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Rules of Origin and Non-Tariff Barriers in Agricultural Trade: Perspectives from Bangladesh and Cambodia

Uttam Kumar Deb *

*Uttam Kumar Deb is Senior Research Fellow, Centre for Policy Dialogue (CPD), Bangladesh. Narayan Chandra Das, Nafisa Khaled and Naheed Rabbani provided excellent research assistance for this study. The views presented in this paper are those of the author and do not necessarily reflect the views of CPD, other ARTNeT members, partners and the United Nations. This study was conducted as part of the ARTNeT Regional study on agricultural trade liberalization with the aid of a grant from the World Trade Organization (WTO). The technical support of the United Nations Economic and Social Commission for Asia and the Pacific is gratefully acknowledged. The author would like to thank, without implicating, Biswajit Dhar, Mia Mikic, Yann Duval, Debapriya Bhattacharya, Mustafizur Rahman, and an anonymous reviewer who lent their support to the study and made comments on earlier drafts. Comments from the participants of the ARTNeT Research Team Meeting held in Colombo in August 2005 and participants of the WTO/ESCAP/ARTNeT Regional Seminar on Agricultural Trade Liberalization for Asia-Pacific Economies held in Xian in March 2006 are appreciated. Any remaining errors are the responsibility of the author. The author may be contacted at uttam@cpd-bangladesh.org .

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List of Acronyms and Abbreviations

ACP	African, Caribbean and Pacific Countries
ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
AISP	ASEAN Integration System of Preferences
Andean Group	Bolivia, Colombia, Ecuador, Peru and Venezuela
AoA	Agreement on Agriculture
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations (Member countries: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam)
BDCs	Beneficiary Developing Countries
CACM	Central American Common Market (Member countries: Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua)
CGE	Computable General Equilibrium
COMTRADE	UN Commodity Trade Statistics Database
EBA	Everything But Arms
EPC	Effective Protection Coefficient
ERDF	European Regional Development Fund
ERP	Effective Rate of Protection
EU	European Union
FAO	Food and Agriculture Organization
FTAs	Free Trade Areas
GSPs	Generalized System of Preferences
HACCP	Hazard Analysis and Critical Control Point
HMT	Harbor Maintenance Tax
HS	Harmonized System
HTSUS	Harmonized Tariff Schedule of United States
KIEP	Korea Institute for International Economic Policy
KIET	Korea Institute for Industrial Economics and Trade
KITA	Korea International Trade Association
LDBDCs	Least Developed Beneficiary Developing Countries
LDCs	Least Developed Countries
MFA	Multi-Fiber Arrangement
NAC	Nominal Assistance Coefficient
NTBs	Non-Tariff Barriers
NTMs	Non-Tariff Measures
OECD	Organization for Economic Cooperation and Development
PSE	Producer' Subsidy Equivalent
PTAs	Preferential Trading Agreements
RoO	Rules of Origin
RTAs	Regional Trading Agreements
SAARC	South Asian Association for Regional Co-operation (Member countries: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka)
SADC	South African Development Community
SAPTA	SAARC Preferential Trading Arrangement

SITC	Standard International Trade Classification
SPS	Sanitary and Phytosanitary
TBT	Technical Barriers to Trade
TRAINS	Trade Analysis and Information System
TRI	Trade Restrictiveness Index
TRQ	Tariff Rate Quota
UNCTAD	United Nations Conference on Trade and Development
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
US	United States of America
USA	United States of America
USCBP	United States Customs and Border Protection
USDA	United States Department of Agriculture
VAT	Value Added Tax
WAEMU	West African Economic and Monetary Union
WCO	World Customs Organization
WTO	World Trade Organization

Executive Summary

Many developed and developing countries have been offering special schemes to benefit least developed countries (LDCs) from trade through increased market access. However, effective utilization of market access opportunities by the LDCs may be constrained by the rules of origin (RoO) criteria and non-tariff measures (NTMs) applied by the preference-giving countries. This report deals with RoO applied and non-tariff barriers (NTBs) imposed by developed and developing countries for importing agricultural products from LDCs. The study considered two LDCs (Bangladesh and Cambodia), three developed countries (EU, USA and Japan) and two developing countries (India and Thailand). It has identified major agricultural exports of Bangladesh and Cambodia. The report has also summarized the RoO criteria applied for these agricultural export items of Bangladesh and Cambodia by EU under EBA, by Japan under its latest GSP Scheme of 2003 and by USA under its GSP scheme. In addition, it has summarized the RoO applicable for agricultural exports of Bangladesh in the Indian markets under the SAPTA and Bangkok Agreement. The study has also documented the RoO applied by Thailand for importing commodities from Bangladesh under Bangladesh-Thailand Bilateral Agreement and from Cambodia under AFTA. Various NTBs imposed by the developed and developing countries are also documented. The study revealed that agricultural export items of Bangladesh and Cambodia have been facing stringent rules of origin in the developed and developing country markets. Both developed and developing countries more commonly use a number of NTBs. The study concludes that in order to serve the interests of LDCs in agricultural trade, developed and developing countries should ease preferential rules of origin as well as lower the extent of NTBs. On the other hand, LDCs would have to undertake a number of interventions in their domestic policies and engage more proactively at the WTO negotiations.

1. Introduction

1.1 Background of the Study

Rules of Origin (RoO) and non-tariff barriers (NTBs) are increasingly becoming important determinants of agricultural trade. Rules of origin are the criteria used to determine the nationality of a product. On the other hand, NTBs generally refer to any measure other than tariff which restricts or distorts trade. Least developed countries have been enjoying preferential market access to the developed country markets such as EU, Japan, USA, Canada and Australia. It is argued that though preferential market access has reduced the tariff barriers for most of the agricultural products exported by Least Developed Countries (LDCs), but stringent RoO and NTBs are limiting exports from the preference-receiving countries.

RoO are very important and indispensable means to implement trading arrangements with preferences. It is because similar products need to be treated differently, on the basis of where the product was made, for successful implementation of preferential trading arrangements. So, it is expected that RoO would be designed as an uncontroversial, neutral device which are essential to implement preferential trade policies, compiling economic statistics and marking a good. RoO become more important and more controversial with increase in degree of differentiation among similar goods from different countries or trading groups, because the benefit of being determined to be from a certain country or trading group vis-a-vis others increases (LaNasa, 1996). The preferential RoO attempt to prevent trade deflection by establishing criteria that ensure an adequate degree of transformation in a preference receiving country to justify allowing a good to benefit from the preference. However, in practice, RoO may be more restrictive than necessary to ensure substantial transformation.

The economic effect of NTBs has also been getting prominence in the literature. It is observed that with the decrease in tariffs under multilateral and bilateral trade agreements other barriers to trade have emerged. Surveys conducted across the world in a number of industries indicate that businesses feel constrained in their ability to access foreign markets by a broad set of NTBs and other obstacles (OECD, 2003). NTBs are in operation in many forms such as *quantitative restrictions* (the volume or value of imports

or exports is limited on a global or selected country basis), *customs procedures and administrative practices*, *special charges and taxes*, *restrictive practices* like state trading and procurement policy, *technical barriers to trade* (stringent policy measures through sanitary regulations and quality standards, safety and industrial standards). Brenton (2003) showed that Bangladesh and Cambodia faced an average tariff equivalent to 5.65 percent and 7.66 percent respectively on their exports to the EU even though they have duty-free access.

Both RoO and NTBs vary from country to country and product to product. It is also observed that NTBs change over time and countries apply several types of NTBs for the same product. Therefore, a study on NTBs needs to cover a wide range of countries as well as products. However, it is not possible to study the NTBs imposed by and on all countries and the way they are faced by different countries with limited resources and time. In this context, the present study focused on the NTBs of some selected developed countries (EU, US and Japan) and developing countries (India and Thailand) from the perspective of LDCs (Bangladesh and Cambodia). The reason for selecting these developed countries is that they are the top three agricultural importing countries of the world. In 2001, agricultural import by EU, USA and Japan was US$ 37.76 billion, US$ 22.41 billion and US$ 12.36 billion respectively (EC, 2003). On the other hand, Bangladesh and Cambodia have substantial trade deals with India and Thailand. Bangladesh has preferential trading arrangements with India under SAPTA (SAARC Preferential Trading Arrangement) and Bangkok Agreement, and with Thailand under Bangladesh-Thailand Bilateral Trade Agreement. Cambodia has preferential trading arrangement with Thailand under AFTA (ASEAN Free Trade Area). So, these two developing countries (India and Thailand) will provide an understanding about NTBs prevailing in developing countries of Asia. On the other hand, two LDCs—Bangladesh and Cambodia—represent South and South East Asian situation in terms of understanding the impact of RoO and NTBs on agricultural exports from LDCs. Thus, the study is expected to provide a comprehensive idea about RoO and the NTBs faced by Asian LDCs while exporting agricultural commodities to the developed and developing country markets.

1.2 Objectives of the Study

The broad objective of the study is to analyze the RoO and NTBs practiced in selected developed and developing countries and their impacts on export of agricultural products from the LDCs. Specific objectives of the study are as follows:

(i) To identify major agricultural products exported by Bangladesh and Cambodia and potential agricultural export items of these countries;

(ii) To analyze the trends in agricultural trade by Bangladesh and Cambodia;

(iii) To describe the RoO applied by selected developed (USA, EU and Japan) and developing (India and Thailand) countries on agricultural imports from Bangladesh and Cambodia;

(iv) To identify different types of NTBs practiced by EU, USA, Japan, India and Thailand on agricultural imports from Bangladesh and Cambodia;

(v) To know the impacts of RoO and NTBs on agricultural export by Bangladesh and Cambodia;

(vi) To suggest some policy measures for Bangladesh and Cambodia for their trade policy and formulation of strategies for negotiations on agriculture at the WTO.

1.3 Scope of the Study

The present study is a desk research based on information and data available in published documents and databases. The study is mainly limited to RoO and NTBs practiced by selected developed (USA, EU and Japan) and developing countries (India and Thailand) on agricultural imports from LDCs (Bangladesh and Cambodia).

2. Review of Literature

2.1. Studies on Rules of Origin (RoO)

A review of the existing literature on RoO revealed that there is lack of comprehensive understanding about RoO practiced by different developed and developing countries for agricultural products. Existing literature on RoO mostly focuses on non-agricultural products. A summary of the studies dealing with RoO` and their impact on trade is provided in Table 1.

Table 1. Major Findings of the Studies on Rules of Origin (RoO) in Agricultural Trade

Study	Country and Period	Study Focus and Methodology	Major Findings
Duttagupta and Panagariya (2001)		This paper offers an analysis of the relationship among traded intermediate inputs, rules of origin, welfare and political feasibility of FTAs. This is a theoretical study which is based on the Grossman-Helpman political-economy model. It demonstrates that the rules of origin can improve the political viability of FTAs.	The study has two major findings. First, an FTA that lowered joint welfare of the union and was voted down in the absence of the rules of origin may become feasible in the presence of these rules. Second, an FTA that increased joint welfare of the union but was voted down in the absence of the rules of origin may become acceptable in the presence of these rules but it may also turn welfare inferior to status quo.
Estevadeordal and Suominen (2003)	Covers 156 countries and nearly a hundred Preferential Trading Arrangements (PTAs) around the world for 2001	The study was conducted to accomplish five major objectives: (1) to provide an overview of the objectives, types and effects of RoO used around the world; (2) to present a comparative analysis of the preferential RoO regimes in some of the main PTAs in Europe, the Americas, Asia-Pacific, Africa, and the Middle East; (3) to measure the degree of restrictiveness and selectivity of product-specific RoO employed in the various RoO regimes; (4) to develop a facilitation index to capture the extent of flexibility instilled in RoO regimes by various regime-wide RoO; and (5) to empirically assess the effects of RoO on aggregate trade flows as well as trade on intermediate goods in the automotive sector through a modified gravity model.	The empirical investigation of the study has three major findings. First, regimes with restrictive RoO and with high degrees of sectoral selectivity discourage aggregate trade flows. Second, regime-wide RoO that allow for flexibility in the application of product-specific RoO, such as cumulation and drawback, facilitate trade flows. As such, various regime-wide RoO provisions can counteract the negative effects on trade of restrictive RoO. Third, at the sectoral level, restrictive RoO in final goods encourage trade in intermediate goods, and could thus engender trade diversion in inputs.
Gasiorek, M et. al (2002)	EU and Southern Mediterranean countries	This study focused on the possible impact of rules of origin and of the cumulation of those rules in the context of EU-Mediterranean partnership. It has used augmented gravity model and computable general equilibrium models for empirical estimations.	At the aggregate level, where there is no diagonal cumulation between countries, bilateral trade is reduced by between 40% and 45%. CGE analysis shows that cumulating rules of origin are likely to lead to increased levels of production (by 2-3%) and increased levels of welfare (of the order of 0.5%), as well as significant increases in intra-regional trade. Another important finding of the CGE analysis is that the welfare gains arising from the application of greater cumulation arise principally from trade reorientation with some trade creation as well. There appears little evidence of trade diversion.
Krishna and Krueger (1995)		This paper focuses on the effects of rules of origin in a Free Trade Area. This is a theoretical study. It has used partial equilibrium model under perfect	Three important results of the study are: (i) In the long run, RoO cause large changes in investment flows due to an FTA. In the absence of RoO, there would be large changes in trade flows, not

Study	Country and Period	Study Focus and Methodology	Major Findings
		competition.	investment flows; (ii) In the long run, RoO may raise or lower welfare relative to pre-FTA levels depending on their restrictiveness. If RoO are weak, they are likely to raise them, while if they are stringent, they will reduce them; (iii) In the short run, where capacity constraints exist, the form of the RoO is especially important.
Krishna (2004)		This paper surveys recent work on the economic effects, both theoretical and empirical, of RoO in a Free Trade Area.	The study has following important findings and conclusions: (i) While a beginning has been made in understanding the effects of RoO at a theoretical and empirical level, far more remains to be done; (ii) Theoretical works on RoO are confined to partial equilibrium models and have focused on perfect competition; (iii) RoO raise the cost of production of the product under concern in the RTA country; (iv) RoO can act to segment markets; (v) Political economy of RoO has not been studied which would be fascinating to look at.
Augier et al. (2004)	Trade flows between 38 countries; 1995 and 1999	The study examined the possible impact of rules of origin on patterns of trade in the european context. It used augmented gravity model and focused on the impact within the Pan-european system of cumulation.	The study has three major findings. First, rules of origin restrict trade and in aggregate the cumulation of such rules could increase trade by 50%. Second, lack of cumulation is more important with regard to intermediate trade than manufacturing trade. Third, the higher the tariff, the smaller the impact of cumulation, though the extent of this may depend on the possibilities of draw back.
Ju and Krishna (1996)		This paper studied market access and welfare effect of Free Trade Areas (FTAs) without RoO considering both the final and intermediate goods markets and their interlinkage. A partial equilibrium model by using a quasi-linear utility setup was used. The model linked final and intermediate input markets.	The study has following important findings: ▪ High tariff of developing countries in FTA will fall the most while those of developed country will not change. Welfare of the FTA is likely to rise. ▪ If domestic demand for final goods and supply of the export are completely inelastic, pressure to open the country's markets and raise its imports is likely to be resisted by a country. ▪ With the view that developing countries have a very limited ability to expand supply in the short run, they are less likely, *ceteris paribus*, to gain from such liberalization.

Source: Review of the Studies made by the Author.

The most comprehensive paper on RoO is Estevadeordal and Suominen (2003) which was conducted to accomplish five major objectives: (1) to provide an overview of the objectives, types and effects of RoO used around the world; (2) to present a comparative analysis of the preferential RoO regimes in some of the main PTAs in Europe, the Americas, Asia-Pacific, Africa, and the Middle East; (3) to measure the degree of restrictiveness and selectivity of product-specific RoO employed in the various RoO regimes; (4) to develop a facilitation index to capture the extent of flexibility instilled in RoO regimes by various regime-wide RoO; and (5) to empirically assess the effects of RoO on aggregate trade flows as well as trade on intermediate goods in the automotive sector through a modified gravity model. Estevadeordal and Suominen (2003) reported that there are two types of RoO: non-preferential and preferential RoO. Both non-preferential and preferential RoO regimes have two dimensions: sectoral, product-specific RoO, and general, regime-wide RoO. The study added that RoO can affect trade by inflicting two types of costs—production and administrative costs.

Another important paper on RoO is Krishna (2004) which surveyed recent work on the economic effects, both theoretical and empirical, of RoO in a Free Trade Area. The study has following important findings and conclusions: (i) While a beginning has been made in understanding the effects of RoO at a theoretical and empirical level, far more remains to be done; (ii) Theoretical works on RoO are confined to partial equilibrium models and have focused on perfect competition; (iii) RoO raise the cost of production of the product under concern in the RTA country; (iv) RoO can act to segment markets; (v) Political economy of RoO has not been studied which would be fascinating to look at.

2.2. Studies on Non-Tariff Barriers (NTBs)

The term “non-tariff measures” is defined to include export restraints and production and export subsidies, or measures with similar effect, not just import restraints (Bora et al. 2002). Non-tariff measures are commonly referred as “non-tariff barriers” or “distortions”. Baldwin (1970) defined “non-tariff distortion” as “any measure (public or private) that causes internationally traded goods and services, or resources devoted to the production of these goods and services, to be allocated in such a way as to reduce potential real world income.”

A comprehensive examination of issues related to the measurement of NTBs is available in Deardoff and Stern (1998). Bora et al. (2002) reviewed various approaches to measure and quantify NTMs within the context of the existing data collections. It has defined and classified NTMs and looked at the effects of NTMs and how to compute those effects. Other useful studies are Baldwin (1970), Corden (1971), Laird and Yeats (1990), Feenstra (1988), Vousden (1990) and Helpman and Krugman (1989). Beghin and Bureau (2001) presented promising methodologies for modeling and quantifying NTBs to trade in agricultural and food sectors. Other studies concentrated on measuring NTBs in agricultural trade include Krueger, Schiff and Valdes (1988), Goldin and Knudsen (1990), OECD (1994), and Webb, Lopez and Penn (1990).

Measures Used for Studying NTBs

A review of the existing literature on NTBs has provided information on measures used for studying NTBs, their strengths and limitations (Table 2). Studies used various measures for studying NTBs. These include inventory approach (under which NTMs are catalogued), frequency approach, price differential approach, quota auction price measures, survey based approach, tariff equivalents, measure of equivalent of nominal rates of assistance, Trade Restrictiveness Index (TRI) and effective protection. Studies also have used modeling approaches such as gravity models, augmented gravity models, CGE analysis for studying the impacts of NTBs. Beghin and Bureau (2001) provided promising methodologies for modeling and quantifying NTBs to trade in the agricultural and food sectors limiting the analysis to sanitary, phytosanitary, and technical regulations.

Review of the literature revealed that there is no unique method to appropriately quantify the size and impacts of NTBs. Each methodology has its own methodological limitations and advantages based on availability of information and data. However, empirical literature, on how least developed countries are affected by NTBs, is limited.

Major Findings

Table 3 summarizes the major findings of studies dealing with NTBs.

Table 2. Summary of Methods and Techniques Used in Analysis of NTBs

Methods/ Techniques Used	Study	Description of the Method/ Technique	Major Advantages/ Strengths	Major Limitation/ Weakness
Inventory Approach	OECD (2002, 2003, 2003a, and 2004), KITA (various years), KIEP (2000), KIET (2002) and Kim (2003)	Inventory-based approaches can be used both in a quantitative perspective and in a qualitative perspective to assess the importance of domestic regulations as trade barriers (Beghin and Bureau, 2001). Various types of NTBs such as export duties, export restrictions, non-automatic import licensing, prohibitions and quotas are catalogued under this approach. Three sources of information can be used: (i) data on regulations, such as the number of regulations, which can be used to construct various statistical indicators, or proxy variables, such as the number of pages of national regulations, (ii) data on frequency of detentions; and (iii) data on complaints from the industry against discriminatory regulatory practices and notifications to international bodies about such practices.	Inventory based approaches can be useful for directing attention to the frequency of occurrence and the trade or production coverage of various types of NTBs.	(i) Standards vary in importance across sectors and products. Different standards would not be expected to have similar effects, and the number of standards or number of pages of domestic regulations is a poor proxy for the trade restrictiveness of the whole regulatory set. (ii) Data availability is a major problem. (iii) Inventory-based approach does not provide a quantification of the effect of regulations on trade per se.
Frequency -type Measures	Michalopoulos (1999)	This is calculated based on number of HS commodity categories subject to NTBs. The number of product categories subject to NTBs is expressed as a percentage of the total number of product categories in HS group to get frequency ratio. Another frequency measure is import coverage ratio (IC).	Useful in directing attention to the frequency of occurrence of various types of NTBs.	Unable to quantify the effect on price and quantity.
Price Differential Approach (also known as Price Wedge Method)	Sazanami, Urata, and Kawai (1995); Kawai and Tanaka (1996); JETRO (2000); Kataoka and Kuno (2003); Harrigan (2003); Ando and Fujii (2002)	This approach calculates the differential between the import price and the domestic price and the domestic price of each commodity at a disaggregated level and subtracts the tariff rate on the commodity from this differential. The result is treated as a non-tariff barrier.	Easy to estimate and provides a quick understanding about the situation.	The price-wedge method has several limitations (Beghin and Bureau, 2001). First, the method makes it possible to quantify the effect of a set of NTBs present on the market but seldom makes it possible to identify what those NTBs are precisely. Second, formulas that measure the NTBs in an implicit way, as a percentage price wedge between imports and domestic prices, are valid

Methods/ Techniques Used	Study	Description of the Method/ Technique	Major Advantages/ Strengths	Major Limitation/ Weakness
				only under the assumption that imported goods are perfect substitutes. The main limitation of the method lies in its practical difficulties. For large-scale studies, available data are often too aggregated to reflect differences in the quality of imported goods.
Quota-Auction Price Measures		Quota-auction price measures have been calculated particularly in connection with the Multifiber Arrangement (MFA). The MFA can be characterized as a voluntary export restraint (VER) in which the import quotas are allocated to foreign suppliers. (Deardorff and Stern, 1998).		
Gravity-based Approaches	Moenius (1999), Sohn and Yoon (2001), Harrigan and Vanjani (2003), Wall (1999)	Estimating gravity equation, residual errors are considered as the effect of NTBs.	It quantifies the effect of NTBs on trade flows.	There may be other factors other than NTBs for residual errors.
Tariff Equivalents	Deardorff and Stern (1998), Messerlin (2001)	The tariff equivalent is estimated by calculating the price wedge between the imported goods and the comparable product in the domestic market.		
Trade Restrictiveness Index (TRI)	Anderson and Neary (1994a), Anderson and Neary (1994b)	This measure was developed by Anderson and Neary (1991, 1994) and is used to measure changes in welfare resulting from policy changes over time.	It provides a single number that characterizes the overall effects of a country's trade policies that apply to a particular aggregate of goods under general equilibrium conditions.	Data requirement is huge.
Effective Protection	Deb (2005), Gulati and Kelley (1999)	Effective protection of a product measures the extent to which the margin between the selling price and the cost of tradable inputs on the international market has widened or narrowed. This is achieved by combining the		

Methods/ Techniques Used	Study	Description of the Method/ Technique	Major Advantages/ Strengths	Major Limitation/ Weakness
		effective protection of the commodity and the protection of tradable inputs. Effective protection is measured by estimating effective protection (EPC) or effective rate of protection (ERP).		
Survey Based Approaches	USTR (2001), OECD (1999), Henson, Loader, and Swinbank (1999), Henson, Lux, and Traill (2001)	Survey is conducted among exporters to know the various types of NTBs faced during export of commodities. The econometric exploitation of the US Department of Agriculture (USDA) survey shows that surveys can be used as a basis for more refined measures of NTBs (Thornsbury 1998).	In the absence of information from other sources, survey-based methods are useful. It is possible to identify barriers which are difficult to measure, for example administrative procedures.	It is a costly approach and requires special skill to design and administer surveys.
Risk-assessment-based Cost-Benefit Measures	Bigsby and Whyte (2000), James and Anderson (1998), Arrow et al. (1996)	Risk assessment approaches seem far away from the measurement of NTBs. However, these methods have been coupled with cost-benefit calculations and indirectly contribute to the measurement of the effect of regulations, and therefore of NTBs. Rather than quantifying the actual impact of this measure on trade, they provide some indication of what should be included as trade barriers on the basis of the effect on welfare. (Beghin and Bureau, 2001)	Combined use of scientific and cost-benefit assessment for identification and assessment of the effects of NTBs.	The main limitations of this approach are the great uncertainty that surrounds the level of risks and the economic consequences.
Stylized Macroeconomic Approaches	Boom (1995), Crampes and Hollander (1995a, b), Gross and Horn (1988)	The effects of NTBs are estimated by observing the displacement of the market equilibrium induced by a regulation.	It helps to assess how much trade is forgone because of regulations, how much consumer preferences are affected and what the effect of harmonization of regulations versus mutual recognition agreements might be for particular nations.	The analytical framework becomes rapidly intractable unless one makes drastic simplifying assumptions.

Methods/ Techniques Used	Study	Description of the Method/ Technique	Major Advantages/ Strengths	Major Limitation/ Weakness
Quantification using Sectoral or Multi-market Models	Orden and Romano (1996), Calvin and Krissoff (1998), Paarlberg and Lee (1998), Overton, Beghin and Foster (1995)	These studies rely on partial equilibrium modeling. Partial equilibrium models provide framework for analyzing tariff-rate equivalents of standards and technical regulations. Their main feature, compared to gravity models, is that they make it possible to assess not only the impact of regulations on trade flows but also on welfare. Compared to stylized approaches used in industrial economics that focus on qualitative effects, partial equilibrium models provide more quantitative results. (Beghin and Bureau, 2001)	Very useful method to estimate welfare effects of regulations such as SPS or TBT measures.	Quantification of trade and welfare effects of SPS and TBT regulation requires taking into account more sophisticated mechanism related to imperfect competition or consumer information.
Measure of Equivalent of Nominal Rates of Assistance	Webb, Lopez and Penn (1990)	Producers' subsidy equivalent (PSE) is a concise way of measuring the transfers, as a result of government policies, to producers. It is measured (i) by tracing the direct and indirect government expenditures to producers; or (ii) by imputing the effects of policies by calculating the difference between actual domestic prices and what they would have been in the absence of trade interventions. One way of expressing the PSE is the nominal assistance coefficient (NAC). The NAC for production is the ratio of the border price plus the unit PSE to the border price. The nominal rate of assistance is the ratio of the value of assistance to the unassisted value of production multiplied by 100.	It captures both the transfers from the government expenditures and transfers from price distortions.	It does not take into account the market distortion in the input markets.

Source: Review of the Studies made by the Author.

Table 3. Major Findings of the Studies on NTBs in Agricultural Trade

Study	Country and Period	Study Focus and Methodology	Major Findings
Beghin and Bureau (2001)		The study provided a concise description and evaluation of the various methods (the price wedge method, inventory based approaches, survey based approaches, gravity-based approaches, risk-assessment-based cost-benefit measures, stylized macroeconomic approaches and quantification using sectoral or multi-market models) available for quantifying and modeling impacts of NTBs on trade and welfare.	The study came up with the suggestions that there are some cases where it is necessary to address the supply shift and demand effects of regulations along the trade effect. In the case of technical regulations, the effect on trade can be identified with the application of combining gravity models or spatial trade models with econometric estimates. The regulations like minimum quality standards, mandatory labeling, and certification impose costs which might lead to fixed (or sunk) costs are needed to be estimated.
Kawai and Tanaka (1996)	Japan; 1990	The study focused on measuring the effect of the distortion including NTBs in Japanese economy for 201 commodities. It has also measured the effect of the distortion on the efficiency and income distribution in the Japanese economy. For measuring distortion the study has used price differential approach based on data of I-O table of Japan. Computable General Equilibrium (CGE) Model was used to estimate impacts.	More than half of the commodities studied had higher domestic prices compared to import prices. Agriculture, forestry and fisheries sector had 17 commodities whose Purchasing Power Parity (PPP) was greater than 1 indicating that domestic price is higher than international price.
Yue *et al* (2005)	Japan; 1998-2000	This study estimated tariff equivalent of Japanese TBT regulations and quantified the impact of removing these policies on trade flows and on welfare. It investigated US-Japan apple trade dispute. To measure tariff equivalent of Technical Barriers to Trade (TBT), the study used extended price-wedge framework which relaxes homogeneous commodity assumptions. It has also analyzed the sensitivity of tariff equivalents to its determinants (substitution elasticity, preference for home good, trade cost, and to the reference data chosen).	The study found that tariff equivalent of TBT is very sensitive to several parameters such as the elasticity of substitution, consumers' home preference. Empirical estimates confirmed that the increase in apple imports of Japan would be very small (in value) if TBT regulations are withdrawn, no matter what parameters are used.
Deardorff and Stern (1997)		Critically analyzed various existing methods for measuring size of NTBs and impacts of NTBs.	A rich array of methodologies for investigating NTBs exits. The methodologies that appear to have been most successful have varied across industries and types of NTBs, but most have involved some sort of price comparison to infer the tariff equivalent of the NTBs. The study concluded that the most useful direction for future

Study	Country and Period	Study Focus and Methodology	Major Findings
			investigation of NTBs across industries and countries should be to aim for a comprehensive set of tariff-equivalent measures of protection (nominal, not effective) derived from the most detailed industry-specific information that can be obtained and from various different measurement techniques appropriate to the type of NTB and its method of administration.
Messerlin (2001)	EC; 1990, 1995 and 1999	Assessed the overall protection granted to the European output of farms and industrial goods. The agriculture sector was disaggregated into five categories: (1) cereals (rice excluded), (2) meat, (3) dairy products, (4) sugar, and (5) other agro products. Price differential approach was applied to quantify tariff equivalent of NTBs.	The overall rate of protection in agriculture was 38.3% in 1990, 35% in 1995 and 31.7% in 1999. Overall rate of protection declined over time but still remains at a high level. The cost of protecting the five farm sectors is a fourth of the costs of EC protection in goods only, or almost a third of the value added for the five sectors under consideration.
Michalopoulos (1999)	Developing Countries; 1989-98	Analyzed trade policies for developing countries and problems of market access for their merchandise exports and recommend an agenda of topics and developing country positions for the WTO negotiations. The study analyzed NTBs based on frequency ratios.	Agricultural products were the most subject to overall controls especially in the earlier period (1989-94). The number of countries imposing the selected controls has substantially declined in the period 1995-1998, following Uruguay Round Agreement.
Fukao, Kataoka and Kuno (2003)	Japan; 1995	The study critically examined measurements of Japan's NTBs based on the price differential approach. Four major commodities, beef, rice, steel, and petroleum, were considered.	Huge price differential between domestic and import price of beef, rice and steel can be explained by other factors than NTBs. High price differential of petroleum is explained by NTBs.
Ingco and Francis Ng (1998)	108 reporting countries (Developed and Developing Countries); 1984-94 and 1995	Evaluated the potential distortionary effects of state trading enterprises (STEs) in agriculture and their abilities to circumvent the UR concessions on market access. Estimated tax equivalent of products subject to STEs and tariff equivalent of price subsidies and mark-ups based on the difference between the world price level and the wholesale price of the good, given the import demand function.	Producer subsidy or tax equivalents in developed countries for major products (rice, wheat, coarse grains, beef and milk) have declined in the post-Uruguay Round (1995), compared to the pre-Uruguay Round (1984-94). However, in many cases, the extent of remaining subsidies and distortions resulting from these subsidies in developed countries was still very large. In the case of developing countries, subsidy or tax equivalent was found to be relatively lower.
Haveman and Thursby (2000)	Exports of 67 countries to some selected developed countries (12) and developing countries (21). Exporting	The study analyzed the impact of tariff and four types of NTBs on agricultural trade. The impacts were divided into three distinct effects (reduction effect, compression effect, and diversion effect) and estimated by regression analysis	NTB reduction effects are found to be insignificant in around 40% cases and in most of the cases (60%) they do not have expected sign. Slightly more of the developing country effects are of expected sign than are the

Study	Country and Period	Study Focus and Methodology	Major Findings
	countries include Bangladesh but not Cambodia; 1994 and 1998	based on model developed by Haveman, Nair-Reichert, and Thursby (1999).	developed country effects. More negative effects were found in 1994 than in 1998. However, effects those are significant have large sensitivity of trade to NTBs.
Linkins and Arce (1994 and 2002)	Canada and United States; For Canada 1980-85 and for United States 1991	The study critically reviewed the methods used by the government of Canada and the United States to tariff equivalents of NTBs.	Both countries' (USA and Canada) estimates rely primarily on the price comparison method, especially for agricultural sectors where good pricing data on domestic and world prices were available. It suggested that there is an obvious need to conduct additional theoretical and empirical research to separate the effects of NTBs from factors such as imperfect substitution and market power that may also account for distortions in the price of US imports.
Bora et al. (2002)	65 countries	Estimated the likely impacts of under two scenarios: (1) Elimination of all tariff and non tariff barriers against LDCs in the European Union, (2) Elimination of tariff and NTBs faced by LDCs in all Quad countries (US, Canada, EU and Japan). A standard CGE model (available in GTAP5 version database) was used for the analysis.	For first simulation it has been found that the policy simulation generates an expected improvement in allocative efficiency which was especially evident for LDCs. In percentage terms, the big gainers were small Sub-Saharan African Countries (Malawi, United Republic of Tanzania and Zambia), whose gains were above one percentage point, while Bangladesh and Uganda enjoy the smallest gains. For the second scenario, Bangladesh was found to gain the most both in absolute ($1200 million) and percentage (3 percent) terms.
OECD (2003a)		A review of survey-based research on NTBs	Businesses feel that numerous non-tariff barriers impact on their access to foreign markets.
Ando and Fujii (2002)	13 APEC countries	The study estimated tariff equivalent of NTMs including core and non-core NTMs using price differential approach. Effort has been made to decompose tariff equivalents of overall NTMs by type of measures: price control measures, quantity control measures, monopolistic measures and technical measures.	The study has following important findings as regards the agriculture and food processing sectors: Most of the APEC economies highly protect the agriculture and food processing sectors by NTMs, particularly by technical measures. Developed countries are more likely to apply NTMs to agricultural products and developing countries protect food processing sector.

Source: Review of the Studies made by the Author.

3.Agricultural Trade Performance of Bangladesh and Cambodia

A major limitation in analyzing the performance of agricultural trade particularly in connection with the WTO is the definition of agriculture itself. The WTO definition of agriculture, as agreed in the WTO Agreement on Agriculture (AoA), is different than conventionally understood agriculture. The WTO definition of agriculture, as reported in Annex 1 of the AoA, is reported in Table 4. Usually all crops, livestock and primary dairy processing and fisheries and forestry activities are included in agriculture. However, the WTO definition excludes fish and fish products and jute (among crops) but includes certain tree products such as sorbitol, manitol, essential oils, glue and such other products. The WTO definition of agriculture also includes some industrial items such as cigarettes that are processed from agricultural products. It is noteworthy to mention here that the Annex 1 of the AoA specifically mentions the product coverage under the Agreement shall not limit the product coverage on the application of Sanitary and Phytosanitary (SPS) Measures.

Table 4. Product Coverage in the WTO Agreement on Agriculture (AoA)

(i)	HS Chapters 1 to 24 less fish and fish products, plus*		
(ii)	HS Code	2905.43	(mannitol)
	HS Code	2905.44	(sorbitol)
	HS Heading	33.01	(essential oils)
	HS Headings	35.01 to 35.05	(albuminoidal substances, modified starches, glues)
	HS Code	3809.10	(finishing agents)
	HS Code	3823.60	(sorbitol n.e.p.)
	HS Headings	41.01 to 41.03	(hides and skins)
	HS Heading	43.01	(raw furskins)
	HS Headings	50.01 to 50.03	(raw silk and silk waste)
	HS Headings	51.01 to 51.03	(wool and animal hair)
	HS Headings	52.01 to 52.03	(raw cotton, waste and cotton carded or combed)
	HS Heading	53.01	(raw flax)
	HS Heading	53.02	(raw hemp)

*The product descriptions in round brackets are not necessarily exhaustive.

Source: WTO Agreement on Agriculture.

Agricultural items, which are excluded in the WTO definition, have significant importance to Bangladesh and Cambodia. Total export of fish and fish products (HS 03.03; 0306.13; 0304.90; 03.05; 0305.60) from Bangladesh in FY2002-03 was US$ 330.14 million which accounted for 5.04 percent of total export earnings of Bangladesh. Export

earning from raw Jute (HS 5303.01) by Bangladesh in FY2002-03 was US$ 82.46 million which accounted for 1.26 percent of total export earnings of Bangladesh. In 2004, Cambodia earned US$ 13.14 million by exporting fish and fish products (HS 0306; 0303; 0301; 0302; 0305; 0307; and 0304) which was 0.47 percent of its total export and 40 percent of agricultural exports (HS 1-24 chapters). These goods particularly fish and fish products face various types of NTBs in the importing country markets. Therefore, this paper is not limited to the WTO defined agriculture only. It has attempted to include fish and fish products in the analysis.

Availability of trade data series which reflect all agricultural commodities of Bangladesh and Cambodia is another limitation for such analysis. For example, FAO data series on agricultural trade include primary and processed crops and livestock products but exclude fish and fish products. UN COMTRADE data does not have ready definition of agriculture (WTO defined or traditional definition). Under these circumstances, summation of all export and import items included in Chapter 1-24 of the HS code system reported in UN COMTRADE is used. This has surely underestimated the total agricultural export and import level of Bangladesh and Cambodia. Readers are requested to keep this limitation of the present study in mind and to be careful about the definition of agriculture used here while interpreting and citing the research findings of the present study.

3.1 Trends in Agricultural Trade

Value of all agricultural exports from Bangladesh has increased from US$215 million in 1991 to US$ 467 million in 2004 (Table 5). On the other hand, value of WTO defined agricultural exports has increased from US$ 55.2 million in 1991 to US$ 88.9 million in 2004. During this period, total export of goods from Bangladesh has increased from US$ 1690 million in 1991 to US$ 5797 million in 2004. Thus, share of WTO defined agriculture as percent of total export has decreased from 3.26 percent in 1991 to 1.53 percent in 2004.

Table 5. Trends in Agricultural Exports of Bangladesh: 1991-2004

(In Million US$)

Year	Total Exports	All Agricultural Exports (HS code Chapters 1-24)	WTO Defined Agricultural Exports	Percent Share of Agricultural Exports to Total Exports	
				All	WTO Defined
1991	1690.2	215.2	55.2	12.73	3.26
1992	1941.6	215.5	49.9	11.10	2.57
1993	2253.1	268.7	57.5	11.93	2.55
1994	2483.3	339.8	71.3	13.68	2.87
1995	3407.2	358.3	46.5	10.52	1.36
1996	3538.5	358.4	35.4	10.13	1.00
1997	4017.5	340.0	43.2	8.46	1.08
1998	5056.9	368.6	83.6	7.29	1.65
1999	4936.2	337.2	28.3	6.83	0.57
2000	5034.9	353.0	23.7	7.01	0.47
2001	5681.8	400.9	45.5	7.06	0.80
2002	5218.9	346.1	44.9	6.63	0.86
2003	5809.4	362.1	39.0	6.23	0.67
2004	5796.9	466.5	88.9	8.05	1.53

Source: Author's calculation based on data collected from UN COMTRADE and Foreign Trade Statistics of Bangladesh, FAO, WTO; Agricultural exports of Bangladesh for 1999 collected from Foreign Trade Statistics of Bangladesh.

Value of all agricultural exports from Cambodia has increased from US$ 13.4 million in 2000 to US$ 32.8 million in 2004 (Table 6). On the other hand, value of WTO defined agricultural exports has increased from US$ 7.7 million in 2000 to US$ 19.7 million in 2004. Total export of goods from Cambodia has increased from US$ 1389 million in 2000 to US$ 2798 million in 2004. Thus, share of WTO defined agriculture as percent of total export has increased from 0.56 percent in 2000 to 0.71 percent in 2004. On the other hand, share of all agricultural exports to total exports of Cambodia has increased from 0.96 percent in 2000 to 1.17 percent in 2004.

Table 6. Trends in Agricultural Exports of Cambodia: 2000-2004

(In Million US$)

Year	Total Exports	All Agricultural Exports (HS code Chapters 1-24)	WTO Defined Agricultural Exports	Percent Share of Agricultural Exports to Total Exports	
				All	WTO Defined
2000	1389.3	13.4	7.7	0.96	0.56
2001	1499.6	18.4	12.6	1.23	0.84
2002	1922.9	15.3	11.2	0.80	0.58
2003	2118.3	11.6	8.8	0.55	0.42
2004	2797.7	32.8	19.7	1.17	0.71

Source: Author's calculation based on data collected from UN COMTRADE.

An analysis of trends in agricultural imports by Bangladesh revealed that Bangladesh's import of all agricultural products has increased from US$ 547.7 million in 1991 to US$ 1628.4 million in 2004 (Table 7). Import of WTO defined agricultural

commodities has increased from US$ 644.4 million in 1991 to US$ 2215.7 million in 2004. Total import of all goods by Bangladesh has increased from US$ 3136.7 million in 1991 to US$ 8537.4 million in 2004. Thus, share of WTO defined agricultural imports to the total imports of Bangladesh has increased from 20.5 percent in 1991 to 26.0 percent in 2004. On the other hand, share of all agricultural imports to the total imports of Bangladesh has increased from 17.5 percent in 1991 to 19.1 percent in 2004.

Table 7. Trends in Agricultural Imports by Bangladesh: 1991-2004

(In Million US$)

Year	Total Import of Goods	Import of All Agricultural Goods (HS code Chapters 1-24)	Import of WTO Defined Agricultural Goods	Percent Share of Agricultural Imports to Total Imports	
				All	WTO Defined
1991	3136.68	547.65	644.39	17.46	20.54
1992	3467.05	637.19	735.53	18.38	21.21
1993	3525.71	566.39	667.49	16.06	18.93
1994	na	Na	na	na	na
1995	5438.41	947.22	1058.18	17.42	19.46
1996	6225.30	1067.30	1255.67	17.14	20.17
1997	6784.46	1156.06	1407.15	17.04	20.74
1998	7017.97	1081.99	1384.03	15.42	19.72
1999	na	Na	na	na	na
2000	7572.20	1514.12	1842.35	20.00	24.33
2001	8096.56	1346.88	1759.22	16.64	21.73
2002	8955.09	1280.46	1631.51	14.30	18.22
2003	8705.70	1534.61	1972.10	17.63	22.65
2004	8537.37	1628.36	2215.67	19.07	25.95

Source: Author's calculation based on data collected from UN COMTRADE.

Analysis of trends in agricultural imports by Cambodia showed that Cambodia's import of all agricultural products has increased from US$ 137.2 million in 2000 to US$ 162.3 million in 2004 (Table 8). Import of WTO defined agricultural commodities has increased from US$ 137.5 million in 2000 to US$ 160.2 million in 2004. Total import of all goods by Cambodia has increased from US$ 1438.7 million in 2000 to US$ 2062.9 million in 2004. Thus, share of WTO defined agricultural imports to the total imports by Cambodia has decreased from 9.56 percent in 2000 to 7.76 percent in 2004. On the other hand, share of all agricultural imports to the total imports by Cambodia has decreased from 9.54 percent in 2000 to 7.87 percent in 2004.

Table 8. Trends in Agricultural Imports by Cambodia: 2000-2004

(In Million US$)

Year	Total Import of Goods	Import of All Agricultural Goods (HS code Chapters 1-24)	Import of WTO Defined Agricultural Goods	Percent Share of Agricultural Imports to Total Imports	
				All	WTO Defined
2000	1438.66	137.18	137.50	9.54	9.56
2001	1507.20	146.95	148.06	9.75	9.82
2002	1667.16	149.61	151.63	8.97	9.10
2003	1774.76	135.49	140.46	7.63	7.91
2004	2062.85	162.25	160.17	7.87	7.76

Source: Author's calculation based on data collected from UN COMTRADE.

It is pertinent to know the composition of agricultural exports from Bangladesh and Cambodia. An analysis of product specific trends in exports would essentially lead us for commodities for which tracking rules of origin and non-tariff barriers have trade implications for Bangladesh and Cambodia. Information on rules of origin is available at 4-digit HS level and information about non-tariff barriers is obtainable at 6-digit HS level. Therefore, identification of agricultural exportables from Bangladesh and Cambodia needs to be done both at the 4-digit and 6-digit level. We have done so. However, for the convenience of readers, the product specific export performance at the 4-digit level is elaborated. Interested readers may have a look at the 6-digit level situation documented in Annexes 1 to 4.

Table 9 and 10 report top 30 agricultural export items of Bangladesh and Cambodia which were identified by calculating average annual export of different agricultural commodities at 4 digit HS classification during 2002-04. Our analysis revealed that annual average export of agricultural products from Bangladesh during this period was US$ 392 million (Table 9). Bangladesh's top most export item during 2002-04 was crustaceans (HS 0306) which accounted for 78.67 percent of the agricultural export from Bangladesh. Second most important agricultural export items of Bangladesh was Fish, frozen, whole (0303) which accounted for 4.21 percent of total agricultural exports from Bangladesh. Tea (0902) was the third most important export item accounting for 4.06 percent of agricultural exports from Bangladesh. Other major agricultural exports which have more than 1 percent share to total agricultural exports are Vegetables nes, fresh or chilled (0709); Fish, cured, smoked, fish meal for human consumption (0305); Cigars, cigarettes, etc., tobacco or tobacco substitute (2402); Tobacco unmanufactured, tobacco refuse

(2401); Fish fillets, fish meat, mince except liver, roe (0304). These eight items contribute about 96 percent to total agricultural exports of Bangladesh.

Table 9. Major Agricultural Export Items of Bangladesh: 2002-2004

(Value in 000 US$)

HS-Code	Product Name	Value of Average Annual Export	Percent Share of the Product	Rank Among Agricultural Export Items
0306	Crustaceans	308029	78.67	1
0303	Fish, frozen, whole	16483	4.21	2
0902	Tea	15883	4.06	3
0709	Vegetables nes, fresh or chilled	13213	3.37	4
0305	Fish, cured, smoked, fish meal for human consumption	5746	1.47	5
2402	Cigars, cigarettes etc, tobacco or tobacco substitute	5670	1.45	6
2401	Tobacco unmanufactured, tobacco refuse	5657	1.44	7
0304	Fish fillets, fish meat, mince except liver, roe	4849	1.24	8
0604	Foliage etc except flowers for ornamental purposes	2374	0.61	9
0302	Fish, fresh or chilled, whole	2334	0.60	10
1701	Solid cane or beet sugar and chemically pure sucrose	1736	0.44	11
0506	Bones and horn-cores unworked or simply worked	757	0.19	12
1401	Vegetable material for plaiting	698	0.18	13
2106	Food preparations, nes	671	0.17	14
1507	Soya-bean oil, fractions, not chemically modified	664	0.17	15
0703	Onions, shallots, garlic, leeks, etc. fresh or chille	587	0.15	16
1904	Cereal food (roasted, swelled), cooked grain not maize	578	0.15	17
2009	Fruit and vegetable juices, not fermented or spirited	411	0.10	18
0505	Feathers, down, skins, other parts of birds, unworked	399	0.10	19
1905	Baked bread, pastry, wafers, rice paper, biscuits, et	385	0.10	20
0106	Animals, live, except farm animals	358	0.09	21
1006	Rice	349	0.09	22
0307	Molluscs	310	0.08	23
1901	Malt extract, flour, dairy preparations, low cocoa	284	0.07	24
2004	Vegetables nes, prepared, frozen	243	0.06	25
0802	Nuts except coconut, brazil & cashew, fresh or dried	208	0.05	26
1212	Locust beans, seaweed, sugar beet, cane, for food	207	0.05	27
0701	Potatoes, fresh or chilled	179	0.05	28
0301	Live fish	173	0.04	29
0710	Vegetables (uncooked, steamed, boiled) frozen	149	0.04	30
	Others	1988	0.51	
01 to 24	All agricultural products	391571	100	

Source: Author's calculation based on data collected from UN COMTRADE.

Annual average agricultural exports from Cambodia during 2002-2004 were US$ 19.92 million (Table 10). Top most agricultural export item of Cambodia during this period was Crustaceans (HS 0306) which accounted for 20.7 percent of total agricultural exports from Cambodia. Second most important agricultural export commodity of Cambodia was rice (1006) which contributed 11.8 percent to the agricultural export earnings of Cambodia. Third most important agricultural commodity exported by

Cambodia was Cigars, cigarettes, etc., tobacco or tobacco substitute (2402) accounting for 9.6 percent of Cambodia's agricultural export earnings. Other main agricultural export items each having export share above 5 percent were Live fish (0301); Tobacco unmanufactured, tobacco refuse (2401); Maize (corn) (1005); Soya beans (1201); Live bovine animals (0102) and Starches, inulin (1108). These nine products contributed 78 percent to total agricultural exports of Cambodia.

Table 10. Major Agricultural Export Items of Cambodia: 2002-2004

(Value in '000' US$)

HS-Code	Product Name	Value of Average Annual Export	Percent Share of the Product	Rank Among Agricultural Export Items
0306	Crustaceans	4126	20.72	1
1006	Rice	2343	11.77	2
2402	Cigars, cigarettes etc, tobacco or tobacco substitute	1913	9.61	3
0301	Live fish	1390	6.98	4
2401	Tobacco unmanufactured, tobacco refuse	1274	6.40	5
1005	Maize (corn)	1258	6.32	6
1201	Soya beans	1148	5.77	7
0102	Live bovine animals	1083	5.44	8
1108	Starches, inulin	1034	5.19	9
0303	Fish, frozen, whole	713	3.58	10
0801	Coconuts, Brazil nuts and cashew nuts, fresh or dried	651	3.27	11
1212	Locust beans, seaweed, sugar beet, cane, for food	428	2.15	12
1511	Palm oil and its fractions, not chemically modified	414	2.08	13
0703	Onions, shallots, garlic, leeks, etc. fresh or chille	330	1.66	14
0302	Fish, fresh or chilled, whole	243	1.22	15
2003	Mushroom, truffle, prepared or preserved, not vinegar	166	0.83	16
0307	Molluscs	150	0.75	17
0712	Vegetables, dried, not further prepared	135	0.68	18
0106	Animals, live, except farm animals	95	0.48	19
2203	Beer made from malt	94	0.47	20
1207	Oil seeds and oleaginous fruits nes	90	0.45	21
0305	Fish, cured, smoked, fish meal for human consumption	83	0.41	22
0206	Edible offal of domestic animals	75	0.38	23
2208	Liqueur, spirits and undenatured ethyl alcohol <80%	68	0.34	24
1102	Cereal flours other than of wheat or meslin	62	0.31	25
1905	Baked bread, pastry, wafers, rice paper, biscuits, etc.	55	0.27	26
1001	Wheat and meslin	49	0.24	27
0402	Milk and cream, concentrated or sweetened	42	0.21	28
0711	Vegetables provisionally preserved, not ready to eat	38	0.19	29
0708	Leguminous vegetables, fresh or chilled	35	0.18	30
	Others	333	1.67	
01 to 24	All agricultural exports	19918	100	

Source: Author's calculation based on data collected from UN COMTRADE.

Product specific export performance of various commodities at the short and long term may be understood by analyzing the rates of growth in export of individual commodities. In this regard rate of growth in value of exports and quantity of exported commodity are essential. An analysis of annual compound rates of growth of various

agricultural commodities exported by Bangladesh for two periods: 1991-2003 and 2000-2003 is carried out. Estimated growth rates are reported in Table 11. It is evident from the table that long run growth (during 1991-2003) in export value of Crustaceans (HS 0306) was 5.93 percent per year while annual compounded rate of growth in exported quantity of the commodity was 2.12 percent. It may be recalled that share of Crustaceans was about 79 percent of total agricultural exports from Bangladesh during 2002-2004. Vegetables, fresh and chilled (HS 0709) had experienced 6.57 percent annual long-term growth in terms of value of exports. Two commodities Vegetable materials for plaiting (HS 1401) and Food preparations (HS 2106) have experienced very high growth (more than 30 percent per year) in export value and export volume. Cigars, Cigarettes, etc., tobacco or tobacco substitute (HS 2402) had very high growth (more than 30 percent per year) in export value. On the other hand, tea (HS 0902) and Fish, cured, smoked, fish meal for human consumption (HS 0305) had negative long term growth both in export value and export volume. Fish, frozen, whole (HS 0303) had slow growth in export value but negative growth in export volume. Plants, plant parts for perfumery, pharmacy, etc. (HS 1211) experienced negative long term growth in export value.

Short term growth (during 2000-2003) in agricultural exports, both in value and volume of exports, was very high for commodities such as Tobacco, unmanufactured, tobacco refuse (HS 2401), Fish fillets, fish meat, mince except liver, roe (HS 0304), Vegetable material for Plaiting (HS 1401), Food preparations, not included elsewhere (HS 2106), Cereal food (roasted, swelled), cooked grain not maize (HS 1904), Feathers, down, skins, other parts of birds, unworked (HS 0505), Baked bread, pastry, wafers, rice paper, buiscuits, etc. (HS 1905), Rice (HS 1006), Molluscs (0307), Potatoes, fresh or chilled (HS 0701), live fish (HS 0301) and vegetables (uncooked, steamed, boiled) frozen (HS 0710). In the case of vegetables not included elsewhere, fresh or chilled (HS 0709) growth in value of exports was very high. Due to non-availability of quantity of export of vegetables not included elsewhere, fresh or chilled (HS 0709) growth rate of exported quantity could not be estimated. Both value and quantity of export of Crustaceans (HS 0306), Fish, cured, smoked, fish meal for human consumption (HS 0305), Bones and horn-cores unworked or simply worked (HS 0506), Other spices (HS 0910), and tobacco, tobacco substitutes, not included elsewhere (HS 2403) have declined during 2000-2003. It may be noted that Crustacenas (HS 0306) contributes about 79 percent, and Fish, cured, smoked, fish meal for human consumption (HS 0305) contributes about 1.45 percent of the agricultural export earning of Bangladesh. Therefore, Bangladeshi policymakers must take note of

their decline in export. On the other hand, export value of Fish, frozen, whole (HS 0303), tea (HS 0902) and Fish, fresh or chilled, whole (HS 0302) has had a positive growth though their quantity of export declined during 2000-2003 period.

Table 11. Annual Compound Rate of Growth (%) in Agricultural Exports of Bangladesh: 1991-2003

(Percent per annum)

HS Code	Product Name	Share of the Product to Agricultural Exports in 2002-2004	Growth in Export Value during 2000-2003	Growth in Export Value during 1991-2003	Growth in Exported Quantity during 2000-2003	Growth in Exported Quantity during 1991-2003
0306	Crustaceans	78.67	-2.60	5.93	-3.25	2.12
0303	Fish, frozen, whole	4.21	2.87	0.93	-2.76	-0.34
0902	Tea	4.06	7.06	-8.47	-15.57	-7.11
0709	Vegetables nes, fresh or chilled	3.37	149.35	6.57	n.a.	n.a.
0305	Fish, cured, smoked, fish meal for human consumption	1.47	-24.58	-2.99	-20.69	-6.81
2402	Cigars, cigarettes, etc., tobacco or tobacco substitute	1.45	-8.95	32.29	n.a.	n.a.
2401	Tobacco unmanufactured, tobacco refuse	1.44	23.31	5.18	27.75	5.77
0304	Fish fillets, fish meat, mince except liver, roe	1.24	151.92	n.a.	109.99	n.a.
0302	Fish, fresh or chilled, whole	0.60	47.13	n.a.	-25.97	n.a.
0506	Bones and horn-cores unworked or simply worked	0.19	-3.46	n.a.	-16.93	n.a.
1401	Vegetable material for plaiting	0.18	6.91	32.78	7.24	34.38
2106	Food preparations, nes	0.17	24.61	31.83	13.37	31.11
1904	Cereal food (roasted, swelled), cooked grain not maize	0.15	8.83	n.a.	4.32	n.a.
0505	Feathers, down, skins, other parts of birds, unworked	0.10	23.96	8.21	15.95	2.77
1905	Baked bread, pastry, wafers, rice paper, biscuits, etc.	0.10	26.33	n.a.	9.31	n.a.
1006	Rice	0.09	40.66	n.a.	271.87	n.a.
0307	Molluscs	0.08	64.91	n.a.	82.15	n.a.
0701	Potatoes, fresh or chilled	0.05	20.55	n.a.	41.59	n.a.
0301	Live fish	0.04	65.04	n.a.	126.31	n.a.
0710	Vegetables (uncooked, steamed, boiled) frozen	0.04	18.38	n.a.	50.25	n.a.
0507	Ivory, whalebone, etc., unworked, simply worked, unshape	0.02	13.34	-1.05	-7.27	1.35
0910	Other spices	0.02	-6.35	n.a.	-9.99	n.a.
2208	Liqueur, spirits and undenatured ethyl alcohol <80%	0.02	-101.77	-11.51	-96.90	0.23
1514	Rape, colza, mustard oil, fractions, simply refined	0.01	-35.80	n.a.	-13.36	n.a.
2403	Tobacco, tobacco substitute products nes	0.01	-88.87	n.a.	-118.03	n.a.
1211	Plants, plant parts for perfumery, pharmacy, etc,	0.00	-38.95	-12.28	n.a.	n.a.

Source: Author's calculation based on data collected from UN COMTRADE, and Foreign Trade Statistics of Bangladesh 1998/99, 1999/00 and 2000/01.

Analysis of export growth of various agricultural commodities from Cambodia during 2000-2004 revealed important insights. Both value and quantity of exports of Crustaceans (HS 0306), unmanufactured tobacco (2401), live bovine animals (0102), fish, frozen, whole (0303), locust beans, seaweed, sugar beet, cane (1212), dried vegetables (0712), live animals, except farm animals (0106), beer made from malt (2203), animal fodder and forage products, roots, etc. (1214) experienced high growth (Table 12). On the other hand, export value of Rice (HS 1006) has experienced moderate growth at the rate of

2.7 percent per year but exported quantity of rice declined at the rate of 14.7 percent per year. During this period, both value and volume of exports have declined for Cigars, cigarettes, tobacco substitute (HS 2402), Fish, fresh or chilled, whole (0302), mollusks (0307), oilseeds and oleaginous fruit (1207), Fish, cured, smoked, fish meal for human consumption (0305), vegetable material for plaiting (1401), dried fruit, dried fruit and nut mixtures (0813), nuts except coconut, brazil & cashew, fresh or dried (0802), plants, plant parts for perfumery, pharmacy, etc. (1211), seed, fruit and spores, for sowing (1209).

Table 12. Annual Compound Rate of Growth (%) of Various Agricultural Exports of Cambodia: 2000-2004

(Percent growth rate)

HS Code	Product Name	Share of the Product to Total Agricultural Export	Value of Exports	Quantity of Exports
0306	Crustaceans	20.72	25.32	28.62
1006	Rice	11.77	2.66	-14.66
2402	Cigars, cigarettes, etc., tobacco or tobacco substitute	9.61	-17.84	-1.68
0301	Live fish	6.98	-42.11	-30.80
2401	Tobacco unmanufactured, tobacco refuse	6.40	36.61	25.41
0102	Live bovine animals	5.44	70.10	48.12
0303	Fish, frozen, whole	3.58	34.78	27.68
1212	Locust beans, seaweed, sugar beet, cane, for food	2.15	58.15	42.08
0302	Fish, fresh or chilled, whole	1.22	-9.54	-10.84
0307	Molluscs	0.75	-29.34	-29.92
0712	Vegetables, dried, not further prepared	0.68	11.41	13.47
0106	Animals, live, except farm animals	0.48	13.46	4.92
2203	Beer made from malt	0.47	23.87	18.01
1207	Oil seeds and oleaginous fruits nes	0.45	-44.82	-23.40
0305	Fish, cured, smoked, fish meal for human consumption	0.41	-36.22	-49.09
2208	Liqueur, spirits and undenatured ethyl alcohol <80%	0.34	6.33	n.a.
1401	Vegetable material for plaiting	0.09	-17.79	-20.54
0813	Fruit, dried, nes, dried fruit and nut mixtures	0.04	-3.04	-12.63
1214	Animal fodder and forage products, roots etc.	0.04	28.25	25.04
0802	Nuts except coconut, brazil & cashew, fresh or dried	0.03	-59.56	-61.45
1211	Plants, plant parts for perfumery, pharmacy, etc.	0.03	-25.69	-16.55
1209	Seed, fruit and spores, for sowing	0.02	-13.39	-60.26

Note: n.a. means not available.
Source: Author's calculation based on data collected from UN COMTRADE.

Products Having Export Potentials

One way of identifying export potentials of various agricultural commodities is to calculate comparative advantage of the product at the export parity level which is an arduous task and often constrained by availability of necessary data. Another way of identifying export potential is to analyze the growth trends in export of the commodity in recent years. In this regard, estimated rates of growth in export of various agricultural commodities described earlier in Table 11 and Table 12 can shed some light. In the case of Bangladesh, it is observed that two commodities namely, Tobacco, unmanufactured,

tobacco refuse (HS 2401), Fish fillets, fish meat, mince except liver, roe (HS 0304) have experienced high growth in export value and export volume. These commodities have more than one percent share to the total agricultural export of Bangladesh. Therefore, high growth in export value and volume of these commodities imply that these commodities are likely to be important export items of Bangladesh in the future too. It was also observed that several commodities such as Vegetable material for Plaiting (HS 1401), Food preparations, not included elsewhere (HS 2106), Cereal food (roasted, swelled), cooked grain not maize (HS 1904) and Feathers, down, skins, other parts of birds, unworked (HS 0505), Baked bread, pastry, wafers, rice paper, biscuits, etc. (HS 1905), Rice (HS 1006), Molluscs (0307), Potatoes, fresh or chilled (HS 0701), live fish (HS 0301) and vegetables (uncooked, steamed, boiled) frozen (HS 0710) had relatively very low share (ranging between 0.04 to 0.18 percent) to the total exports from Bangladesh but had high growth (generally more than 20 percent per year) in value and volume of exports during 2000-2003. Therefore, it is most likely that these commodities will play an important role in future exports of agricultural commodities from Bangladesh. It is pertinent to mention here that two recent studies (Shahabuddin *et al.* 2002, Shahabuddin 2002) estimated comparative advantage in crop production (using domestic resource cost--DRC method on input-output prices, market distortions and production coefficients for the year 2000) found that Bangladesh has comparative advantage in production of Aman rice, jute and vegetables at export parity prices. In other words, Bangladesh can gain from the increase in production of these crops provided that the surplus production could be exported in the world market.

The Cambodian situation may be understood from Table 12 which reported rate of growth in export of value and volumes of agricultural exports. Several commodities such as crustaceans (HS 0306), unmanufactured tobacco (2401), live bovine animals (0102) have more than five percent of agricultural export share of Cambodia. These commodities also experienced high growth in export value and volume during 2000-2004, implying that these commodities will also play an important role in export basket of Cambodia. On the other hand, fish, frozen, whole (0303), locust beans, seaweed, sugar beet, cane (1212), dried vegetables (0712), live animals, except farm animals (0106), beer made from malt (2203), animal fodder and forage products, roots, etc. (1214) experienced high growth in value as well as volume of exports from Cambodia during 2000-2004, but they had relatively much lower share than the commodities mentioned earlier. Implication of high

export growth for these is that in the future these commodities are going to play an important role in future agricultural export from Cambodia.

3.2 Diversity in Agricultural Trade

Diversity in agricultural trade is very important for sustainability in trade performance. Diversity in trade minimizes the risk of price fall as well as other negative outcomes in the market. It is also argued that diversity in trade one way or another helps better utilization of resource endowments and distribution of trade benefits to a wider group of economically active populations of the country. Therefore, the diversity in trade (export and import) of agricultural trade in Bangladesh and Cambodia was estimated. Diversity in agricultural export is likely to indicate the implications for producers. On the other hand, diversity in imports will be helpful in understanding the situation of consumers.

For estimation of diversity indices, Hirschman-Herfindahl Index was used. The index was traditionally used to understand the market concentration of share markets. If the value of the index is 1, then the market is fully concentrated i.e., only one firm has all the shares. On the other hand, if the value of index is 0, then the market is fully dispersed i.e., numerous number of firms have their shares in the market.

In this study, the concept of Hirschman-Herfindahl Index of Concentration was used to examine the relative contribution (i.e. market share) of each agricultural commodity to the total agricultural exports from the country, where the relative contributions are expressed as proportions of the total agricultural export of the country. Symbolically, Hirschman-Herfindahl Index of Concentration (HHIc) may be defined as:

$$\text{HHIc} = \sum_{i=1}^{n} (p_i)^2 \qquad (1)$$

Where, $p_i = q_i/Q$, q_i is value of export from i^{th} commodity and Q is the total agricultural exports of the country, and n is the total number of agricultural exports from the country.

Hirschman-Herfindahl Index of Diversity (HHId) may be defined as:

$$\text{HHId} = 1 - \text{HHIc} \qquad (2)$$

Alternatively,

$$HHId = 1 - \sum_{i=1}^{n} (p_i)^2 \quad (3)$$

Using equation (3), trends in diversity of agricultural exports from Bangladesh and Cambodia have been estimated for 1991-2004. Estimated diversity indices are reported in Table 13. Bangladesh has a low level of diversity (for example, 0.42 in 2004) in its agricultural export indicating that only few agricultural commodities dominate its export basket. An analysis of trends in diversity of agricultural exports revealed a fluctuating situation (for example, 0.52 in 1991, 0.27 in 2000 and 0.42 in 2004). This indicates that Bangladesh's export basket is not stable over time. In the case of Cambodia, diversity in agricultural export is reasonably high and stable. The value of diversity index of agricultural exports from Cambodia during 2000-2004 was more than 0.80 and it was 0.85 in 2004. On the other hand, estimated values of diversity in agricultural imports by Bangladesh revealed that it ranged between 0.80 and 0.91, indicating that Bangladesh imports a large number of agricultural products. Estimated value of diversity index of agricultural imports by Cambodia ranged between 0.72 and 0.75, indicating that Cambodia also depends on a large number of imported agricultural commodities.

Table 13. Trends in Diversity of Agricultural Exports from and Imports by Bangladesh and Cambodia: 1991-2004

Year	Hirschman-Herfindahl Index of Diversity (HHId) for Agricultural Exports from		Hirschman-Herfindahl Index of Diversity (HHId) for Agricultural Imports by	
	Bangladesh	Cambodia	Bangladesh	Cambodia
1991	0.52		0.80	
1992	0.53		0.84	
1993	0.51		0.87	
1994	0.51		n.a	
1995	0.37		0.86	
1996	0.33		0.85	
1997	0.43		0.86	
1998	0.48		0.90	
1999	0.29		n.a	
2000	0.27	0.87	0.88	0.72
2001	0.30	0.86	0.89	0.73
2002	0.36	0.82	0.86	0.75
2003	0.34	0.93	0.88	0.72
2004	0.42	0.85	0.91	0.73

Source: Author's estimation based on data collected from UN COMTRADE and Foreign Trade Statistics of Bangladesh.

3.3 Overall Performance and Implications for RoO and NTB Analysis

The major points emerged from the abovementioned discussion are: (i) both Bangladesh and Cambodia display significant export concentration (especially Bangladesh) and so will be vulnerable if they face unfavorable market conditions in their major markets arising from restrictive RoO and/or NTBs; (ii) agricultural exports are a small share of total exports for Bangladesh and especially Cambodia; and (iii) export performance has varied among products, with some doing better than others.

As mentioned earlier, information about RoO are available at the 4-digit HS level while information about NTBs can be obtained at the 6-digit HS level. Therefore, the detailed analysis carried out so far have enabled to identify the potential agricultural products for rules of origin analysis (Table 14) and products for detailed tracking of NTBs (Table 15). In sections 4 and 5, RoO and NTBs applied for these products are analyzed in detail.

Table 14. Agricultural Products Relevant for Rules of Origin Analysis

HS Code	Product Name	Export Interests of
0102	Live bovine animals	Cambodia
0106	Animals, live, except farm animals	Bangladesh, Cambodia
0206	Edible offal of domestic animals	Cambodia
0301	Live fish	Bangladesh, Cambodia
0302	Fish, fresh or chilled, whole	Bangladesh, Cambodia
0303	Fish, frozen, whole	Bangladesh, Cambodia
0304	Fish fillets, fish meat, mince except liver, roe	Bangladesh
0305	Fish, cured, smoked, fish meal for human consumption	Bangladesh, Cambodia
0306	Crustaceans	Bangladesh, Cambodia
0307	Molluscs	Bangladesh, Cambodia
0402	Milk and cream, concentrated or sweetened	Cambodia
0505	Feathers, down, skins, other parts of birds, unworked	Bangladesh
0506	Bones and horn-cores unworked or simply worked	Bangladesh
0604	Foliage, etc except flowers for ornamental purposes	Bangladesh
0701	Potatoes, fresh or chilled	Bangladesh
0703	Onions, shallots, garlic, leeks, etc. fresh or chille	Bangladesh, Cambodia
0708	Leguminous vegetables, fresh or chilled	Cambodia
0709	Vegetables nes, fresh or chilled	Bangladesh
0710	Vegetables (uncooked, steamed, boiled) frozen	Bangladesh
0711	Vegetables provisionally preserved, not ready to eat	Cambodia
0712	Vegetables, dried, not further prepared	Cambodia
0801	Coconuts, Brazil nuts and cashew nuts, fresh or dried	Cambodia
0802	Nuts except coconut, brazil & cashew, fresh or dried	Bangladesh
0902	Tea	Bangladesh
1001	Wheat and meslin	Cambodia
1005	Maize (corn)	Cambodia
1006	Rice	Bangladesh, Cambodia

HS Code	Product Name	Export Interests of
1102	Cereal flours other than of wheat or meslin	Cambodia
1108	Starches, inulin	Cambodia
1201	Soya beans	Cambodia
1207	Oil seeds and oleaginous fruits nes	Cambodia
1212	Locust beans, seaweed, sugar beet, cane, for food	Bangladesh, Cambodia
1401	Vegetable material for plaiting	Bangladesh
1507	Soya-bean oil, fractions, not chemically modified	Bangladesh
1511	Palm oil and its fractions, not chemically modified	Cambodia
1701	Solid cane or beet sugar and chemically pure sucrose	Bangladesh
1901	Malt extract, flour, dairy preparations, low cocoa	Bangladesh
1904	Cereal food (roasted, swelled), cooked grain not maize	Bangladesh
1905	Baked bread, pastry, wafers, rice paper, biscuits, etc.	Bangladesh, Cambodia
2003	Mushroom, truffle, prepared or preserved, not vinegar	Cambodia
2004	Other vegetables, prepared or preserved by vinegar or acetic acid, frozen, other than products of heading No. 2006	Bangladesh
2009	Fruit and vegetable juices, not fermented or spirited	Bangladesh
2106	Food preparations, not elsewhere specified or included	Bangladesh
2203	Beer made from malt	Cambodia
2208	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol; spirits, liquers and other spirituous beverages	Cambodia
2401	Tobacco unmanufactured, tobacco refuse	Bangladesh, Cambodia
2402	Cigars, cigarettes, etc, tobacco or tobacco substitute	Bangladesh, Cambodia

Source: Author's calculation.

Table 15. Agricultural Products Relevant for Analysis of NTBs

HS Code	Product Name	Export Interest of
010290	Bovine animals, live, except pure-bred breeding	Cambodia
010600	Animals, live, except farm animals	Bangladesh, Cambodia
020629	Bovine edible offal, frozen except livers and tongues	Cambodia
030110	Ornamental fish, live	Cambodia
030199	Fish live, except trout, eel or carp	Cambodia
030211	Trout, fresh or chilled, whole	Cambodia
030269	Fish nes, fresh or chilled, whole	Bangladesh, Cambodia
030310	Salmon, Pacific, frozen, whole	Bangladesh
030329	Salmonidae, nes,frozen, whole	Bangladesh, Cambodia
030339	Flatfish except halibut, plaice or sole, frozen, whole	Bangladesh
030376	Eels, frozen, whole	Bangladesh
030379	Fish nes, frozen, whole	Bangladesh
030410	Fish fillet or meat, fresh or chilled, not liver, roe	Bangladesh
030420	Fish fillets, frozen	Bangladesh
030490	Fish meat & mince, except liver, roe & fillets, frozen	Bangladesh, Cambodia
030510	Flours, meals & pellets of fish for human consumption	Cambodia
030520	Livers and roes, dried, smoked, salted or in brine	Bangladesh
030530	Fish fillets, dried, salted or in brine, not smoked	Cambodia
030549	Smoked fish & fillets other than herrings or salmon	Bangladesh
030551	Cod dried, whether or not salted but not smoked	Bangladesh
030559	Dried fish, other than cod, not smoked	Bangladesh
030613	Shrimps and prawns, frozen	Bangladesh, Cambodia
030614	Crabs, frozen	Bangladesh
030619	Crustaceans nes, frozen	Bangladesh
030622	Lobsters (Homarus), not frozen	Bangladesh, Cambodia

HS Code	Product Name	Export Interest of
030623	Shrimps and prawns, not frozen	Bangladesh, Cambodia
030624	Crabs, not frozen	Bangladesh
030729	Scallops other than live, fresh or chilled	Cambodia
030749	Cuttle fish, squid, frozen, dried, salted or in brine	Cambodia
030791	Aquatic invertebrates nes, fresh or chilled, live	Cambodia
040210	Milk powder < 1.5% fat	Cambodia
050510	Feathers and down used for stuffing	Bangladesh
050610	Ossein and bones treated with acid	Bangladesh
060499	Foliage,branches, for bouquets, etc. - except fresh	Bangladesh
070320	Garlic, fresh or chilled	Cambodia
070390	Leeks & other alliaceous vegetables, fresh or chilled	Bangladesh
070820	Beans, shelled or unshelled, fresh or chilled	Cambodia
070910	Globe artichokes, fresh or chilled	Bangladesh
070990	Vegetables, fresh or chilled nes	Bangladesh
071190	Vegetables nes and mixtures provisionally preserved	Cambodia
071230	Mushrooms and truffles, dried, not further prepared	Cambodia
080130	Cashew nuts, fresh or dried	Cambodia
090230	Tea, black (fermented or partly) in packages < 3 kg	Bangladesh
090240	Tea, black (fermented or partly) in packages > 3 kg	Bangladesh
100190	Wheat except durum wheat, and meslin	Cambodia
100510	Maize (corn) seed	Cambodia
100590	Maize except seed corn	Cambodia
100620	Rice, husked (brown)	Cambodia
100630	Rice, husked (brown)	Bangladesh, Cambodia
110220	Maize (corn) flour	Cambodia
110814	Manioc (cassava) starch	Cambodia
140110	Bamboos used primarily for plaiting	Bangladesh
150790	Refined soya-bean oil, not chemically modified	Bangladesh
170111	Raw sugar, cane	Bangladesh
190410	Cereal foods obtained by swelling, roasting of cereal	Bangladesh
190510	Crispbread	Cambodia
200310	Mushrooms, prepared or preserved, not in vinegar	Cambodia
200980	Single fruit, veg juice nes, not fermented or spirite	Bangladesh
210690	Food preparations nes	Bangladesh
220300	Beer made from malt	Cambodia
220820	Spirits obtained by distilling grape wine, grape marc	Cambodia
240110	Tobacco, unmanufactured, not stemmed or stripped	Bangladesh, Cambodia
240120	Tobacco, unmanufactured, stemmed or stripped	Bangladesh, Cambodia
240130	Tobacco refuse	Bangladesh, Cambodia
240210	Cigars, cheroots and cigarillos, containing tobacco	Cambodia
240220	Cigarettes containing tobacco	Bangladesh, Cambodia
240290	Cigars, cheroots, cigarettes, with tobacco substitute	Bangladesh
240310	Cigarette or pipe tobacco and tobacco substitute mixes	Cambodia

Source: Author's calculation.

4. Rules of Origin (RoO) Applicable for Bangladesh and Cambodia

According to the WTO Agreement on RoO effective from 1995, RoO are those laws, regulations and administrative determinations of general application to ascertain a product's country of origin, i.e. where the imported product that has undergone processing really comes from. In other words, they are a set of principles to determine the economic content and nationality of a product.

4.1 Agreements/Schemes Relevant for RoO Analysis

Bangladesh and Cambodia enjoy special preferences in developed and developing countries due to various bilateral, regional and multilateral agreements and schemes offered by respective countries. Both Bangladesh and Cambodia are entitled to take advantage of EU-EBA (Everything But Arms) initiative and Japan's GSP scheme. Bangladesh is entitled to duty-free access for some products in USA under US GSP scheme. Bangladesh has preferential market access in India under SAPTA (SAARC Preferential Trading Arrangement) and Bangkok Agreement. Bangladesh also enjoys duty preferences for its goods exported to Thailand under the Thailand-Bangladesh Preferential Trade Agreement. Cambodia, as a member country of the AFTA (ASEAN Free Trade Area), is eligible for preferential market access in Thailand.

The EU through its EBA Initiative has been providing duty-free and quota-free access for all goods originating in the LDCs, except arms, since March 2001 (originally targeted to be effective from January 1, 2001). The EU-EBA Initiative is the amended version (with wider coverage of commodities) of EC GSP schemes which was first introduced in 1971 and has undergone several substantial modifications over time. It may be recalled that the EU, in June 2000, expressed its willingness to grant duty-free access for all products from LDCs by 2005 at the latest. The proposal on this read as follows: "The Commission proposes to remove all tariffs and quotas on all imports from LDCs other than those classified as armaments (those falling in Chapter 93 of Harmonised System of trade classification). This will be achieved by amending the current GSP. It will come into effect for most products from 1 January 2001, except for sugar, rice and bananas—for which the removal of restrictions will be undertaken in three annual trenches, leading to their subsequent full elimination by 1 January, 2009." Through this

initiative EU has provided access to most of the agricultural products which were excluded in earlier EC-GSP Schemes. As LDCs, both Bangladesh and Cambodia, are entitled to export their all commodities, except 25 categories at HS 8 digit level, to the EU. In practical terms, because of the EBA, LDCs are not subject to *tariff rate quotas* (TRQs) in EU. TRQ is a system of tariff imposition where products may be imported in unlimited quantity but higher tariff rates will be imposed on imports after certain limit. According to World Bank (2003), EC has 89 TRQs on farm products in the EU which are managed by the European Commission, on the basis of first come first served basis (20 TRQs), historic imports (22 TRQs), and mixed allocation methods (47 TRQs).

Japan, under its GSP Scheme, grants preferential tariff rates to imports from 164 developing countries and LDCs until March 2011. The scheme was originally initiated in 1971 and has been revised four times in 1981, 1991, 2001 and in March 2003. At present the March 2003 revised Scheme is on operation since April 2003. The March 2003 revision accorded deeper and broader preferential treatment, and enhanced privileges to LDCs compared to developing countries. Japan expected that as a result of the Scheme, the percentage of total imports from LDCs under purview of quota and duty-free regime from 80 percent to 90 percent, a target initially set for 2005 (MOFA, 2003). Japan's GSP scheme has adopted a *positive list* for agricultural products and a *negative list* for industrial products, including textile. Through the March 2003 revision, Japan has increased the number of agricultural and fishery products for which LDCs are granted duty-free treatment. Currently, Japan grants duty-free access to 339 agricultural and fishery products (9-digit base) originated in LDCs.

The U.S. GSP provides preferential duty-free entry for selected products of designated beneficiary countries and territories. The GSP program was instituted on January 1, 1976, and authorized under the Trade Act of 1974 (19 USC 2461 et seq.) for a ten-year period. It has been renewed periodically since then, most recently in 2002, when President Bush signed legislation that reauthorized the GSP program through 2006. According to the USTR (2006), approximately 3400 articles from all GSP beneficiaries are eligible for duty-free treatment. In 1996, an additional 1,400 articles just from least developed beneficiary developing countries (LDBDCs) were made eligible for duty-free treatment. The combined lists include most dutiable manufactures and semi-manufactures and also selected agricultural, fishery, and primary industrial products not otherwise duty-

free. LDBDCs are designated as such pursuant to section 502(a)(2) of the Trade Act of 1974, as amended and, in practice, are typically GSP beneficiaries that are on the United Nations list of least developed countries. However, some BDCs (beneficiary developing countries) and LDBDCs have been subsequently removed from GSP-beneficiary eligibility resulting from the acceptance of country practice petitions submitted because of worker rights or intellectual property concerns. GSP eligibility is provided and operated at the 8-digit level of the Harmonized Tariff Schedule of the United States (HTSUS), adopted on January 1, 1989 and updated annually.

As per the latest GSP scheme of USA, Bangladesh and Cambodia are entitled for duty-free exports to the USA under two types of product categories: (i) products eligible for GSP from LDBDCs only; and (ii) products eligible for GSP from BDCs. An analysis of GSP eligible products from LDBDCs and BDCs revealed that total number of agricultural commodities (at 8-digit level of HTSUS chapter 1 to 24) is 1841 out of which Bangladesh and Cambodia enjoy GSP treatment for 602 agro-products under LDBDCs entitlement and for additional 549 agro-products under BDCs entitlement. In other words, 1151 agro-products (62.6 percent of the total agro-products) of Bangladesh and Cambodia are eligible for GSP or duty-free access to the USA.

Thailand is one of the ten member countries of AFTA (ASEAN Free Trade Area). It provides duty preferences to the new ASEAN members (Cambodia, Myanmar, Lao, and Vietnam). Thailand also gives duty preferences for Bangladesh under Thailand-Bangladesh Preferential Trade Agreement. For both Cambodia and Bangladesh, the applicable rules of origin criteria and conditions are as in ASEAN Integration System of Preferences (AISP).

As a result of the SAPTA agreed under the South Asian Association for Regional Cooperation (SAARC), member countries including Bangladesh enjoy preferential tariffs. Under SAPTA, over 2500 tariff lines at the HS 6-digit level are covered and developing countries of SAARC (India, Pakistan, and Sri Lanka) generally get preferences of 5-10% of the standard tariff rate of duty. On the other hand, LDC member countries (Bangladesh, Bhutan, Nepal and Maldives) get preferences of 50-60% of the standard tariff rate of duty. Bangladesh also enjoys preferential tariff rates (generally 5 percentage points below the standard rate of duty) in India for 33 items under the Bangkok Agreement. Five countries

(Bangladesh, India, the Lao People's Democratic Republic, Republic of Korea, and Sri Lanka) are members of the Bangkok Agreement, signed in 1975, as an initiative of ESCAP (United Nations Economic and Social Commission for Asia and the Pacific). None of the 33 items of Bangladesh which enjoy tariff preferences from India are agricultural products.

4.2 Criteria Used in RoO

RoO criteria may vary among countries. At present different countries practice different RoO and variation in RoO depends on basic considerations such as substantial transformation, value added and/or manufacturing and processing system. Usually, there are two general rules applied for agricultural products under various agreements and schemes. These are: (1) Products wholly produced or obtained in the exporting country; or (2) products not wholly produced or obtained in the exporting country but (i) at least a certain percentage of the content originates in the exporting country/territory, or (ii) at least a certain percentage of value addition took place in the exporting country. Exporting countries have to provide documentary evidence in support of their claim about the RoO and a certificate has to be obtained from designated institutions of the importing country.

Usually, an agricultural product is considered to be *wholly produced or obtained*, if (i) agricultural products are harvested in the exporting country, (ii) animals born and raised in the exporting country, (iii) products obtained from animals born and raised in the exporting country, (iv) products obtained by hunting or fishing conducted in the exporting country, (v) products of sea fishing and other marine products taken from the sea by its vessels, (vi) products processed and/or made on board its factory ships exclusively from products referred to in (v) above.

RoO criteria applied for agricultural imports from Bangladesh and Cambodia by EU under its EBA initiative and by Japan in its GSP scheme are summarized in Table 16. Both EU and Japan use the criteria of wholly obtained/produced in the exporting country, and contents rules and cumulative rules of origin for products not wholly obtained or produced in the exporting country. However, depending upon the commodity requirements vary. As it can be observed from Table 16, these rules are not complex for most of the products. However, a simplified RoO does not necessarily indicate that it is in favor of the exporting countries like Bangladesh and Cambodia.

According to the latest document of the U.S. Customs and Border Protection on U.S. Rules of Origin (USCBP, 2004), duty free treatment is granted under the GSP to any otherwise eligible article that is the growth, product, or manufacture of a designated beneficiary developing country if:

- That article is imported directly from a beneficiary developing country into the U.S. customs territory, and
- the sum of (1) the cost or value of materials produced in that beneficiary developing country (or produced in one or more members of an association of countries treated as one country under the GSP), plus (2) the direct costs of processing operations performed in that beneficiary developing country (or in one or members of an association of countries treated as one country under the GSP), is at least 35 percent of the appraised value of the article.

Thailand uses AISP for determining RoO. The RoO under AISP are subject to criteria and conditions as follows:

(1) Agricultural products shall be produced by using all materials of the exporting country or of the exporting country or combining with materials from Thailand not less than 60 percent of the f.o.b. value.

(2) Products, other than those as mentioned in (1), shall be produced by using all materials of the exporting country or of the exporting country or combining with materials from Thailand not less than 40% of the f.o.b. value.

India applies preferential RoO for commodities exported by Bangladesh under SAPTA and Bangkok Agreement. As mentioned earlier, none of the 33 items of Bangladesh which enjoy tariff preferences in India under Bangkok Agreement is agricultural product. Therefore, agricultural products from Bangladesh have preferential RoO in India under SAPTA only. Under SAPTA RoO, Bangladesh is allowed to have preferential tariffs for agricultural commodities which are *wholly produced or obtained* in Bangladesh. In the case of *not wholly produced or obtained commodities* total value of the materials or produce from non-SAARC origin used should not exceed 70 percent of the f.o.b. value of the products produced or obtained. For taking advantage of the *Cumulative rules of origin* for finished products processed in Bangladesh, at least 40 percent of the f.o.b. value of the product has to be added in Bangladesh.

Table 16. Rules of Origin (RoO) Criteria Applied on Agricultural Export Items of Bangladesh and Cambodia by EU and Japan

HS Code	Product Name	Export Interests of	EU	Japan
0102	Live bovine animals	Cambodia	Wholly obtained	
0106	Animals, live, except farm animals	Bangladesh, Cambodia	Wholly obtained	
0206	Edible offal of domestic animals	Cambodia	Manufacture in which all the materials of chapters 1 and 2 used are wholly obtained	Manufactured or processed from originating products of chapter 1
0301	Live fish	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 3 used are wholly obtained	Manufactured or processed from originating products of chapter 3
0302	Fish, fresh or chilled, whole	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 3 used are wholly obtained	Manufactured or processed from originating products of chapter 3
0303	Fish, frozen, whole	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 3 used are wholly obtained	Manufactured or processed from originating products of chapter 3
0304	Fish fillets, fish meat, mince except liver, roe	Bangladesh	Manufacture in which all the materials of chapter 3 used are wholly obtained	Manufactured or processed from originating products of chapter 3
0305	Fish, cured, smoked, fish meal for human consumption	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 3 used are wholly obtained	Manufactured or processed from originating products of chapter 3
0306	Crustaceans	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 3 used are wholly obtained	Manufactured or processed from originating products of chapter 3
0307	Molluscs	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 3 used are wholly obtained	Manufactured or processed from originating products of chapter 3
0402	Milk and cream, concentrated or sweetened	Cambodia	Manufacture in which all the materials of chapter 4 used are wholly obtained	
0505	Feathers, down, skins, other parts of birds, unworked	Bangladesh	Manufacture in which all the materials of chapter 5 used are wholly obtained	
0506	Bones and horn-cores unworked or simply worked	Bangladesh	Manufacture in which all the materials of chapter 5 used are wholly obtained	
0604	Foliage etc except flowers for ornamental purposes	Bangladesh	Manufacture in which all the materials used are wholly obtained, and value of all the materials used does not exceed	

HS Code	Product Name	Export Interests of	EU	Japan
			50% of the ex-works price of the products	
0701	Potatoes, fresh or chilled	Bangladesh	Manufacture in which all the materials of chapter 7 used are wholly obtained	Manufactured or processed from originating products of chapter 7
0703	Onions, shallots, garlic, leeks, etc. fresh or chille	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 7 used are wholly obtained	Manufactured or processed from originating products of chapter 7
0708	Leguminous vegetables, fresh or chilled	Cambodia	Manufacture in which all the materials of chapter 7 used are wholly obtained	Manufactured or processed from originating products of chapter 7
0709	Vegetables nes, fresh or chilled	Bangladesh	Manufacture in which all the materials of chapter 7 used are wholly obtained	Manufactured or processed from originating products of chapter 7
0710	Vegetables (uncooked, steamed, boiled) frozen	Bangladesh	Manufacture in which all the materials of chapter 7 used are wholly obtained	Manufactured or processed from originating products of chapter 7
0711	Vegetables provisionally preserved, not ready to eat	Cambodia	Manufacture in which all the materials of chapter 7 used are wholly obtained	Manufactured or processed from originating products of chapter 7
0712	Vegetables, dried, not further prepared	Cambodia	Manufacture in which all the materials of chapter 7 used are wholly obtained	Manufactured or processed from originating products of chapter 7
0801	Coconuts, Brazil nuts and cashew nuts, fresh or dried	Cambodia	Manufacture in which all the fruit and nuts used are wholly obtained, and the value of all the materials of chapter 17 used not exceed 30% value of the ex-works price of the product	Manufactured or processed from originating products of chapter 8
0802	Nuts except coconut, brazil & cashew, fresh or dried	Bangladesh	Manufacture in which all the fruit and nuts used are wholly obtained, and the value of all the materials of chapter 17 used not exceed 30% value of the ex-works price of the product	Manufactured or processed from originating products of chapter 8
0902	Tea	Bangladesh	Manufacture from materials of any heading	

HS Code	Product Name	Export Interests of	EU	Japan
1001	Wheat and meslin	Cambodia	Manufacture in which all the materials of chapter 10 used are wholly obtained	
1005	Maize (corn)	Cambodia	Manufacture in which all the materials of chapter 10 used are wholly obtained	
1006	Rice	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 10 used are wholly obtained	
1102	Cereal flours other than of wheat or meslin	Cambodia	Manufacture in which all the cereals, edible vegetables, roots and tubers of heading 0714 or fruit used are wholly obtained	Manufactured or processed from originating products of chapter 7, 8 or 10
1108	Starches, inulin	Cambodia	Manufacture in which all the cereals, edible vegetables, roots and tubers of heading 0714 or fruit used are wholly obtained	Manufactured or processed from originating products of chapter 7, 8 or 10
1201	Soya beans	Cambodia	Manufacture in which all the materials of chapter 12 used are wholly obtained	
1207	Oil seeds and oleaginous fruits nes	Cambodia	Manufacture in which all the materials of chapter 12 used are wholly obtained	
1212	Locust beans, seaweed, sugar beet, cane, for food	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 12 used are wholly obtained	For fruit stones and kernels and other vegetables products of a kind used primarily for human consumption, manufactured or processed from originating products of chapter 7 or 8
1401	Vegetable material for plaiting	Bangladesh	Manufacture in which all the materials of chapter 14 used are wholly obtained	
1507	Soybean oil, fractions, not chemically modified	Bangladesh	For Soybean oil, manufacture from materials of any heading except that of the product. For solid fractions, manufacture from other materials of headings 1507 to 1515.	
1511	Palm oil and its fractions, not chemically modified	Cambodia	For palm oil, manufacture from materials of any heading except that of the product. For solid fractions, manufacture from other materials of headings 1507 to 1515.	For palm stearin manufactured or processed from products other than palm stearin of heading No. 15.11
1701	Solid cane or beet sugar and chemically pure sucrose	Bangladesh	For cane or beet sugar and chemically pure sucrose, in solid form, containing added flavoring or coloring matter, manufacture in which the value of all the materials of Chapter 17 used does not exceed 30% of the ex-works price	

HS Code	Product Name	Export Interests of	EU	Japan
			of the product.	
1901	Malt extract, flour, dairy preparations, low cocoa	Bangladesh	For Malt extract, manufactured from cereals of chapter 10 For other products, manufactured from materials of any heading, except that of the product, and in which the value of the materials of each of chapters 4 and 17 used does not exceed 30% of the ex-works price of the product	For malt extracts, manufactured or processed from originating products of chapter 10
1904	Cereal food (roasted, swelled), cooked grain not maize	Bangladesh	Manufacture -from materials of heading except 1806, -in which all the cereals and floor (except durum wheat and *Zea indurata* maize, and their derivatives) used are wholly obtained - in which the value of all the materials of chapter 17 used does not exceed 30% of the ex-works price of the product	Manufactured or processed from originating products of chapter 10
1905	Baked bread, pastry, wafers, rice paper, biscuits, etc.	Bangladesh, Cambodia	Manufacture from materials of any heading except those of chapter 11	Manufactured or processed from products of chapter 7, 8 or 10
2003	Mushroom, truffle, prepared or preserved, not vinegar	Cambodia	Manufacture in which all the fruit, nuts or vegetables used are wholly obtained	Manufactured or processed from originating of products of chapter 7
2004	Other vegetables, prepared or preserved by vinegar or acetic acid, frozen, other than products of heading No. 2006	Bangladesh	For potatoes in the form of flour, meal or flakes, prepared or preserved otherwise than by vinegar or acetic acid, manufacture from materials of any heading, except that of the product.	For only young corncobs, manufactured or processed from products other than those of heading No.20.04 and in which the value of the non-originating products used does not exceed 40% of the value of the products obtained
2009	Fruit and vegetable juices, not fermented or spirited	Bangladesh	Manufacture from materials of any heading, except that of the product, and in which the value of the materials of chapter 17 used does not exceed 30% of the ex-works price of the product	Manufactured or processed from products of chapter 7 or 8
2106	Food preparations, not elsewhere specified or included	Bangladesh	Manufacture from materials of any heading, except that of the product, and in which the value of the materials of each of chapters 4 and 17 used does not exceed 30% of the ex-works price of the product	For Protein concentrates and textured protein substances, manufactured from products other than those of heading No. 21.06, and in which the value of non-originating products used does not exceed 40 percent of the value of the products obtained.
2203	Beer made from malt	Cambodia	Manufacture from materials of any heading, except that of the product, and in which all the grapes or materials derived from grapes used are wholly obtained	

HS Code	Product Name	Export Interests of	EU	Japan
2208	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol; spirits, liquers and other spirituous beverages	Cambodia	Manufacture: (i) from materials of any heading, except heading 2207 or 2208, and (ii) in which all the grapes or materials derived from grapes used are wholly obtained or, if all the other materials used are already originating, arrack may be used up to a limit of 5% by volume	In the case of Ethyl alcohol and spirits, manufactured or processed from products other than those of heading No 22.07 or 2208. For other products, manufactured or processed from products other than those of heading No. 2208 and in which the value for the non-originating products used does not exceed 40% of the value of the products
2401	Tobacco unmanufactured, tobacco refuse	Bangladesh, Cambodia	Manufacture in which all the materials of chapter 24 used are wholly obtained	
2402	Cigars, cigarettes, etc., tobacco or tobacco substitute	Bangladesh, Cambodia	Manufacture in which at least 70% by the weight of the unmanufactured tobacco or tobacco refuse of heading 2401 used is originating	

Source: *For EU*, EC (2003). The European Community's Rules of Origin for the Generalised System of Preferences—A Guide for Users. European Commission, November 2003; *For Japan*, MOFA (2003). Hand Book of Japan's GSP, Ministry of Foreign Affairs, April 2003.

A comparison of RoO applied under EBA, US-GSP and Japan GSP by UNCTAD (2003) indicates that there is scope for cumulation and derogation of RoO (Table 17).

Table 17. Rules of Origin: Scope of Cumulation and Derogation

Country/ Group of Countries	Scope of Cumulation		Donor Country Content	Documentation	Additional Requirements/ Information	Other Conditions	Possible Derogation to Rules of Origin
	Full or diagonal	Global/ Regional					
European Union EBA	Partial/ diagonal	Regional	Yes	Certificate needed to indicate use of regional cumulation	Coordinating body of regional grouping undertakes to comply with rules. At present SAARC, ASEAN, ANDEAN and CACM	Regional groups must make application and possess central organization capable of ensuring administrative cooperation	Yes, only for LDCs
Japan	Full	Regional	Yes	Additional certificate required to indicate cumulation	At present, only ASEAN have been granted regional cumulation	Regional groups must make an application	No
United States	Full	Regional	No	Not specified	At present ASEAN, CARICO, SADC, and WAEM are granted regional cumulation	(a) regional cumulation granted (on application to free trade areas and customs unions) (b) competitive need limits are assessed only against the "country of origin" and not the entire regional grouping	No

Source: UNCTAD (2003), Table 34.

4.3 Impacts of RoO on Exports from Bangladesh and Cambodia

Rules of Origin (RoO) have significant impacts on exports from Bangladesh and Cambodia. Brenton (2003) pointed out that both Bangladesh and Cambodia have high relevance of EBA (i.e. exports eligible for preferences are more than 30 percent of total exports to the EU) as well as high take-up of preferences (i.e. more than 30 percent of exports are eligible for preferences). Actual take-up of preferences in 2001 was 36 percent for Cambodia and 50 percent for Bangladesh and about 50 percent for all non-ACP LDCs. The value of implied transfer that may have entered duty-free (i.e. the value of exports which requested duty-free access multiplied by the MFN tariff) in 2001 was 1.9 billion Euros for Bangladesh and 2.3 million Euros for Cambodia. The study added that if the EBA had delivered duty-free access to all of the exports recorded as having come from Bangladesh and Cambodia then there would have been an additional transfer of 1.93 billion Euros to Bangladesh and 3.7 million Euros to Cambodia. For Bangladesh, the EBA led to a transfer (or a margin of preference) equivalent to 5.65 percent. However, the lack of full utilization of the available preferences entails that Bangladesh faced a trade-weighted average tariffs paid by many non-preferential exporters to the EU! Cambodia faced relatively higher average tariffs (7.66 percent) when exporting to the EU after taking into account that only a proportion of exports could have entered the EU duty free.

Brenton and Manchin (2003) argue that the prime suspects for the lack of utilization of EU trade preferences are the RoO, both in terms of the nature of the rules defining specific processing requirements, with the constraints that this entails for international sourcing from the lowest cost locations, and the costs of providing the necessary documentation to prove conformity with the rules. The costs of documentation related to the RoO are compounded by the requirement that goods for which preferences requested are shipped directly to the EU and that if they are in transit through another country, which will be the case for most of the LDCs, then documentary evidence must be provided to show that the goods remained under the supervision of the customs authorities of the country of transit, did not enter the domestic market there and did not undergo operations other than unloading and reloading. In practice, it may be very difficult to obtain the necessary documentation.

As mentioned earlier, US provides duty-free access to 1151 agro-products (62.6 percent of the total agro-products) of Bangladesh and Cambodia under US-GSP. Analysis of UN-COMTRADE database revealed that Bangladesh, in 2004, exported 33 agricultural products (at 6-digit level) amounting to US$ 121.60 million to the USA out of which only 16 products (amounting to US$ 2.41 million) were eligible for GSP. In other words, Bangladesh's duty-free export of agricultural products to the USA under GSP scheme was only 48.5 percent of exported agricultural commodities and 1.98 percent of the value of agricultural exports to the USA. On the other hand, Cambodia, in 2004, exported 8 agricultural products (at 6-digit level) amounting to US$ 11.43 million out of which only 2 products (amounting to US$ 52.8 thousand) were eligible for GSP. In other words, Cambodia's duty-free export of agricultural products to the USA under GSP scheme was only 25 percent of exported agricultural commodities and 0.46 percent of the value of agricultural exports to the USA. It is pertinent to note that in the United States, the RoO not only impose value added content, but also traceability of the materials purchased which requires significant compliance costs for countries where the production sector is fragmented and lacks administrative capacity (Bureau et al., 2005). One can, therefore, suspect that one major factor behind very low utilization of duty-free preferential access of agricultural products from Bangladesh and Cambodia is RoO.

In the case of Japan, a similar analysis was carried out, using UN-COMTRADE database, about Bangladesh and Cambodia's agricultural export to Japan. Analysis revealed that Bangladesh, in 2004, exported 20 agricultural products (at 6-digit level) amounting to US$ 18.85 million to Japan out of which 10 products (amounting to US$ 18.17 million) were eligible for duty-free GSP. In other words, Bangladesh's duty-free export of agricultural products to the Japan under GSP scheme was 50 percent of exported agricultural commodities and 96.5 percent of the value of total agricultural exports to Japan. On the other hand, Cambodia, in 2004, exported 4 agricultural products (at 6-digit level) amounting to US$ 9.7 thousand out of which 2 products (amounting to US$ 8.6 thousand) were exported as duty free. In other words, Cambodia's duty-free export of agricultural products to the Japan under GSP scheme was 50 percent of exported agricultural commodities and 88.6 percent of the value of total agricultural exports to Japan. Thus, it appears that Bangladesh and Cambodia have a better utilization of GSP and these countries would probably benefit more if coverage of duty-free products is increased.

UNCTAD (2003) observed that the past 30 years of operation of the GSP trade preferences have been characterized by a low percentage of utilization, mainly caused by the inability of preference-receiving countries to fully exploit the available preferences when these are subject to strict origin requirements and related administrative requirements.

LDCs may be benefited through better utilization of preferences if the preference-giving countries: (i) Adopt a harmonized import percentage criterion; (ii) Enlarge scope of cumulation to all beneficiary countries. Replace partial regional cumulation with full and global cumulation, particularly in EBA; (iii) Revise stringent rules of origin. For example, revise rules on fish (rules on definition of vessels and factory ships) and fish preparations (manufacture from originating fish) currently applicable under EBA; and (iv) Simplify certification and administration related procedures.

5. Non-Tariff Barriers: Nature, Extent and Impacts

5.1 Non-Tariff Barriers: The Concept and Types

Non-tariff barriers (NTBs) or Non-tariff Measures (NTMs) generally refer to any measure other than tariff which restricts or distorts trade. Baldwin (1970) defines "non-tariff distortions" as "any measure (public or private) that causes internationally traded goods and services or resources devoted to the production of these goods and services, to be allocated in such a way as to reduce potential real world income."

NTBs are described in terms of their existence into the whole gamut of trade process and practices. There are wide variety of NTBs which may be related to the product standards, process standards, certifications, registrations and testing procedures; packaging, mark-up, labeling and language barriers or even as environmental barriers. UNCTAD (1994) used a classification of over 100 trade measures, including with a discretionary or variable component. UNCTAD classification grouped various tariff and non-tariff measures under several broad categories such as tariff measures, para-tariff measures, price control measures, finance measures, automatic licensing measures, quantity control measures, monopolistic measures, and technical measures. However, this classification does not include any measures applied to production or to exports.

Trade policy researchers often describe NTBs (also known as NTMs) under the following major categories:

(i) Quantitative restrictions and similar specific limitations

Quantitative restrictions (QRs) are implemented through various actions such as import quotas, export quotas, licensing requirement for imports and exports, voluntary export restraints, prohibitions, foreign exchange allocation restrictions, surrender requirements, import monitoring, temporary bans to balance trade, discriminatory bilateral agreements, counter trade, domestic content and mixing requirements, mandatory certification, and allocation process for quantitative restriction.

(ii) Customs procedures and administrative practices

Several customs procedures and administrative practices such as customs surcharges, decreed customs valuation minimum import prices, customs classification procedures, customs clearance procedures, minimum custom value, excises, and special customs formalities like stamping often create barriers to trade.

(iii) Non-tariff charges and related policies affecting imports

Imports may also be affected by various policies and non-tariff charges such as special sales taxes, variable levies, border tax adjustment, value added tax, antidumping and countervailing measures, cash margin requirements, and rules of origin.

(iv) Government participation in trade, restrictive practices and more general policies

Governments often provide subsidies and other aids, participate in state trading, and designate goods subject to specialized management by line ministries. In addition, they formulate state procurement policy, tax exemptions for critical imports, single or limited number of channels for imports of food and agricultural products. All these things can act as non-tariff barriers.

(v) Technical Barriers to Trade

Governments, on various grounds, often set standards such as health and sanitary regulations and quality standards, safety and industrial standards and regulations, packaging and labeling regulations, advertising and media regulations. These technical requirements can also act as non-tariff barriers to trade.

5.2 Extent of NTBs Faced by Bangladesh and Cambodia

Empirical analysis of NTBs applied for agricultural products needs to be carried out at two levels: (i) types of NTBs practiced; and (ii) NTBs used on specific products which are of export interests of Bangladesh. Analysis of types of NTBs in operation would be helpful for negotiations while understanding of product specific NTBs would be useful for setting up of export strategy. In addition to the information about NTBs, it would be useful to know the practice of tariff rate quotas (TRQs) used by the countries under the purview of the present study. Since TRQs are expressed in terms of tariff, then TRQs are tariff barriers. So, one may ignore TRQs in a study of non-tariff barriers like this. However, we all know that TRQs have clear adverse effect on trade of non-beneficiaries, equivalent to a physical restriction on trade. Therefore, we have noted TRQs as barriers to trade in the following discussion LDCs like Bangladesh and Cambodia may take advantage of this information in formulating their WTO negotiation strategies.

An attempt has been made to document various types of NTBs as well as product specific NTBs are in place in EU, USA, Japan, Thailand and India. Research findings on various types of NTBs in the study countries are reported in Annexes 5-9. Annex 5 reports on quantitative restrictions practiced by these countries. All these five countries use tariff quotas for import of agricultural products. India uses export quotas for certain agricultural products. Licensing is required for import of several agricultural commodities in EU, USA and Thailand. Licensing is required for export of some agricultural commodities from India and India also maintains export restraints on a voluntary basis. A summary of customs and administrative procedures which act as NTBs in USA, EU, Japan, Thailand and India is reported in Annex 6 while Annex 7 reports a summary of non-tariff charges and related policies which affect imports. A comprehensive summary of measures and practices related to government participation in trade, restrictive practices and more general policies is given in Annex 8. Annex 9 summarizes various technical barriers in place in USA, EU, Japan, Thailand and India.

As mentioned earlier, NTBs on a product specific basis (6-digit HS level) for all major agricultural commodities exported by Bangladesh and Cambodia were documented. Summary of the findings is reported in Table 18. Table 18 reveals that EU imposes import quota and gives domestic support on fish products. However, as a result of EU-EBA, Bangladesh and Cambodia do not face import quota for exporting their products to the EU. EU also imposes import license on vegetables and rice, and gives export subsidy on

tobacco related products, wheat, rice and vegetables. As was revealed in earlier discussion that fish and tobacco related products are the most important export items of Bangladesh whereas fish, rice and tobacco are the main export items of Cambodia. Thus, products having more export potential of Bangladesh and Cambodia face NTBs in the EU market. Major non-tariff barriers on agricultural products of USA are import license, import quota, export subsidy, etc. It imposes import license on fish, tobacco and vegetables, and import quotas on sugar and tobacco whereas it gives export subsidy in vegetables, rice, maize and wheat implying that USA NTBs are also imposed on agricultural products having export potential of Bangladesh and Cambodia. On the other hand, notable barriers to trade used by Japan are tariff quota, state trading, state procurement, etc. The NTBs are imposed mainly on tobacco, raw sugar and cereal products among the agricultural products. It, thus, appears that developed countries protect their agriculture with stringent NTBs and products having more export potentials of Bangladesh and Cambodia are also associated with NTBs.

LDCs face NTBs not only in the developed countries market but also in the developing countries. Among the developing countries, Thailand and India are taken in this study. Thailand's trade barriers related to agricultural products are characterized as imposition of tariff quotas on tobacco, raw sugar, rice, maize. It also imposes import surcharge on maize. On the other hand, major barriers imposed on agricultural products by India are import monitoring, import quota, government procurement, state trading etc. It monitors import of rice, maize, tea and vegetables while it procured wheat and rice and imposes import quota on maize. A detailed list of product specific NTBs (2 Digit, 4 Digit, 6 Digit and 7/8/9 Digit) applied by Thailand is reported in Annex 10.

Table 18. Non-Tariff Barriers on Major Export Items of Bangladesh and Cambodia Initiated by EU, Japan, India, Thailand and USA

HS Code	Product Name	Export Interest of	EU	USA	Japan	Thailand	India
030613	Shrimps and prawns, frozen	Bangladesh, Cambodia	Import quota, European Regional Development Fund (ERDF) support	Import license			
240220	Cigarettes containing tobacco	Bangladesh				Tariff quota, import license	
090230	Tea, black (fermented or partly) in packages < 3 kg	Bangladesh					Import monitoring
240120	Tobacco, unmanufactured, stemmed or stripped	Bangladesh, Cambodia	Export subsidy, more restrictive rules of origin	Import quota, import license, state trading	State trading		
070910	Globe artichokes, fresh or chilled	Bangladesh					
030269	Fish nes, fresh or chilled, whole	Bangladesh	Import quota, ERDF support				
030420	Fish fillets, frozen	Bangladesh	Import quota, ERDF support	Import license			
060499	Foliage,branches, for bouquets, etc. - except fresh	Bangladesh					
170111	Raw sugar, cane	Bangladesh		Import quota	State procurement (price support)	Tariff quota, import license	
070990	Vegetables, fresh or chilled nes	Bangladesh	Import license, export subsidy	Export subsidy, application for import permit			
030329	Salmonidae, nes,frozen, whole	Bangladesh, Cambodia					
090240	Tea, black (fermented or partly) in packages > 3 kg	Bangladesh					
030614	Crabs, frozen	Bangladesh					
030379	Fish nes, frozen, whole	Bangladesh	Import quota, ERDF support	Import license			

HS Code	Product Name	Export Interest of	EU	USA	Japan	Thailand	India
240290	Cigars, cheroots, cigarettes, with tobacco substitute	Bangladesh	Minimum rate of excise duty varying among the member countries				
070390	Leeks & other alliaceous vegetables, fresh or chilled	Bangladesh	Import license, export subsidy	Export subsidy, application for import permit			
200980	Single fruit, veg juice nes, not fermented or spirit	Bangladesh	Import license	Application for import permit			
240110	Tobacco, unmanufactured, not stemmed or stripped	Bangladesh, Cambodia	Export subsidy, more restrictive rules of origin	Import quota, import license, state trading	State trading	Tariff quota, import license	
200490	Vegetables nes and mixtures, prepared, frozen	Bangladesh	Import license	Export subsidy, application for import permit			
100630	Rice, semi-milled or wholly milled	Bangladesh, Cambodia	Import license, export subsidy, high producer subsidy	Export subsidy, state trading	Tariff quota, state trading, inspection, price based safeguard in FY2002, state procurement (price support)	Tariff quota, import license	Import monitoring, state trading, minimum support price, government procurement
060491	Foliage,branches, for bouquets, etc. – fresh	Bangladesh					
080290	Nuts edible, fresh or dried, nes	Bangladesh					
190590	Communion wafers, rice paper, bakers wares nes	Bangladesh					
190410	Cereal foods obtained by swelling, roasting of cereal	Bangladesh					
050510	Feathers and down used for stuffing	Bangladesh					
210690	Food preparations nes	Bangladesh					
200190	Veg, fruit, nuts nes prepared or preserved by vinegar	Bangladesh		Application for import permit			Import monitoring

HS Code	Product Name	Export Interest of	EU	USA	Japan	Thailand	India
100620	Rice, husked (brown)	Bangladesh	Tariff quota, import license, export subsidy, high producer subsidy	Export subsidy, state trading	Tariff quota, state trading, inspection	Tariff quota, import license	Import monitoring, state trading, minimum support price, government procurement, import license
110520	Potato flakes, granules and pellets	Bangladesh					
220290	Non-alcoholic beverages nes, except fruit, veg juices	Bangladesh				Tariff quota, import license	Support by market intervention scheme
100590	Maize except seed corn	Cambodia		Export subsidy		Tariff quota, import license, import surcharge	Import quota, import monitoring, state trading, import license
110814	Manioc (cassava) starch	Cambodia					
240130	Tobacco refuse	Cambodia	Export subsidy, more restrictive rules of origin	Import quota, import license, state trading			
010290	Bovine animals, live, except pure-bred breeding	Cambodia					
240220	Cigarettes containing tobacco	Cambodia				Tariff quota, import license	
070320	Garlic, fresh or chilled	Cambodia				Tariff quota, import license	
030110	Ornamental fish, live	Cambodia		Import license			
030211	Trout, fresh or chilled, whole	Cambodia					
020629	Bovine edible offal, frozen except livers and tongues	Cambodia					
110220	Maize (corn) flour	Cambodia					
220820	Spirits obtained by distilling grape wine, grape marc	Cambodia					
080130	Cashew nuts, fresh or dried	Cambodia					

HS Code	Product Name	Export Interest of	EU	USA	Japan	Thailand	India
100190	Wheat except durum wheat, and meslin	Cambodia	Export subsidy, state trading, high producer subsidy	Export subsidy, state trading	Tariff quota, state trading, inspection, state procurement (price support)		Minimum support price, government procurement
190510	Crispbread	Cambodia					
100510	Maize (corn) seed	Cambodia		Export subsidy		Tariff quota, import license, import surcharge	Import quota, import monitoring, state trading, import license
071190	Vegetables nes and mixtures provisionally preserved	Cambodia	Import license, export subsidy	Export subsidy, application for import permit			
070820	Beans, shelled or unshelled, fresh or chilled	Cambodia					
080110	Coconuts, fresh or dried	Cambodia					
071230	Mushrooms and truffles, dried, not further prepared	Cambodia					
	All agriculture items		VAT (15%) with one or two reduced rates not lower than 5%, under certain conditions VAT exemptions are granted for certain agricultural product importation; AMS 43,654 million pound in 2000/01; Excise duty at the same rate on imports and domestic production	Harbor Maintenance Tax (HMT) an ad-valorem rate of 0.125%, AMS-US$17 billion subsidy during October 1999 - September 2000	Transfer to agriculture 1.4% of GDP in 2002	Excise tax, VAT(7%), municipality tax, production subsidy and support program for agriculture which include a pledging scheme, soft loans and price interventions	Indirect export subsidy including exemptions from tax and import duty; all imports of primary products are subject to a bio security and sanitary-phytosanitary

Source: *For EU*, WTO (2004) Trade Policy Review of EU, Report by the Secretariat, 2004; *For USA*, WTO (2003) Trade Policy Review of USA, Report by the Secretariat, 2003; *For Japan*, WTO (2004) Trade Policy Review of Japan, Report by the Secretariat, 2004; *For Thailand*, WTO (2003) Trade Policy Review of Thailand, Report by the Secretariat, 2003; *For India*, WTO (2002) Trade Policy Review of India, Report by the Secretariat, 2002.

Incidence of NTMs

The most comprehensive collection of publicly available information on NTMs is the UNCTAD Database on Trade Control Measures, which is available in the UNCTAD Trade Analysis and Information Systems (TRAINS). TRAINS reports NTM incidence at the product level. NTM data reported in TRAINS is at the 6-digit classification in the Harmonized System and covers "core" NTMs or relatively restrictive NTMs. A core NTM includes three major categories of non-tariff measures: (i) Quantity control measures, excluding tariff quotas and enterprise-specific restrictions; (ii) Finance measures, excluding regulations concerning terms of payment and transfer delays; and (iii) Price control measures (Bora et al., 2002).

Product specific incidence of non-tariff measures for all major agricultural commodities having export interests of Bangladesh and Cambodia is reported in Table 18. These are obtained from TRAINS. Before interpreting the numbers reported in the table, it is pertinent to mention the procedure followed by UNCTAD to calculate these numbers. UNCTAD used the most conventional tool for quantifying the incidence of NTMs, i.e. the frequency index which shows the number of tariff lines covered by some pre-selected group of the NTM. By way of illustration, consider a six digit code which comprises of four sub-headings that include separate lines for apples and bananas; pineapples, grape and melon; and oranges. An import license applies to apples and oranges, while an advance import deposit applies to grapes and melons. In this example the NTM incidence is 100% for orange tariff line, since they are subject to licensing, 50% as only apples are affected by licensing, 0% for pineapples and 100% for grapes and melons. It is important to note that the percentage term indicates only the incidence and not the impact of NTM. Furthermore, given the number is calculated, it is dependent on the number of lines that are affected, not the number of measures.

Prevalence of 100, in Table 19, indicates that most of the major agricultural export items from Bangladesh and Cambodia face NTMs in all the study countries. One important caution needs to be mentioned here that a value of 0 may indicate data not available or the no incidence of non-tariff barriers. Therefore, researchers always use other evidence and information for interpreting 0 values. Since it was not possible

to verify these from other sources; therefore, we have refrained from interpreting 0 values.

Table 19. Product Specific Incidence (Frequency Ratio Percentage) of Non-Tariff Measures

HS Code	Product Name	Export Interests of	EU	India (1997)	Japan (2001)	Thailand (2001)	USA (1999)
010290	Bovine animals, live, except pure-bred breeding	Cambodia	1	100	0	100	100
10600*	Animals, live, except farm animals	Bangladesh, Cambodia		100		100	
020629	Bovine edible offal, frozen except livers and tongues	Cambodia	87	100	0	100	100
030110	Ornamental fish, live	Cambodia	50	100	100	100	50
030199	Fish live, except trout, eel or carp	Cambodia	5	100	100	100	50
030211	Trout, fresh or chilled, whole	Cambodia	0	100	100	100	100
030269	Fish nes, fresh or chilled, whole	Bangladesh, Cambodia	1	100	100	100	100
030310*	Salmon, Pacific, frozen, whole	Bangladesh		100		100	
030329	Salmonidae, nes,frozen, whole	Bangladesh, Cambodia	25	100	100	100	100
030339	Flatfish except halibut, plaice or sole, frozen, whole	Bangladesh	0	100	100	100	100
030376	Eels, frozen, whole	Bangladesh	0	100	100	100	100
030379	Fish nes, frozen, whole	Bangladesh	1	100	100	100	100
030410	Fish fillet or meat, fresh or chilled, not liver, roe	Bangladesh	4	100	100	100	100
030420	Fish fillets, frozen	Bangladesh	2	100	100	100	100
030490	Fish meat & mince, except liver, roe & fillets, frozen	Bangladesh, Cambodia	2	100	100	100	100
030510	Flours, meals & pellets of fish for human consumption	Cambodia	50	100	100	100	100
030520	Livers and roes, dried, smoked, salted or in brine	Bangladesh	16	100	100	100	100
030530	Fish fillets, dried, salted or in brine, not smoked	Cambodia	7	100	100	100	100
030549	Smoked fish & fillets other than herrings or salmon	Bangladesh	7	100	100	100	100
030551	Cod dried, whether or not salted but not smoked	Bangladesh	0	0	100	100	100
030559	Dried fish, other than cod, not smoked	Bangladesh	15	0	100	100	100
30613	Shrimps and prawns, frozen	Bangladesh, Cambodia	0	100	100	100	100
030614	Crabs, frozen	Bangladesh	0	100	100	100	100
030619	Crustaceans nes, frozen	Bangladesh	0	100	100	100	100
030622	Lobsters (Homarus), not frozen	Bangladesh, Cambodia	0	0	100	100	100
030623	Shrimps and prawns, not frozen	Bangladesh, Cambodia	0	0	100	100	100
030624	Crabs, not frozen	Bangladesh	0	0	100	100	100
030729	Scallops other than live, fresh or chilled	Cambodia	0	100	100	100	100
030749	Cuttle fish, squid, frozen, dried, salted or in brine	Cambodia	0	100	100	100	100
030791	Aquatic invertebrates nes, fresh or chilled, live	Cambodia	50	100	100	100	100
040210	Milk powder < 1.5% fat	Cambodia	0	100	100	100	100
050510	Feathers and down used for stuffing	Bangladesh	0	100	0	100	100
050610	Ossein and bones treated with acid	Bangladesh	50	100	100	100	100
060499	Foliage,branches, for bouquets, etc. - except fresh	Bangladesh	16	100	0	100	100
070320	Garlic, fresh or chilled	Cambodia	0	100	0	100	100
070390	Leeks & other alliaceous vegetables, fresh or chilled	Bangladesh	0	100	0	100	100

HS Code	Product Name	Export Interests of	EU	India (1997)	Japan (2001)	Thailand (2001)	USA (1999)
070820	Beans, shelled or unshelled, fresh or chilled	Cambodia	0	100	0	100	100
070910	Globe artichokes, fresh or chilled	Bangladesh	0	100	0	100	100
070990	Vegetables, fresh or chilled nes	Bangladesh	12	100	0	100	88
071190	Vegetables nes and mixtures provisionally preserved	Cambodia	0	100	0	100	60
071230*	Mushrooms and truffles, dried, not further prepared	Cambodia		100		100	
080130**	Cashew nuts, fresh or dried	Cambodia					
090230	Tea, black (fermented or partly) in packages < 3 kg	Bangladesh	0	100	0	100	0
090240	Tea, black (fermented or partly) in packages > 3 kg	Bangladesh	0	100	0	100	100
100190	Wheat except durum wheat, and meslin	Cambodia	0	0	100	100	100
100510	Maize (corn) seed	Cambodia	0	0	0	100	100
100590	Maize except seed corn	Cambodia	0	0	0	100	100
100620	Rice, husked (brown)	Cambodia	0	0	100	100	100
100630	Rice, husked (brown)	Bangladesh, Cambodia	0	0	100	100	100
110220	Maize (corn) flour	Cambodia	0	100	0	100	0
110814	Manioc (cassava) starch	Cambodia	0	0	100	100	0
140110	Bamboos used primarily for plaiting	Bangladesh	0	0	0	0	0
150790	Refined soya-bean oil, not chemically modified	Bangladesh	0	100	0	100	0
170111	Raw sugar, cane	Bangladesh	0	0	0	100	100
190410	Cereal foods obtained by swelling, roasting of cereal	Bangladesh	100	100	75	100	100
190510	Crispbread	Cambodia	0	0	0	100	100
200310	Mushrooms, prepared or preserved, not in vinegar	Cambodia	0	100	0	100	50
200980	Single fruit, veg juice nes, not fermented or spirite	Bangladesh	0	100	0	100	100
210690	Food preparations nes	Bangladesh	0	100	100	100	97
220300	Beer made from malt	Cambodia	0	100	0	0	100
220820	Spirits obtained by distilling grape wine, grape marc	Cambodia	0	100	0	0	100
240110	Tobacco, unmanufactured, not stemmed or stripped	Bangladesh, Cambodia	0	0	0	0	0
240120	Tobacco, unmanufactured, stemmed or stripped	Bangladesh, Cambodia	0	0	0	0	0
240130	Tobacco refuse	Bangladesh, Cambodia	0	0	0	0	0
240210	Cigars, cheroots and cigarillos, containing tobacco	Cambodia	0	100	0	100	0
240220	Cigarettes containing tobacco	Bangladesh, Cambodia	0	100	0	100	0
240290	Cigars, cheroots, cigarettes, with tobacco substitute	Bangladesh	0	100	0	100	0
240310	Cigarette or pipe tobacco and tobacco substitute mixes	Cambodia	0	100	0	100	0

Note: Figures in the parentheses indicate reference year for NTM incidence.
*indicates obtained for 2001.
** indicates obtained for 1995.
Source: UNCTAD (2004). TRAINS Database. Data coverage of TRAINS on Internet (01/11/2004).

Product specific NTM incidence is very important for formulating export strategies. However, comprehensive measures are needed for quick understanding. Therefore, researchers report these values of aggregation at HS two-digit level. A

more popular way is to use a classification that reflects industry categories according to a Standard International Trade Classification (SITC). Bora et al. (2002) reported NTMs under four broad categories: primary products, manufactures, other consumer goods, and other products. A comparison of NTM coverage of agricultural products in the study countries is reported in Table 20. Difference in reference years limits cross-country comparisons of NTMs. However, in the absence of data for all countries in the same year we had to do this on the basis of available data. Therefore, we need to keep this limitation in mind. It is evident from Table 20 that coverage of NTM is generally higher for agricultural products than average coverage applicable for primary products and for all products. Among the study countries, NTM coverage for agricultural products is highest in India (42.24), followed by Japan, Thailand and USA.

Bacchetta and Bora (2001) reported frequency of non-tariff measures facing by LDCs for their agricultural exports, as compiled in Table 21. Three important messages are evident from the table are: (i) Frequency of non-tariff measures are generally higher for agricultural products than manufactures, and minerals and fuels; (ii) in the case of agricultural products, developed countries and Quad countries (US, Canada, EU and Japan) have higher frequency of non-tariff barriers than that of other countries; (iii) Developed countries and Quad countries have higher level of frequency of non-tariff measures for agricultural commodities having export interests of Bangladesh and Cambodia such as crustaceans (live), other fish than agricultural products for which they cannot compete (coffee and substitutes with coffee, oilseeds).

Bhattacharya and Mukhopadhaya (2002) reported NTMs faced by exports from Bangladesh. In 1998, Bangladesh exported US$ 2.3 billion to EU, US$ 1.93 billion to USA and US$ 0.08 billion to Japan (Table 22). Exports facing NTMs as percent of total exports to the EU, USA and Japan were 91 percent, 94 percent and 68 percent, respectively. Percent share of exports facing multiple NTMs in EU, USA and Japan were 93 percent, 91 percent and 63 percent, respectively. Non-traditional NTMs such as SPS, TBT and related measures were most prevalent measures accounting for about 95 percent in EU, 96 percent in USA and 64 percent in Japan.

Table 20. NTM Coverage of Agricultural Products in the Study Countries

Country	Reference Year	NTM Coverage		
		Agricultural Products (0-2, 4)	Primary Products (0-4, 68)	All Products (0-9)
USA	1999	4.56	4.69	5.08
EU		2.30	1.98	5.79
Japan	2001	7.69	7.49	5.61
Thailand	2001	6.67	6.32	3.97
India	1997	42.24	35.37	34.66

Source: Bora et al. (2002) and UNCTAD (2004). TRAINS Database.

Table 21. Frequency of Non-tariff Measures Faced by LDCs for Export of Agricultural Commodities

Description	Developed countries	South Asia	Middle East and North Africa	Latin America and the Caribbean	Europe and Central Asia	East Asia and the Pacific	Sub-Saharan Africa	QUAD
Agricultural and Fishery products	48.24	14.87	57.69	34.24	32.93	24.42	18.58	41.98
Crustaceans (live)	58.64	8.33	75.00	30.98	43.56	22.22	20.00	50.00
Other fish	64.49	14.07	75.16	30.96	43.85	22.87	20.28	55.43
Edible fruit and nuts	53.95	19.21	54.61	37.09	32.36	24.21	28.20	54.67
Coffee and substitutes with coffee	32.26	17.86	44.64	28.10	20.36	26.19	18.18	21.43
Oil seeds and miscellaneous grain, seeds and fruits	53.93	14.20	68.55	40.75	38.49	28.71	25.12	37.41
Other agricultural and fishery products	43.50	11.11	52.08	35.28	28.59	32.87	17.80	27.50
Minerals and Fuels	6.72	3.29	5.73	6.64	6.72	4.52	0.16	6.53
Manufactures	10.67	7.20	10.96	11.68	7.15	5.57	1.74	16.78

Source: Bacchetta and Bora (2001).

Table 22. NTMs Faced by Exports from Bangladesh, 1998

Indicators	EU	USA	Japan
Total exports (in Billion US$)	2.3	2.1	0.1
Exports subject to NTMs (in Billion US$)	2.06	1.93	0.08
Exports facing NTMs in total exports (%)	91.01	93.86	68.41
Export subject to single NTM (in Billion US$)	0.14	0.18	0.03
Export subject to multiple NTMs (in Billion US$)	1.92	1.76	0.05
Share (%) of exports facing single NTM	6.6	9.1	36.6
Share (%) of exports facing multiple NTMs	93.4	90.9	63.4
Distribution of NTMs Faced by Bangladesh			
NTM Incidences			
Tariff Quota			13
Antidumping Measures	10	10	
SPS, TBT and Related Measures	176	265	25
Percentage Share			
Tariff Quota			33.3
Antidumping Measures	5.4	3.6	2.6
SPS, TBT and Related Measures	94.6	96.4	64.1

Source: Calculations made by Bhattacharya and Mukhopadhaya (2002), Tables A6 to A10; based on TRAINS-UNCTAD database.

5. 3 Impacts of NTBs on Exports from Bangladesh and Cambodia

Among various NTMs, SPS is the most crucial for agricultural exports from Bangladesh, Cambodia and other LDCs. Bhattacharya and Mukhopadhaya (2002) reported that almost all exports from Bangladesh to the EU market are subject to SPS and TBT measures. Using TRAINS-UNCTAD data, they noted that out of 275 NTM incidences faced by Bangladesh in EU in 1998 about 96.3 percent were on account of SPS-TBT measures. Ferrer (2005) observed that exporters to the EU are experiencing a constant rise of barriers, due to SPS regulations, to levels that are at times widely viewed as protectionist NTBs rather than genuine and scientifically based safety needs. He argued that an indication of the rising SPS requirements in the increase in the number of rejections of imported goods to the EU from 230 cases in 1998 to 1520 cases in 2003. This was due to the increase in the number and tightening of standards. The study added that the rejections concentrated especially on fish and crustaceans, meat, fruits and vegetables. It may be recalled that in Section 3 of this report it was shown that these are the products for which Bangladesh and Cambodia have comparative advantage.

Non-compliance to the SPS requirements can have devastating effects for the exporting country. Bangladesh has already suffered the impacts of SPS related trade ban in 1997, when the EU banned the import of shrimps, as SPS requirements were not correctly fulfilled. The ban remained effective for five months, between August and December 1997. Cato and Santos (2000) made an in-depth study of the negative impact of the ban and estimated that the cost of EU ban to Bangladesh was about US$65.1 million. Some of the plants did succeed in diverting a large part of their intended shipment to the USA and Japan and, thereby were able to cut down the losses. In spite of such efforts, the estimated net loss was equivalent to about US$ 14.7 million. These were evidently short-term losses. The medium to long-term losses stemming from loss of the sector's momentum, market diversions and erosion in price offered to exporters were, in all probability, much higher. The Government of Bangladesh and the shrimp entrepreneurs made substantial investment to ensure Hazard Analysis and Critical Control Point (HACCP) compliance. The total cost of upgrading the facilities and equipment, and training the staff and workers for achieving acceptable standards was about US$ 18.0 million and the annual cost of

maintaining the HACCP program was estimated as US$ 2.4 million (Cato and Santos, 2000). Khatun (2006) discussed, in detail, the impacts of SPS and trade ban on poverty and livelihood of farmers, transporters, processing factories, male and female processing workers.

Bora *et al.* (2002) assessed the effects of trade policy initiatives aimed at improving market access for LDCs in Quad countries (Canada, EU, Japan and US). The study simulated two policy scenarios: (1) elimination of all tariff and non-tariff barriers against LDCs in the EU; and (2) elimination of tariff and non-tariff barriers faced by LDCs in all Quad markets. The simulations were performed with the GTAP5 version database. For the first simulation, it has been found that the policy simulation generates an expected improvement in allocative efficiency which was especially evident for LDCs. In percentage terms, the big gainers were small Sub-Saharan African Countries (Malawi, United Republic of Tanzania and Zambia), whose gains were above one percentage point, while Bangladesh and Uganda enjoy the smallest gains. For the second scenario, Bangladesh was found to gain the most both in absolute ($1200 million) and percentage (3 percent) terms.

6. Implications for Policy and WTO Negotiation Strategy

The present study has important research findings related to RoO and NTBs practiced by the importing countries for agricultural products exported by LDCs, particularly from Bangladesh and Cambodia. The study revealed that (i) there is variation in RoO among GSP-giving countries, (ii) RoO compliance is often cumbersome due to certification and documentation requirements, (iii) simpler RoO and enlargement of scope of cumulation is likely to result better utilization of preferences. The study also observed that (i) both the developed and developing countries use a number of NTBs in the form of quantity control, price control and finance measures, (ii) NTBs limit exports from Bangladesh and Cambodia.

In view of the research findings and challenges faced by Bangladesh and Cambodia, particularly in the area of RoO and NTBs, they need to intervene both at the domestic policy level and engage more proactively at the WTO negotiations.

6.1 Implications for Domestic Policy

At the domestic level, both Bangladesh and Cambodia need to pursue a broad based diversified agricultural production and export strategy. They need to strengthen capacity of their concerned agencies for issuance of required certificates and monitoring compliance level with RoO. Considering numerous agro-producers in these countries, the governments have to design cost effective SPS compliant certification system and infrastructure development effort which would not only promote export but also benefit poor producers of the country. Public sector must provide market information to agro-producers and processors on a regular basis. Awareness building about opportunities and compliance requirements among the producers, processors and exporters would be helpful if it is accompanied by a complementary effort of market diversification.

6.2 Implications for WTO Negotiation Strategy

At the WTO level, LDCs particularly Bangladesh and Cambodia have to engage more proactively at the ongoing negotiations on agriculture for safeguarding their interests. They have to materialize the decisions reached through Hong Kong Declaration (WTO, 2005). It is pertinent to recall that WTO members agreed that developed-country Members shall, and developing-country Members declaring themselves in a position to do so should: (i) Provide duty-free and quota-free market access on a lasting basis, for all products originating from all LDCs by 2008 or no later than the start of the implementation period in a manner that ensures stability, security and predictability. (ii) Members facing difficulties at this time to provide market access as set out above shall provide duty-free and quota-free market access for at least 97 per cent of products originating from LDCs, defined at the tariff line level, by 2008 or no later than the start of the implementation period. They also agreed to ensure that preferential RoO applicable to imports from LDCs are transparent and simple, and contribute to facilitating market access.

Considering the Hong Kong decisions, LDCs including Bangladesh and Cambodia may demand for (1) harmonized RoO applicable in all developed countries, (2) simpler RoO, and (3) a system which requires less documentation and certification system. In this connection, LDCs may also consider the proposals put forward by

UNCTAD (2003) which include proposals for: (a) harmonizing and simplifying the percentage criterion; and (b) design product-specific RoO matching the industrial capacity of LDCs. The UNCTAD report elaborated that if RoO based on a percentage criterion were to be used under some unilateral preferences of GSP schemes, it would be desirable that they are based on a maximum import criterion rather than a minimum value-added requirement. The report added that a logical extension of the "import content" approach is value-added tariffs for determining duty. The problem with all RoO is that there is an arbitrary cut-off point above which one gets preferences and below which one pays MFN. With value added tariffs the preferential rate is paid on the preferential component and MFN on the remainder. On the issue of development of product-specific RoO matching the industrial capacity of LDCs, the Report put forward specific suggestions: (i) For products under HS heading No. Chapter 16 (Preparations of meat, of fish or crustaceans, molluscs or other aquatic invertebrates), Manufacture from meat of chapter 2 or fish of chapter 3. However, simple addition of seasoning or preservatives will not be a conferring operation. (ii) For products under HS heading No. Chapter 20 (Preparations of vegetables, fruit, nuts or other parts of plants), Manufacture from fruits, nuts and vegetables of chapters 7 and 8, including reconstitution of juices in retail packing from concentrate of juices.

Given the fact that agro-products from LDCs are often constrained by various non-tariff barriers and stringent standards imposed on SPS ground, LDCs must demand WTO compliance and transparent criteria for non-tariff measures. They should also demand that standards in no way shall be set beyond the required scientific limit. In addition, LDCs may also ask for exemption from all trade remedy measures for agricultural products exported by LDCs.

Under the Aid for Trade package LDCs may also negotiate for allocation of funds for technical assistance for improvement of their facilities and capacities for compliance with certification system and related requirements.

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Annexes

Annex 1. Major Agricultural Export Items (6-digit HS) of Bangladesh: 2002-04

(In '000' US$)

HS Code	Product Name	Value of Average Annual Export	Percentage Share of the Product	Rank among Agricultural Export Items
030613	Shrimps and prawns, frozen	303734.33	77.57	1
090230	Tea, black (fermented or partly) in packages < 3 kg	13422.84	3.43	2
030379	Fish nes, frozen, whole	11764.10	3.00	3
070990	Vegetables, fresh or chilled nes	11069.41	2.83	4
240220	Cigarettes containing tobacco	4706.65	1.20	5
240120	Tobacco, unmanufactured, stemmed or stripped	3712.53	0.95	6
030420	Fish fillets, frozen	2819.05	0.72	7
030549	Smoked fish & fillets other than herrings or salmon	2502.68	0.64	8
060499	Foliage,branches, for bouquets, etc. - except fresh	2191.71	0.56	9
070910	Globe artichokes, fresh or chilled	2105.68	0.54	10
030269	Fish nes, fresh or chilled, whole	2053.84	0.52	11
030329	Salmonidae, nes,frozen, whole	1961.02	0.50	12
170111	Raw sugar, cane	1735.57	0.44	13
030490	Fish meat & mince, except liver, roe & fillets, frozen	1447.52	0.37	14
90240	Tea, black (fermented or partly) in packages > 3 kg	1399.91	0.36	15
030559	Dried fish, other than cod, not smoked	1197.51	0.31	16
030614	Crabs, frozen	1184.38	0.30	17
030310	Salmon, Pacific, frozen, whole	1161.30	0.30	18
240130	Tobacco refuse	1136.58	0.29	19
030623	Shrimps and prawns, not frozen	1024.41	0.26	20
240290	Cigars, cheroots, cigarettes, with tobacco substitute	960.00	0.25	21
030339	Flatfish except halibut, plaice or sole, frozen, whole	885.03	0.23	22
240110	Tobacco, unmanufactured, not stemmed or stripped	807.87	0.21	23
030624	Crabs, not frozen	799.09	0.20	24
030551	Cod dried, whether or not salted but not smoked	728.46	0.19	25
030520	Livers and roes, dried, smoked, salted or in brine	724.16	0.18	26
210690	Food preparations nes	666.56	0.17	27
150790	Refined soybean oil, not chemically modified	650.50	0.17	28
050610	Ossein and bones treated with acid	625.53	0.16	29
030410	Fish fillet or meat, fresh or chilled, not liver, roe	581.98	0.15	30
030622	Lobsters (Homarus), not frozen	564.45	0.14	31
140110	Bamboos used primarily for plaiting	488.28	0.12	32
190410	Cereal foods obtained by swelling, roasting of cereal	454.52	0.12	33
030376	Eels, frozen, whole	406.39	0.10	34
070390	Leeks & other alliaceous vegetables, fresh or chilled	391.32	0.10	35
050510	Feathers and down used for stuffing	384.41	0.10	36
010600	Animals, live, except farm animals	357.73	0.09	37
200980	Single fruit, veg juice nes, not fermented or spirit	348.45	0.09	38
030619	Crustaceans nes, frozen	289.58	0.07	39
100630	Rice, husked (brown)	246.14	0.06	40
	Others	7879.20	2.01	
01 to 24	All agricultural products	391571	100	

Source: Author's calculation based on data collected from UN COMTRADE.

Annex 2. Major Agricultural Export Items (6-digit HS) of Cambodia: 2002-04

(In '000' US$)

Code	Product Name	Value of Average Annual Export	Percentage Share of the Product	Rank Among Agricultural Export Items
030613	Shrimps and prawns, frozen	3920.04	19.68	1
240220	Cigarettes containing tobacco	1621.88	8.14	2
030110	Ornamental fish, live	1361.05	6.83	3
100620	Rice, husked (brown)	1292.47	6.49	4
100590	Maize except seed corn	1212.87	6.09	5
010290	Bovine animals, live, except pure-bred breeding	1083.29	5.44	6
100630	Rice, husked (brown)	1050.86	5.28	7
110814	Manioc (cassava) starch	1034.35	5.19	8
030329	Salmonidae, nes,frozen, whole	712.27	3.58	9
080130	Cashew nuts, fresh or dried	631.23	3.17	10
240120	Tobacco, unmanufactured, stemmed or stripped	545.85	2.74	11
240130	Tobacco refuse	472.97	2.37	12
070320	Garlic, fresh or chilled	329.72	1.66	13
240210	Cigars, cheroots and cigarillos, containing tobacco	281.42	1.41	14
240110	Tobacco, unmanufactured, not stemmed or stripped	255.19	1.28	15
030211	Trout, fresh or chilled, whole	204.20	1.03	16
200310	Mushrooms, prepared or preserved, not in vinegar	165.87	0.83	17
030623	Shrimps and prawns, not frozen	153.17	0.77	18
071230	Mushrooms and truffles, dried, not further prepared	135.48	0.68	19
010600	Animals, live, except farm animals	94.88	0.48	20
220300	Beer made from malt	93.58	0.47	21
020629	Bovine edible offal, frozen except livers and tongues	75.24	0.38	22
030749	Cuttle fish, squid, frozen, dried, salted or in brine	66.44	0.33	23
220820	Spirits obtained by distilling grape wine, grape marc	63.69	0.32	24
110220	Maize (corn) flour	61.66	0.31	25
100190	Wheat except durum wheat, and meslin	48.79	0.24	26
190510	Crispbread	45.89	0.23	27
100510	Maize (corn) seed	45.62	0.23	28
030510	Flours, meals & pellets of fish for human consumption	43.87	0.22	29
030622	Lobsters (Homarus), not frozen	42.68	0.21	30
040210	Milk powder < 1.5% fat	41.86	0.21	31
030269	Fish nes, fresh or chilled, whole	38.85	0.20	32
071190	Vegetables nes and mixtures provisionally preserved	37.55	0.19	33
070820	Beans, shelled or unshelled, fresh or chilled	35.46	0.18	34
030530	Fish fillets, dried, salted or in brine, not smoked	35.36	0.18	35
240310	Cigarette or pipe tobacco and tobacco substitute mixes	33.40	0.17	36
030490	Fish meat & mince, except liver, roe & fillets, frozen	31.98	0.16	37
030791	Aquatic invertebrates nes, fresh or chilled, live	28.34	0.14	38
030199	Fish live, except trout, eel or carp	27.63	0.14	39
030729	Scallops other than live, fresh or chilled	22.94	0.12	40
	Others	2437.77	12.24	
01 to 24	All agricultural products	19918	100.00	

Source: Author's calculation based on data collected from UN COMTRADE.

Annex 3. Annual Compound Rate of Growth (%) in Agricultural Exports (6-digit HS) of Bangladesh: 1991-03

HS Code	Product Name	Quantity		Value	
		1991-03	2000-03	1991-03	2000-03
010600	Animals, live, except farm animals		57.44		
030110	Ornamental fish, live		-8.46		
030192	Eels, live		133.41		
030270	Fish livers and roes, fresh or chilled		-25.69		
030379	Fish nes, frozen, whole	-1.09	-9.15	0.14	-3.17
030410	Fish fillet or meat, fresh or chilled, not liver, roe		61.56		79.15
030420	Fish fillets, frozen		130.40		
030490	Fish meat & mince, except liver, roe & fillets, frozen		173.98		
030530	Fish fillets, dried, salted or in brine, not smoked		-4.56		
030549	Smoked fish & fillets other than herrings or salmon	-2.00	-31.04	2.17	-32.17
030559	Dried fish, other than cod, not smoked	-10.72	-29.18	-9.81	-35.99
030569	Fish nes, salted or in brine, not dried or smoked		-40.64		56.51
030613	Shrimps and prawns, frozen	2.45	-4.29	5.99	-2.80
030623	Shrimps and prawns, not frozen		14.58		-36.30
030710	Oysters		8.68		22.22
050510	Feathers and down used for stuffing	2.29	14.36	7.87	21.62
050610	Ossein and bones treated with acid		-45.83		-26.67
050690	Bones and horn-cores unworked or simply worked nes				-14.96
050790	Whalebone, horns, etc unworked or simply prepared nes	1.35	-7.27	-0.49	13.34
060499	Foliage,branches, for bouquets, etc. - except fresh		-34.02		
070190	Potatoes, fresh or chilled except seed		-0.78		-20.34
070990	Vegetables, fresh or chilled nes			6.64	149.33
071010	Potatoes, frozen, uncooked steamed or boiled		61.39		49.96
071080	Vegetables, frozen nes, uncooked steamed or boiled		-23.65		-9.80
090220	Tea, green (unfermented) in packages > 3 kg	-17.89	-89.96	-20.09	-98.34
090230	Tea, black (fermented or partly) in packages < 3 kg	-1.85	-16.97	-3.00	-3.69
100630	Rice, husked (brown)		35.76		19.17
140110	Bamboos used primarily for plaiting		9.76		11.68
140190	Vegetable materials nes, used primarily for plaiting	26.80	0.58	25.40	-7.20
151620	Veg fats, oils or fractions hydrogenated, esterified		-123.67		
190410	Cereal foods obtained by swelling, roasting of cereal		6.17		16.58
190490	Cereals, except maize grain, prepared nes		-14.01		-23.69
190590	Communion wafers, rice paper, bakers wares nes		-50.62		-24.94
210690	Food preparations nes	31.00	12.44	31.76	23.95
220300	Beer made from malt	21.49	-96.26	17.79	-94.21
220830	Whiskies	2.58	-102.24	-11.17	-103.50
240110	Tobacco, unmanufactured, not stemmed or stripped		31.05		104.26
240120	Tobacco, unmanufactured, stemmed or stripped	-3.68	90.36	0.02	39.30
240130	Tobacco refuse				0.41
240220	Cigarettes containing tobacco	11.38	129.60	22.17	69.14
240290	Cigars, cheroots, cigarettes, with tobacco substitute				-26.22
240399	Products of tobacco, substitute nes, extract, essences		27.64		-59.21

Source: Author's calculation based on data collected from UN COMTRADE.

Annex 4. Annual Compound Rate of Growth (%) in Agricultural Exports (6-digit HS) of Cambodia: 2000-04

HS Code	Commodity Descriptions	Value	Quantity
010290	Bovine animals, live, except pure-bred breeding	111.09	186.93
010600	Animals, live, except farm animals	13.46	4.92
030110	Ornamental fish, live	-41.07	-22.14
030199	Fish live, except trout, eel or carp	-75.25	-75.16
030211	Trout, fresh or chilled, whole	-10.60	-12.69
030269	Fish nes, fresh or chilled, whole	-5.73	3.22
030329	Salmonidae, nes, frozen, whole	47.69	39.44
030612	Lobsters (Homarus) frozen	7.20	7.61
030613	Shrimps and prawns, frozen	38.64	38.14
030623	Shrimps and prawns, not frozen	-119.20	-107.05
030739	Mussels, frozen, dried, salted or in brine	-30.60	-11.12
030760	Snails, edible (except sea snails)		40.24
071230	Mushrooms and truffles, dried, not further prepared	17.46	15.94
080290	Nuts edible, fresh or dried, nes	-95.21	-94.67
100630	Rice, husked (brown)	13.91	-10.61
220300	Beer made from malt	23.87	18.01
220890	Alcoholic liqueurs nes	-64.74	-37.28
240120	Tobacco, unmanufactured, stemmed or stripped	22.02	7.53
240220	Cigarettes containing tobacco	-18.46	-2.30

Source: Author's calculation based on data collected from UN COMTRADE.

Annex 5. Quantitative Restrictions and Similar Specific Limitations

Indicator	***EU***	***USA***	***Japan***	***Thailand***	***India***
Import quotas*	The EC has 89 tariff quotas on agricultural products, managed by the Commission on the basis of first-come-first-served (20), historic imports (22), and mixed allocation methods (47). The average filling ratio for tariff quotas is 67% each year. Tariff quotas affect about 38% of EC's agricultural production (World Bank, 2003). **Quota for fishery products**: (1) Cod and fish of the species *Boreogadus saida*, salted or in brine, but not dried or smoked (An autonomous quota opened for 3 years. Quota for 2001-03: 10,000 tons at 0% for each year); (2) Shrimps and prawns, cooked and peeled (an autonomous quota opened for 3 years. Quota for 2001-03: 5,000 tons at 6% for each year); (3)Tuna loins (an autonomous quota opened for 3 years. Quota for 2001-03: 4,000 tons at 6% for each year); (4) Herring, fresh, chilled or frozen (an autonomous quota opened for 3 years. Quota for 2001-03: 20,000 tons at 0% between 1 November and 31 December of each year); (5) Herring, spiced/vinegar cured, in brine, preserved in barrels of at least 70 kg. net drained weight (an autonomous quota opened for 3 years. Quota for 2001-03: 5,000 tons at 6% for each year).	Most of the highest US tariffs are applied to agricultural products subject to tariff quotas (TQ). **Products are**: **(1)** Beef: fresh, chilled or frozen ; (2) Cream; (3) Evaporated/condensed milk; (4) Nonfat dried milk; (5) Dried whole milk; (6) Dried cream; (7) Dried whey/buttermilk; (8) Butter; (9) Butter oil/substitutes; (10) Dairy mixtures; (11) Blue cheese; (12) Cheddar cheese; (13) American type cheese; (14) Edam and Gouda cheese; (15) Italian type cheese; (16) Swiss/Emmenthal cheese; (17) Gruyere process cheese; (18) Other cheese NSPF; (19) Lowfat cheese; (20) Peanuts; (21) Chocolate crumb; (22) Low-fat chocolate crumb; (23) Infant formula containing oligo; (24) Saccharides; (25) Green ripe olives; (26) Place packed stuffed olives; (27) Green olives, other;(28) Green whole olives; (29) Mandarin oranges (Satsuma); (30) Peanut butter and paste; (31) Ice cream; (32) Animal feed containing milk; (33) Raw cane sugar; (34) Other cane or beet sugars or syrups; (35) Other mixtures over 10% sugar; (36) Sweetened cocoa powder; (37) Mixes and doughs; (38) Mixed	Tariff quotas apply mainly to agricultural products, including dairy products, rice wheat and barley, silk-worm cocoons and raw silk, starches, prepared dibble fat, corn ad ground nuts, dried vegetables; they cover some 1.6% of all tariff lines. In quota import of rice, wheat and barley, certain milk products, and raw silk are handled mainly by state-trading entities, however, certain amounts of all products except raw silk may be imported by private entities. Import quotas also apply on certain fish products.	23 agricultural products remain subject to tariff quota. The products are: **(1)** Longans, dried (HS 0813.40); **(2)** Copra (1203.00.0005); **(3)** Milk and cream, not concentrated, not containing added sugar or other matters (including flavored milk) (0401, 2202.90); **(4)** Milk and cream, concentrated or containing added sugar or other sweetening matter, in powder, granules or other solid forms, or a fat content, by weight not exceeding 1.5% (0402.10.0007); **(5)** Potatoes, fresh or chilled (0701); **(6)** Onions, fresh, chilled, dried, whole, cut, sliced, broken or in powder, but not further prepared, mixed (0703.10.0005, 0712.20 0104, 0712.20.0200, 0712.40.0304); **(7)** Garlic, fresh or chilled, whether or not in powder (0703.20.0007, 0712.90.0115, 0712.90.0128); **(8)** Coconut, fresh or dried, whether or not chilled or peeled including desiccated (0801.10.0106, 0801.10.0207); **(9)** Coffee, whether or not roasted or decaffeinated; coffee husks and skins: coffee substitutes containing any portion of coffee(0901); **(10)** Tea (0902); **(11)** Pepper, dried, whether or not crushed or ground (0904.11.0003, 0904.12.0004); **(12)** Maize, for feedstuff (Ex. 1005.90); **(13)** Rice (including paddy, broken) (1006); **(14)** Soya beans, edible and inedible whether or not broken (1201.00.1000, 1201.00.9001); **(15)** Onion seeds (1209.91.0106); **(16)** Soybean oil and its fractions, whether or not refined, but not chemically modified (1507.10.0001, 1507.90.0006); **(17)** Palm oil and its fractions, whether or not refined, but not chemically modified (1511, 1513.21.0004, 1513.29.0007); **(18)** Coconut oil and its fractions, whether or not refined, but not chemically modified (1513.11.0008, 1513.19.0005); **(19)** Cane or beet sugar and	Tariff quotas are maintained on several products including some edible oils (1512.11 and 1514.90), maize, and milk powder.

Indicator	***EU***	***USA***	***Japan***	***Thailand***	***India***
		condiments and seasonings; (39) Tobacco; (40) Short staple cotton; (41) Harsh or rough cotton; (42) Medium staple cotton; (43)Long staple cotton; (44) Cotton waste; (45) Cotton processed but not spun.		chemically pure sucrose in solid form (1701); **(20)** Instant coffee and other extracts, essences and concentrates, of coffee, and preparations with a basis of these extracts, essences or concentrates or with a basis of coffee (2101.1); **(21)** Soybean cake (2304.00.0008); **(22)** Unmanufactured tobacco; tobacco leaves (2401); **(23)** Raw silk; 5002.00.0003).	
Export quotas					Export quotas are maintained for a number of agricultural products. **Products are:** onions; whole and infant milk; pure milk; butter (unless exported as branded products in consumers packs not exceeding 5 kg.); wheat and wheat products; coarse grains; brown seaweed and agarophytes, excluding G-adulis of Tamil Nadu coast origin in processed form; sandalwood oil; and cotton yarn.
Licensing requirement for imports	Import licenses are required for quota management purposes, on all agricultural products (subject to tariff quotas), such as cereals and cereal products, rice, sugar, oils, and fats, milk products, beef and veal, sheep and goat meat, fresh fruit and vegetables, and processed fruit and vegetables.	Import licensing on plants and animals and their products, fish and wildlife, narcotic drugs, alcohol and tobacco.		A range of products including fish-meal, gunny bags, jute and kenaf remain subject to non-automatic import licensing. Twenty three agricultural products (mentioned above) subject to import licensing.	
Licensing requirement for exports					Licensing is required for cattle, milk, cereals, edible oils, and pulses.
Voluntary export restraints					India maintains export prohibitions on certain products, including wild animals, exotic birds, tallow, wood products, beef, and sandalwood products.
Prohibitions					A number of products are subject to import prohibitions. These are: **(1)** Tallow, fat and/or oils, rendered,

Indicator	***EU***	***USA***	***Japan***	***Thailand***	***India***
					unrendered or otherwise, of any animal origin, including the following: (i)Lard stearine, oleo stearine, tallow stearine, lard oil, oleo oil and tallow oil not emulsified or mixed or prepared in any way; (ii) Neat's-foot oil and fats from bone or waste; (iii) Poultry fats, rendered or solvent extracted; (iv) Fats and oils of fish/marine origin, whether or not refined, excluding cod liver oil, squid oil containing Eicospentaenoic acid and De-cosahexaenoic acid; and (v) Margarine, imitation lard and other prepared edible fats of animal origin **(2)** Animal rennet; **(3)** Wild animals including their parts and products and Ivory; **(4)** Beef and products containing beef in any form.
Import monitoring					India has a list of 300 sensitive items, whose import it monitors; the items include milk products, fruit and nuts, coffee, tea, spices, cereals, oilseeds and edible oils.
Counter trade				Counter trade policy stipulates that all procurement contracts by government agencies and state enterprises that involve imports above B 300 million must have a related counter trade transaction of at least one half of the procurement value.	According to the authorities there is no law requiring Indian exporters to enter into agreements on counter trade.

Note: * Though tariff rate quotas (TRQs) are tariff barriers, but considering adverse effects of TRQs on trade of non-beneficiaries, we have noted here TRQs as barriers to trade so that LDCs like Bangladesh and Cambodia may take advantage of this information in formulating their WTO negotiation strategies.

Source: *For EU*, WTO (2004) Trade Policy Review of EU, Report by the Secretariat, 2004; *For USA*, WTO (2003) Trade Policy Review of USA, Report by the Secretariat, 2003; *For Japan*, WTO (2004) Trade Policy Review of Japan, Report by the Secretariat, 2004; *For Thailand*, WTO (2003) Trade Policy Review of Thailand, Report by the Secretariat, 2003; *For India*, WTO (2002) Trade Policy Review of India, Report by the Secretariat, 2002.

Annex 6. Customs Procedures and Administrative Practices

Indicator	***EU***	***USA***	***Japan***	***Thailand***	***India***
Customs classification procedures	EC's customs procedures have been established in accordance with the relevant provisions of its treaty and are influenced by the customs-related arrangements of international organization, United Nations Economic Commission for Europe (UNECEA), and World Customs Organization (WCO). Customs declaration is not required for imported goods entering certain free zones (of protocol type 1) and free warehouses.		Imports are valued on the basis of c.i.f value (which is taken to be the transaction value of the imports). Customs duty can be paid through a multi-payment network system introduced on 22 March 2004, which connects teller institutions (government authorities) with financial institutions.	Under new custom procedures, details on invoices and other related documents (including country of origin, quantity composition of value, and description of goods) are taken into consideration for valuation purposes. Thailand uses the c.i.f. (cost insurance and freight) prices of imports as the basis for customs valuation.	The value of imported goods is based on their transaction value, which is defined as the price actually paid, or payable for the goods when sold for exports to India, adjusted for the value of certain costs and services including commissions and brokerage charges, container and packing costs (customs valuation). For imports, three documents are normally required: the invoice, packing list, and bill of landing or airway bill. Health certificates, plant certificates, and phytosanitary certificates are required for certain goods; import permits, to be obtained from the relevant Government departments, are also required for items such as plants, plant materials, and livestock products.
Customs surcharges				Import surcharge for Maize (corn) (1005.90); Fish-meal with protein content more than 60% (HS 2301.200.106); Oil cake residues, from the extraction of soybean oil (2304.00.0008).	
Excises	Excise duties are applied at the same rates on imports and domestically produced goods. The rates are harmonized among EC members States. Nevertheless, common definitions, units of measurement, and minimum rates are required on alcoholic beverages, manufactured tobacco products, and mineral oils.			Excise tax on import at the same rate as on domestic goods.	Excise duties, additional duties and special additional duties are imposed but it is not clear that those are levied on all import items or simultaneously.

Source: *For EU*, WTO (2004) Trade Policy Review of EU, Report by the Secretariat, 2004; *For USA*, WTO (2003) Trade Policy Review of USA, Report by the Secretariat, 2003; *For Japan*, WTO (2004) Trade Policy Review of Japan, Report by the Secretariat, 2004; *For Thailand*, WTO (2003) Trade Policy Review of Thailand, Report by the Secretariat, 2003; *For India*, WTO (2002) Trade Policy Review of India, Report by the Secretariat, 2002.

Annex 7. Non-Tariff Charges and Related Policies Affecting Imports

Indicator	***EU***	***USA***	***Japan***	***Thailand***	***India***
Variable levies		The Harbor Maintenance Tax (HMT), introduced in 1986, is an *ad valorem* levy of 0.125% collected by the CBI (Caribbean Basin Initiative) (formerly the U.S. Customs Service) on port use.			
Value added tax	VAT applies to imports and locally produced goods at the same rates. While the tax base is fully harmonized, the rates applied by member states are not. The EC legislation requires a standard VAT rate not lower than 15%, with one or two reduced rates not lower than 5%. Under specific conditions, VAT exemptions are also granted upon final importation of certain agricultural products or products intended for agricultural use.				
Rules of origin	EC applies both non-preferential and preferential rules of origins. In determining both non-preferential and preferential origin of products that are not wholly produced in a country, the EC uses the sufficient work or process test, defined through: (1) Criteria based on the change of tariff headings; (2) economic criteria based on value-added; and (3) technical or industrial criteria based on processing operations. EC's preferential origin rules are more sensitive for products with higher preferential margins, such as beverages, tobacco.	For many agricultural products (e.g. egg, meat, and poultry) country of origin marking and labeling regulations are used to provide consumers with information regarding the origin of the product, and are mandatory. The United States applies preferential and non-preferential rules of origin. While the substantial transformation criterion is central to all U.S. rules of origin, its definition varies according to the product and the preferential arrangement. The basic non-preferential U.S. rule of origin is that the product is considered to have been produced in a country when (1) the goods are wholly the growth, product, or manufacture of that country, or (2) the goods have been, in that country, "substantially transformed into a new or different article of commerce" with a name, character, or use distinct from that of the article or articles from which it was so transformed.	Preferential tariff offered under GSP to 140 developing countries and 15 territories including 47 LDCs. As of April 2003, Japan has increased the number of agricultural and fishery products for which LDCs are granted duty-free treatment. Simple average tariff rates under GSP, LDC and Japan-Singapore Economic Agreement for a New Age Partnership (JSEPA) are lower than the simple average MFN tariffs.	Thailand does not have specific laws, judicial decisions or administrative rulings of general application relating to non-preferential rules of origin. Imports from ASEAN countries are subject to the rules of origin for the ASEAN CEPT Scheme.	Does not apply rules of origin for imports from MFN sources. Preferential Rules of Origin are applied under bilateral and regional trade agreements.

Source: *For EU*, WTO (2004) Trade Policy Review of EU, Report by the Secretariat, 2004; *For USA*, WTO (2003) Trade Policy Review of USA, Report by the Secretariat, 2003; *For Japan*, WTO (2004) Trade Policy Review of Japan, Report by the Secretariat, 2004; *For Thailand*, WTO (2003) Trade Policy Review of Thailand, Report by the Secretariat, 2003; *For India*, WTO (2002) Trade Policy Review of India, Report by the Secretariat, 2002.q

Annex 8. Government Participation in Trade, Restrictive Practices and More General Policies

Indicator	***EU***	***USA***	***Japan***	***Thailand***	***India***
Subsidies and other aids	EU provides export subsidies for wheat and wheat flower, coarse grains, rice, rapeseed, olive oil, butter and butter oil, skim milk powder, cheese, other milk products, beef meat, pig-meat, poultry meat, eggs, wine, fresh and processed fruit and vegetables, raw tobacco, and alcohol. The products receiving the highest share of export subsidies were sugar (18.8%), "incorporated products" (16%), milk products (15.6%), beef (15.1%), butter and butter oil (12.6%) and cheese (7.3%). Although the EC does not have a policy of direct or indirect assistance to exports, such assistance can be offered by individual member States, subject to community rules. In marketing year 2000/01, the EC-15's total Aggregate Measurement of Support (AMS) amounted to 43, 654 million pound, while domestic support through green box and blue box measures reached 21, 845 million pound and 22,223 million pound respectively. The producer subsidy estimate for EC remains very high, particularly for beef and veal, wheat and other grains, sugar, milk and sheep meat; eggs benefit the least.	US has committed to spend total outlays not exceeding US$ 594 million, per annum on subsidizing exports of 13 product groups comprising cereals, oilseeds, dairy products, and vegetables. Actual export subsidies in 2000 amounted to US$15 million, concentrated on exports of cheese, other milk products, and poultry: 91% of total exports of skim milk powder were subsidized, up from 71% in 1999. In 2001, export subsidies amounted to US$55 million, and covered only dairy products. During October 1999-September 2000 AMS known as Amber was US$17 billion for agricultural products. Direct payments for soybeans, other oilseeds and peanuts, wheat, corn, barley, upland cotton, oats, rice and sorghum. Loan programs that provide a fixed revenue floor per unit of production for producers of eligible crops, and thus provide incentives to continue production when price falls which covers rice, corn, sorghum, barley and oats, extra long staple (ELS) and upland cotton, soybeans, other oilseeds, wheat, peanuts, wool, mohair, honey, dry peas, lentils, and small chickpeas. Price guarantee program for tobacco. Counter-cyclical payment to wheat, corn, sorghum, barley, oats, upland cotton, rice, soybeans, other oilseeds and peanuts. Aside from Step 2 program for cotton, it is eligible for direct payments, loan programs and counter cycle payments.	Total transfers to agriculture amounted to 1.4% of GDP in 2002, while the sector's share of GDP was 1.0%.	Thailand's production subsidy and support programs for agriculture include a pledging scheme, soft loans and price interventions in agriculture.	India provides indirect subsidies for exports, including exemptions from tax and import duty but it does not provide direct subsidies for exports. Minimum support price (MSP) for rice, wheat, oil seeds, etc; price support for pulses, oilseeds and other products. Market Intervention Scheme (MIS) for a number of horticultural products, including oranges, coriander seed, apples, oil palm, potatoes, red chillies, areca nut, ginger, and onions.

Indicator	***EU***	***USA***	***Japan***	***Thailand***	***India***
State trading		State trading on wheat, corn, oilseeds, cotton (upland and extra long staple), rice, tobacco, small chick peas, lentils and dry peas, milk and milk products, barley, oats, grain sorghum, mohair, other wool, honey, peanuts, and sugar.	State trading activities involve leaf tobacco, opium, rice, wheat and barley, milk products and raw silk.		Imports subject to state trading include Urea, whether or not in aqueous solution; Ammonium sulphonitrite; Coconut oil and its fractions; Copra; Some cereals (wheat, rye, oats, maize, rice, grain sorghum, buckwheat, millet, canary seed, jawar, bajra, ragi, and other cereals).
Goods subject to specialised management by line ministries				A few export items (e.g. orchids, langans, durian) require registration with the department of agriculture.	
State procurement policy				State procurement policy exists.	Wheat, rice, and edible oils are procured by government and provided to consumers through the Public Distribution System (PDS).

Source: *For EU*, WTO (2004) Trade Policy Review of EU, Report by the Secretariat, 2004; *For USA*, WTO (2003) Trade Policy Review of USA, Report by the Secretariat, 2003; *For Japan*, WTO (2004) Trade Policy Review of Japan, Report by the Secretariat, 2004; *For Thailand*, WTO (2003) Trade Policy Review of Thailand, Report by the Secretariat, 2003; *For India*, WTO (2002) Trade Policy Review of India, Report by the Secretariat, 2002.

Annex 9. Technical Barriers to Trade

Indicator	***EU***	***USA***	***Japan***	***Thailand***	***India***
Health and sanitary regulations and quality standards	The plant health regulations cover protective measures against diseases of plants and pesticide residues, and the marketing of seeds and the propagating materials for agriculture, horticulture, and forestry.	Assessment of conformity with SPS requirements, especially for plants and animal products is generally carried out by the Department of Agriculture's Animal and Plant Health Inspection Service (APHIS), and Food and Safety Inspection Service (FSIS) inspectors located at the borders. It requires to issue country of origin labeling guidelines for voluntary use by retailers who wish to notify their customers of the country of origin of beef (including veal), lamb, pork, fish, perishable agricultural commodities, and peanuts.	Voluntary standards in Japan comprise Japan Industrial Standards (JIS) and Japan Agricultural Standards (JAS) with 9293 and 243 standards, respectively in 2004. Revised regulations under Food and Sanitation Law, introduced specifications and standards for food and food additives in order to prohibit the use of bovine vertebral column as an ingredient of processed foods if it is derived from cattle originating in a country or zone where bovine spongiform encephalopathy (BSE) has occurred.		Under a notification issued in October 2001, "livestock products" include products, eggs, and seeds of all aquatic animals; imports of all these products require a sanitary import permit issued by the Department of Animal Husbandry and Dairying. All imports of primary agricultural products are subject to a bio security and sanitary-phytosanitary compliance.
Safety and industrial standards and regulations		The Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) has regulatory responsibility to safeguard U.S. animal and plant resources from exotic pests and diseases. Its Import Authorization System (IAS) allows importers to submit applications for permits to import fruits and vegetables, and animal products and organisms.			The Bureau of Indian Standards (BIS) endeavours to align Indian standards as far as possible with international standards. As of 1 April 2001, 3020 Indian Standards (some 17%) had been harmonized with international standards; during the period from 1998 to 2001, however, the percentage of standards that have been harmonized with international standards is considerably higher, averaging around 42%. The BIS Certification Mark was made mandatory for 133 items (both locally produced and imported).
Packaging and labeling regulations			Food and food additives must be labeled with name of the substance, date of minimum durability, ways of storing, and manufacturer. Labeling is mandatory only for designated food processed in Japan. Agricultural products Inspection Law requires		A number of information is required on packaging and labeling for all packaged products: (1) name and address of the importer; (2) generic or common name of the commodity; (3) net quantity in terms of standard unit of weights and measures (or its equivalent if given in any other unit); (4) month and year in which the commodity was manufactured, packet, or imported; and (5) maximum retail sale price (including all taxes,

Indicator	*EU*	*USA*	*Japan*	*Thailand*	*India*
			mandatory inspections of rice, wheat, and barley as well as soybean.		freight, transport charges, commission payable to dealers, and all other charges including for advertising, delivery, and packing).
Others measures	In marketing year 2000/01, the EC invoked the price-based special safeguard (SSG) clause under the WTO Agreement on Agriculture for sugar, molasses, and a number of poultry products, while the volume-based SSG clause was made operational for some fruit and vegetable products.		Special safeguard actions (SSGs) were taken during FY 2002-04 for a number of products, including rice, small red beans, wheat flour, starch, inulin, butter, food preparations of flour, meal or starch.		

Source: *For EU*, WTO (2004) Trade Policy Review of EU, Report by the Secretariat, 2004; *For USA*, WTO (2003) Trade Policy Review of USA, Report by the Secretariat, 2003; *For Japan*, WTO (2004) Trade Policy Review of Japan, Report by the Secretariat, 2004; *For Thailand*, WTO (2003) Trade Policy Review of Thailand, Report by the Secretariat, 2003; *For India*, WTO (2002) Trade Policy Review of India, Report by the Secretariat, 2002.

Annex 10. Non-Tariff Barriers Applied on Agricultural Commodities by Thailand

HS Code				NTM Type	Description
2 Digit	4 Digit	6 Digit	7/8/9 Digit		
02	0202 to 0210	-	-	Technical measure	Quality inspection is required by Ministry of Agriculture
07	0702	-	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
07	0703	0703.10	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
07	0712	0712.20, 0712.90	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
08	0801	0801.11, 0801.19	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
08	0811	-	-	Technical measure	Quality inspection is required by Thailand Industrial Standard Institute (TISI)
08	0813	0813.40	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
09	0901	-	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
09	0901	0901.21	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
09	0902	-	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
09	0904	0904.11, 0904.12	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
10	1005	1005.90	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
10	1006	1006.10, 1006.20, 1006.30, 1006.40	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
12	1201	1201.00	1201.001	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
12	1201	1201.00	1201.009	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
12	1203	1203.00	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
12	1209	1209.91, 1209.99	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
14	1401	1401.20	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
19	-	-	-	Quantity control measure	Import is controlled by Food and Drug Administration
20	2008	2008.20	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
20	2009	2009.41	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
21	2101	2101.11	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
22	-	-	-	Import license and technical measure	Import is subject to licensing, testing, inspection, and quarantine requirement by Food and Drug Administration
23	2301	2301.20	2301.20.0106	Import license: Non-Automatic Licensing	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture
23	2304 to 2305	-	-	Import license	Import license is required by Department of Foreign Trade, Ministry of Commerce / Ministry of Agriculture

Source: ASEAN website (www.aseansec.org) (accessed of 17 October 2005).