to the income level of the low income and least developed countries and resources available to them.
- While the cost of compliance is high, the short-and long-run cost of the lack of compliance is enormous, in terms of the loss of foreign exchange, income, employment and household consumption, particularly in rural area.
- The cost and the efficiency of the compliance depend, *inter alia*, on the organization of the supply chain.

Before explaining some of these issues, let us first make a few conceptual comments.

Definition of the cost of compliance

The literature on food safety considers the cost of compliance with SPS measures for an export product; but it does not often include the cost of necessary change in the organization of production for facilitating the compliance, which would eventually also lead to the reduced unit cost of compliance. According to the literature, the cost of compliance is the sum of all expenses which accrues to the public as well as the private sector i.e. farmers and enterprises involved in the supply chain. Accordingly, it includes the cost of adjusting (not reorganizing) various components of the supply chain in order to conform to the SPS Agreement and SPS measures imposed by importing government and enterprises, the administrative cost of control, inspection, testing and certification. One could also add the cost of delays in exportation (e.g. interest charges) caused by the procedures necessary for the compliance. When the compliance may result in the reduction of exports (see the case of EU's Aflatoxin standard below), the loss of export earnings should also be taken into account. If exports are reduced, there will be secondary costs in terms of the loss of income at the country, farm and firm levels, as well as the loss of employment and household consumption.

The World Bank correctly distinguishes between fixed and operational costs (World Bank, 2005:71-2). For example, for testing a product, there is a need for initial investment in equipment, training of laboratory personnel and testing officers as well as the cost of accreditation. The operational cost will include maintenance, salaries, and the cost of laboratory materials. One should add to the variable costs (operational costs), the cost of participation in “three sister international organizations”

The compliance with SPS measures may also involve some opportunity cost. For example, the opportunity cost of investment in large farms to facilitate Good Agricultural Practices (GAP) may be at the cost of reducing extension services for small holdings which may result in a fall in their production and income.

The cost of compliance with the SPS measure acts like an export tax as far as its impact on export prices is concerned. The difference between the two, however, is that unlike the case of export tax which creates revenues for the government, the cost of compliance is born by the country, the burden of which is shared between the Government and the private sector. To individual producers and the firms involved, it is similar to transaction costs. For small exporting countries, it will not be necessarily possible to pass on the cost of compliance to importers.

When unjustified SPS measures are imposed by the imports they will act as “disguised quantitative trade barrier” and will result in the loss of export involving costs for the producers and exporters. Develop countries, in fact, do impose such measures. For example in the meeting of 27-28 June 2007 of the SPS Committee of the WTO, developing countries complained that not only different developed countries impose different MRLs (maximum residue level) of pesticides on their imports, but often they impose a level higher than that of Codex Alimentarius without scientific justification (WTO, 2007). It was said, for example, that “out of 345 principal pesticide substances registered in the country [Argentina], only 32% have maximum residue levels agreed in Codex.” Further, over one-third (37 out of 98) of SPS notifications received by WTO in May 2007 have been about new or revised pesticide requirements (*South-North Development Monitor*, 2 July 2007: 1-2) Often the new MRLs notified are not backed by

scientific justification (WTO; op. cit.). In particular, the MRLs set by some private standards are not only high and scientifically unjustified, but also are not transparent as they are not notified to WTO as mentioned before. To defend unjustified trade restriction, an exporting country has to take defensive measures for dispute settlement which also requires the necessary scientific, technical and legal capacity involving further costs.

If the cost of compliance increases import prices in the importing countries, it will have negative impact on demand. On the other hand, effective compliance with SPS measures, could also contribute positively not only to market access but also to product prices in the final market. This is so because such products will be regarded as differentiated ones for which the consumers may be prepared to pay premium prices. Whether the fruit of increased prices is reaped by the exporters, would depend on the distribution of benefits of differentiation of the product between exporting countries and retailers.

The overall impact on prices is not, however, clear. What is clear is that the cost of compliance is high for poor countries as will be explained shortly, but the cost of the lack of compliance will be even higher as it could result in restrictions, or prohibition, of import of a non-complying country in the destination thus acting as a quantitative barriers. In other words, the cost of compliance is far less than the cost of loss of export earnings due to the lack of compliance.

The variation in the cost of compliance

The information on the cost of compliance is scanty particularly that it comprise many elements related to various activities in the supply chain (see chart I). Further, the costs of

loss of income due to delays in exports, or rejection of the product at the port of imports, and reorganization of the supply chain are not often included. Nevertheless, even then the available incomprehensive evidence suggests that it is high, in relation to exports, particularly for small holdings in low income countries. According to the ACP Secretariat, the operational costs of the compliance with SPS alone “represent overhead of between 2 per cent and 10 per cent of value of products exported by the vast majority of ACP countries. (CTA, 2003:3). Further, the Secretariat concludes that the impact of SPS Agreement on market access of many ACP countries, particularly in Africa, has been negative and the fisheries sector of the region has suffered more than other sectors. However, no quantitative measure of social loss is provided beyond arguing that the higher is the share of agriculture in GDP and employment [and exports], the higher will be the cost due to the loss of exports (CTA.2003:60 and 26-28). Similarly a study on India indicates that the potential losses to India “from strictness of the standards set and from the variation in the standards among the seven export destinations” [main developed countries] are high (Jayasuriya et. al (2006). For example, the demand elasticities for four food product exports of India varied from -0.58 in the case of Japan to -2.78 in the case of the Netherland (ibid, 6).

The wide range in the estimated figure of cost by ACP indicates that no general rule can be drawn for the cost of compliance. It depends, *inter alia*, on the type of products exported, the destination of exports, the size of farms and the capacity of the country for compliance and the organization of the supply chain. To begin with, when a country is exporter of sensitive products, it is often more subject to the risk of rejection by importing countries. At the global level, the following products, ranked in order of the

proportion of trade affected, have been the most important products impacted by border rejection based on technical standards during 2000-01:

- Fish and fishery products,
- Meat and dairy products
- “Other processed products”
- Fruits and vegetables and their products and nuts and spices,
- Animal feed and grain, tropical beverages,
- Oil seeds, textiles fibers, drinks, tobacco/cigarettes and sugar and confectionery⁸

The destination of exports affects the cost of compliance as importing countries have different standards as mentioned earlier. Developed countries, particularly, EU, impose the most stringent SPS measures on imports. For example, the negative impact of the difference between the 1998 harmonized EU standard for maximum level of Aflatoxin and that of the Codex international standard, accepted by some other countries, on African exports of cereals, fruits, vegetables and nuts estimated to be US\$670 million (Lacovne, 2004:31). Further, the cost of compliance is imposed not only on the governments, but also on the private operators involved in production and exports. For example, the EU’s new Regulation which came into effect in January 2006 requires the implementation of Hazard Analysis Critical Control Points (HACCP) for control of hygiene and the adherence to Codex rules throughout the supply chain by the exporters because it is assumed that the private operators have the primary responsibility for food hygiene. The principles of HACCP include: analysis of hazards; identification of critical control points; establishment of preventing measures; establishment of monitoring

procedures; establishment of corrective actions; establishment of procedures to verify that the system is working properly and, the establishment of record keeping documenting system. These requirements necessitate investment by the private operator in the exporting countries as EU requires pre-approval of all establishments involved in production and exports.

The capacity to comply, of course, depends on the level of development of a country. The lower the level of development, the lower is the necessary capacity. Often more sensitive products, e.g. fish, are also the most “demand dynamic” products in international trade (see Shafaeddin, 2007). Thus the lack of necessary capacity for the compliance would cost them slow export growth. The organization of the supply chain and the size of farm holdings and firms involved in exportation also affect the unit cost of compliance; the more fragmented the supply chain and the smaller the size of farms and exporting enterprises, the higher is the unit cost of compliance (see also below).

Estimates of costs of compliance for various products

For the reasons explained above, the precise estimation of the overall cost of compliance is not possible for each country and each product, particularly the costs related to downstream activities before a product reaches the port. The ACP Secretariat provides rough estimates of the cost compliance for various functions related to the control of a product at the end of the supply chain. There are also some scattered estimates for various individual products at the country levels. Table 1 provides estimates of costs of various activities necessary for compliance of an African country with SPS measures at 2003 prices. This estimate, however, excludes the operational costs. Further, it is

assumed that certain activities (mostly training facilities) will be provided at the regional level rather than at the level of individual countries. Moreover, it does not include costs of modifications of downstream activities and it is not clear whether or not the estimate includes the requirements for compliance with the private sector Codes of Practices. Yet more, it does not include such costs as certification and accreditations.

Insert tables 1 and 2 here

At the country level, some rough partial estimates of costs are available for Ethiopia and for a few products for a couple of African and other countries. Table 2 provides some estimate for establishing quality and certification for Ethiopia. The estimate, however, does not include the private costs as well as the operational costs for the public sector. Further, it does not include certain important cost such as the cost of accreditation of all laboratories and certification authorities let alone the cost of adaptation of the supply chain for the compliance. Even then the estimated figure accounts for over 1.9 per cent, 2.2 per cent and 3.1 per cent of value of total exports, exports of agricultural goods and food products of the country in 2003, respectively.

Certification and laboratories for various chemicals and hygiene require accreditation. The initial (assessment) cost of a typical accreditation for each certification body is nearly US\$ 40,000. When the cost of setting-up the system, and costs of implementation, inter-laboratory testing and writing -up documents are added, the total cost easily reaches nearly \$180,000 for each accreditation⁹. As there is a need for accreditation of a number of laboratories and certification bodies, the cost of accreditations will be very high. The recurrent audit and certification costs in the case of private standards for mangoes vary between 1% of sale in the case of Chile, 4% in the

case of South Africa, and about 1% to 2.5% in the case of Ghana and 4% to 15% in the case of Peru (depending on the volume of sale) (OECD,2006,10-11).

In some cases EurepGAP provides group certification which reduces recurrent unit cost. By contrast, when a products is exported to different markets requiring different certificates the cost of certification increases further. The cost of record- keeping, use of tracking system from field to exporters and other managerial tasks is another substantial operational cost; in the case of mangoes was between \$ 800-1000 per month (OECD, Ibid, 12). The cost of audit and certification, like other costs, has to be borne by suppliers entirely with the exception of Fairtrade Labelling Organization (Hatanak et. al.(2005:357 and 361)¹⁰.

Table 3 shows the cost of compliance for the tropical fruits for a couple of African countries. Such costs are enormous in relation to the related export items of the countries concerned. Data on exports of their tropical fruits is not readily available. However, the figure are very large in relation to total exports of food of Mozambique (\$126m) and Guinea (about \$8m) in 2002 for which data is available (Based on *UNACTAD, Handbook*, Ibid: table4.1A). The initial investment is over 7 per cent of export earnings in 2002 in the case of Mozambique, and it exceeds the total food exports in the case of Guinea for the same year. As the operational cost for the public sector is not estimated, no judgement can be made in this respect. However, the burden of the cost is mainly on the public sector. By contrast, in the case of Indian spice export, the burden of the investment cost was mainly on the private sector (World Bank, 2005: 85).

Insert tables 3 and 4 here

The cost of upgrading of the fish plants does not seem to be significant in the case of Bangladesh and Nicaragua (table 4). However, in countries where little facilities for fish processing exist, the cost could be colossal. For example, the average increase in unit production cost for Kenya's industrial fish processors per plant due to the compliance with SPS measures was 25 per cent (World Bank: 2005:83).

For meat and livestock, we do not have an estimate as various investment and operational costs are involved in the supply chain of these products. For the estimated cost of vaccination see Annex table B.1.

When private standards are required, the (private) cost of upgrading the farm adds to other costs. For example, to comply with EurepGAP, the investment (private) cost of upgrading of a pineapple farms in Ghana was between \$25 to\$80 per acre. These costs included "building for storage of chemicals, changing rooms, toilets and dinning-room or upgrading of packing and washing facilities"(OECD; Ibid,11). Generally speaking the cost of compliance with private standards are higher than that of public standards because they are more complex and are often reliant on "process" than on "performance"(Mainville, et. al. 2005:340).

An important shortcoming of most estimates of the data on costs so far provided is that they are related to the cost of "control" paying little attention to preventive measures and the difficulties and costs of adjustment, of the supply chain, particularly at the farm level or the reorganization of the supply chain. As mentioned earlier the cost is higher when the supply chain is fragmented than where it is vertically integrated. In fact, estimation of such costs are neither easy nor very useful as the main problem is the difficulties and the time necessary for adjusting the supply chain where farms holdings

are small and scattered, farmers are illiterate, extension services are lacking and the transport ,processing and packing systems are inadequate and the supply chain is fragmented. There is a need for a different organization of the supply chain for the expansion of exports altogether to facilitate the compliance, reduce its cost and enhance its benefits (see Shafaeddin, 2007).

The burden of the cost of compliance

The cost of compliance is extremely high for least developed countries and small holdings. In this respect, three important points should be emphasized. First, as far as the burden of the cost on the government is concerned one should bear in mind the magnitude of the cost of compliance with SPS Agreement together with the cost of all other WTO Agreements. According to one estimate, the cost of implementation of “...just three WTO Agreements[Custom Valuation, SPS and Intellectual Property Right] of the six Uruguay Round Agreements that involve restructuring of domestic regulations, come to about \$150 million[in 2000 prices]..... [which] is more than the annual development budget for eight of twelve least developed countries for which we could find a figure for that part of the budget” (Finger and Schuler, 2000:525).

Second, the burden of the cost of compliance is unequally distributed between developed and developing countries, as it is imposed mainly on the latter¹¹. For imports, a developing country should apply standards which meet the requirement of SPS Agreement-e.g. international standards. These standards are based on standards which had already been developed by developed countries and had been in use in these countries, whereas developing countries have to adjust to them. Further, in case

developing countries use other standards, they have to demonstrate that they are scientifically justified for which, unlike developed countries, often lack the necessary capacity. For their export items also developing countries have to develop the capacity to comply with the standards imposed by developed countries and bear the cost of testing, certifying and accreditation etc. in addition to the cost of adjusting their supply chain.

Third, as the income level of developing countries, particularly least developed countries, is far smaller than developed countries, their ability to bear the opportunity cost of compliance is, relatively speaking, significantly higher than that for the developed countries particularly that small holdings are dominant mode of agriculture in these countries.

Cost of the lack of compliance

The lack of compliance involves both short-run and medium to long-run opportunity costs. The short-run cost includes the immediate loss in export earning, national income, income of farmers, trades and households as well as employment. Further, the lack of compliance will have negative impact on education, health and well being of the peasant not only because they lose their main source of income, but also because of the negative impact on Government revenues thus its provision of social services. To such long-run effects one may also add those related to difficulties in regaining credibility and reliability even when the sources of the problem are tackled.

The situation can be exemplified with the case of Rift Valley fever affecting livestock in the Somali Region of Ethiopia and the resultant ban by Saudi Arabia on imports of livestock from Ethiopia. In 1998, the Government of Saudi Arabia imposed a

ban on imports of livestock from Ethiopia which was removed after 16 months. But after an outbreak of the disease within Saudi Arabia and some neighbouring countries, a new ban on imports from Ethiopia, and other countries in Horn of Africa, was imposed by Saudi Arabia, Yemen and UAE. The Saudi's ban on imports of live animals from Ethiopia was still in effect as of mid 2006 although the ban on meat has been lifted and there was no evidence of disease in livestock of Ethiopia anymore.

According to a simulation exercise, it is estimated that exports from the Somalia Region of Ethiopia declined by 42 per cent during the first 16 months when the ban was in force (Pratt, et.al: 17). Further, the GDP of the Region declined by US\$ 91m (25 per cent) and the producers experienced the loss of value added of about 50 per cent due to the fall in prices of livestock (Ibid:17 and 3and 20). In addition to producers, the traders, brokers, transport and retailers experienced declines in their income (Ibid: 23). The only gainers were butchers who benefited from the decline in the price of the livestock in the domestic market. Household income of pastoral and sedentary farmers (503912 families) was also adversely affected by between 19 to 25 per cent. The pastorals in general were more severely affected, and the middle income households in both groups were the main losers (Ibid: 21 and 52). The consumption by producing households was also affected negatively by about 7.5 per cent in nominal terms as a result of the decline in their income.

The longer-term effects of the lack of compliance is that as of today(mid-2006) the Saudi Government has not removed the ban on imports of live animals from Ethiopia, despite the fact that the disease had disappeared, presumably because of the lack of confidence in the product exported from Ethiopia. Even if the ban was not justified on

scientific grounds any more, it had been instigated because of the initial lack of conformity of the export products to the standard of the importing country, but persisted even when the problem was tackled.

There are a number of other cases of the lack of conformity of a product by an exporting country which has cost the country a lot. For example, the experience of China after its accession to WTO indicates that SPS barriers to trade in EU, Japan and the USA affected about 90 per cent of exporters of foodstuffs and animal by-products and led to losses of \$9 billion in 2002 (Dong and Jensen,2004:2). The experience of China also reveals that the failure to comply with SPS measures will lead to more frequent and closer inspections of future export products of a country by the importers (Ibid: 2-4). The Scandal on dog and cat feeds, toothpastes etc. imported to the USA from China led to a trade tension between the two countries in 2007 and the Chinese admitted that that their national credibility, reputation and image was damaged as far as food safety was concerned (F.T. July 10 2007).

The experience of many developing exporting countries also shows that often their intervention in the SPS measures has taken place ex-post i.e. after they are alerted that their product faced a problem in the port of the importing country as a result of inspection by the relevant authorities (World Bank,2005: xviii). The lack of control by the exporting country at the port of exporting and more importantly at the farm level, or other segments of the supply chain, was the route cause of the problem. The result has been trade disruption and in some cases the return of the product to the exporting country involving the transport cost and the costs of disposal of the product. (See Ibid: 90).

Distributional impacts

In compliance with SPS measures, small holdings and small exporters will be in a disadvantage vis-à-vis large ones because of the fact that they have to bear higher unit cost of compliance even if all other constrained were removed.

Small-holders have problems in meeting standards, particularly private ones, in terms of quality, food safety, GAPs and traceability even where infrastructure are suitable and public-private cooperation operate satisfactorily-let alone in poor least developed countries. Moreover, their unit cost of compliance will be high because of their small size. As a result, they will be driven out of market. For example in the case of Chile “it is exceptional to find small producers...involved in the fruit market (OECD, 2006,17)¹². In Kenya, the number of small holder reduced by 60 per cent between 2002 and 2006 because of their lack of capacity to comply with SPS measures (UNCTAD, 2007)¹³ As there high risks that small holders would be excluded from the export market, . there will be a trade off between export expansion and negative distributional impact of compliance with SPS requirements. the involvement of large holdings and exporters will help export expansion but the fruits of exports may not rich the poorer strata of population in the rural area. The distributional impact however is not inevitable (see Shafaeddin, 2007). On the other hand, the lack of development of large farming may constrain export expansion at least in the short-and medium terms until the general agricultural practices are improved throughout a country which will be a tedious, expensive and a very long process in the case of least developed and other poor countries.

The standards imposed by some retailers in the importing country have nothing to do with SPS Agreement. Nevertheless, the fact that in practice are made requirements for

the purchase of the products from other countries, it involves additional cost for exporters often beyond the ability of small firms and farmers. For example, to be able to sell to some UK supermarkets, there is a need to obtain BRC certification which requires large investment in upgrading pack-house facilities. It is estimated that the amount of investment for such upgrading for vegetables would be nearly 11 per cent of an annual sale of \$1.4 million (World Bank: 2005: 104). Further, "...to laying down and enforcing their safety and quality requirements, the leaders[food retailers in main importing country] are increasingly consolidating their systems of procurement, entering into long term relationships with a more limited number of 'preferred suppliers'"(World Bank:, Ibid: xiii) ,which naturally would be those who could afford to conform to their standards. Least developed countries and small holders in these countries therefore, will be the main losers.

IV: The impact of SPS measures on exports of Africa

The difficulties of complying with SPS measures have resulted in redirection of African exports of food products away from the developed countries which are the main markets for these products. Table 5 provide data for destinations of exports of foods, agricultural raw materials and total exports of African developing countries. Accordingly, it is evident that the share of developed countries in total markets for exports of foods of African developing countries was stable during 1980s; but it started declining with the coming into effect of the SPS Agreement in 1995. Subsequently, it fell sharply, particularly in the case of EU which used to be the main market for Africa. Of course, the redirection of the market for exports of foods may not have been caused entirely by difficulties in

compliance with SPS measures of developed countries. It can be partly explained by the expansion of South-South trade for other reasons. Nevertheless, SPS measures must have had a strong influence. This is so because the share of developed countries as a market for total exports of African developing countries did not, in fact, show as sharp redirection as in the case of foods according to the same table. The comparison of the corresponding data for Agricultural raw materials and food products is even more revealing; the table indicates that the share of developed countries as a market for exports of agricultural raw materials changed little during 1990-95, and remained more or less stable between 1995 and 2003, i. e. after the SPS Agreement was signed. The reason is that, with exception of hide and skin and linseed oil, other agricultural raw materials¹⁴ are hardly subject to SPS measures.

Insert table 5 here

The redirection of trade of countries which have not yet acceded to WTO is even more supportive of the negative impact of SPS measure on redirection of exports. Table 6 shows the direction of exports of Ethiopia and Sudan as two examples. Neither country is a member of WTO and has little facility for the compliance with SPS measures of developed countries. Accordingly, both countries show sharp declines in the share of developed countries, particularly EU; as a market for their export¹⁵. In other words, the lack of their capacity for compliance with SPS measures has been accompanied with what the World Bank calls “exist” policy. An “exist policy” implies trying to redirect trade from countries with stringent SPS measures, here developed countries, towards “easier” markets. As those countries are large importing countries, such a policy has also resulted in slow export growth (Shafaeddin, 2007). An “exist policy” is not a viable

policy as easy markets will not remain easy in the future. The poor countries have no choice than complying with SPS measures whether they join WTO or not. The question is how this can be done to reduce the cost of compliance and enhance its benefit. We have provided an answer to this question in a separate paper (Shafaeddin, 2007).

Insert table 6 here

V. Conclusions

In this paper we have examined the cost of compliance with SPS measures for poor countries with reference to Africa. It was shown that the main characteristics of the SPS Agreement are such that their implementation requires a complex, difficult and high cost “SPS” system involving regulatory measures, policy re-orientation and enhanced capacity building. Diverse and complex regulations, standards and guidelines are to be used ranging from technical regulations set by the so-called “three sister organizations”, to standards applied by government and enterprises of importing countries. Such standards are not harmonized and sometimes change rapidly in emergency situations. They cause not only difficulties in preparation for the compliance, but they also impose extra costs on exporters and create uncertainty for them as well as for investors. Preparation for the implementation of SPS measures is knowledge intensive and involves a learning process which requires time, training and a close cooperation between the public and private sector in various stages of the supply chain for exports.

The characteristics of the SPS Agreement outlined above, therefore, requires a SPS system with a forward looking strategy, proactive policies and preventive measures rather than defensive actions by an exporting country. Such a system necessitate an efficient compliance policy, adaptation of rules and regulations, a mechanism and set-up

for coordination among the stakeholders, and an effective capacity for implementation and compliance. Therefore it is highly costly and difficult for poor countries.

Although the costs of compliance are related to both imports and exports, the burden of the cost is on the export side; with few exceptions, requirements for imports are the same as that of exports. As far as exports are concerned; the burden of the cost of compliance is imposed on the exporting countries; the cost of compliance is relatively high in relation to the income level of the least developed and other low income countries and resources available to them; while the cost of compliance is high, the short-and long-run cost of the lack of compliance is enormous, in terms of the loss of foreign exchange, income, employment and household consumption, particularly in rural area; the cost and the efficiency of the compliance depend, *inter alia*, on the organization of the supply chain.

The cost of compliance is the sum of all fixed and operational expenses which accrue to the public as well as the private sector i.e. farmers and enterprises involved in the supply chain. These costs include those necessary for adjusting various components of the supply chain, the administrative cost of control, inspection, testing and certification and the cost of delays in exportation (e.g. interest charges) caused by the procedures necessary for compliance. The cost of compliance is like export tax with the difference that in the case of export tax the revenue is collected by the government, but in the case of compliance the cost accrues to the public and private sectors.

Generally speaking the operational cost, alone, of compliance is estimated to be between 2 to 11 percent of value of export in the case of Africa. The investment cost is also significant exceeding in some cases (e.g. Mozambique) the total annual food exports

of a country. However, no general rule can be drawn. The cost depends, *inter alia*, on the type of products exported, the destination of exports, the capacity of the country for compliance, the size of farm holdings and the organization, i.e. degree of vertical integration, of the supply chain. At the global level, the following products, ranked in order of the proportion of trade affected, have been the most important products impacted by border rejection based on technical standards during 2000-01: fish and fishery products, meat and dairy products, “other processed products”, fruits and vegetables and their products and nuts and spices, animal feed and grain, tropical beverages, oil seeds, textiles fibers, drinks, tobacco/cigarettes and sugar. EU has the most stringent SPS measures where importing enterprises also impose additional standard requirements on imports of food products. Small and scattered farm holdings and fragmented supply chain, which are dominant characteristics of the food system in poor countries, are subject to higher unit cost of compliance than large farm holding and a vertically integrated supply chain.

It is true that compliance with SPS measures is difficult and highly costly for least developed and other poor countries. Nevertheless, in order to expand exports, they have little choice than developing their capacity for the compliance irrespective of their membership of WTO. The question is how this can be done to reduce the cost of compliance and enhance its benefit. A separate paper is allocated to the discussion of this issue (the Shafaeddin, 2007).

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Table 1: Cost of various initial activities necessary for the compliance with SPS Agreement in an African country (2003 prices)

<u>Activity</u>	\$(1000)
1. To strengthen the institutional framework	56
2. To update the legal and regulatory framework	76
3. To upgrade and rationalize inspection services	604
4. To upgrade the scientific and technical capabilities of labs	1,505
5. To train quality control managers in the implementation of food quality assurance system including HACCP	120
<u>Total at country level</u>	<u>2,391</u>
Additional cost of Regional activities	<u>6245</u>

Source: CTA (2003:40-44).

Table 2: The cost of a programme for establishing quality control and certification system for agricultural exports with the objective of enhancing the regulatory and food control system of Ethiopia

<u>Component</u>	<u>Recipients</u>	<u>Cost(\$US)</u>
1. Institutional & legislative reform	MOARD,MOH,MTI	838,598
2. Capacity building in conformity assurance for GOE organizations	MOARD, MOH, QSAE ^a	5,569,248
3. Regulation of conformity assessment	MOARD,QSAE	2,621,210
4. Capacity building of Ethiopian certification companies for certification for conformity to Ethiopian standards: QSAE; private sector		211,056
5. Capacity building for certification in niche markets/special schemes	QSAE, MOARD, private sector	197,058
<u>Total</u>		<u>9,925,507</u>

Source: JICA project

a. If designated as enquiry point

b. Estimated time for execution: 5 years

Table 3: Cost of compliance for some African countries for Tropical fruits (US\$)

Country	Public	<u>producers and private sector</u>	
		Initial	operation
Tanzania	2,520,500	98690	20500
Mozambique	9,250,000	109,400	23600
Guinea	5,936,600	2,197,200	27000

UNCTAD (2006: 32-58)

Table 4: The cost of upgrading for compliance with SPS measures for the fish processing in Bangladesh and Nicaragua

Country	Cost of upgrading (% of base year X)	Maintenance (% of annual exports)
Bangladesh: 1996-8	2.3	1.1
Nicaragua: 1997-2002	0.61	1.26

Source: Based on World Bank (2005:77)

Table 5: Main destination of exports of developing African countries 1980-2003
(percentage of total)

	1980	1990	1995	2000	2003
Country groups					
			<u>Food</u>		
Developed; of which:	74.2	74.1	73.5	62.3	62.3
Europe	59.4	61.4	58.9	50.4	52.3
Eu	(57.1)	(60.4)	(57.5)	(48.7)	(51.4)
USA	10.3	5.1	4.9	4.4	4.8
Japan	2.6	5.4	6.9	6.7	3.5
			<u>Agricultural raw materials</u>		
Developed; of which:	74.4	57.9	54.4	55.6	54.2
Europe	61.8	50.1	46.3	42.2	44.7
EU	(60)	(49.3)	(45.2)	(44)	(43.3)
USA	4.2	2.7	3.1	3.3	3.0
Japan	6.5	3.3	2.5	5.4	5.9
			<u>Total exports</u>		
Developed; of which:	82.9	79.4	74.4	68	69.8
Europe	48.7	56.8	51.9	50.4	52.3
EU	(46.2)	(56.0)	(50)	(48.7)	(51.4)
USA	31.3	19.0	18.0	4.4	4.8
Japan	2.1	1.4	1.9	5.7	3.5

Source: Based on UNCTAD, *Handbook of Statistics*, 2000, table 3.2.1.H and 2005, table 3.1.H

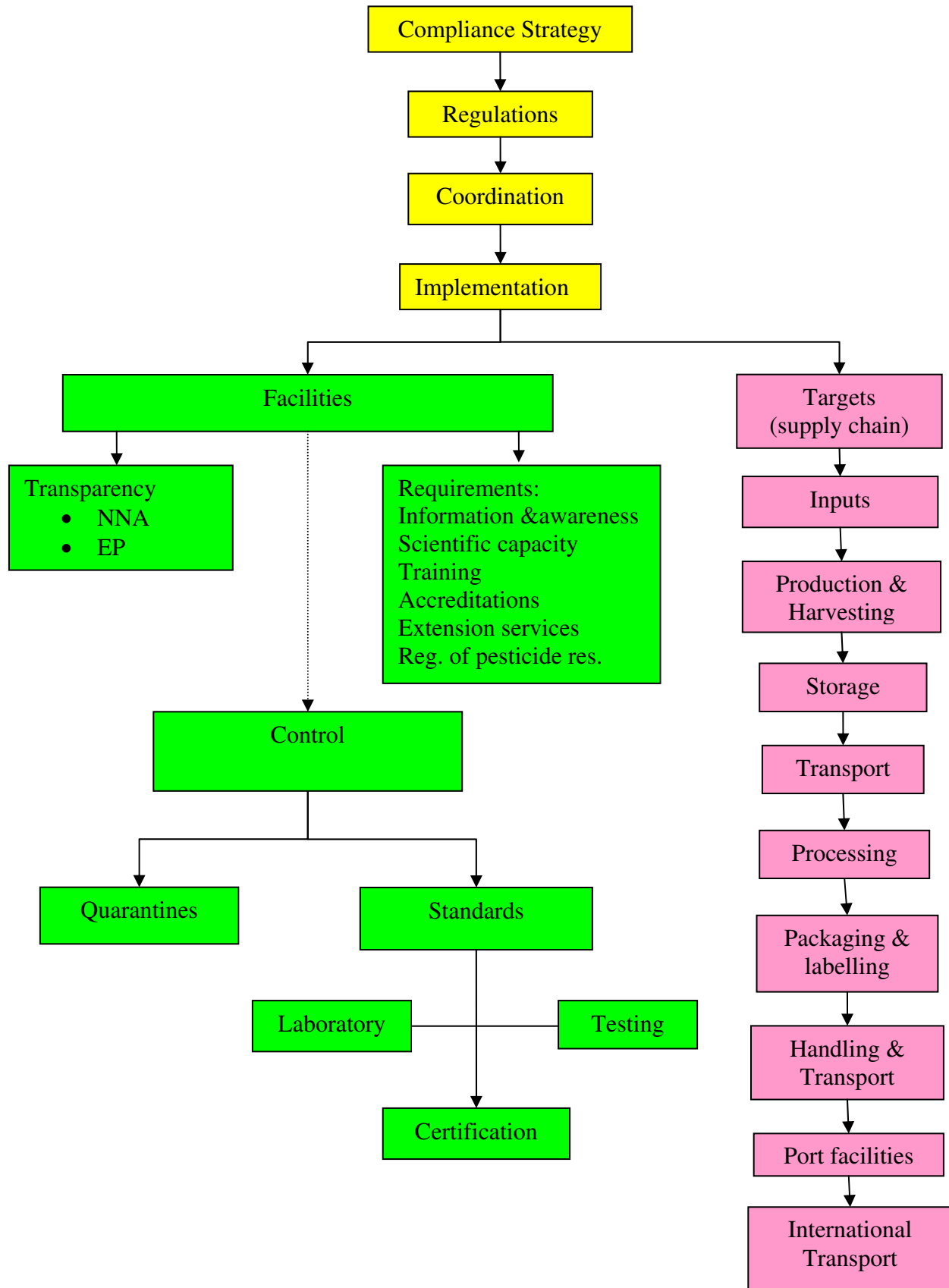
Table 6: The direction of exports of Ethiopia and Sudan; percentage in total exports (1995-2004)

Region	Ethiopia				Sudan			
	1990	1995	2000	2004	1990	1995	2000	2004
EU (16)	41.2	50.9	40	29.6	38.8	30.7	11.6	5.0
Japan	14.9	12.7	10.5	8.8	6.0	6.5	19.1	13.7
USA	11.2	6.9	5.9	6.0	2.8	4.0	0.1	0.4
Africa	12.7	12.6	16.8	19	7.1	3.0	3.4	3.2
West Asia	10.2	10.1	7.6	10.9	10.5	25.9	10.5	8.1
Others	9.8	6.8	19.2	25.7	34.8	29.9	55.3	69.6
Total	100	100	100	100	100	100	100	100
of which:								
Eu+Japan+USA	67.3	70.5	56.4	44.4	47.4	41.2	30.8	19.0 ^a
All developed	67.4	71.5	59.9	47.5	47.9	42.8	30.8	19.0

Source: Based on UNCTAD, *Handbook of Statistics, Ibid: table3.1A)*

a: Does not add-up because of rounding

Chart 1: Facilities for and targets of compliance with SPS measures



Appendix A

Checklist of Illustrative SPS Issues for Consideration in Accessions

Commitments (by the time of accession)	WTO Reference
1. Standstill: the introduction of new standards, animal health regulations and food safety regulations shall conform to SPS Agreement principles.	1. Generally agreed principle in WTO accession negotiations.
2. Establishment and operation of a single Contact Point for Information ("enquiry point").	2. Article 7 and Annex B.3.
3. Transparency: notification and access to documentation:	3. Articles 7 and Annex B, Also G/SPS/7.
(a) identification of authority responsible for making notifications to the WTO and ensuring transparency obligations are met on an ongoing basis;	(a) Annex B.5.(b) and Annex B.10.
(b) establish guidance or law requiring publication of proposed measures at an early stage for comment;	(b) Annex B.5(a).
(c) provision in law or administrative procedure to provide copies of proposed measures to WTO Members; and	(c) Annex B.5.(c).
(d) require in law or administrative procedure, a reasonable period of time for comment from Members and the public, and establishment of a process to take comments into account without discrimination.	(d) Annex B.5(d).
4. Necessity: measures are applied only to the extent necessary to protect human, animal or plant health.	4. Article 2.2.

Commitments (by the time of accession)	WTO Reference
5. Regulations Based on Science: regulations governing animal and plant health and food safety shall be based on scientific evidence.	5. Articles 2.2, 3.3 and 5.2.
6. Harmonization: to the extent possible, members shall follow international standards, guidelines, and recommendations in establishing SPS measures.	6. Articles 3.1, 3.3 and 3.4.
7. Equivalence: members shall recognize different measures that achieve the same level of protection.	7. Article 4.
8. Risk Assessment: developing scientific evidence and conducting risk assessments to ensure that measures are based on science and applied only to the extent necessary to protect health.	8. Article 5.1, 5.2 and 5.3.
9. Regional conditions: measures take into account the regional characteristics both of the areas from which products originate and the areas for which they are destined.	9. Article 6 and Annexes A.6 and A.7.
10. Non-discrimination: measures do not arbitrarily or unjustifiably discriminate between different members or between domestic and foreign suppliers.	10. Article 2.3, and Annex C.1(a) and (d).
11. Control, inspection and approval procedures: ensure that procedures, including systems for approval of the use of additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs comply with the Agreement.	11. Article 8 and Annex C.

Source:WTO: WTO/ACC/8

Appendices B

Table B.1 Cost of disease control in a few developing countries (US \$)

	Per animal		Indemnity for culled animals
	Vaccination	surveillance	
Zimbabwe	1.25	0.75 per year	
Argentina	1.50		250 per head
Philippines	0.50	0.50	
Uruguay	0.75 ^a		200 per head

a. Includes \$0.10 cost of emergency system per animal

Source: World Bank (2005:92).

Notes

¹ “...the Common agricultural Policy (CAP) of 2003 would shift a large bulk (about 75 per cent) of the Blue Box subsidy to Green Box. The latest Five Year Farm Bill of the US stipulates additional payments (about US\$5.5 billion over a 10-year period) through the Green Box (B.L. Das, 2007).

² See B.L.Das Ibid).

³ More recently, there are talks of restricting imports of fresh vegetables and fruits from by air-cargo from developing countries under “carbon mile” rules; on the ground that air transport is the most polluting type of transport

⁴ For a survey of issues on Private Standards and references see Henson and Reardon, Food Policy (2005), Vol 30, No.3 and other articles in the same issue of Food Policy.

⁵ See also the related references herein

⁶ Whether or not such a large difference between the two standards is a means of disguised protection is debateable (See Lacovone, 2004).

⁷ See the case of Rift Valley fever in the following pages.

⁸ Based on Jaffee & Hensen (2004: 20, table 2).

⁹ Based on Kellman and Yimer which is in turn based on SANA (South African National Standard Sources).

¹⁰ When growers own their processing facilities, the invest cost of upgrading their facilities to meet the requirements of certificate bodies. In the case of Michigan blueberry industry this amounted to \$100000 (Hatanaka, et. al. 2005:361). In developing countries it could be larger

¹¹ The donors sometimes provide technical assistance and financial help in the preparation of the food system of developing countries for the compliance.

¹² For details on problems of small holders see OECD (2007; 16-22).

¹³ For general problems of small holding and SMEs, see also Jaffee and Gordon (2006) and OECD (2006.a).

¹⁴ They include: cotton, wool, jute, sisal, tobacco, rubber wood and logs.

¹⁵ . Note that the redirection of export of Sudan is partly due to exports of oil(mainly to China) and in the particular case of the USA to economic sanctions.