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Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics
Düsternbrooker Weg 120
24105 Kiel (Germany)
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)
<https://www.zbw.eu/econis-archiv/>

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ADB

FOOD SECURITY IN SOUTH ASIA

Developing Regional
Supply Chains for the
Food Processing Industry



United Nations Conference on Trade and Development
Asian Development Bank



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Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
Tel +63 2 632 4444; Fax +63 2 636 2444
www.adb.org; openaccess.adb.org

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UNCTAD
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Foreword

Agriculture provides employment to about 50% of the population in South Asia but contributes only around 20% to the region's GDP. Global as well as regional trade in agriculture has remained much lower than its potential due to constraints such as food security, low technology, and high protection. Keeping food security as one of the primary concerns of the region, this study focuses on the opportunities that agriculture can provide for intraregional trade and overall growth in the region.

The steady and high growth of South Asia in the past 2 decades which has recorded an average annual growth of 12% in real GDP during 1990–2013, has increased the demand for food and other agricultural products in the region. Almost all countries have experienced rising decadal growth rates and increasing demand for agricultural products. While there has been a substantial rise in global imports of agricultural products to the region, the region itself has not been able to take advantage of this growth bonanza. Intraregional trade and investments in agricultural products remain low with high tariff and nontariff barriers. This has also contributed to the slowing down of agricultural growth in many countries of the region.

This study is an important and timely initiative as it focuses on intraregional trade in processed food products taking into consideration food security concerns of the countries and suggests useful ways forward.

By identifying potential regional supply chains that can be formed for the food processing sector, using a disaggregated product level approach, it provides directions for each country to gainfully initiate or link into the regional supply chains. This will not only boost intraregional trade but also provide employment opportunities for the poor in the region raising the much-needed regional investments in agriculture. The role of India in providing opportunities to least developed countries in the region has been explored through various scenarios.

The study takes an innovative approach to identifying potential regional supply chains for South Asia. The institutional collaboration between UNCTAD and ADB for jointly producing this study and engaging different regional stakeholders in the process is commendable. The work will be of immense value to policy makers of countries in the region.



Rajeev Kher

Commerce Secretary

Ministry of Commerce and Industry

Government of India

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South Asian Network on Economic Modeling (SANEM) hosted a regional consultation on 28 May 2012 at Dhaka, Bangladesh, where the initial draft of the study was presented. Rajeev Kher, then Additional Secretary, Ministry of Commerce, Government of India; Atiur Rahman, Governor of Bangladesh Bank, Bangladesh; Safdar Sohail, Director General, Foreign Trade Policy, Pakistan; Saman Kelegama, Executive Director, Institute of Policy Studies of Sri Lanka and Ratnakar Adhikari, Chief Executive Director, South Asia Watch on Trade Economics and Environment, Nepal provided valuable contributions through presentations, comments, and suggestions. Abid Khan, Joint Chief, Bangladesh Tariff Commission; Mustafizur Rahman, Executive Director, Centre for Policy Dialogue, Dhaka; Farooq Sobhan, President,

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We acknowledge the support provided by policy makers, industry persons, academia, and other stakeholders in the region.

Richard Kozul-Wright

*Director
ECIDC
UNCTAD*

M. Teresa Kho

*Country Director
India Resident Mission
ADB*

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Abbreviations and Acronyms

BEC	Broad Economic Classification
CGE	Computable General Equilibrium
CTB	Contribution to Trade Balance
FPI	Food Processing Industry
GMM	Generalized Method of Moments
GTAP	Global Trade Analysis Project
kCal	kilo calories
LDCs	Least Developed Countries
LPI	Logistic Performance Index
MFN	Most Favored Nation
MRAs	Mutual Recognition Agreements
mt	million tons
NARS	National Agricultural Research Systems
NTBs	Nontariff Barriers
NTMs	Nontariff Measures
POS	Position in International Markets Index
PRC	People's Republic of China
RCA	Revealed Comparative Advantage
SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asia Free Trade Area
SAPTA	SAARC Preferential Trading Agreement

SPS	Sanitary/Phyosanitary
TBT	Technical Barriers to Trade
TRI	Trade Restrictiveness Index
TRQ	Tariff Rate Quotas
UAE	United Arab Emirates
VECM	Vector Error Correction Model



Executive Summary

Despite good development indicators, South Asia lags behind other regions of the world in terms of economic integration. Intraregional exports have remained low, comprising merely 6% of the region's total exports. While South Asia contains 23% of the world's population, a disproportionate 44% of the global poor reside in the region. Nevertheless, in spite of a global economic slowdown and food crisis, the 2000s have brought momentum to the growth and development of the region. The region has had an average annual growth of 7.4% in the period 2000–2010, as compared to 5.5% in the 1990s. The percentage of people living on less than \$1.25 a day has declined from 45% in 1999 to 36% in 2008 (World Bank, 2012) and per capita incomes have risen steadily in almost all countries. Correspondingly, the demand for food and other agricultural products has also increased in the region. This is evident from the increase in agricultural imports from \$5 billion in 1999 to \$24 billion in 2010.

This growing demand for agricultural products during 2000–2010 has been accompanied by a reduction in agricultural growth and in its share of the GDP of almost all countries in the region. Given the rise in global and regional demand for agricultural products and the slowing down of agricultural growth in the region, it becomes critical not only to reverse the current trend but also to accelerate the growth of agriculture

in the interests of food security and growth sustainability in South Asia. With majority of the population still dependent on agriculture for livelihood, greater growth in agriculture is imperative for addressing poverty. The rising demand for agricultural products globally as well as regionally makes this an opportune time for exploring new avenues of intraregional trade and investments. This study focuses on identifying potential supply chains and breaks new ground in intraregional trade and investments in agriculture. The analyses undertaken and results arrived at are summarized below:

- The study examines the socioeconomic profile of South Asia and the importance of agriculture to the growth of the region. The extent and emerging patterns of agricultural trade in South Asia highlight that agriculture's share in intraregional trade is low but growing quickly. The growth of agricultural intraregional trade is higher than the growth of total intraregional trade. Most least developed countries (LDCs) in the region transact more than 50% of their trade intraregionally, while non-LDCs have miniscule intraregional exports and imports, particularly India, which exports less than 5% to the region while 99% of its imports are from outside the region. Nevertheless, intraregional trade provides higher opportunities for export diversification to all countries in the region.
- The study estimates a dynamic gravity model for the period 2000–2010. The results show that while the potential average trade during 2000–2010 was \$22 billion per annum, the actual trade of the region is only \$8 billion per annum. The untapped potential for intraregional trade is therefore 68%. India with its partners in the region provides the maximum scope for realizing this potential trade.
- The study identifies a competitive agriculture export basket for each country in the region, consisting of products for which regional demand exists and the country has the supply capacity. Using a contribution to trade balance (CTB) index and the international

market position (POS) index, competitive products for each country's global and regional exports are identified. All competitive products with global exports of value greater than \$10,000 and where the region's global imports are greater than the country's global exports are potential exports for intraregional agriculture trade.

- Processed food and beverages have been identified as a sector where the region's global exports and imports have grown rapidly during the period 2000–2011. Intraregional exports in this sector have also increased from 2% in 1990 to 23% in 2011. This reflects the growing competitiveness of the region in agricultural products as well as the growing tendency to source the products from within the region. Potential intraregional trade, based on the gravity model, is estimated at \$5 billion per annum. This makes the sector a fertile ground for exploring potential intraregional supply chains. The study identifies potential regional supply chains for the food processing industry using the following methodology:
 - Using Broad Economic Classification (BEC), identify the outputs and inputs of food processing industries (FPIs) and match them with Harmonized System (HS) 6-digit tariff lines using the available concordance matrix.
 - Identify for each country those products which are the output of the FPI and for which the country has export potential. These outputs are separately listed for global exports and regional exports, based on whether demand exists in the region.
 - Identify those inputs needed by a country's FPI, which are imported globally at a higher cost even though there are regional exporters supplying them at a lower cost. Additionally, identify a list of those inputs which the country globally imports, but where a regional supplier with supply capacity (i.e. a supplier which exports more than the country imports) exists, though at a higher cost.
 - Identify those products for which the country has export

potential and can export to the region, but has a limited supply capacity as the region's imports are greater than the country's exports. These are identified as the investment potential for the country.

- Finally, we have identified three lists for each country: (i) potential outputs from the FPI for export to the region where regional demand exists; (ii) Potential imports of inputs of FPI from the region where supply capacity exists; (iii) investment potential for FPI's inputs and outputs.
- Using the above methodology, 513 outputs from the FPI were identified with an average global export value of \$5 billion (2007–2009) and average regional export value of \$790 million. India has the maximum export potential in FPI outputs at 220 products followed by Pakistan (109 products) and Sri Lanka (80 products). The LDCs of the region can also effectively participate in the potential supply chain as there are 97 products for which they have the supply capacity to export to the region. 221 products have been identified for which the global imports are \$159 million, while the region exports \$9.2 billion. This indicates that the region has competitive advantage in these inputs and supplies them to the world. These need to be harnessed within the region for value addition to improve the gains to the exporting country. Pakistan can regionally import 58 inputs followed by Sri Lanka (51 inputs), Bangladesh (28 inputs), and India (24 inputs). Bhutan, Nepal, and the Maldives, which at present comprise \$54 million worth of the global imports of the region, can also source 68 inputs from the region. More than 50 products have been identified with investment potential for India, Pakistan, and Sri Lanka.
- The identified supply chain for the FPI has the advantage of originating as well as ending in South Asia. This improves the sustainability of the regional supply chain as it increases its resilience to a reduction in demand in the markets of the Global North.

- The study examines South Asian Free Trade Agreement (SAFTA) preferential tariffs amongst those products with export potential where the region has a demand and the country is most competitive in the region. Bhutan has tariffs above 20% for almost all products of all countries. There are many products with tariffs of greater than 15% imposed by some country in the region. To analyze the implications of tariff liberalization on the region's trade in agriculture, four case scenarios are estimated using computable general equilibrium (CGE) analysis.
 - **Case Scenario I:** India gives duty free market access to all LDCs in South Asia on agricultural products.
 - **Case Scenario II:** India gives duty free market access to all South Asian countries on all agricultural products.
 - **Case Scenario III:** South Asian countries fully liberalize agricultural trade among themselves
 - **Case Scenario IV:** Full SAFTA—all countries liberalize all trade.
- The simulation results show that in the first scenario the region as a whole gains in welfare. The LDC's gains are higher than those of the region as a whole. Welfare loss to India is marginal. In the second scenario, the percentage increase of imports into India is miniscule (0.4%). Imports from Pakistan increase by 446% from its existing level. There is a 50% rise in imports from Nepal and 12% rise in imports from Bangladesh. Imports from other LDCs rise by 60% from their current level. Pakistan's gains in welfare are almost half of the total gains to the region. However, gains to LDCs will be lower than the first scenario only if LDCs get duty free access. In the third scenario, the welfare effect is equivalent to \$811 million, the highest among all the three scenarios. However, gains to LDCs in the region are the lowest as compared to other two scenarios. Pakistan gains the maximum with 60% of total welfare gains in the region. Bangladesh and Sri Lanka have a minor decline in their welfare. Of all the possible simulations, the region gains the most from full SAFTA.

- The study examines the issue of food security by identifying the surpluses and deficits in important food items both in the region and in individual countries. The extent of price and market integration across and within countries is estimated for important food items. The results show that prices in the region are correlated only for a few food items and between select countries. Prices of rice, wheat, and maize are strongly correlated with each other in South Asian countries, while prices for other food items, like onions, potatoes, milk, eggs, etc., are not correlated. The integration is selective and generally missing in chickpeas and groundnuts. The results also show that many commodity markets within each country are not adequately integrated. In particular, the integration of domestic wheat and rice markets are of concern. Domestic market integration is a necessary precondition for border reforms. Across countries, retail rice markets are better integrated as compared to wheat and wheat flour markets.
- The study discusses nontariff barriers (NTBs) and highlights some of the most frequently targeted products and measures as identified by the United Nations Conference on Trade and Development (UNCTAD) Nontariff Measures (NTM) database and Overseas Development Institute (ODI) report (2011). It also discusses other constraints to intraregional trade like poor logistics, connectivity, tariff quotas, and export taxes.
- The study provides strong evidence-based reasons for development-oriented integration in agriculture in the region. It recommends policies and future plans for regional integration in agriculture to promote regional supply chains in agro-processing industries and achieve food security in the region. These include coordination in agricultural pricing policies, establishing common buffer stocks, collaborative agriculture research, collaboration for improving the health status of the region, and better river water utilization.

- It suggests that to accelerate customs and logistics procedures, India can act as a catalyst, along with other partners in the region, to advance a trade facilitation agenda. A dedicated executive body could be set up to oversee reductions in reported barriers and a robust dispute settlement mechanism can be put in place to enforce decisions within SAFTA.
- The food processing industry provides an opportunity to all countries in the region to contribute productively and gain in terms of higher output and trade in agriculture. Intraregional investments and sharing of technology within the region can help in fostering regional supply chains, reducing the transaction costs of trade, and also improving the means of communication within and across national borders. India can be a catalyst in the region for building telecommunication infrastructure. For LDCs the main source of external investment capital is foreign direct investments. It is important that countries define (and emphasize) their comparative advantage and provide information to potential investors about these advantages. Within regional supply chains, much of the production expansion is likely to come from the expansion of firms within the region (from more advanced economies in the region to LDCs). Therefore, particular attention needs to be paid to the conditions for the flow of regional FDI. In that regard, regional investment agreements need to be explored.
- Further, another source of finance which is yet to be tried, but potentially feasible for supply chains, is intrafirm trade credit. The use of development banks can be leveraged for developing regional supply chains.
- Setting up a regional industry association can further the agenda of sharing information and identifying common interests and concerns in the region. Factors which influence regional integration and are closely associated with the political economy of the region should

not be ignored. Bringing different stakeholders like civil society, media, policy makers, the private sector, and above all, the people of the region to common platforms can reduce the trust deficit.

1 Chapter

Agriculture Trade and Hunger in South Asia

1.1 Introduction

Although South Asia has seen good development indicators, it has lagged behind other regions, in terms of economic integration. Intraregional exports have remained low, comprising merely 6% of the region's global exports. While South Asia contains 23% of the world population, a disproportionate 44% of the global poor reside in the region. Nevertheless, between 2000 and 2010, in spite of a global economic slowdown and food crisis, growth in South Asia has gained momentum. The region has grown at an average annual rate 7.4% in this period, as compared to 5.5% in the 1990s. The percentage of people living on less than \$1.25 a day has declined from 45% in 1999 to 36% in 2008 (World Bank, 2012). Although the highest average annual growth in the region was experienced by India at 8%, virtually all countries (except for Nepal), experienced higher average annual growth in the 2000s as compared to the 1990s. During this period, per capita income increased by more than 4% per annum in five out of the eight countries. Correspondingly, demand for food and other agricultural products has also increased. This is evident from the growing global agricultural imports to the region which increased from

\$5 billion in 1999 to \$24 billion in 2010, of which India's import demand increased from \$4 billion to \$14 billion.

The growing demand for agricultural products in the region has been accompanied by a fall in agricultural GDP, from 24% in 2000 to 19% in 2010. All countries in the region have experienced a fall in agricultural GDP during this period while the contribution of services to GDP increased in almost all countries. Agricultural growth in the region has also slowed down in the 2000s as compared to 1990s, with the average annual growth declining from 3.3% to 3%. During the first decade of the 2000s, agricultural growth fell in India and Pakistan, which together comprise about 88% of the agricultural output of the region.¹ Given the rise in global and regional demand for agricultural products and slow down in agricultural growth in the region, it becomes critical not only to reverse the trend, but also to accelerate the growth of the agriculture sector in the interest of the region's food security, growth, and sustainability. With the majority of the population still dependent on agriculture for livelihood, higher agricultural growth is imperative for addressing the issue of poverty.

1.2 Socioeconomic Profile of South Asia and South Asian Countries

A quick examination of the socioeconomic profile of South Asia is sufficient to highlight the importance of agriculture for the region. Although growth rates have surged in the region, poverty ratios still remain high. The poverty headcount ratio (the percentage of the population below the national official poverty line) in the latest survey is as high as 44% in Bangladesh, followed by Afghanistan (36%) and Nepal (31%), India (27%), Bhutan (23%), Pakistan (22%), and Sri

¹ From 3.2% in 1990–2000 to 3% in 2000–2010 in India and from 4.4% in 1990–2000 to 3.4% in 2000–2010 in Pakistan over the same periods. (World Bank, 2012).

Lanka (15%).² Pakistan has a relatively lower level of poverty and at -10% per annum, also the highest rate of decline in poverty. One worrying trend is that India, the largest country in the region, showed the least change in poverty of only about -2% per annum between 1994 and 2005.

There is a stark contrast between South Asia's share of the global population and its economic output. South Asia generates only 2.9% of the global national product, which is less than one-seventh of its share in the world's population. Most South Asian poor depend on agriculture for their livelihood. Approximately 50% of the labor force was engaged in agriculture in 2010 (World Bank, 2012) while the sector accounted for about 20% of the GDP. Agriculture in the region is dominated by small farmers with an average holding size of less than 2 hectares, who are also the net buyers of food. Food crises can therefore have a deep and lasting impact on the well-being of the people in the region.

Low per capita income in the region is associated with a very high incidence of poverty and hunger. Some basic facts relating to population, per capita income, land resources, poverty, undernutrition and trade are presented in Table 1.1.

Over 36% of the world's undernourished population are inhabitants of South Asia. Trade ratios of South Asia are quite low. The region constitutes 1.6% of global merchandise export and 2.57% of global merchandise import. South Asia's trade ratios indicate that its share of global exports is smaller than its share of global imports, implying that it trades a smaller share of its production. All the region's countries, except India, have been net importers of food as their own production has not been sufficient to meet their domestic requirement.

² The last surveyed year is different in different countries—2004 in Nepal; 2005 in Bangladesh and India; 2006 in Pakistan; 2007 in Bhutan and Sri Lanka and 2008 in Afghanistan.

Table 1.1: South Asia in a Global Setting

Variable	Year	South Asia	World	South Asia's Share (%)
Gross National Product (\$ billion)	2009	1,735	59,163	2.93
Population (million)	2009	1,568	6,775	23.14
Land area (km ²)	2009	4,771,220	129,710,719	3.68
Arable land (% of land area)	2009	41	11	
Arable land derived (km ²)	2009	1,973,940	13,859,525	14.24
Poverty (people living on less than \$1.25 a day) (million)	2005	596	1,374	43.38
Prevalence of under-nutrition (%)	2005–2009	22	14	
Prevalence of under-nutrition derived (million)	2009	345	949	36.37
Total merchandise Export (\$ million)	2009	204,760	12,492,190	1.64
Total merchandise Import (\$ million)	2009	323,199	12,595,548	2.57

Source: World Bank. 2011. World Development Indicators. data.worldbank.org/data-catalog/world-development-indicators

Agriculture is the mainstay of South Asian economies. About 18%–34% of national output and 33%–66% of employment are contributed by this sector in various countries in the region. Among the five major countries in the region, the per capita income is highest in Sri Lanka, followed by India (Table 1.2). Nepal comes in at the bottom with a per capita income of \$440. Bangladesh is a notch above Nepal with per capita income of \$580. However, Sri Lanka is ranked at 151 worldwide, in spite of having the highest per capita income in

Table 1.2: Salient Features of South Asian Countries

Particular	Reference Year	Bangladesh	India	Nepal	Pakistan	Sri Lanka
Per capita gross national income (\$)	2009	580	1220	440	1000	1990
Income rank in the world	2009	189	160	196	171	151
Arable land (hectares per capita)	2008	0.05	0.14	0.08	0.12	0.06
Poverty, people living on less than \$1.25 a day (%)	2004–2007	49.6	41.6	55.1	22.6	7.0
Share of agriculture in GDP (%)	2009	19	18	34	22	13
Workforce in agriculture (%)	2006–2010	48.1	56.1	65.7	45.1	32.5
Agriculture value added/worker (\$ '000)	2009	435	468	238	903	926

Source: World Bank. 2011. World Development Indicators. data.worldbank.org/data-catalog/world-development-indicators

South Asia. This shows that South Asia has a very low income level compared to many other countries.

Per capita arable land in South Asia varies from a low of 0.06 hectares in Sri Lanka, to a high of 0.14 hectares in India.

More than one-third of Nepal's total national output is contributed by the agriculture sector. Agriculture contributes around one-fifth of national output in Pakistan, Bangladesh and India. In all the countries agricultural employment is much higher than its share of the total output. In Nepal two-thirds of the workforce is engaged in agriculture and yet the value added per worker in the sector is meager. Sri Lanka which has the lowest share of employment in agriculture has the highest value added per worker. Agriculture value added per worker in Sri Lanka and Pakistan are far higher than Bangladesh and India (Table 1.2).

If the World Bank norm of \$1.25 per person per day is taken as a basis then it may be concluded that more than half the population in Nepal and Bangladesh suffers from poverty. Similarly, more than 40% people in India survive below the poverty line. Poverty in Pakistan based on this norm is 22.6%. Sri Lanka shows the lowest incidence of poverty in South Asia. High dependence on agriculture for livelihood and slow growth in employment opportunities in nonagriculture sectors are largely responsible for widespread poverty and undernutrition in the region.

1.3 Hunger and Nutrition in South Asia

Hunger is generally estimated from dietary energy intake. A person having dietary energy below a certain threshold (norm) is classified as hungry or undernourished. Dietary energy intake in all South Asian countries has remained lower than the world average as well as the average in developing countries (Table 1.3). Further, this gap in dietary intake of energy has increased during 1990–1992 and 2006–2008,

for Bangladesh, India, Nepal, and Pakistan. Although all South Asian countries have experienced some improvement in per capita energy intake, the increase has merely been 3%–16% over a period of 16 years. Prevalence of undernutrition varied from 17% in Nepal to 26% in Bangladesh during 2006–2008. Despite only a small improvement in per capita calorie intake, undernourishment shows great decline in Bangladesh and Sri Lanka. Dietary energy intake among the South Asian countries shows a very narrow variation, between 2270 to 2370 kCal per person per day.

The latest data provided by the Food and Agriculture Organization of the United Nations (FAO) shows that the prevalence of undernourishment based on dietary energy intake remains highest in

Table 1.3: Incidence of Hunger and Undernutrition in South Asian Countries and the World

Country	Dietary Energy Consumption (kCal/person/day)		Prevalence of Under-nourishment in Total Population (%)		Number of Undernourished Persons (million)	
	1990–1992	2006–2008	1990–1992	2006–2008	1990–1992	2006–2008
Bangladesh	1,960	2,270	38	26	44.4	41.4
India	2,290	2,360	20	19	177.0	224.6
Nepal	2,190	2,340	21	17	4.2	4.7
Pakistan	2,210	2,280	25	25	29.5	42.8
Sri Lanka	2,170	2,370	28	20	4.8	3.9
South Asia	2,270	2,360	22	20	267.5	330.1
Developing World	2,440	2,640	20	15	833.2	839.4
Total World	2,610	2,790	16	13	848.4	850.0

Source: FAO. various years. *State of Food Insecurity in the World*. Rome: Food and Agriculture Organization of the United Nations.

Bangladesh despite tremendous progress made by the country. The proportion of the population facing undernutrition in Bangladesh has declined from 38% during 1990–1992 to 26% in 2006–2008. There has been little progress in reducing the prevalence of undernutrition in India, Nepal, and Sri Lanka. Despite the decline in the percentage of the population facing undernutrition, the number of undernourished people has increased over time in all countries, except Bangladesh and Sri Lanka.

1.4 Regional Integration in Agriculture: Existing Literature

The role of regionalism in growth and development has been well-established in both theoretical and empirical literature. But South Asia has yet to tap this reserve. The growing demand in the region for agricultural products creates an opportunity for exploring new avenues of intraregional trade and investments in this sector.

A formal attempt at promoting regional economic cooperation and trade in South Asia started with the South Asian Association for Regional Cooperation (SAARC) in 1985 involving seven countries namely Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. A regional trading bloc was formed in April 1993 with the signing of the SAARC Preferential Trading Agreement (SAPTA) for giving preferential market access to the exports of the member countries in a limited way. These countries have moved toward achieving a South Asia Free Trade Area (SAFTA), and signed the SAFTA Pact in 2004. The agreement came into force on 1 January 2006 and the trade liberalization process commenced from 1 July 2006, leading to an increase in intraregional trade. However, intercountry trade under SAFTA is far below its potential and a reduction in the size of sensitive lists is necessary to increase the quantum of regional trade. Due to this, progress in intraregional trade has not been commensurate with efforts

at promoting preferential trade. Additionally, porous borders allow for unrecorded exchange of goods between neighboring countries, particularly with India. The fact remains that, unlike other geographic regions such as South East Asia, Europe, and North America, regional integration in South Asia has remained weak.

Although much has been written about regional integration in South Asia in terms of opportunities and constraints, few studies have taken a sector-specific approach to regional integration, especially in terms of potential supply chains in agriculture. There also exists a stream of literature, on food security in South Asia. Some studies have underlined the need for greater economic cooperation and trade integration in South Asian agriculture. Others have blamed low intraregional agricultural trade on multiple factors, including the inefficiency of customs and other border procedures, the presence of a large number of sensitive lists, high tariff rates, political frictions and fewer complementarities in production and consumption.

To address the issue of food price inflation in South Asia, Carrasco and Mukhopadhyaya (2012) have emphasized the role of SAARC regional cooperation. According to them, the large number of sensitive products (negative list) and the presence of nontariff barriers and subsidies from SAFTA prevent the agreement from having a greater impact on domestic food price inflation in South Asia. World Bank (2010) analyzed the nature and various causes of food price increases in South Asia. It noted that South Asian countries experienced varied rates of inflation in 2007–2008 and food price inflation exceeded nonfood inflation throughout South Asia except in India. Among other critical factors responsible for high food inflation in the region, the study observed that the discussions regarding the food crisis in South Asia have largely ignored the regional dimension of food price inflation and the possibility of improving food security by liberalizing trade. Underlining the limitations of the SAFTA agreement, the study

notes that the agreement is an attempt to increase intraregional trade through the gradual dismantling of some tariff barriers, but it leaves out a large number of products denominated as sensitive, and it does not address nontariff trade barriers.

Highlighting the role of trade facilitation measures in improving the intra-SAARC trade in agriculture, Weerahewa (2009) observed that reducing trade costs in South Asian countries to the average values of best performers in South Asia can increase the value of agricultural trade by 18% and similar reduction in time delays can lead to an increase of 27%.

Bouët and Corong (2009) assessed the welfare and trade consequences of the SAFTA agreement and evaluated whether it could help reduce the impact that volatility in world agricultural prices have in South Asia. Using a dynamic multicountry, multisector computable general equilibrium model, they suggested that SAFTA leads to moderate gains amongst its members. Due to the region's small share in world trade however, it alone cannot counter the effects of high global food prices.

There exists a gap in the literature with respect to identifying potential supply chains in South Asian agriculture, particularly in processed food and beverages. This study is an attempt to explore the potential of South Asian countries in economic integration by forming regional supply chains, which can help countries raise their competitiveness regionally as well as globally. Further, the study estimates the surpluses and deficits in the region in agricultural and food commodities, assessing the potential of the region to achieve food security. The study also identifies tariff and nontariff barriers to supply-chain formation and explores the possibilities of regional technology sharing within agriculture. It provides policy advice on promoting regional cooperation, particularly in agriculture.

1.5 Objectives of the Study

The study focuses on intraregional trade and investment potential in agriculture in South Asia. With the objective of promoting development-oriented regional integration in agriculture, it undertakes the following analyses:

1. Examines the extent and emerging patterns of agriculture trade in South Asia, highlighting the growing importance of export diversification in intraregional trade as compared to global trade.
2. Estimates intraregional trade potential in agriculture using the gravity model. Bilateral trade potential in agriculture in the region is also estimated.
3. Estimates the export potential of all countries in the region in all agricultural products at a 6-digit disaggregated level, using a contribution to trade balance (CTB) index and a relative trade balance index describing the position of individual countries on international markets. A list of agricultural products at the 6-digit level is identified for each country where it has an export potential based on the two indices and there exists regional demand for the product, provided that no other country in the region has export potential in the identified product.
4. Identifies potential regional supply chains in the Food Processing Industry (FPI). For each country, three lists of products are identified:
 - (i) Outputs of FPI in which the country has export potential in global and regional markets
 - (ii) Inputs to FPI which can be sourced from within the region but are currently imported from elsewhere in the world
 - (iii) Products where the country has the investment potential to engage in the production supply chain, i.e. the country has a

competitive advantage but lacks the supply capacity to fulfill regional demand

5. Highlights the existing tariff barriers in intraregional trade and estimates the likely impact on intraregional trade of three scenarios:
 - (i) India liberalizes tariffs in all agricultural products for LDCs in the region
 - (ii) India liberalizes agricultural tariffs for all countries in the region
 - (iii) All countries in the region fully liberalize agriculture in the region
 - (iv) Full SAFTA is in place.
6. Estimates surpluses and deficits in the region and by country in important food items.
7. Estimates the extent of price and market integration in food within countries and across countries within the region.
8. Identifies important nontariff barriers and nontariff measures existing in intraregional trade in South Asia using different databases and other sources.
9. Draws conclusions and provides policy direction for accelerating regional integration and achieving food security in the region.

2 Chapter

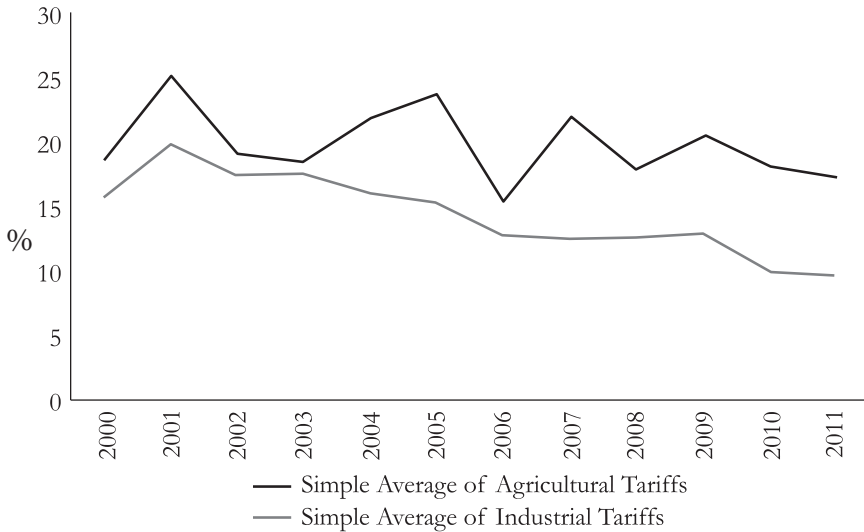
Emerging Patterns of Agriculture and Food Trade in South Asia

2.1 Introduction

Although agriculture is the most prominent sector for almost all countries in South Asia, employing around 50% of the total population of the region (World Bank, 2012), it contributes only 20% to the region's GDP, reflecting the low levels of labor productivity and high levels of underemployment. The region generates only 3% of the global national product while it hosts 23% of the world's population. South Asia is home to 36% of the global undernourished population. Arable land per capita in South Asia is lower than the world average. Around 90% of the region's total arable land is owned by just two countries, India and Pakistan, even though countries like Bhutan and Nepal employ approximately 60% of their population in agriculture.

Given the large number of people directly or indirectly dependent on agriculture, the sector has understandably remained one of the most protected in the region, with respect to global as well as regional trade. High tariffs and tariff peaks have kept traded output low. Agricultural exports and imports averaged only 2% of the global share in 2008–2010. Average tariffs have declined much faster for industrial products

Figure 2.1: Simple and Weighted Average Tariffs in Total Trade and Agricultural Trade, 2000–2011



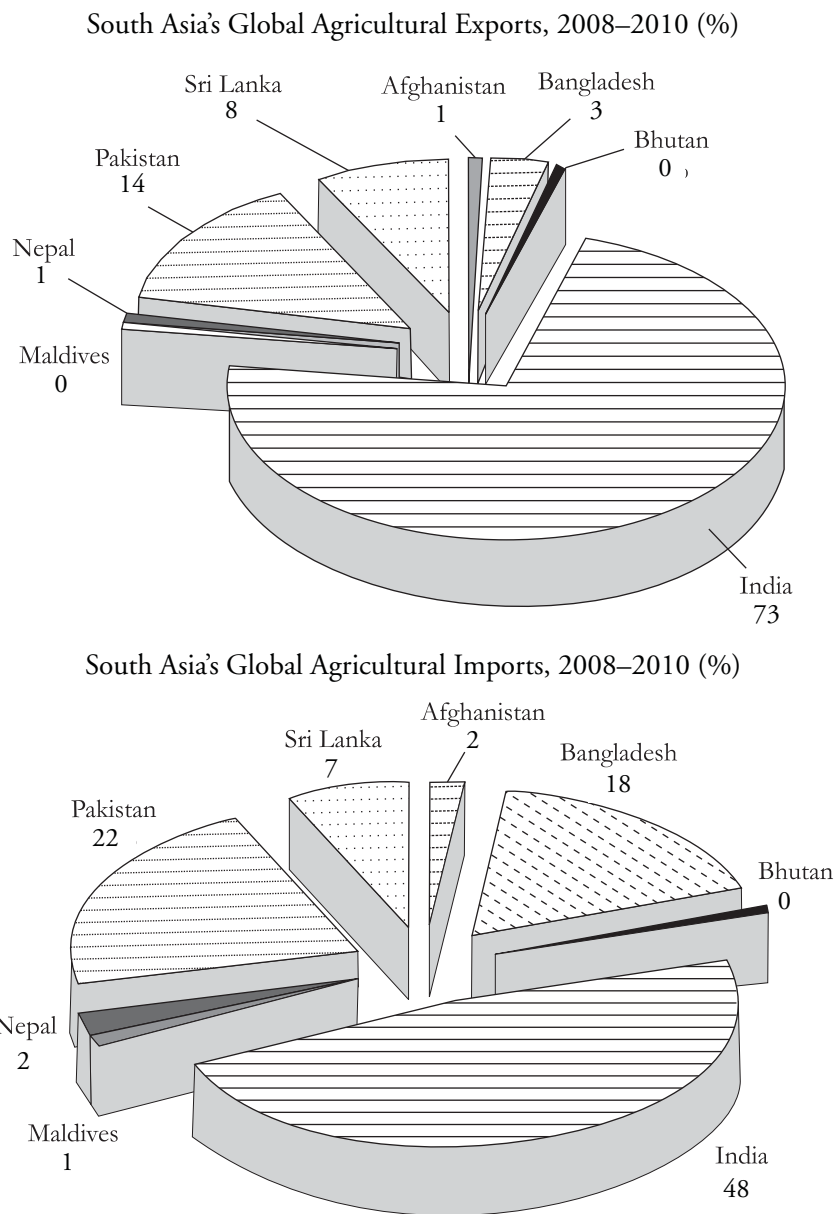
Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

as compared to agricultural products (Figure 2.1). While industrial tariffs have declined by around 60% in the last decade, agricultural tariffs have declined by less than 10%. Approximately 50% of the region's global exports are accounted for by food products, processed rice, and crops, while 50% of the region's global imports are made up of vegetables, fruits and nuts, and vegetable oils and fats.

The extent of liberalization with respect to agricultural products also differs across countries with Afghanistan being the most open, with average agricultural tariffs of 5.8% in 2008. Nepal is close behind with 12.6%. Pakistan and Bangladesh are next with an average of 17.4% and 17.6% respectively, while India has the highest agricultural tariffs in the region with an average of 31.9%.

The extent of agricultural production and trade liberalization has led to vast differences in each country's share of global exports and imports of agricultural products. India contributes 73% to global

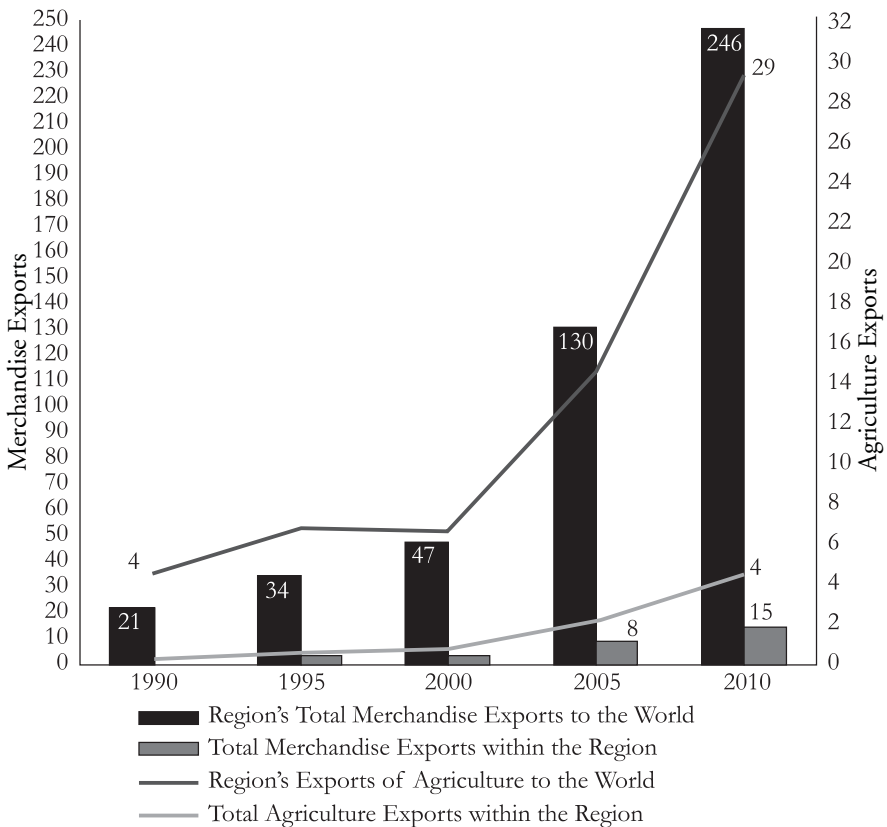
Figure 2.2: Global Agricultural Exports and Imports from South Asia by Country, 2008–2010



Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

exports and accounts for 48% of region’s global imports, followed by Pakistan who contributes 14% the region’s to global exports and 22% of the region’s global imports. Other countries have a less than 5% share in global exports, except for Sri Lanka at 8%, and less than 10% in the region’s global imports, except for Bangladesh, which accounts for 18% (Figure 2.2).

Figure 2.3: Total Merchandise and Agriculture Exports of South Asia: Global and Region (\$ billion)



Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

2.2 Intraregional Trade in Agriculture is Low but Growing Fast

South Asia's total exports to the world increased at an average annual rate of 3% in the 1990s. In 2000, its total exports to the world reached \$47 billion, more than double the exports in 1990. Over 2000–2010, the region's exports to the world increased on an average by around 5% per annum, reaching \$246 billion, more than five times their level at the beginning of the decade. Of this, agricultural exports made up a mere \$30 billion, or 12% of total exports. Growth in global agricultural exports from the region has been much slower than the growth in total global exports (Figure 2.3).

Figure 2.4: Share of Intraregional Exports in South Asia's Global Exports and Agricultural Exports (%)

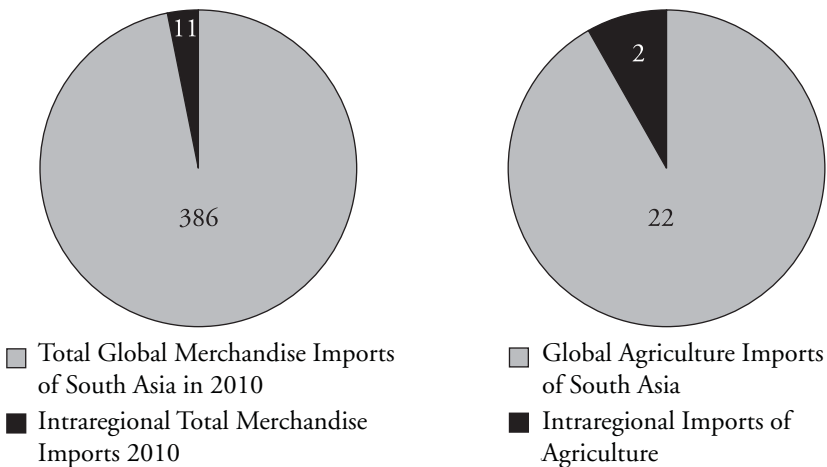


Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

Interestingly, in spite of this, the share of agriculture in intraregional exports has grown much faster than in the region’s global exports (Figure 2.4). In 2000–2010, intraregional agricultural exports rose by an annual average of 13% as compared to the 5% growth of total intraregional exports over the same period. This indicates the growing significance of regional trade in agriculture in South Asia. Although intraregional trade in agriculture is the lowest, compared to other sectors, the growth of intraregional trade in agriculture has been much faster.

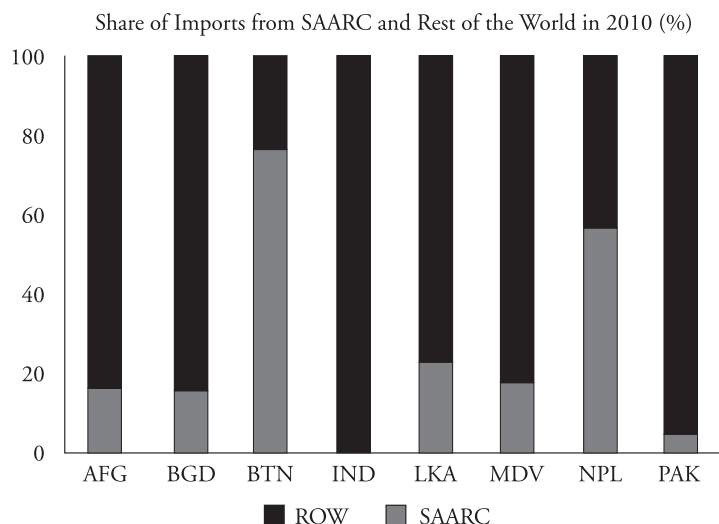
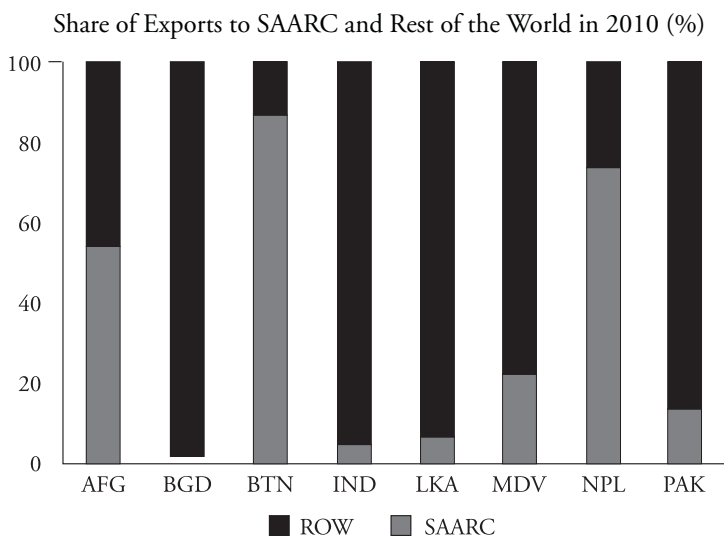
The total average global imports of the region increased by \$1.2 billion per annum, to \$5.8 billion in the 2000s, reaching \$397 billion in 2010. Global agricultural imports of the region rose from an annual average of \$3.4 billion in the 1990s to \$13.5 billion in the 2000s. Agricultural global imports increased from \$5 billion in 2000 to \$24 billion in 2010. The region’s share in total agriculture imports is higher than its share in total imports. In 2010, the share of intraregional agricultural imports in the region’s global agriculture imports was 18%,

Figure 2.5: Global and Intraregional Total Imports and Agriculture Imports of South Asia, 2010
(\$ billion)



Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

Figure 2.6: Countries' Exports and Imports to the Region as compared to the Rest of the World, 2010



AFG = Afghanistan
 BGD = Bangladesh
 BTN = Bhutan
 IND = India

LKA = Sri Lanka
 MDV = Maldives
 NPL = Nepal
 PAK = Pakistan

ROW = Rest of the world
 SAARC = South Asian
 Association for Regional
 Cooperation

Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

much higher than the region's share of intraregional total imports in global total imports (6%) (Figure 2.5).

At the country level, it is important to note that for the LDCs in South Asia, intraregional exports and imports are much higher than their global exports and imports. For Afghanistan, Bhutan, and Nepal, intraregional exports were more than 50% of their total exports in 2010, with Bhutan exporting more than 80% to the region. Similarly, Bhutan and Nepal import more than 50% of their total imports from the region. For the non-LDCs, intraregional exports and imports are miniscule, especially for India, which exports less than 5% to the region while 99% of its imports are from the rest of the world (Figure 2.6).

2.3 Direction of Global and Intraregional Trade in Agriculture

South Asia lacks a diversified export destination basket. Most of its exports and imports are concentrated in five economies, which account for around 38% of its exports and around 35% of its imports. For exports, these are United States (12%), United Arab Emirates (UAE) (12%), People's Republic of China (PRC) (6%), United Kingdom (4%), and Hong Kong, China (4%). According to the average results of 2008–2010, the top exporter of agricultural products to the region is PRC (12%), followed by UAE (8%), Saudi Arabia (6%), US (5%), and Switzerland (4%). Switzerland did not figure in the top 20 exporters to the region in 2008, but climbed to the top ten list in 2009 and figured in the top five in 2010.

Global top export destinations for South Asian countries vary. Most of the LDCs have India as one of their top five destinations for exports (Table 2.1). The US and UK figure prominently as importers for many countries in the region, while UAE and Saudi Arabia are important importers for India and Pakistan. While India figures prominently in the top five importers for all countries, the US figures prominently

Table 2.1: Top Five Importers of Agricultural Products from South Asian Countries, 2010

S. No.	Country	Top Five Importers	Share of Top Five (%)
1	Afghanistan	India, Islamic Republic of Iran, Pakistan, Russian Federation, Turkey	88
2	Bangladesh	Belgium, People's Republic of China (PRC), India, UK, US	40
3	Bhutan	Bangladesh, PRC, Hong Kong, China, India, Singapore, US	99
4	India	Bangladesh, PRC, Saudi Arabia, United Arab Emirates (UAE), US	35
5	Maldives	France, Italy, Sri Lanka, Thailand, UK	82
6	Nepal	Bangladesh, PRC, India, Singapore, US	89
7	Pakistan	Afghanistan, Islamic Republic of Iran, Oman, Saudi Arabia, UAE	41
8	Sri Lanka	Islamic Republic of Iran, India, Russian Federation, Syrian Arab Republic, UAE	37

Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

as an importer for agricultural products for India and Pakistan. Most LDCs in the region have developing countries as their export markets, except for the US. People's Republic of China is also an important importer for the region as countries like Bangladesh, Bhutan, India, and Nepal have PRC listed amongst their top five export markets. United Arab Emirates appear amongst the top five importers for India, Pakistan, and Sri Lanka.

Amongst the top five importers of agricultural products from South Asia, India figures most prominently as it exports to all countries in the region. The US is one of the top five importers from India and Pakistan. Southeast Asian countries like Thailand, Indonesia, and Malaysia are important exporters of agricultural products to the region (Table 2.2).

Table 2.2: Top Five Exporters of Agricultural Products to South Asian Countries, 2010

S. No.	Country	Top Five Source Countries	Share of Top Five (%)
1	Afghanistan	India, Islamic Republic of Iran, Kazakhstan, Pakistan, Uzbekistan	67
2	Bangladesh	Australia, Brazil, Canada, India, Indonesia	57
3	Bhutan	Bangladesh, India, Indonesia, Singapore, Thailand	98
4	India	People's Republic of China (PRC), Saudi Arabia, Switzerland, United Arab Emirates (UAE), US	36
5	Maldives	Australia, India, Sri Lanka, Singapore, UAE	65
6	Nepal	Argentina, PRC, India, Indonesia, Ukraine	78
7	Pakistan	Canada, India, Indonesia, Malaysia, US	55
8	Sri Lanka	Australia, Canada, India, New Zealand, Singapore	58

Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

Amongst the developed countries, Canada and Australia are prominent exporters to Bangladesh, Pakistan, and Sri Lanka.

Intraregional exports of agricultural products indicate the role played by India and Pakistan in the region (Table 2.3). India exports to all countries in the region and contributes around 60% to total intraregional exports, while Pakistan contributes around 16% of total intraregional exports. Maximum exports from India to the region go to Bangladesh, while Pakistan's top export destination within the region is Afghanistan. Sri Lanka and Nepal's exports to India constitute 70% of their total agricultural exports and more than 50% of Bangladesh

Table 2.3: Intraregional Agricultural Exports by Country, Average 2008–2010
(\$ '000)

Country / Exports	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	South Asia
Afghanistan				86,802			80,060		166,862
Bangladesh	25		1,528	87,392	86	1,223	66,258	419	156,524
Bhutan		9,141		92,560		134			101,835
India	46,629	1,095,665	9,815		30,945	213,805	753,415	316,953	2,467,228
Maldives				0.33				13,176	13,176
Nepal		51,921	414	128,627			365	1,693	183,020
Pakistan	496,606	111,186		59,892	3,083	4		64,198	734,969
Sri Lanka	96	2,866	2	134,620	19,275	155	30,954		187,969
South Asia	543,357	1,270,779	11,760	589,892	53,389	215,322	931,052	396,439	4,011,582

Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

and Afghanistan's total exports are directed toward India. Sri Lanka is the biggest export destination for Maldives, while India is the biggest export destination for Bhutan.

2.4 Global and Intra-regional Trade in Agricultural and Food Commodities

The product composition of the export baskets of various countries in the region shows that India (75%), Pakistan (12%), and Sri Lanka (8%) contribute 95% of the total global agricultural exports of the region. Maximum exports comprise of food products (26%), followed by processed rice (15%), crops (14%), and vegetable oils (13%). Most food products are exported by India (69%) followed by Sri Lanka (14%), while India and Pakistan are the only two exporters of processed rice from the region. Afghanistan's major exports are of forestry and animal products. Fish is the major agricultural export of Bangladesh and Maldives while Nepal exports wheat, crops, and forestry products (Table 2.4).

India is the largest importer in the region (49%) followed by Pakistan (19%) and then Bangladesh (17%). The product composition of the region's agricultural import basket shows that more than 90% of forestry products are imported by India, while it imports more than 50% of the region's imports of vegetable oils and fats, vegetables, fruits, as well as beverages, and tobacco. Around 60% of bovine meat product imports and 36% of paddy rice imports of the region go to Pakistan. Sri Lanka is the largest importer of dairy products in the region (34%) while Bangladesh is the largest importer of wheat, processed rice, and cereal grains in the region. Afghanistan is the largest importer of meat products. Nepal imports around 97% of the region's sugar cane and sugar beet imports, and 34% of bovine cattle, sheep, and goats (Table 2.5).

Table 2.4: Global Agricultural Exports of South Asian Countries, Average 2008–2010
(As share % of the total global agricultural exports of the region)

Code	Description	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	South Asia
1	Paddy rice	0	0	0	73	0	0	27	0	3
2	Wheat	1	0	0	79	2	2	15	1	0
3	Cereal grains n.e.c.	0	0	0	96	0	0	3	0	3
4	Vegetables, fruit, nuts	8	2	0	71	0	1	14	4	9
5	Oil seeds	1	1	0	93	0	0	4	1	3
6	Sugar cane, sugar beet	0	0	0	68	0	0	21	11	0
8	Crops n.e.c.	0	2	0	74	0	2	2	20	14
9	Bovine cattle, sheep and goat	4	0	0	64	0	0	32	0	0
10	Animal products n.e.c.	7	1	0	71	0	0	20	1	1
13	Forestry	15	0	1	56	0	2	3	22	1
14	Fishing	0	26	0	32	6	0	10	26	1
19	Bovine meat products	0	0	0	94	0	0	6	0	5
20	Meat products n.e.c.	0	2	0	78	0	0	7	12	0
21	Vegetable oils and fats	0	0	0	98	0	1	1	1	13
22	Dairy products	0	0	0	95	0	1	3	1	1
23	Processed rice	0	0	0	60	0	0	40	0	15
24	Sugar	0	1	0	79	0	1	19	0	3
25	Food products n.e.c.	0	9	0	69	2	0	6	14	26
26	Beverages and tobacco products	0	1	0	39	0	6	52	2	2
Total Agriculture		1	3	0	75	1	1	12	8	100

n.e.c. = not elsewhere classified.

Note: Product categories are based on Global Trade Analysis Project (GTAP) Classification.

Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

Table 2.5: Global Agricultural Imports of South Asian Countries, Average 2008–2010
(As share % of the total global agricultural imports to the region)

Code	Description	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	South Asia
1	Paddy rice	4	35	0	1	0	8	36	15	0
2	Wheat	7	40	0	5	0	0	28	21	6
3	Cereal grains	2	54	0	8	0	5	23	8	1
4	Vegetables, fruit,	3	19	0	55	1	2	13	7	15
5	Oil seeds	1	23	0	12	0	3	60	1	3
6	Sugar cane, sugar	0	0	0	1	0	97	0	1	0
8	Crops n.e.c.	9	9	0	34	0	3	36	9	6
9	Bovine cattle, sheep and goat	21	0	0	29	0	34	15	0	0
10	Animal products	15	15	0	42	3	2	20	3	1
13	Forestry	0	4	0	91	0	0	4	1	3
14	Fishing	1	35	0	39	5	5	1	15	0
19	Bovine meat products	18	2	0	8	6	1	59	5	0
20	Meat products	47	18	0	6	9	1	10	9	1
21	Vegetable oils and	2	12	0	66	0	0	18	2	41
22	Dairy products	9	23	0	17	2	1	13	34	3
23	Processed rice	30	55	0	0	2	4	0	8	2
24	Sugar	2	22	0	48	0	0	17	10	9
25	Food products	27	9	0	31	3	3	14	13	7
26	Beverages and tobacco products	21	2	1	53	6	2	5	10	2
Total Agriculture		6	17	0	49	1	1	19	7	100

n.e.c. = not elsewhere classified.

Source: Computed from UN-COMTRADE database, 2011.

2.5 Net International Trade of Food: Regional and Country Level Analyses

Net Trade in South Asia

Regional levels of export, import and net trade in different food items are presented in Table 2.6. It is interesting to point out that some of the items are exported as well as imported. This could be due to yearly fluctuations. During 2007–2009, the net trade of the region in rice was 5.8 million tons (mt) and in cereals it reached 3.1 mt. The trade scenario of wheat is almost the reverse of rice. Average import of wheat exceeded 6 mt and net trade in wheat was (–)5.6 mt.

South Asia imported more than 4 mt of pulses and more than 10 mt of vegetable oil each year during 2007–2009. The region also exported a small quantity (0.51 mt) of vegetable oil. Sugar exports amounted to 2.94 mt while imports were 3.2 mt. The region exported 2.6 mt of vegetables

Table 2.6: Export, Import and Net Trade in Various Food Items, South Asia, 2007–2009
(million tons)

Item	Export	Import	Net Trade
Cereals (excluding beer)	10.794	7.702	3.092
Rice (milled equivalent)	6.572	0.766	5.807
Wheat	0.756	6.380	(5.625)
Pulses (total)	0.156	4.246	(4.090)
Vegetable Oils (total)	0.516	10.249	(9.733)
Sugar (raw equivalent)	2.937	3.171	(0.233)
Vegetables	2.572	1.911	0.661
Fruits (excluding wine)	1.413	1.714	(0.300)
Eggs	0.068	0.002	0.066
Meat	0.550	0.020	0.530
Milk (excluding butter)	0.686	1.221	(0.535)

() = negative

Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

and 1.4 mt of fruits. Exports were greater than imports for vegetables, while the reverse was true for fruits. Among livestock products, South Asia exported 7 thousand tons and imported 2 thousand tons of eggs. Exports of meat totaled 0.55 mt with a net trade of 0.53 mt. Milk imports exceeded exports by approximately 0.5 mt.

Net Trade per Country

Information on the quantity of net trade in selected food items by country is presented in Table 2.7. During the 3-year period covered here, i.e. 2007–2009, all South Asian countries were net importers of wheat, although there were large year-to-year fluctuations, with positive trade in 1 year and negative in another. Pakistan experienced the largest fluctuation in the production of wheat, followed by India. On average, Bangladesh is the largest importer of wheat in the region and Nepal shows the lowest net trade in wheat.

Table 2.7: Net Trade in Selected Food Commodities in South Asian Countries, 2007–2009
(thousand tons)

Food Commodities	Bangladesh	India	Maldives	Nepal	Pakistan	Sri Lanka
Wheat	(2704.0)	(888.0)	(26.0)	(1.0)	(1156.0)	(850.0)
Rice	(485.0)	3700.0	(24.0)	(146.0)	2845.0	(83.0)
Pulses	(528.0)	(2962.0)	(1.0)	(39.0)	(403.0)	(157.0)
Vegetables	(555.0)	1727.0	(21.0)	(90.0)	(158.0)	(240.0)
Fruits	(219.0)	(142.0)	(22.0)	(95.0)	140.0	36.0
Eggs	0.0	67.5	(1.30)	0.0	0.4	(0.3)
Meat	(0.4)	524.4	(7.6)	3.3	12.1	(1.6)
Milk	(353.5)	498.9	(29.6)	(3.7)	(134.8)	(512.2)
Vegetable oils	(1264.2)	(6349.0)	(7.7)	(116.0)	(1849.2)	(146.7)
Sugar	(1281.9)	1812.1	(11.2)	(21.0)	(172.5)	(559.1)

() = negative

Source: Food and Agriculture Organization Statistics (FAOSTAT). faostat3.fao.org/home/E.

Rice is the largest traded agricultural food commodity in the region. Both India and Pakistan figure amongst the top exporters of rice not only in the region but also in the world. The average net export of rice from India is around 3.7 mt and from Pakistan, around 2.8 mt. All other countries are net importers of rice.

All South Asian countries have a trade deficit in pulses, and import moderate to large quantities to meet their domestic requirements. India has the highest trade deficit in pulses. It is also the largest net exporter of vegetables in the region, while all other countries are net importers. Pakistan exported 235 thousand tons of vegetables but at the same time imported close to 400 thousand tons. The net export of vegetables from India is 70% more than the net import of the other South Asian countries, combined.

Fruits figure on both the import and export sides of the trade ledger, as the fruit basket is very diverse. A country might export certain fruits and import others. India remains a net importer of fruit to the extent of 142 thousand tons. Bangladesh exports a small quantity of fruit but its import share is much higher, at 232 thousand tons. Pakistan and Sri Lanka are net exporters of fruit in quantity terms. Nepal imports more than 100 thousand tons of fruits while its export is around 18 thousand tons.

The figures for eggs and meat show that most countries do very little trade in these commodities. The exception is India, which exports 68 thousand tons of eggs and more than half a million tons of meat. It imports less than one thousand tons of these. Pakistan exports an average of 20 thousand tons of meat and imports 8 thousand tons. India has a trade surplus in milk. Sri Lanka is the largest importer of milk in the region with more than half a million tons imported. Pakistan imports 191 thousand tons and exports 56 thousand tons of milk. Nepal has a net trade in favor of importing milk, though the quantities are small. All South Asian countries import

a large volume of vegetable oil, though India also exports close to 0.4 mt of it.

As with wheat, sugarcane production and trade in India and Pakistan show large fluctuations, leading to a changing balance of trade in different years. During the period studied here, India's sugarcane export was nearly thrice its import, with a net trade of 1.8 mt. The average export of sugar from Pakistan amounted to 117 thousand tons and import totaled 290 thousand tons. Sri Lanka imported more than half a million tons of sugar. Nepal's sugar imports were 27 thousand tons. All countries except India were net importers of sugar in this period. India's net exports of sugar are almost the same as the total net imports of other South Asian countries. Thus, at a regional level there is a perfect balance between imports and exports. However, to balance the deficiencies faced by some countries with the surplus of other countries, yearly fluctuations in production and trade must be smoothed out.

The overall trends show that:

1. Agricultural tariffs are relatively high and growth in global agricultural trade relatively slow in South Asia compared to other sectors, but agricultural trade is gaining importance in terms of intraregional trade.
2. Intraregional agricultural exports grew at a much higher rate (13%) than total intraregional exports (5%) in the period 2000–2010. Intraregional trade has a greater share in total agricultural trade for the LDCs of the region.
3. India is the major agricultural exporter and importer in the region, contributing 73% of the total exports and 48% of imports. India and Pakistan together contribute more than 85% of the total agriculture exports, while India, Pakistan and Bangladesh together contribute more than 85% of the region's agricultural imports.

4. India figures prominently in the top five exporters for inter-regional trade, while the US is a major exporter of agricultural products to India and Pakistan.
5. Food products, processed rice, crops, and vegetable oils are the major exports of the region, while imports consist of mainly vegetable oils, vegetables and fruits, and sugar.
6. There are large yearly fluctuations in the production of food commodities, especially in wheat, rice, and sugar, leading to changing balances of trade in different years for many countries.
7. On the basis of 3-year averages, India is found to be a net exporter of rice, vegetables, eggs, meat, milk, and sugar. Pakistan is a net exporter of rice, fruits, eggs, and meat. Bangladesh and Maldives are net importers in almost all food commodities, while Sri Lanka has small positive net trade in fruits and Nepal in meat.

3 Chapter

Export Diversification and Export Potential in Agriculture

3.1 Intraregional Trade and Export Diversification

Given the existing global economic scenario and slowing down of growth in the North, South–South trade is gaining in importance. However, shifting or adding new destinations to export profiles requires greater diversification of export baskets. The literature on trade increasingly focuses on the relationship between export diversification and growth, dwelling on different kinds of export diversification (horizontal, vertical and diagonal) and ways of achieving it. Theoretical models highlighting a link between export diversification and growth include Vernon (1966), Krugman (1979), Grossman and Helpman (1991), and De Piñeres and Ferrantino (1997). The relationships between export growth, export diversification, country growth, and world growth have been tested for a few countries using disaggregate data by De Piñeres and Ferrantino (1997) among others. Using different measures of export diversification, on a cross-country sample of 91 countries for the 1961–1988 period, Fahim Al-Marhubi (1998) presents empirical evidence that export diversification promotes economic growth. Hausmann, Hwang and Rodrik (2007) suggest that export expansion via export diversification is positively correlated with economic development.

Geography is increasingly being regarded as an important dimension for achieving export diversification. The economic geography approach contends that export performance is influenced in a number of ways by external geography, which includes country location, proximity to rapidly expanding export markets, and internal supply capacity (Redding and Venables, 2004). Intraregional trade provides higher opportunity to diversify export baskets, especially if the region has a rapidly growing economy. Almost all countries in South Asia have experienced higher growth in the first decade of the 21st century, with India experiencing an unprecedented growth rate of around 8% per annum. The region therefore provides fertile ground for horizontal (within the sector) and vertical (across sectors) export diversification for all countries, particularly the least developed countries (LDCs).

To estimate the extent of export diversification, both horizontal and vertical, the Herfindahl Index is estimated for the region with respect to intraregional total trade and intraregional trade in agriculture. The Herfindahl Index is defined as:

$$HI = \sum_{i=1}^N S_i^2$$

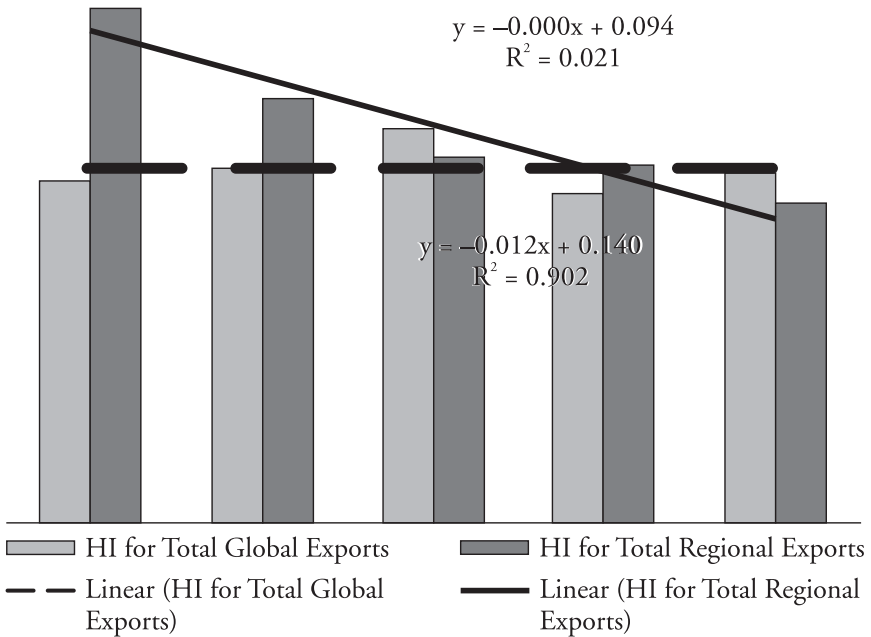
where S_i is the share of total exports attributed to the industry i , and N is the number of sectors.

The normalized HI lies between 0 and 1. Lower values of the index represent more export diversification and vice versa. The Herfindahl Index can be estimated for 42 sectors of the economy (GTAP category).

The value of Herfindahl Index for total exports is found to be closer to zero for both regional as well as global exports in South Asia (Figure 3.1), indicating that the region's exports are horizontally diversified and exports are taking place across many sectors. The Herfindahl Index for each country is estimated with respect to the region as well as the world.

Figure 3.1: Extent of Export Diversification in Global Exports and Intra-regional Exports of South Asia

Herfindahl Index of Export Diversification of South Asia with the World and with the Region



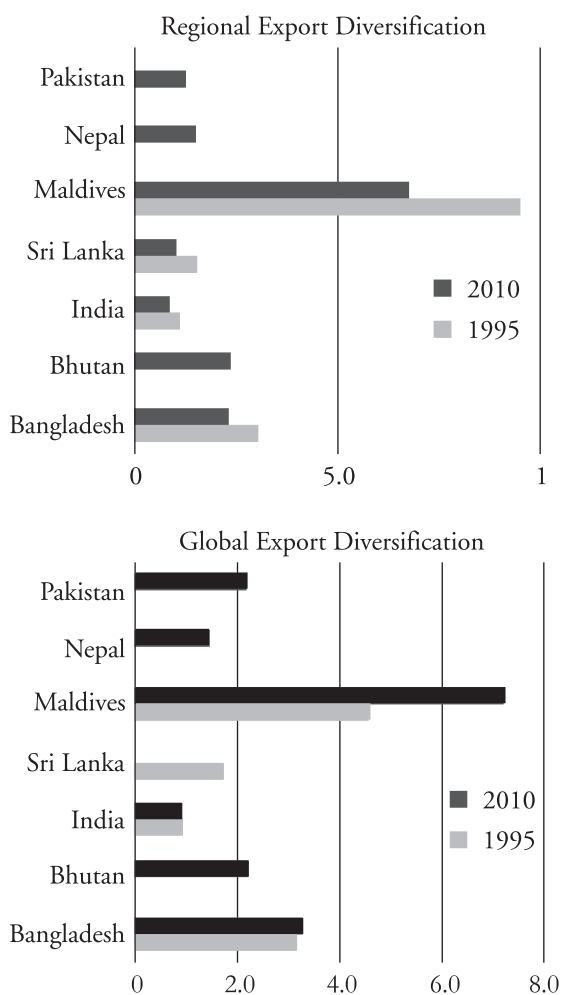
HI = Herfindahl Index

Source: Estimated using data for GTAP categories from UN-COMTRADE. comtrade.un.org

From 1990 to 2000, the global exports of the region were more diversified than intraregional exports, but the extent of export diversification increased much faster for intraregional exports in this period as compared to global exports. In 2000, regional exports became more diversified than global exports. From 1990 to 2010, export diversification has risen much more sharply for the region as compared to the rest of the world. A lower and declining value of Herfindahl Index for intraregional trade in South Asia is indicative of the potential for further expansion of such trade.

The aggregate Herfindahl Index may hide the level of export diversification across different countries in the region, especially if there is a large country in the region.

Figure 3.2: Intraregional and Global Export Diversification, 1995–2010 (Herfindahl Index)

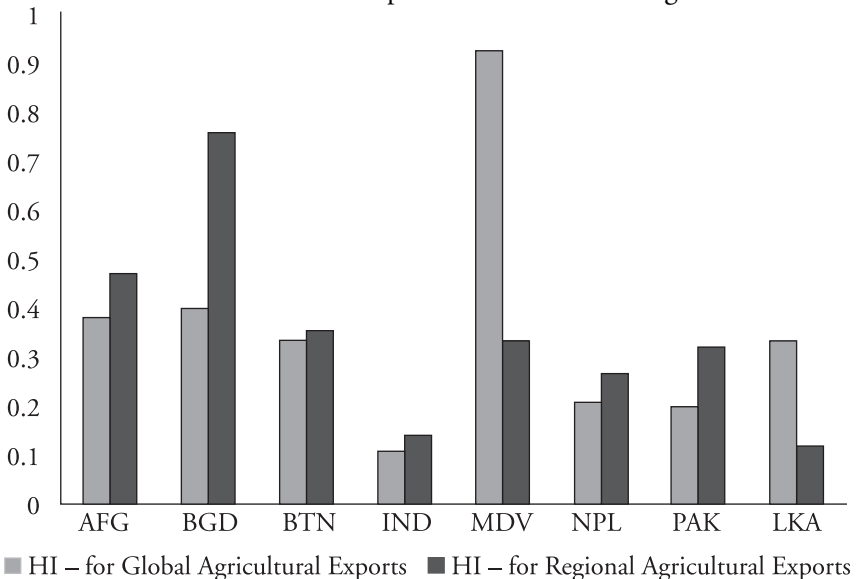


Note: Due to nonavailability of the export data of Bangladesh for the year 2010, Herfindahl Index value of 2007 for Bangladesh is reported.

Source: Authors' estimations.

All South Asian countries exported more products to the region as compared to the rest of the world in 2010, except for Bhutan. In other words, countries in the region export a greater number of products to other countries in the region as compared to the world. One of the main reasons for this could be that a country might have a higher level of competitiveness over a larger number of products in its regional trade than globally. For Bangladesh and Maldives, global exports have become more concentrated over time (Figure 3.2). Regional export baskets have become more diversified for Bangladesh, India, Maldives, and Sri Lanka in the period between 1995

**Figure 3.3: Export Diversification for Agriculture:
Global and Regional, 2010**
Herfindahl Index for Export Diversification in Agriculture



AFG = Afghanistan

BGD = Bangladesh

BTN = Bhutan

HI = Herfindahl Index

IND = India

LKA = Sri Lanka

MDV = Maldives

NPL = Nepal

PAK = Pakistan

Note: Due to nonavailability of the export data of Bangladesh for the year 2010, we have reported HI value of 2007 for Bangladesh.

Source: Authors' estimations.

and 2010. However, global export baskets have become less diversified for Bangladesh and Maldives during the same period.

The value of the Herfindahl Index for agriculture is higher than that for the overall exports in South Asia, indicating lower export diversification within agriculture (vertical diversification). The trends in regional and global agricultural export diversification are thus opposite as, for most countries (except Sri Lanka and Maldives), global exports are more diversified than regional exports. India has the most export diversification in both global as well as regional agricultural exports. Afghanistan, Bangladesh, Bhutan, and Maldives show a relatively low degree of export diversification (Figure 3.3).

The lower export diversification in regional agricultural export baskets, as compared to global agricultural export baskets, indicates the untapped potential in regional trade.

3.2 Potential Intraregional Trade in Agriculture: Gravity Model Estimates

To assess the untapped potential of intraregional trade, a gravity model for the region was mapped. Originally proposed by Tinbergen (1962) for international trade, the gravity model predicts bilateral trade flows between any two countries as a positive function of their size and a negative function of the distance between them. The gravity equation is estimated for the period 2001–2010 using dynamic panel data estimations (Generalized Method of Moments (GMM), Arellano and Bond 1991). Most earlier studies have used static models, which may result in biased results as trade is a dynamic process.¹ The trade data

¹ For detailed discussion see B. Eichengreen and D. Irwin, 1997. The Role of History in Bilateral Trade Flows. In J. Frankel, ed. *The Regionalization of the World Economy*. Chicago, IL: University of Chicago Press. M.J.G. Bun and F.J.G.M. Klaassen, 2002. Has the Euro Increased Trade? *Tinbergen Institute Discussion Paper 02–108/2*. University of Amsterdam.

for estimation is taken from the UN-COMTRADE, whereas size variables have been extracted from the World Development Indicators. Distance and contiguity variables were taken from the CEPII website.² Afghanistan is not included in the estimation due to nonavailability of data on critical variables. The gravity model is estimated for total regional trade and trade in the food-processing sector. The two equations estimated for potential trade are:

Equation 1: For intraregional total agriculture trade:

$$\ln T_{ijt} = \beta_0 + \beta_1 \ln T_{ijt-1} + \beta_2 \ln(GDP_{it} \times GDP_{jt}) + \beta_3 \ln(POP_{it} \times POP_{jt}) + \beta_4(DIST) + e_{ijt} \quad (1)$$

Equation 2: For intraregional trade in processed food and beverages

$$\ln T_{ijt} = \beta_0 + \beta_1 \ln T_{ijt-1} + \beta_2 \ln(GDP_{it} \times GDP_{jt}) + \beta_3 \ln(POP_{it} \times POP_{jt}) + \beta_4(DIST) + e_{ijt} \quad (2)$$

where T_{ijt} = Trade in Agriculture of Country i ; with Country j in year t , GDP_{it} = GDP of Country i in year t , GDP_{jt} = GDP of Country j in year t , POP_{it} = Population of Country i in year t , POP_{jt} = Population of Country j in year t , $DIST$ = Distance between i , and j , POP_{it} = Population of Country i at point t , and e_{ijt} = error term.

The results of the equations are reported in Table 3.1. All the estimated coefficients in both the models show expected signs. POP and GDP are found to be statistically significant with positive signs while distance is found to have a negative impact on bilateral trade. The lagged variable is also found to be significant, indicating that the existing bilateral trade in period $t-1$ can have significant positive impact on bilateral trade in period t . Existing bilateral trade therefore depends on the existing gravity between the two countries which is explained by their relative market sizes, purchasing power, and distance and also on the bilateral trade between the countries in the past.

² <http://www.cepii.fr>. CEPII is a French research center in international economics.

Table 3.1: Dynamic Gravity Model Estimates

	Equation 1: Dependent Variable – Total Agricultural Trade			Equation 2: Dependent Variable – Total Trade in Processed Food and Beverages		
	Coefficient	z	P	Coefficient	Z	p
Ln $T_{ij,t-1}$	0.59	5.43	0.000	0.27	16.56	0.00
Ln GDP _{ij}	0.14	3.47	0.001	0.43	3.88	0.00
Ln POP _{ij}	0.27	5.12	0.00	0.54	2.04	0.04
Ln DIST _{ij}	(1.57)	(16.30)	0.00	(2.18)	1.95	0.01
Constant	(8.03)	(1.99)	0.04	(19.6)	(2.12)	0.03
Wald Chi ²	785.00		0.00	450.00		0.00
N	265.00			263.00		

() = negative.

Note: System GMM panel data estimates are reported with robust standard errors (z).

The estimated equations are used to arrive at potential bilateral trade. The fitted equation gives the estimated trade, which here is found to be much higher than the actual trade. These results show that against the potential average intraregional trade of \$22 billion per annum in the period 2000–2010, the actual trade in South Asia has been only around \$8 billion. The untapped potential for intraregional trade is therefore \$14 billion per annum, i.e. 68%. *Intraregional trade has the potential to increase the existing trade by over 300%*. India provides maximum scope for realizing its potential trade given the very low actual trade levels with Bangladesh, Pakistan, Bhutan, and Nepal. Its actual trade levels with Sri Lanka are much higher than the estimated trade based on the gravity model (possibly due to the Indo-Sri Lanka Free Trade Agreement [FTA]). Pakistan too has the potential to increase its trade with almost all its partners. Sri Lanka, on the other hand, has surpassed its estimated trade with almost all its partners.

According to the above estimates, almost all South Asian countries have the potential to increase their agriculture exports to the region (Table 3.2), with India having the maximum potential, followed by

Table 3.2: Potential Agriculture Exports of South Asian Countries to the Region: Dynamic Gravity Model Estimates, 2000–2010
(\$' 000)

	Actual Exports	Estimated Exports	Potential Exports
Bangladesh	266,185	1,762,005	1,495,820
Bhutan	402,377	1,870,935	1,468,557
India	5,533,356	12,585,081	7,051,724
Maldives	16,281	11,848	(4,433)
Nepal	470,643	1,752,257	1,281,614
Pakistan	1,104,060	4,042,509	2,938,448
Sri Lanka	448,061	107,126	(340,935)
Total	8,240,964	22,131,760	13,890,796

() = negative.

Pakistan. LDCs like Bangladesh, Bhutan and Nepal can treble their existing levels of agriculture exports.

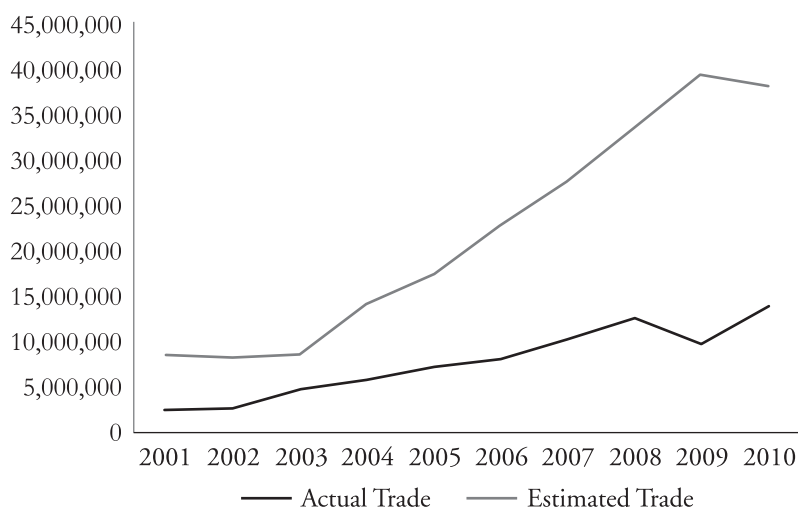
The gap between actual and estimated trade, which indicates potential trade, has increased at a faster rate over time, reflecting the region's growth and changing realities.³

Gravity model estimates of processed food and beverages show that the potential intraregional trade in food processing industries can be increased by \$5 billion per annum, increasing existing trade from \$873 million on an average between 2000 and 2010. Trade in this sector can increase by 1.5 times the existing trade. The maximum potential for trade is found between India and Pakistan, which can increase from around \$200 million per annum to around \$600 million. Except for Maldives, most of the countries have yet to reach their regional potential.

All South Asian countries, except for Sri Lanka and Maldives, have the potential to increase their regional exports of processed food

³ The average actual and potential trade gap for each trading partner was around 55% between 1995–2005. ADB and UNCTAD. 2008. *Quantification of Benefits from Regional Cooperation in South Asia*, Manila: Asian Development Bank.

Figure 3.4: Gap between Actual and Estimated Intra-regional Trade in South Asia: Potential Trade, 2001–2010
(\$ billion)



Note: Based on GMM estimates.

Source: Authors' estimations.

Table 3.3: Potential Exports of Processed Food and Beverages of South Asian Countries to the Region: Dynamic Gravity Model Estimates, 2000–2010
(\$ '000)

	Actual Exports	Estimated Exports	Potential Exports
Bangladesh	41,896	945,487	903,591
Bhutan	128,908	100,208	(28,700)
India	7,774,900	11,410,994	3,636,094
Maldives	129,960	5,072	(124,888)
Nepal	267,447	334,148	66,701
Pakistan	433,624	1,646,300	1,212,676
Sri Lanka	835,102	205,568	(629,534)
Total	9,611,837	14,647,777	5,035,940

() = negative

Source: Authors' estimates.

and beverages. Sri Lanka and Maldives have exceeded their potential trade as estimated by gravity models, most probably due to existing bilateral FTA. India, followed by Pakistan, has the maximum potential to increase its regional exports of processed food and beverages.

3.3 Identification of Export Potential in Agricultural Products

In order to diversify the regional agricultural export baskets of South Asian countries and achieve the untapped potential of intraregional trade, it is important to identify each country's competitiveness in agricultural products within the region. In spite of this, a country may not be able to diversify its agricultural export basket, if there is no demand for its competitive products in the region. Given the fact that all South Asian countries have agriculture as a prominent sector, diversifying regional exports may become a difficult proposition. In this section we attempt to identify competitive products, where demand for the product exists within the region, for all countries. The competitive list of products is further divided into two: first where only that country has a competitive advantage in the region, and second, where other countries in the region are also competitive in producing that product.

To identify the list of potential exports, we used UN-COMTRADE data at a 6-digit level of HS classification for the period of 2007–2009. One of the most popular methods of looking at comparative advantage is Revealed Comparative Advantage (RCA) proposed by Balassa (1965). In this calculation, if a country's total export share of a product exceeds the product's share of total world exports, the country has a comparative advantage in that product. However, it is argued that in a situation when a country imports a large part of the commodities that make up its exports and only adds minor value in terms of assembly processes, etc., the RCA may not correctly reflect a comparative advantage in that product, as it ignores imports.

To overcome the limitation of RCA, CEPII has suggested an indicator of comparative advantage which is based on both the exports and imports of a commodity by a country. The indicator depends on the spread between the trade balance of a product (relative to GDP) and the global trade balance, weighted by the share of the product in world trade. Defined in this way, the indicator reveals a comparative advantage pattern, as any deviation of the specific product to the overall balance corresponds to an advantage (or disadvantage), depending on whether the contribution to the overall balance is positive (or negative).

$$\text{Mathematically, } CTB_{ij} = y_{ij} - \left(\frac{W_i}{W} \right) * y_j \quad (3)$$

where, W_i = world trade of product $i = \sum_i (X_i + M_i)$

$$W = \text{world trade of all products} = \sum_i \sum_j (X_{ij} + M_{ij})$$

$$\begin{aligned} Y_j &= \text{total trade balance of country } j \text{ in relation to GDP} \\ &= 1000 * \frac{X_j - M_j}{GDP_j} \end{aligned}$$

CTB can alternatively be defined as:

$$CTB_{ij} = 1000 * \frac{W_i}{GDP_j} * \left[\frac{(X_{ij} - M_{ij})}{W_i} - \frac{(X_j - M_j)}{W} \right] \quad (4)$$

If CTB is a positive figure, the country has a comparative advantage, while if it is negative, it would have a disadvantage in that product.

The first part in equation (3) measures the market position (POS) or international competitiveness of country j in product i . It is possible for the value of CTB to be positive even if the value of POS is negative, indicating that the country doesn't have international competitiveness in the product. To avoid this, we have used a stricter criterion, whereby comparative advantage is considered in only those products where POS and CTB are both positive.

After identifying products with export potential, we further identify only those products where regional demand exists, i.e. where the region's global imports are greater than the country's global exports. For this, all exports having a value greater than \$10,000 are considered for each country. It is possible for a country to be already exporting more than 75% of its exports to the region. This would imply that the potential for regional exports is already met given the regional demand. Therefore all regional exports less than 75% are selected.

Using these strict criteria we arrived at a list of products for each country. In total 294 unique tariff lines have been identified out of the 774 HS 6-digit tariff lines.⁴ These products have export potential for intraregional trade, since there exists both regional demand as well as regional supply capacity.

Table 3.4 reports the number of products with competitive advantage in agriculture sector for each country after applying the above criteria. The maximum number of products with competitive advantages has been identified in India, which is not surprising given the large size and diverse climatic zones of the country. Out of the identified 112 potential agriculture export products, in 74 products there is no other competitive producer in the region. These products can be potential exportable products to the region. Pakistan has 102 potential exports, while Sri Lanka has 83. Among the LDCs, 88 products have been identified for regional agriculture exports, of which 54 are from Bangladesh.

Annex I presents the potential exportable products for each country, where there is no other country with competitive advantage in the product in the region. Annex II reports the potential exportable products where there are other competitive regional suppliers.

⁴ GTAP categories have been taken and concordance available for HS 2002 has been used to identify agriculture tariff lines. This includes HS chapter on fish.

Table 3.4: Number of Agricultural Products with Export Potential in South Asian Countries

	Where Average Exports >\$10,000		Total Products
	Products with Other Regional Competitive Exporters	Products Without Other Regional Competitive Exporters	
Afghanistan	7		7
Bangladesh	50	4	54
Bhutan	3		3
India	74	38	112
Maldives	5		5
Nepal	18	6	24
Pakistan	90	12	102
Sri Lanka	77	6	83
Regional Totals	324	66	390

Source: Authors' calculations based on Annex I.

The Annex contains a list of products for each country where the global exports of the country are greater than the global imports of the region but the country's regional exports are less than 75% of its total exports. These results, tabulated in Annex I, show that Bangladesh is the most competitive in the region in exporting dried leguminous vegetables. Its global exports are \$548,000 while regional exports are nil, although the region's global imports are \$73 million. For India, dairy products, meat products, soy beans, and tobacco and tobacco products are included in the list. For Nepal, dried leguminous vegetables can be a potential regional exportable, while for Pakistan, starches and un-denatured ethyl alcohols have high potential. For Sri Lanka, coconut and palm oil hold regional export potential.

Annex II reports those products where a country has a competitive advantage but there are other countries in the region which are also competitive based on CTB and POS indices. However, the regional exports of the country are much lower than regional imports. For

example, Afghanistan exports oilseeds worth \$7 million globally and regional imports are worth \$8 million. However, Afghanistan's regional exports are nil. Bangladesh is found to have a competitive advantage in the meat of bovine animals, fish, vegetables, and fresh fruits, whereas its global exports are worth more than \$1 million. Its regional imports are also greater than \$1 million but Bangladesh's exports to the region are less than 10% in many cases. For India, the food preparation industry's global exports are worth \$57 million while the region imports about an equal amount from around the world. However, India's regional exports are 75% of its global exports. Nutmeg, cardamom, and mace are some products where India has a regional export potential. Nepal has a regional export potential in cane or beet sugar where its regional exports are nil while the region's global imports are worth \$533 million. Similarly, Pakistan has high regional export potential in natural honey, maize, other sugars, and unmanufactured tobacco. Sri Lanka also shows regional export potential in food preparation where its global exports are worth \$21 million while regional exports are only 9% of its global exports. Other products for regional exports could be unmanufactured tobacco, beer, fruit juices, wheat or meslin flour, and other live plants. Fish is one product where regional global imports are high, although countries like Bangladesh, India, Maldives, Pakistan, and Sri Lanka enjoy a competitive advantage.

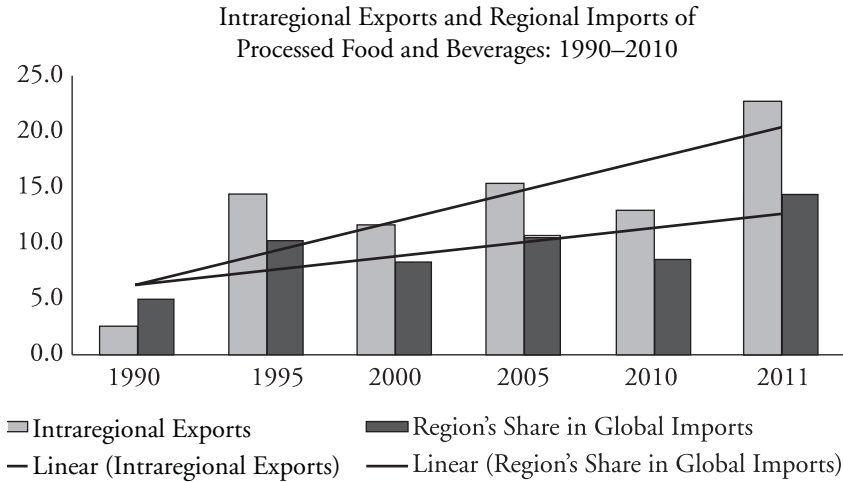
4 Chapter

Identification of Potential Regional Supply Chains in the Food Processing Industry

4.1 Rising Demand and Supply of Processed Food and Beverages

From the analysis of export potential and competitiveness in agriculture undertaken in the previous chapter, processed food and beverages can be identified as a subsector where almost all countries in the region have competitiveness but in different segments. In line with this, South Asia has experienced a spurt in its growth in demand as well as supply of processed food and beverages. South Asia's global exports of processed food and beverages increased from \$1.7 billion in 2000 to \$3.7 billion in 2011 and global imports increased from \$1.8 billion in 2000 to \$3.6 billion in 2011. Correspondingly, intraregional exports in this sector increased from 2% in 1990 to 23% in 2011, while the region's share of global imports increased from around 5% to 14% in this period (Figure 4.1). These trends reflect the growing competitiveness of the region in this sector as well as a growing tendency to source products from within the region. This subsector therefore makes fertile ground for exploring potential intraregional supply chains.

Figure 4.1: Region's Share in Exports and Imports of Processed Food and Beverages (%)



Source: Computed from UN-COMTRADE database, 2011. comtrade.un.org

To identify potential regional supply chains in the food processing industry (FPI) we undertook to analyze the outputs and inputs of the FPI subsector by country. The Broad Economic Classification (BEC) divides the processed food and beverages sector into processed products and primary products; primary products are further divided into those used for industries and those used for household consumption. We took the primary products used for industries as inputs to food processing industries and the processed products as outputs of FPI.

4.2 Methodology for the Identification of Regional Supply Chains in Food Processing

For each country, we identify a list of potential exports and imports used by the FPI, following the earlier approach of estimating CTB and POS and matching it with the region's demand. We further compare the export unit value of the product for the country and identify the countries in the region importing the product globally at a higher cost.

These inputs are identified as those which can be imported from the region. Since product differentiation is high in agricultural products, we therefore also provide *a list of inputs in which countries have export potential, and therefore the region supplies, but at a higher cost*. Investment potential is identified in those inputs and outputs where the country has export potential and there is demand in the region, but the country lacks the supply capacity.

Thus, to identify regional supply chains in food processing industries, we have:

1. Using BEC, identified the inputs and outputs of the FPI and matched them with HS 6-digit tariff lines using the concordance matrix.
2. Identified products for each country which are outputs of FPI and have export potential. These products are separately listed for global exports and regional exports, based on the demand in the region.
3. Identified the inputs which the country imports globally for its FPI at a higher cost even though there exists a regional exporter that exports the same products to the world at a lower cost. To this list we add those identified inputs which the country imports from global sources, but a regional supplier exists who has the supply capacity for them (is exporting more than what the country is importing) though at a higher cost.
4. Identified those outputs and inputs where the country has export potential and can export to the region, but has a limited supply capacity as the region's imports are greater than country's exports. These inputs and outputs are identified as the investment potential for the country.
5. Finally, we identified three lists for each country: (i) potential outputs of FPI for exports to the region where demand in the

region exists; (ii) potential imports of FPI inputs from the region where the region has a supply capacity; (iii) investment potential for outputs and inputs for FPI.

Table 4.1 reports the number of outputs identified as the potential exports for each country using the above methodology. There are 513 outputs identified with average global exports worth \$5 billion (2007–2009) and average regional exports worth \$790 million. These are divided into those for which regional demand exists and those which can be globally exported from the region. List I in the Annex reports these products with HS 4-digit description and number of tariff lines under each description. India is found to have the maximum export potential in FPI outputs (220 products) followed by Pakistan (109 products) and Sri Lanka (80 products). The LDCs of the region can also effectively participate in the potential supply chain as 97 products have been identified for which they have the supply capacity to export to the region. Products for which the existing share of the region is greater than 50% of the country's exports have been reported as potential global exports.

List I in the Annex shows that for Bangladesh, FPI outputs which it can globally export are 7, while 44 outputs can be regionally exported. Fish is identified for global exports as the fish globally exported by Bangladesh are not the type globally imported by the region. The region's global imports are much lower than Bangladesh's global exports of fish. Regional exports account for more than 80% of Bangladesh's global exports in bran, fruit juices, and molasses. For regional exports the outputs of FPI identified are mainly bread, pastry, cakes, biscuits, and other bakers' wares; cane or beet sugar, and chemically pure sucrose, in solid form; prepared foods obtained by the swelling or roasting of cereals or cereal; fruit juices (including grape must) and vegetable juices, unfermented and malt extract; food preparations of flour, groats, meal, starch, or malt; and fish fillets and other fish meat.

Table 4.1: Potential Outputs for Exports in the Regional Supply Chain of the Food Processing Industry

	Total No. of Potential Outputs Identified	No. of Outputs Identified for Regional Exports	No. of Outputs Identified for Global Exports	Average Total Value of Exports to World (\$ '000): 2007–2009	Average Total Value of Exports to Region (\$ '000): 2007–2009	No. of Competitive Outputs Identified	No. of Non-competitive Outputs Identified
Bangladesh	51	44	7	86,938	6,180	44	7
Bhutan	11	1	10	15,834	14,171	9	2
India	220	205	15	3,780,542	394,521	150	70
Maldives	7	7		77,229	503	7	
Nepal	35	12	23	55,346	44,830	32	3
Pakistan	109	84	25	593,162	239,893	90	19
Sri Lanka	80	60	20	354,974	90,082	63	17
Total	513	413	70	4,964,026	790,180	395	118

Source: Authors' estimates.

Global exports of these outputs are more than \$1 million, while the region's global imports are higher than Bangladesh's global exports. For Bhutan, potential regional exports are animal or vegetable fats and oils and their fractions, and fruit juices (including grape must) and vegetable juices, unfermented.

Table 4.2 reports inputs which can be regionally imported for potential supply chains in FPI. List II in the Annex reports these products with HS 4-digit description and the number of tariff lines under each description, the average global imports of the country in the identified inputs and the corresponding global exports of the region. 221 products have been identified for which the global imports are worth \$159 million, while the region exports \$9.2 billion. This indicates that the region has a competitive advantage in these inputs and supplies to the world. These need to be harnessed within the region for value addition to improve the gains to the exporting country.

In terms of inputs which the country can import from the region, Pakistan can regionally import 58 inputs followed by Sri Lanka (51

Table 4.2: Potential Inputs in the Supply Chain of the Food Processing Industry

	No. of Identified Potential Inputs (which can be imported from region)	Average Total Value of Imports from World (\$ '000)	Total Average Region Exports to World (\$ '000)
Bangladesh	28	41,214	2,219,037
Bhutan	26	97	194,975
India	24	45,172	801,509
Maldives	20	5,449	405,103
Nepal	14	13,281	647,712
Pakistan	58	42,311	2,237,252
Sri Lanka	51	12,088	2,754,181
Total	221	159,612	9,259,769

Source: Authors' estimates.

inputs) and Bangladesh (28 inputs). Bhutan, Nepal, and Maldives can also source 68 inputs from the region, which at present comprise \$54 million worth of global imports.

Each country can source some products at a lower cost from the region and use them as potential inputs for FPI. Bangladesh can import apricots, citrus fruits, nutmeg, mace and cardamom, husked rice, and tea. India can regionally source apricots, crustaceans, flours, meals and pellets, grapes, and anise seed. Dates, figs, pineapples, avocados, guavas, mangoes, and mangosteens are potential inputs which can be sourced cheaper regionally by Maldives. For Pakistan, such inputs are cloves, coconuts, cashew nuts, pepper, and dried fruit. Finally, for Sri Lanka, inputs that the region can provide at lower costs are citrus fruits, fresh or dried fish, and grapes.

Table 4.3 provides a list of products for which the country has the export potential but lacks the supply capacity to feed into the identified supply chains. These are products for potential regional or global investments, as demand exists for these products in the region and the

Table 4.3: Potential Products for Investment in the Region's Food Processing Industry

	No. of Products Identified	Value of Global Exports (\$ '000)	Value of Regional Imports from the World (\$ '000)
Afghanistan	5	40,266	1,014,991
Bangladesh	40	42,290	1,151,621
Bhutan	10	14,156	452,567
India	72	301,496	1,020,673
Maldives	2	1,157	3,653
Nepal	32	72,993	1,464,858
Pakistan	67	147,257	1,944,835
Sri Lanka	60	165,172	1,522,437
Total	288	784,785	8,575,635

Source: Authors' estimates.

country has the competitive advantage, but lacks supply capacity. List III in the Annex reports these products with HS 4-digit description and number of tariff lines under each description, the average global exports of the country in the identified inputs, and the corresponding global imports of the region. The total global average imports of these products in the region during 2007–2009 were worth \$8.7 billion but exports from the region were worth \$784 million, indicating the potential which exists for investments in the region. More than 50 products have been identified with investment potential for India, Pakistan, and Sri Lanka.

For Bangladesh, the products which require investments to boost their supply capacity are bran, sharps, and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants; bread, pastry, cakes, biscuits, and other bakers' wares, whether or not containing cocoa; cane or beet sugar and chemically pure sucrose, in solid form; fish fillets, and other fish meat (whether or not minced), fresh, chilled; fruit juices (including grape must) and vegetable juices, unfermented and not; tea, whether or not flavored, malt extract; food preparations of flour, groats, meal, starch or malt extract; and cereals or cereal products. For Bhutan, fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar; beer made from malt; and animal or vegetable fats and oils are potential investment sectors. For India, potential investments are required for beer made from malt; cane or beet sugar and chemically pure sucrose, in solid form; dairy products like cheese and curd; coconut oil; malt extracts; undenatured ethyl alcohol of an alcoholic strength by volume of less than 80%; and prepared and preserved fish. Nepal could seek investments for processing animal and vegetable fats and oils; dairy spreads; fruit juices; preparations of pasta; and tea. Pakistan has 67 products with high investment potential including dairy products like

bread, pastry, cakes, biscuits; cane and beet sugar; fruit juices; jams; pastas; other sugars; and prepared and preserved fish.

Although these products have been identified for potential supply chains in the region, one of the major constraints to formation of regional supply chains in agriculture is the existence of high tariffs and nontariff barriers. South Asia has the highest simple average tariffs in primary products in the world with the tariffs of 17.8% as compared to 10.5% in ASEAN, 12.8% in sub-Saharan Africa and 7.9% in Latin America and Caribbean (World Bank 2012). In the next chapter we examine the implications of lowering tariffs in South Asia.

5 Chapter

Agriculture Trade Policies and Implications of Lowering Tariff Barriers in Intraregional Agriculture Trade in South Asia

Agriculture has remained a stagnant sector in almost all South Asian countries, in spite of being the sector with the greatest policy focus. Many countries have tried in vain to stimulate the growth of agriculture in their economies. The performance of agriculture vis-à-vis rest of the economy in most South Asian countries has remained poor, especially in the last decade. The growth rate of per worker value added in agriculture has been much lower in the last decade as compared to the previous decades in most countries, whereas the growth rate of per capita GDP has been much higher in the last decade than the decades before. The prospects for increasing agricultural production through area expansion also look bleak. The percentage of area under cultivation has remained almost stagnant during the last 2 decades showing lack of scope for area expansion. Declining investment in agriculture, particularly public investment, is reflected in the almost stagnant percentage of area under irrigation. In this context, this

chapter reviews the agricultural trade policies followed in different countries in the region and existing tariff barriers. The implications of lowering tariffs in the region on agricultural trade are examined.

5.1 Agricultural Trade Policy in South Asian Countries

Historically, South Asian countries in general have followed inward-looking trade policies, both in terms of trade within the region and in terms of trade with rest of the world. Trade policies in South Asian countries are quite varied, from being highly restrictive in India to being very liberal in Pakistan. We examine the distinctive features of trade policies with respect to agriculture for each country and how they have changed over the years.

Afghanistan

The country is heavily dependent on Pakistan, Iran, and Kazakhstan for imports, mainly of wheat flour. Most trade is informal because of its porous border with Pakistan.

Bangladesh

The trade policy regime is significantly more liberal than it was 2 decades ago. However, there is still a relatively high level of protection in comparison with other countries. Although a significant number of quantitative restrictions has been dismantled and there has been a shift toward greater use of ad valorem tariffs, the average tariff is still high at 32%.

Bangladesh's agricultural trade policy is often perceived as one of increasing openness to imports, but with a significant anti-export bias. In reality however, trade policy has been actively used, both in terms of imports for management of staple grains, and to promote exports of locally-produced value-added products. On exports, the policy has been relatively consistent. On the import side, the focus is to minimize

the potential negative impacts of trade on food security and as a result the interventions have been more ad hoc in nature. In practice, both exportables and importables have therefore been subject to the use of instruments associated with trade promotion and trade restriction.

Cereal trade faces relatively low tariffs in general, but supplementary duties are significantly used when cheaper imports flow in from major exporters like India. Bangladesh is a net importer of rice and wheat. After the private sector was allowed to import food grains in 1993, it has played a major role in the commercial imports of food grains, particularly after the floods in 1998 and 2004. Despite very low or nonexistent import tariffs, Bangladesh has been facing problems in the imports of rice and edible oils mainly because of the restrictions on exports by India and Argentina. Cereal trade also faces export restrictions, for example in wheat, where export bans are relatively longstanding, and rice, where they have been temporarily used since 2007 to manage domestic prices in conjunction with the management of food reserves. The intervention in grains trade has increased significantly after the rice crisis in 2008, reflecting a change from the strategy of self-reliance that has been in place since the early 1990s to one of self-sufficiency. Support to certain exportables also appears to have had positive effects in terms of improving producer incomes, in addition to their contribution to foreign exchange earnings.

Bhutan

Farmers here have traditionally practiced subsistence agriculture, leading to self-sufficiency in food for a long time. However, with economic growth and population increases, imports are becoming a necessity. India is the main trading partner for Bhutan and is the main source of food imports. Bhutan imposes no tariffs or any other form of nontariff restrictions on food imports from India. India also exempted Bhutan from rice export restrictions in 2008.

India

At Independence, India had virtually banned imports of all agricultural products except basic foodstuffs like cereals, pulses, and vegetable oils. After the introduction of economic reforms in 1991–1992, the import policy was gradually liberalized, but the restrictions on basic foodstuffs took longer to be phased out.

Edible oils (other than coconut oil) were the first to be liberalized in 1994 when their imports were determined mainly by tariffs. It was not until March 2002 that restrictions were phased out on milk and milk products and on cereals. In the early 1960s, imports, mainly of wheat from the US under food aid programs, constituted a big chunk of domestic supply, accounting for as much as 42%. After the government decision to go in for self-sufficiency, import dependence rapidly declined. Except during 1974–1976, and to some extent in 1983, when large imports were made, the contribution of imports to domestic availability was not more than 3%. Import dependence on rice was very low right from the outset. Imports, as a percentage of domestic availability were never in excess of 3%, even in the early 1960s, at the peak of India's import dependence for food grains. Since then, imports have tapered off to negligible quantities. But reliance on imports has been a feature of India's edible oil economy. In the late 1970s, imports increased and remained in the range of 36%–47% from 1976 to 1987. With the tightening of import restrictions in the following years import dependence came down to 4% in 1993. After liberalization in 1994, it rose steadily and has exceeded 50% since 2000. This was despite the fact that there had been a substantial increase in domestic production of soybean oil.

Maldives

This country is highly dependent on food imports but is a major exporter of marine products, mainly to France, Japan, Pakistan, Sri Lanka, Thailand, and UK.

Nepal

Nepal followed a protectionist, import-substituting regime between 1956 and 1986, but the trade regime has since been much more liberal. Nepal is now a relatively more open economy with low average tariff rates, ranging from 10%–15% and virtually no quantitative restrictions. The applied agricultural tariffs are way below the WTO bound rates. Nepal also does not provide any explicit export subsidies. The country is a net importer of cereals, particularly rice from India, through formal and informal channels.

The liberal trade policy regime adopted since the 1980s focused primarily on addressing the bias against exports, reducing distortions in domestic markets and procedural and institutional reforms. The 1992 trade policy continued the same thrust. However, the choice of policy instruments and pace of liberalization are constrained by both formal and informal trade relations with India. As a result, even the liberal trade policy could not produce the desired results in terms of agricultural development, export growth and diversification, and poverty reduction. The recent policy thrust recognizes that export development is essential to sustained broad-based economic growth and poverty reduction in light of the small domestic market. Although the policy recognizes the need to establish increased linkages of the export sector with other sectors of the economy, it did not explicitly support the import-competing sectors.

The following issues remain important for trade policy in Nepal: trade relations with India on agriculture products; the need for tariff rationalization for primary agriculture products vis-à-vis processed agriculture products and other industrial products; the need for support measures in agricultural products, in particular the products identified by the 2009 trade policy for thrust areas; the role of exchange rate regime in promoting agricultural exports; the role of international trade in ensuring food security.

Pakistan

One of the pioneering members of the WTO and an active member of various groups and alliances, Pakistan began deregulation and liberalization of agriculture in the 1980s, mainly under the advice of the international financial institutions. Many nontariff barriers have been removed and the list of negative import items has been greatly reduced. Pakistan has entered into Free Trade Agreements (FTA) with People's Republic of China (PRC), Malaysia, and Sri Lanka. It is party to two agreements for regional trade liberalization, including SAARC, with Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka. Textiles dominate Pakistan's exports. Other major exports include rice, seafood, and products. Major agricultural imports include edible oils, cotton, sugar, pulses, tea, milk and milk products, and dry fruits.

Sri Lanka

Sri Lanka has two distinct agricultural subsectors: (i) a traditional export crop sector dominated by tea but also including rubber, coconut, spices, and more recently some nontraditional products like fruits and vegetables; (ii) an import-competing food sector dominated by rice but including many other crops, livestock, and dairy products. Trade and price policy regimes have been historically very different for the two subsectors, and continue to this day.

The taxation of traditional exports has fallen from over 40% during the 1960s and 1970s to about 20% in the 1980s and 1990s (Bandara and Jayasuriya, 2009). In contrast, importables generally enjoyed positive protection, ranging from modest levels for rice to high levels for products like chilies, onions, and potatoes, as also some other food products in recent years. The trade and pricing policies are aimed at protecting farmers, containing retail prices and encouraging value addition. The use of one instrument (mainly price) for such varied objectives affects different stakeholders in different ways.

Wheat flour, sugar, and pulses are the major imports followed by milk, fruits, onions, and potatoes. Despite some measures to liberalize agricultural trade, the sector remains highly protected. The bound tariff rates on agricultural products are in the range of 100%–300% although the applied tariffs are much lower. There are also quantitative restrictions and other nontariff barriers for some agricultural products.

The trade policy regime for rice has been guided principally by considerations of domestic market price, raising tariffs when prices are lower and waiving duties during shortages. Sri Lanka is a relatively high-cost rice producer in Asia and so the rice sector would face stiff competition from lower-priced imports if trade is fully liberalized. Price stability—especially avoiding the extremes of low and high prices—will remain the primary goal and this implies that trade policy will continue to be used for price stabilization as in the recent years.

Wheat flour is considered an essential commodity in Sri Lanka and is the second important staple after rice. There is no domestic production of wheat in the country and all the consumption requirements are fully met through imports. Trade and pricing policies on wheat, apart from implications for wheat consumption, also have important implications for rice (Dayaratna-Banda et al. 2008). Reductions in wheat tariffs have been found to have suppressing effects on the farm gate prices of rice. It is largely for this impact on rice that wheat policy becomes important in Sri Lanka. This close cross-price effect was also observed in 2000 when the government introduced a consumption subsidy in the form of reduced wheat flour prices. Because of the effect, the subsidy was quickly withdrawn in 2001. The government's long-term objective is to reduce the consumption of wheat to be replaced by domestic rice. According to some reports, wheat imports have fallen significantly, from around 120,000 tons a month about 5 years ago to around 80,000 tons per month in 2010 (Sharma and Morrison, 2011). National food security experts have welcomed this. The Government

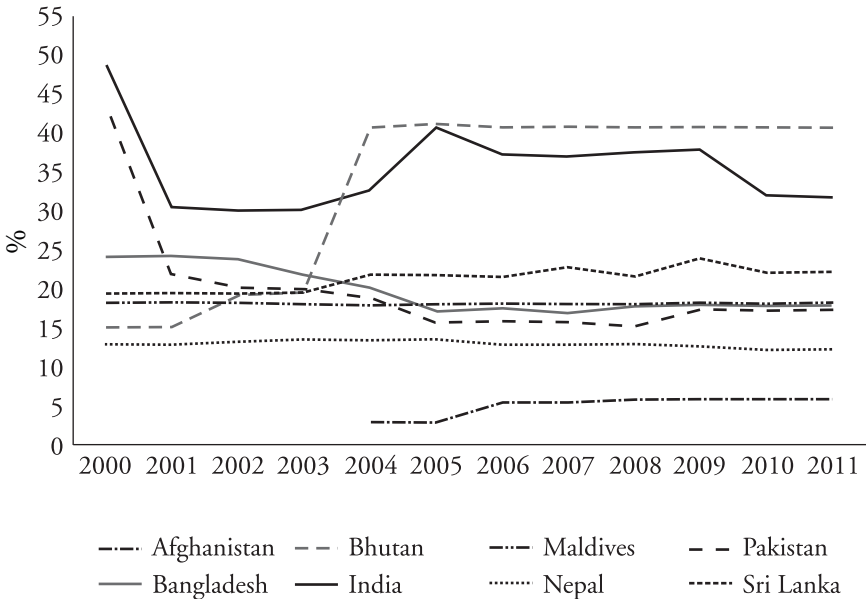
of Sri Lanka continues to intervene actively on a range of food products with a variety of trade and pricing policies.

5.2 Existing Tariffs in Agriculture in South Asian Countries

Under Article 7 of the South Asia Free Trade Agreement (SAFTA), a phased tariff liberalization program in the region was envisaged from the date of the agreement coming into force, i.e. in 2006. According to the agreement, all tariffs will be eliminated by India and Pakistan by 2012, Sri Lanka by 2013, and Bangladesh, Bhutan, Maldives, and Nepal by 2015. With effect from 1 January 2012, the Sensitive Lists have been pruned by all countries by 20%. Maldives has reduced its Sensitive List from 681 tariff lines to 152 tariff lines (78% reduction). Similarly, India has reduced its Sensitive List for LDCs from an earlier 480 tariff lines to only 25 tariff lines (95% reduction) and from 868 to 695 for non-LDCs; Bangladesh has brought down the number of tariff lines for non-LDCs from 1241 to 993, and for LDCs from 1233 to 987. Pakistan has reduced the tariff lines from 1169 to 936 and Sri Lanka has reduced the tariff lines from 1042 to 845 for LDCs and to 906 for non-LDCs. The Phase II Sensitive Lists need review in light of the huge potential that exists for intraregional trade in agriculture in Phase III (February 2012).

For forming effective regional supply chains in agriculture, it is important that SAFTA preferential tariffs are reduced at a faster pace for products in which countries have export potential within the region. Trade liberalization for agriculture has been particularly slow in the region, with agriculture tariffs remaining high or covered under Sensitive Lists. The highest agriculture tariffs (simple averages) exist in Bhutan, around 41% in 2011, followed by India (32%), Sri Lanka (22%), Maldives (18%), Bangladesh (17.5%), Pakistan (17.3%), and Nepal (12%). The lowest agricultural tariffs exist in Afghanistan (5.7%). The maximum decline in agricultural tariffs since 2000 has

Figure 5.1: Tariffs in Agriculture: Simple Averages, 2000–2011



Source: UNCTAD-TRAINS.databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=unctad--trade-analysis-information-system-(trains) United Nation's Commodity Trade Statistics Database (COMTRADE). comtrade.un.org

taken place in Pakistan from 43% to 17% in 2011. This is followed by India where the decline was from 49% to 38% in 2009 and then further to 32% in 2011. Agricultural tariffs rose in Bhutan and Afghanistan during this period (Figure 5.1).

Bangladesh

For Bangladesh, among agriculture products, HS chapter 10 (cereals) and chapter 12 (oil seeds, miscellaneous grain, etc.) have lowest average tariffs at 3.8% and 5.7% respectively. Chapter 23 (residue and waste from food, etc.) has only 1% tariff. The most extensive liberalization has taken place in chapter 9 (coffee, tea, maize, and spices), chapter

15 (animal and vegetable oils), and chapter 18 (cocoa and cocoa preparations). Tariffs went down from 146% in 1990 to 23% in 2008 in chapter 9, from 107% to 14% in chapter 15, and from 140% to 16% in chapter 18.

Bhutan

Bhutan is the only country in South Asia that has shown a protective tendency over time. In agriculture, the increase in tariffs has been more pronounced with the average tariff rising from 15% to 42%. In certain cases, tariffs in Bhutan have gone up from 0% in 1993 to 50% in 2007. Among the highly protected products are tobacco and beverages with tariffs approaching 100%.

India

India has high agricultural tariffs, although tariffs declined from 82% in 1990 to 31% on average. Among agriculture products, chapter 15 (animal/vegetable fats and oils, etc.) with an average tariff of 15%, is the only chapter at less than 20% tariff. It is also the agricultural product which has most rapidly liberalized over time. The average tariff has gone down from 108% in 1990 to 15% in 2009. While agriculture tariffs in India remain relatively high, a couple of products have shown trends inconsistent with the rest. For example, the tariff on cereals (chapter 10) was 0% throughout the 1990s until a substantial increase to 50% occurred in 2001. Also, in the case of fish (chapter 3), tariffs went down from 55% in 1990 to 0% in 1992, only to be raised again through the years to 35% in 2001, and then reduced to 30% in 2005 where they have stayed till date.

Maldives

The Maldives have had a fairly consistent tariff profile, with no major changes. Complete data are available only from 2000 onward. The

average overall tariff has remained at 21%, with agriculture products averaging 18% and industrial products 21%. No products have shown any major change in tariffs. Agricultural products with high tariffs include beverages and spirits (chapter 22), and lowest tariffs include dairy products (chapter 4) at 5%.

Nepal

Nepal's tariff regime has been the most liberal in South Asia. Starting at an average tariff of 17% in 1993, Nepal has liberalized further to an average tariff of 13% in 2009. The industrial average has also gone down similarly from 17% to 12%. However, agricultural tariffs have witnessed a slight increase from 10% in 1990 to 12%. In general, barring chapters 22 (alcoholic beverages) and 24 (tobacco), most of Nepal's average tariffs at the 2-digit level are 25% or lower. In some cases, the tariffs have actually increased from a very low level in 1993. In the case of live animals (chapter 1), live trees (chapter 6), and cereals (chapter 10) tariffs went up from 0% to 10% since 1993.

Interestingly, for most countries in South Asia, tariffs show a decreasing trend initially in the mid-to-late-1990s but increase around 2000 to fall again recently.

SAFTA preferential tariffs have been examined for the products with export potential (identified and listed in Annex I) where the region has a demand and the country is most competitive in the region. In almost all products of all countries, Bhutan has tariffs above 20%. There are many products where the countries face tariffs greater than 15% from some country in the region. For example, Bangladesh faces higher than 15% tariffs in all identified products. India faces tariffs greater than 15% mainly in meat products and dairy products. Pakistan faces more than 15% tariffs mainly in fruits and nuts and other sugars while Sri Lanka faces them mainly in undenatured ethyl alcohol.

Pakistan

Pakistan's import regime has been liberalized much more radically than any other country in the region. In Pakistan, as in other South Asian countries generally, the agriculture sector is still more protected than the industrial sector on an average. This was, however, not the case before 2000. Until 1998, the average tariff for industrial products was closer to 50% while that for agricultural products was around 40%. After 2001, the industrial sector was liberalized much faster, resulting in an average of 13.4% in 2009 while the average for agriculture is 17%. Amongst the most protected products in Pakistan, beverages and spirits have the highest tariffs, i.e. around 75%. Other products with tariffs of 30% or more are chapter 19 (preparations of cereals, etc.) and 20 (preparations of vegetables, etc.). The products with the lowest tariffs (5% or less) include cereals (chapter 10) and oil seeds, miscellaneous grain, etc. (chapter 12).

Sri Lanka

Tariff liberalization in Sri Lanka has been very gradual as compared to India, Pakistan, and Bangladesh, owing to the fact that Sri Lanka's tariffs in 1990s were already quite low. The overall average tariff in 1990 was only 33% which has steadily been reduced to 14% in 2009. The difference between agriculture and industrial goods has always been high and has remained so after liberalization. The average tariff for agricultural products was reduced from 41% in 1990 to 22% in 2009. On the other hand, industrial tariffs were brought down from 26% to 8% during the same period. There are no instances of a drastic slashing of tariffs in the Sri Lankan regime. However, some agricultural products showed significant changes. Tariffs were reduced from 56% for chapter 13 (lac, gums, resins and other vegetable saps) and 43% for chapter 14 (vegetable plaiting materials and vegetable products) in 1990 to 10% and 6% in 2009 respectively. In some cases, tariffs have

actually been increased from the 1990 levels. For example, in the case of live animals (chapter 1) and food residue and waste (chapter 22), the starting tariff was 5% in 1990. It has steadily increased to 15% or more in 2009. The highest tariff in Sri Lanka appears on chapter 24 (tobacco and tobacco products) at 80%.

5.3 Implications of Lowering Agricultural Tariffs in South Asia

In November 2011, India announced exemption of all goods (barring wines and spirits and tobacco and tobacco products) from custom duties when imported into India from the LDCs of the region, provided that the goods originate in the exporting country. This may have profound implications for the landscape of agricultural trade in the region. To analyze the impact of lowering tariffs on agricultural trade in the region we analyze the implications of three case scenarios using Computable General Equilibrium (CGE) analysis:

- *Scenario I:* India gives duty free market access to all LDCs in South Asia on agricultural products.
- *Scenario II:* India gives duty free market access to all South Asian countries on all agricultural products.
- *Scenario III:* South Asian countries fully liberalize agricultural trade amongst themselves.
- *Scenario IV:* Full SAFTA—all countries remove all tariffs for the region.

The details of the methodology, along with detailed tables, are reported in Annex III. We report here the important results with respect to welfare implications for the countries and the region as a whole, along with the impact on the existing agriculture export and import pattern in the region. Table 5.1 reports the base tariffs used for the simulation and Table 5.2 reports the average tariffs in agricultural

products and food when imports come from within the region, i.e. preferential tariffs.

Table 5.1: Average Agriculture Base Tariff Rates Used for Simulations

	Bangladesh	India	Nepal	Pakistan	Sri Lanka
Paddy rice	0.04	0.00	2.00	0.00	13.59
Wheat	1.00	40.00	1.91	2.00	1.28
Others	0.08	0.00	1.97	1.74	1.46
Vegetables	8.35	19.55	5.64	1.60	21.04
Oil seed	1.70	18.00	1.98	1.44	9.22
Sugar cane	0.00	0.00	2.00	0.00	0.00
Plant-based	0.00	7.32	1.42	2.00	0.24
Other crops	11.52	23.52	5.31	5.03	6.24
Live animals	0.94	0.00	2.00	1.00	0.00
Animal products	3.80	6.92	5.41	1.33	6.62
Raw milk	0.00	0.00	0.00	0.00	0.00
Wool	0.32	9.00	1.29	0.00	0.00
Forestry	3.12	16.98	1.78	20.87	4.28
Fishing	9.72	6.02	1.89	1.00	5.23
Meat	4.61	6.00	1.83	1.01	5.17
Meat Products	7.60	8.88	1.85	4.38	4.23
Vegetable oils	4.20	9.50	1.86	4.99	5.11
Dairy products	4.98	12.23	2.98	5.00	3.56
Processed rice	2.00	0.00	2.00	2.00	9.99
Sugar	3.41	4.59	2.97	2.00	14.69

Source: GTAP simulation.

Table 5.2: Average Tariff Rates on Agriculture and Food Imports from South Asia

	Bangladesh	India	Nepal	Pakistan	Sri Lanka
Agriculture	2.90	10.52	2.47	2.72	4.94
Food	4.47	6.87	2.25	3.23	7.13

Scenario I. India gives Duty Free Market Access to All Least Developed Countries in South Asia on All Agricultural Products

An attempt is made to estimate the likely impact of India's agricultural trade liberalization with respect to LDCs on the trade pattern and welfare in the region. The simulation results show that in such a

Table 5.3: Welfare Effect of Simulation 1
(Equivalent Variation in \$ million)

Regions	EV	Regions	EV
Bangladesh	7.67	South Asia as a whole	236.98
India	(175.64)	LDCs of South Asia	403.02
Nepal	193.28	US	(44.18)
Pakistan	13.95	EU_25	(65.23)
Sri Lanka	(4.35)	Rest of the world	(116.97)
Rest of South Asia	202.07		

() = negative

LDGs = Least Developed Countries

EU = European Union

EV = Equivalent variation

Table 5.4: Change in Exports to India from the Region
(%)

	Bangladesh	Nepal	Other LDCs Afghanistan, Bhutan, and Maldives
Vegetables, fruit, nuts	239	83	52
Crops n.e.c.	300	643	84
Forestry	300	200	149
Vegetable oils and fats	295	188	566
Dairy products	–	443	425
Sugar	75	50	–
Animal products n.e.c.	75	–	–
Plant-based fibers	36	–	–
Oil seeds	–	125	–
Total	13	50	61

n.e.c. = not elsewhere classified.

Source: GTAP simulation.

scenario the region as a whole gains in terms of welfare effect, whereby the gains to LDCs of the region are higher than to the region as a whole (Table 5.3). Welfare loss to India is marginal. Gains to Nepal alone exceed the welfare loss to India. Exports to India increase by 13% from Bangladesh; 50% from Nepal, and 61% from the rest of the LDCs. The sectors where they increase are listed in Table 5.4.

Scenario II: India gives Duty Free Market Access to All South Asian Countries on All Agricultural Products

The gains to the region as a whole are three times higher if India fully liberalizes its agriculture sector for the region (Table 5.5). India already has an FTA with Sri Lanka and gives duty-free market access to the region's LDCs, so effectively this would mean giving duty-free market access to The Maldives and Pakistan. The gains to Pakistan in terms of the welfare effect are almost half the total gains to the region. However,

Table 5.5: Welfare Effect of Simulation 2

Regions	Welfare Effect (Equivalent Variation in \$ million)	Change % in Imports into India of Simulation 2
Bangladesh	8.0	12.8
India	(134.7)	
Nepal	191.2	49.5
Pakistan	499.9	446.1
Sri Lanka	(6.0)	(2.8)
Rest of South Asia	182.1	60.1
South Asia as a whole	740.4	
LDCs of South Asia	381.2	
US	(83.6)	(0.1)
EU_25	(68.7)	(0.1)
Rest of the World	(161.6)	(0.3)
Total		0.42

() = negative

EU = European Union

LDCs = Least Developed Countries

Source: GTAP simulation.

gains to the LDCs will be lower than in Scenario 1, where only LDCs got duty-free access.

In this scenario, the percentage increase of imports into India is miniscule (0.4%). Imports from Pakistan increase by 446% from its current level. There is a 50% rise in imports from Nepal and a 12% rise in imports from Bangladesh. Imports from other LDCs rise by 60% from their current level.

Scenario III: South Asian Countries Fully Liberalize Agricultural Trade Amongst Themselves

If all South Asian countries fully liberalize agricultural trade among themselves, the welfare effect is equivalent to \$811 million, the highest among the three above scenarios (Table 5.6). However, gains to the region's LDCs are the lowest as compared to the other two scenarios. Pakistan gains the most, with 60% of total welfare gains in the region going to it. Bangladesh and Sri Lanka have a minor decline in their welfare equivalent.

The sectors that gain in this scenario are those with an increase of greater than 20% of their current levels of exports. They are reported in Table 5.7. The table indicates a higher intraregional trade in products

Table 5.6: Welfare Effect of Simulation 3
(Equivalent Variation in \$ million)

Regions	EV	Regions	EV
Bangladesh	(25.0)	South Asia	811.7
India	18.8	LDCs as a whole	331.8
Nepal	172.0	US	(92.8)
Pakistan	494.8	EU_25	(57.2)
Sri Lanka	(33.8)	Rest of the World	(193.5)
Rest of South Asia	184.8		

() = negative

LDCs = Least Developed Countries

EU = European Union

Source: GTAP simulation.

Table 5.7: Sectors which Gain 20% or More in their Total Exports

Bangladesh	India	Nepal	Pakistan	Sri Lanka	Rest of South Asia
Vegetables, fruit, nuts	Cattle, sheep, goats, horses	Wheat	Wheat	Paddy rice	Vegetables, fruit, nuts
Oil seeds	Wheat	Vegetables, fruit, nuts	Vegetables, fruit, nuts	Forestry	Crops n.e.c.
Crops n.e.c.	Dairy products	Oil seeds	Wool, silkworm cocoons	Meat: cattle, sheep, goats, horse	Forestry
Vegetable oils and fats		Crops n.e.c.	Forestry	Meat products n.e.c.	Vegetable oils and fats
Sugar		Wool, silkworm cocoons	Dairy products	Dairy products	Dairy products
		Vegetable oils and fats		Sugar	
		Dairy products			

n.e.c. = not elsewhere classified.

Source: GTAP simulation.

like crops n.e.c., vegetable oils and fats, sugar, dairy products, vegetables, fruits and nuts, and forestry.

Scenario IV: Full SAFTA—All Countries Remove All Tariffs for the Region

If all South Asian countries fully liberalize all trade amongst themselves, the welfare effect is equivalent to \$3,326 million, the highest across the four scenarios (Table 5.8). Gains to the LDCs in the region will also be higher than the other three scenarios. Gains to India are the highest at \$1.6 billion while Pakistan gains around \$1 billion. Bangladesh appears to suffer from negative gain, maybe due to preferential erosion

Table 5.8: Welfare Effect of Simulation 4
(Equivalent Variation in \$ million)

Regions	EV	Regions	EV
Bangladesh	(132.85)	South Asia	3326.13
India	1650.02	LDCs as a whole	616.67
Nepal	467.03	US	(205.69)
Pakistan	1022.46	EU_25	(252.08)
Sri Lanka	36.98	Rest of the world	(318.77)
Rest of South Asia	282.49		

() = negative

EU = European Union

LDCs = Least Developed Countries

Source: GTAP simulation.

Table 5.9: Sectors which have a Rise in Total Exports of Greater than 20%

Bangladesh	India	Nepal	Pakistan	Sri Lanka	Rest of South Asia
Wheat	Wheat	Wheat	Wheat	Paddy rice	Vegetables, fruit, nuts
Vegetables, fruit, nuts	Cattle, sheep, goats, horses	Vegetables, fruit, nuts	Vegetables, fruit, nuts	Cereal grains n.e.c.	Crops n.e.c.
Oil seeds	Dairy products	Oil seeds	Wool, silkworm cocoons	Sugar cane, sugar beet	Forestry
Plant-based fibers		Crops n.e.c.	Forestry	Wool, silkworm cocoons	Coal
Crops n.e.c.		Wool, silkworm cocoons	Coal	Forestry	Minerals n.e.c.
Vegetable oils and fats		Vegetable oils and fats	Dairy products	Oil	Vegetable oils and fats

Bangladesh	India	Nepal	Pakistan	Sri Lanka	Rest of South Asia
Sugar		Dairy products		Meat: cattle, sheep, goats, horse	Dairy products
		Food products n.e.c.		Meat products n.e.c.	Beverages and tobacco products
		Beverages and tobacco products		Dairy products	
				Beverages and tobacco products	

n.e.c. = not elsewhere classified.

Source: GTAP simulation.

while the gains to Nepal at \$467 million and to the other LDCs at \$616 million, are much higher than in other scenarios. Sri Lanka has a minor gain in welfare equivalent. Table 5.9 reports the sectors where countries gain in terms of exports to the region. Exports rise more than 20% for the maximum number of products in Sri Lanka.

Of all the possible simulations studied here, the region gains the most from full SAFTA. If countries fully liberalize in agriculture, the region gains more than in the cases where only India gives tariff liberalization to the LDCs in agriculture or to all South Asian countries in agriculture. Gains to the LDCs will be high not just when India gives tariff concessions only to them but also if all countries in the region liberalize agriculture trade.

6 Chapter

Regional Integration and Food Security in South Asia

6.1 Introduction

Economic theory suggests two types of benefits affecting regional integration and food security: the allocation effect and the accumulation effect. The allocation effect may not be realistic as it propagates that free trade will lead to an optimal (Pareto efficient) allocation of production factors—a situation where those that gain from trade could fully compensate those that lose from trade and still be better off—and thus the region's welfare is maximized. The accumulation effect, on the other hand, appears to be more achievable as it implies that economic integration will attract more agricultural investment because farmers and related industries (e.g. food processing) are able to specialize by becoming part of regional value chains. This may also create agglomeration and network effects that lead to a reduction in production costs, foster technological spillovers and increase productivity. All these together may increase the domestic supply of food and improve food security for the region.

Apart from arrangements on the elimination of tariffs and harmonization of agricultural policies, regional integration might also include agreements to discipline export restraints—one of the main

causes of the surge in food prices. Such agreements may prevent drying up of intraregional food trade in times of rising world food prices, when regional suppliers are tempted to reduce food exports to put a downward pressure on domestic food prices. Whether such a policy will limit food price inflation in the region depends, among other factors, on the balance between extra- and intraregional food trades.

It is being increasingly realized that the liberalization of trade among the South Asian countries can go a long way in improving the food security of the region. South Asia is a very large geographic region with varied climate, different types of natural resource endowment and diversity of production. These variations are expected to generate location-specific comparative advantages in food production. Often, when one South Asian country faces short supply in a food commodity, another country in the region has surplus production. This offers tremendous scope for stabilizing supply and prices through liberalized trade.

Further, given the trends in demand and supply, regional integration may soon become a necessity for food security in the region. South Asia is experiencing a high rate of growth in population at around 1.5%. Demand for food commodities in the region is projected to rise at a much higher rate than population growth as there is a large consumption deficit. Per capita consumption of most food items is much lower than what is required for a healthy diet and healthy living. Moreover, with rising per capita income and changes in tastes and preferences, demand patterns in South Asian countries are diversifying. Demand for variety, new products and attributes is on the rise. Demand for processed food products is rising much more rapidly than demand for raw products. These trends and shifts in demand patterns and preferences cannot be addressed through local production and processing and they open new avenues for trade and investments in agricultural commodities as well as food commodities.

Of late, realization has been growing about the benefit of increasing trade and regional integration among South Asian countries and improving food and nutrition security through free movement of agriculture and food commodities. In order to actualize such benefits there is a need to identify regional-level and country-level production, utilization and surplus and deficit of food and other agricultural products and the potential of the region to meet the growing demand. Against this backdrop, the present chapter first examines the socio-agri profiles of the South Asian countries; assesses regional as well as country-level surpluses and deficits in food and other agricultural commodities; examines intraregional trade in food commodities; and estimates the extent of price and market integration within the region and within the countries of the region.

6.2 Surplus and Deficit in Food in South Asia

To assess the surpluses and deficits in South Asian countries as well as for the region as a whole, two approaches have been followed. In the first approach, using averages over 3 years of production, trade and stock, the surplus or deficit has been computed from data available on production and consumption and related aspects, from the FAO's Food Balance Sheet for each country. The regional data is arrived at by summing up country level production, consumption, trade, stock, etc.

Hence, surplus / deficit = Production (less) food consumption, utilization as feed, seed, and processing and other utilization, (plus) import, (less) import, (less) net change in stock

While production data is available up to the year 2009 or 2010, in various countries data on utilization is not available beyond 2007. In order to estimate surplus for the latest years the food balance sheet data on various items of utilization was extrapolated for 2008 and 2009. This was done by multiplying the ratio of utilization (in various uses) to production in 2007 with production in years 2008 and 2009. The

average over 3 years of production and domestic utilization was used to estimate surplus/deficit at the country and regional level.

Another way of estimating the deficit and surplus for the region in agro-food commodities would be to use indicators like production/consumption ratio, import/consumption ratio, ending stocks/consumption ratio, and production instability index which are estimated for the 3 years up to 2009.

The existing supply–demand scenario and the future prospects of major commodities that have important implications for food security have been analyzed. The analysis is carried out for each country and the region as a whole. However, these measures pertain to only one time

Indicators of Supply–Demand Scenario

To assess the present supply–demand scenario we have used the following indicators

(i) Production / Consumption Ratio (P/C ratio)

High : >120%

Medium : 80%–120%

Low : <80%

(ii) Ending Stocks / Consumption Ratio (S/C ratio)

Adequate : > = 15% for staple cereals like wheat and rice

> = 10% for other cereals and food stuff

Inadequate : < 15% for staple cereals like wheat and rice

< 10% for other cereals and food stuff

(iii) Production Instability Index (PII)

High : >100% more than the South Asian average –
more than double

Medium : 50%–100% more than the South Asian average

Low : < 50% more than, equal to or less than the South
Asian average

period and therefore do not completely inform us about the emerging scenario. For example, a country may possess lower production than consumption during 2007–2009. In such a case the production–consumption ratio will be less than 100. However, if production is growing much faster than consumption, this ratio may rapidly increase and may even cross 100 in the near future. To account for these dynamics, we have combined the present supply–demand scenario with medium-term growth rates (from 2001 to 2011) for each commodity to draw conclusions about the potential surplus/deficit in the region.

The estimates of South Asia's surplus for major food items are presented in Table 6.1. This covers cereals (total, rice and wheat), pulses, vegetable oil, sugar, vegetables, fruits, eggs, meat, and milk, leaving a very small fraction of total agriculture in the region.

Cereals, mainly rice and wheat, are the staple food for all countries in South Asia. The average production of cereals in the region during 2007–2009 was 286 million tons (mt). South Asia as a whole consumed 238 mt of cereal as food. Consumption of cereal in other uses like seed, feed processing was 34.2 mt. The total utilization of cereal per year in South Asia during 2007–2009 was estimated at 272.6 mt. Based on these estimates South Asia is found to have surplus of 13.4 mt of cereals which is 4.7% of cereal production in the region.

Rice and wheat account for 84% of total cereal production (rice 47.5% and wheat 36.1%) in South Asia. Total annual absorption (consumption in all uses) of rice in the region during 2007–2009 was 126 mt, comprising 115 mt of food and 11 mt of other uses. Total utilization of wheat was 103 mt, comprising 94 mt of food consumption and 9 mt of other uses. South Asia is found to have a rice surplus while it has a small deficit in wheat to the tune of 0.5% of production.

Pulses (dried leguminous vegetables) are a regular part of South Asian diets and also a major source of protein. They are consumed both by vegetarians and nonvegetarians in various forms. Generally

Table 6.1: Production and Utilization of Major Food Products in South Asia, 2007–2009
(million tons)

Item	Production	Food Consumption	Other Consumption	Total Utilization	Surplus/ Deficit	Surplus/ Deficit as % of Production
Cereals (excluding beer)	286.14	238.51	34.21	272.73	13.41	4.69
Rice (milled equivalent)	136.17	114.96	10.96	125.92	10.26	7.53
Wheat	103.40	94.92	9.03	103.95	(0.55)	(0.53)
Pulses + (Total)	15.98	16.58	3.10	19.68	(3.70)	(23.13)
Vegetable Oils + (Total)	8.72	11.07	4.29	15.36	(6.64)	(76.22)
Sugar (raw equivalent)	29.57	26.19	0.03	26.22	3.35	11.32
Vegetables	100.39	92.55	6.58	99.13	1.27	1.26
Fruits (excluding wine)	78.66	68.17	10.52	78.69	(0.03)	(0.04)
Eggs	3.93	3.33	0.50	3.84	0.09	2.37
Meat	8.75	8.14	0.01	8.15	0.61	6.95
Milk (excluding butter)	145.59	116.49	29.18	145.67	(0.08)	(0.05)

() = negative

Source: FAO Food Balance Sheet 2007. faostat3.fao.org/browse/FB/FBS/E

they are consumed as a “curry” along with rice, wheat or other cereals. Over time, pulse production in South Asia has remained either stagnant or experienced very low growth. The green revolution technology rendered pulse production much less remunerative than cereals. Thus, large areas of land historically farmed for pulses have shifted toward the production of cereals; in some places pulses have been pushed to less fertile or marginal lands. As a result, the production of pulses in the region could not keep pace with growth in population and, per capita production and consumption of pulses has witnessed a sharp decline over time. This, in turn, has caused an adverse effect on protein intake in the region. During 2007–2009, the average production of pulses in the region was close to 16 mt. The total utilization of pulses was close to 20 mt, which leaves a gap of about 4 mt between regional production and utilization. The deficit level in pulses is 23% of the recent level of production.

The quantity of vegetable oil consumed as food was 27% more than production in the region. Consumption of edible oil in other uses is around 4.29 mt. The total utilization of vegetable oil in the region was 76% more than regional production. This leaves a deficit of 6.6 mt of vegetable oil in the region. The deficit in terms of oilseed is much higher and is given by the deficit of vegetable oil divided by extraction rate of oil to oilseeds. A crude estimate shows that South Asia needs to raise oilseed production by more than 20 mt to match the deficit in the production and consumption of vegetable oil.

South Asia produced 29.6 mt of sugar (raw equivalent) as against a total utilization of 26 mt. During 2007–2009 the region on an average had 3.4 mt of surplus sugar. Vegetable production in South Asia was estimated to be 100 mt and total utilization was reported to be 99.13 mt. About 93% of the total utilization of vegetables is in the form of food. The region, at the present level of production and consumption has a surplus of 1.27 mt in vegetables. Fruit production is estimated at

78.7 mt and total consumption is also the same. About 86% of fruit production is utilized as food and the remaining 14% is in other uses. At the present level of production and consumption South Asia has a small deficit (30 thousand tons).

Among livestock products, milk is the largest item of production and consumption in the region. Total production of milk per year is 145.6 mt and total utilization is estimated to be 146 mt. About 80 per cent of total milk utilization is used as food. This production and consumption balance leaves 80 thousand tons of milk deficit in the region, leading to a deficit of 0.05% of the total production. Total egg production in South Asia during 2007–2009 was 3.93 mt, of which 3.33 mt was used as food and 0.5 mt of eggs were consumed in other forms. The total utilization was 3.84 mt, showing a surplus in egg production of 90 thousand tons. The ratio of surplus to total production was 2.37%. Meat production in the region was close to 9 mt and total utilization was 8.15 mt. South Asia shows a surplus of 0.61 mt of meat.

From the regional food balance it is concluded that South Asia has large surpluses of rice, sugar, and meat, and small surpluses of eggs and vegetables at the current level of consumption. The region shows a large deficit in vegetable oils and pulses.

6.3 Surplus and Deficit in Food in South Asian Countries

The surplus/deficit per country, based on production and consumption data, as a proportion of production in the country for various food items are presented in Table 6.2.

The following inferences can be drawn:

1. **Food Grains.** India is the largest producer of rice and wheat in the region. The next largest producer is Bangladesh for rice and Pakistan for wheat. From 2007 to 2009, Bangladesh, India,

Table 6.2: Surplus/Deficit as Percentage of Production in South Asian Countries, 2007–2009

	Bangladesh	India	Nepal	Pakistan	Sri Lanka
Rice	3.88	6.71	(13.56)	49.46	(1.68)
Wheat	(235.55)	(0.39)	0.00	11.32	–
Pulses	(199.62)	(18.41)	(2.38)	(40.21)	(765.00)
Milk	(11.94)	0.96	(1.40)	(0.36)	(313.64)
Meat	0.00	11.63	(0.36)	0.13	(3.82)
Eggs	(0.39)	3.20	0.00	(0.21)	(1.92)
Fruits	(3.41)	0.22	(8.14)	1.08	(2.06)
Vegetables	(5.76)	2.20	(2.57)	(4.49)	(23.84)
Sugar	(371.35)	19.52	(17.48)	(14.50)	(1496.90)
Vegetable Oil	(788.89)	(48.28)	(76.56)	(146.97)	(468.42)

() = negative

Source: FAOSTAT.fao.org

and Pakistan consumed less rice than they produced, leaving a surplus. Sri Lanka and Nepal had a small deficit of rice. India's production and domestic use of wheat were also closely balanced with 0.31 mt of deficit. Pakistan shows the highest surplus of wheat in South Asia. Nepal was self-sufficient in wheat with 1.5 mt of production. Sri Lanka does not produce any wheat but it consumes close to 1 mt, leading to a deficit of the same magnitude. The case of the Maldives is similar, as it shows a deficit of 20 thousand tons of wheat. All the South Asian countries, except the Maldives, consumed more pulses than they produced.

2. **Livestock Products.** India showed surplus production of milk whereas all other countries in the region showed consumption exceeding production. Average annual production in India was 107.6 mt, while Pakistan produces 33.3 mt of milk and consumes 33.40 mt. Milk production in Sri Lanka is below 0.2 mt whereas consumption was 0.8 mt. Both Maldives and

Nepal showed a milk deficit of 20 thousand tons each. India showed a surplus in meat, producing 5.3 mt and consuming 4.70 mt during 2007–2009, while Bangladesh and Pakistan are just balanced. Nepal showed a small deficit and Sri Lanka consumes 4% more than what it produced. The magnitude of surplus of meat in India was 62 thousand tons. Except India, all South Asian countries showed greater consumption of eggs over production. India showed a surplus production over consumption of 0.10 mt which corresponds to 3.2% of total egg production in the country. Egg production and consumption in Bangladesh is about 250 thousand tons. Pakistan produces and consumes a little more than 500 thousand tons of eggs.

3. **Horticultural Products.** Bangladesh produces 3.56 mt of fruit and consumes 3.68 mt, leading to a deficit of about 120 thousand tons. Fruit production in India exceeded domestic consumption by 0.14 mt. Pakistan produces 6.5 mt of fruit and consumes almost all of it. Sri Lanka, Maldives, and Nepal show a deficit of 10 thousand tons–90 thousand tons of fruit. Vegetable production and consumption exceeds production and consumption of fruits in India, Sri Lanka and Nepal, whereas it is lower in Bangladesh and Pakistan. India has surplus 1.95 mt of vegetables, or 2.2% of its total production. Bangladesh shows a deficit with production at 3.36 mt and consumption at 3.56 mt. Nepal produces 70 thousand tons more vegetables than it consumes. Pakistan, Sri Lanka, and Maldives show small to moderate deficits in vegetables.
4. **Sugar.** In South Asia sugarcane is produced on a large scale in India and Pakistan while some production takes place in Bangladesh and Nepal. During 2007–2009 India produced 25.5 mt of raw sugar with a surplus of close to 20% of production. Pakistan produced 14.5% less than its domestic

use. Thus, Pakistan and all other countries in the region except India, have production deficit in sugar when compared to domestic absorption. Sugar deficit is a little more than 0.5 mt in Bangladesh, Pakistan, and Sri Lanka each. Nepal shows deficit of 20 thousand tons. Maldives does not produce any sugar, therefore its entire domestic use consisting of 10 thousand tons is a deficit.

5. **Vegetable Oil.** All South Asian countries consume more vegetable oil than they produce. Domestic use of vegetable oil in India is 48% more than domestic production. Nepal shows a deficit of 76%, and Pakistan uses 147% more vegetable oil than it produces. The deficits in vegetable oil are very high in Sri Lanka and Bangladesh. Sri Lanka consumes more than five times its domestic production and Bangladesh more than eight times. India produced 7.4 mt of vegetable oil and consumed about 11 mt leaving a deficit of more than 3.5 mt. Pakistan's deficit is 1.52 mt, while Bangladesh's is 1.17 mt. Sri Lanka has a deficit of 330 thousand tons while Nepal shows deficit of 50 thousand tons.

6.4 Alternative Indicators of Demand–Supply of Food and Future Potential in South Asia

An alternative method for analyzing supply–demand deficits, export surpluses and import dependency of the countries in the region can be carried out based on measures like the production–consumption ratio, inventory coverage of consumption, and import content of consumption. The potential deficits/surpluses of each country are assessed by analyzing growth trends of production, productivity (yield), and consumption in the medium-term (defined as over the last 10 years). These ratios and growth rates indicate:

1. **Rice.** The production–consumption ratio is high in Pakistan, medium in India, Nepal, Sri Lanka, and Bangladesh and low in Afghanistan (Annex III Table 1). The ending stocks–consumption ratio is adequate in Pakistan and India but inadequate in Afghanistan, Bangladesh, Nepal, and Sri Lanka. The production instability index is high for Afghanistan and Iran, medium for India, Nepal, Pakistan, and Sri Lanka. The production instability index is low for Bangladesh.

As for emerging trends, in Afghanistan, the production growth rate is almost equal to that of consumption (Annex III Table 5). The yield growth rate is stagnant. It appears that Afghanistan is largely self-sufficient in rice with no major deficits. Bangladesh has some potential for export surpluses. The growth rate of domestic production is greater than domestic consumption and the growth rate of stocks is high. The yield growth rate is also impressive. In India, production growth rate is much higher as compared to consumption. The growth rate of ending stocks is also quite high. These, combined with positive growth rate of yield, show that there is potential for export surpluses in India. In Nepal, there are major emerging deficits. The domestic production growth rate is much lower than that of consumption and the resulting supply–demand gap is met mainly through imports. There is no major stockholding in the country and the yield growth is almost stagnant. In Pakistan, the production growth rate is much higher than that of consumption. The import, export, and stocks growth rates are also quite high. These, combined with high growth rates of area and yield, show that there is large potential for exports in Pakistan. In Sri Lanka, the production growth rate is much higher than that of consumption. The stock growth rates are also high, leading to a high growth rate in exports. These trends, together with high growth rate of area indicate that there is a definite potential for exports in Sri Lanka.

The broad inference is that there exists some export surplus of rice in Pakistan and India. There is potential for export surplus in Bangladesh and Sri Lanka while Afghanistan is in dire need of imports.

2. **Wheat.** The production–consumption ratio (Annex III Table 2) is medium in Afghanistan, Bhutan, India, Nepal, and Pakistan, low in Bangladesh and Sri Lanka combined with high import–consumption ratios. Ending stocks–consumption ratio, are adequate in Bangladesh, India, Iran, Pakistan, and Sri Lanka but inadequate in Afghanistan, Nepal, and Bhutan. All the major importers such as Bangladesh and Sri Lanka hold high level of stocks showing predominantly precautionary or transactional motives of stockholding. The production instability index is high for all countries except India, Nepal, and Pakistan.

As for emerging trends, in Afghanistan, the production growth rate is much less than that of consumption (Annex III Table 6). The resulting supply–demand gap is met mainly through imports. Stocks are built mainly because of precautionary motives. The area and yield growth rates are promising. It appears that major deficits will continue in this country for some time. In Bangladesh, the growth rate of domestic production is very much lower than that of domestic consumption. Supply is augmented through imports. These trends, together with the fact that area growth rate is negative (although the yield growth rate is positive) show that deficits are likely to continue for some time. Bhutan has no domestic production of wheat and is completely dependent on imports. In India, the production growth rate is slightly higher compared to consumption. The growth rate in imports is high. Although the growth rate in stocks is high, the growth rates of area and yield are not significant. These trends indicate that there is hardly any potential for export surpluses to emerge in India. In

Nepal, domestic production growth rate is almost equal to that of consumption. There is no stockholding in the country. The area and yield growth rates are stagnant. The inference is that there are no major deficits presently but they may emerge in the future. In Pakistan, production growth rate is higher than that of consumption. There is steady growth in stockholding and exports. The growth rates of area and yield are also satisfactory. These trends indicate that there is a definite potential for wheat exports in Pakistan. In Sri Lanka, there is no wheat production and the country is completely dependent on imports. The stocks are mainly held for precautionary purposes. It appears that the deficits in Sri Lanka are likely to continue for a long time.

Overall, it appears that there is inadequate export surplus of wheat in the region to meet the import requirements of Bangladesh and Sri Lanka. Afghanistan also needs a stable import supply.

3. **Sugar.** For sugar (refined), the production–consumption ratio is medium for India and Pakistan and low for all other countries (Annex III Table 3). The import–consumption ratio is high for Bangladesh, Maldives, Nepal, and Sri Lanka. The production instability index is also high in all countries.

As for emerging trends, in Bangladesh, the production growth rate is much lower than that of consumption, indicating large potential deficits in the future (Annex III Table 7). In India, the production growth rate is almost equal to that of consumption. This implies that there could be no large potential deficits or surpluses in India. There is no domestic production in Maldives and the country is completely dependent on imports. In Nepal, the production growth rate is higher than that of consumption, indicating potential export surplus. In Pakistan, production growth rate is much lower than that of consumption, implying large potential deficits in the future. In Sri Lanka, production growth

rate is higher than that of consumption, showing some potential for export. For South Asia as a whole, the production growth rate is almost equal to that of consumption, showing no large potential deficits or surpluses in the region. At the global level, the production growth rate is higher than that of consumption, indicating some potential for export.

Overall, it appears that presently only India has an export surplus in sugar (refined). Large potential deficits are emerging in Pakistan. Maldives is totally dependent on imports.

4. **Pulses.** As for emerging trends, in Bangladesh, the production growth rate is much lower than that of consumption, showing large potential deficits in the future (Annex III Table 8). In India, the production growth rate is almost equal to that of consumption indicating no large potential deficits or surpluses. In Maldives, the production growth rate is much lower than consumption, showing large potential deficits in future. In Nepal, the production growth rate is much lower than that of consumption indicating large potential deficits. In Pakistan, the production growth rate is higher than consumption showing some potential for export surplus. In Sri Lanka, the production growth rate is almost equal to that of consumption, indicating no large potential deficits or surpluses. In South Asia as a whole, the production growth rate is almost equal to that of consumption, showing that there are no large potential deficits or surpluses. At the global level also, the production growth rate is almost equal to that of consumption, showing that there are no large potential deficits or surpluses.

The foregoing analysis indicates that a slight potential for exports exists only in Pakistan. All other countries in the region may face deficits or may attain self-sufficiency in pulses.

5. **Soybean Oil.** The production–consumption ratio is low for all the countries (Annex III Table 4). The ending stocks–consumption

ratio is adequate in Bangladesh but inadequate in India and Pakistan. The production instability index is very high in the region in all the countries compared to the world average but is low in Bangladesh and India when compared to the South Asian average.

As for emerging trends, in Bangladesh, the production growth rate is much higher than that of consumption (Annex III Table 9). But the growth rate of stocks is negative. Therefore, there is unlikely to be any exportable surplus but no major deficits are anticipated either. The country is likely to remain self-sufficient. In India, the production growth rate is much higher compared to consumption and there is consistent stockholding (steady growth rate). The inference is that there is potential for export surplus in India. In Pakistan, there is substantial decline in production. There is decline in consumption also, but not as precipitous as production, indicating that major deficits may emerge in Pakistan. In South Asia as a whole, the production growth rate is much higher than that of consumption. The growth rate of stocks is positive. There is potential for export surplus in the region. At the global level, the production growth rate is almost equal to that of consumption. The growth in trade and stocks is almost stagnant. These trends indicate that the supply and demand are just in balance presently at the global level and deficits are likely to emerge.

The broad inference is that there is some exportable surplus of soybean oil in the region. Production/productivity and consumption trends indicate that potential for self-sufficiency or slight export surplus exists in India and Bangladesh. Major deficits may continue in Pakistan.

From the above analyses it can be concluded that at present, export surpluses exist in the region only for rice and, to a limited extent, for

sugar. In wheat, corn, edible oils (except soybean oil), and pulses, most of the countries in the region are facing deficits and very few countries in the region show present or potential export surpluses. India and Pakistan are either self-sufficient or possess export surpluses in most commodities. Nepal, Maldives, Bhutan, and Afghanistan are facing deficits and rely on imports for most of the important commodities. Bangladesh and Sri Lanka show encouraging trends in commodities such as rice.

7 Chapter

Price and Market Integration in Food in South Asia

7.1 Introduction

Agricultural trade in food can have a direct impact on food security by augmenting domestic food supplies and thereby increasing the availability of food. This will push food prices down and reduce food supply variability. In other words, deficits and surpluses of a particular food item may exist in countries within the region. In order to balance the deficits in one country with surpluses in another country, free movement of food items across countries is necessary. A prerequisite for this is to have integrated markets across the region as well as within the countries.

In theory, spatial price determination models suggest that, if two markets are linked by trade in a free market regime, excess demand or supply shocks in one market will have an equal impact on price in both markets. The implementation of import tariffs, in general, will allow international price changes to be fully transmitted to domestic markets in relative terms. However, if the tariff level is prohibitively high, leading to autarky price level, it may result in the two prices moving independently of each other. Further, price support policies, such as intervention mechanisms and floor prices, may result in prices in

countries being completely unrelated or related in a nonlinear manner. It is increasingly being realized that liberalization of trade among the countries within South Asia can go a very long way in improving food security of the region. The extent of price and market integration in food within South Asia can have important implications, especially when a big economy like India shares borders with five out of the seven other countries in the region. In order to assess the potential for price and market integration in South Asia, it is important to first assess the existing levels of integration.

A simple, albeit imperfect method to measure market integration is based on the Pearson correlation coefficient estimate between prices from two markets. A positive and statistically significant correlation coefficient indicates that the two markets are *possibly* integrated. Absence of price correlation means that markets are not linked through trade (which may occur for various reasons) and prices are determined independently from one market to another. However, this method removes the common integrating factor from the analysis. A more sophisticated way would be to use the spatial equilibrium models (Enke 1951; Samuelson 1952; Takayama and Judge 1971) which retain the common integrating factor (if any) and analyze the extent (number of markets integrated) of integration among major markets for most of the important commodities in a country. This also allows for assessing the *potential* role of the market in mitigating the adverse effects of supply shocks.

We undertake these two complementary analyses, i.e. estimate the extent of price and market integration between countries in South Asia in different food commodities and also estimate the extent of cointegration within domestic markets in important food commodities. To assess the importance of integration of prices and markets for facilitating free movement of food across countries, we examine the existing per capita food availability in South Asia.

7.2 Per Capita Food Supply in South Asian Countries

The Food and Agriculture Organization (FAO) food balance sheet for the year 2007 shows significant variations in the per capita supply of various food items in South Asian countries. Per capita annual supply of cereal among the five major countries of South Asia was lowest in Pakistan which showed the highest undernourished population (Table 7.1). Further, cereal consumption in Pakistan was highly concentrated in favor of wheat which accounts for more than 80% of all cereals in the country. However, Pakistan topped in per capita supply of milk. The next country in the ranking of per capita supply of milk did not reach even half of Pakistan's per capita production. Similarly, Pakistan

Table 7.1: Per Capita Supply of Various Food Items in South Asian Countries, 2007
(kg per year)

Item	Bangladesh	India	Nepal	Pakistan	Sri Lanka
Cereals (excluding beer)	180.9	152.6	171.3	129.8	143.5
Rice (milled equivalent)	159.7	70.9	78.0	14.5	97.3
Wheat	14.7	60.2	37.9	106.1	44.1
Pulses + (Total)	4.8	12.9	8.4	8.1	8.0
Vegetable Oils + (Total)	19.7	64.8	77.9	30.0	40.1
Sugar (raw equivalent)	20.7	45.1	38.8	36.5	27.2
Vegetables	1.3	2.1	1.0	2.4	2.2
Fruits (excluding wine)	3.6	3.3	9.8	13.4	6.8
Eggs	16.2	68.7	40.9	159.0	36.1
Meat	5.3	17.3	4.3	23.9	24.6
Milk (excluding butter)	6.2	8.2	6.8	11.5	4.1

Source: FAO Food Balance Sheet 2007. faostat3.fao.org/browse/FB/FBS/E

also topped in the per capita supply of sugar, meat, and vegetable oils. Bangladesh topped in the per capita supply of cereals, 88% of which consist of rice. Except rice, cereal, and meat, the per capita supply of all other food items in Bangladesh was the lowest in the region. India topped in consumption of pulses, vegetables, and fruits. Per capita supply of these items was 13 kg of pulses, 65 kg of vegetable, and 45 kg of fruits. India was at the bottom in the per capita supply of meat, closely followed by Bangladesh.

Per capita supply, which is the same as absorption, shows very wide variation across countries. The least variation was found in cereals. Per capita absorption varied between 5 kg to 13 kg for pulses, 16 kg to 159 kg for milk, 4 kg to 24 kg for sugar, and 4 kg to 11.5 kg for vegetable oil. Sri Lanka comes at the bottom in per capita absorption of vegetable oil and Nepal comes at the bottom in per capita absorption of eggs and sugar.

The variability in per capita supply of various food items can be taken as an indicator of existing demand as well as supply of food in the region and the potential of the region to secure food security. However, for free movement of food items within the region it is important for the prices and markets to be integrated within the region.

7.3 Extent of Intraregional Market and Price Integration in Food

Price and market integration in South Asian countries is studied by examining the association between producer prices expressed in dollars during last 10 years covering the period 2000 to 2009. Producer prices represent the overall price situation for the whole country and are thus not restricted to a single market. Estimating a simple correlation between producer prices between various pairs of countries in South Asia provides a crude but very useful measure of the extent of integration. It is important to mention here that prices did not show

any common trend between two countries. Nor do they exhibit a rising or falling trend in most cases when these prices are expressed in dollars. For this kind of data series, simple correlation can be used to find the existence and strength of market integration.

The correlation coefficient between price series of various food items in South Asian countries is presented in Table 7.2. The critical value of correlation below which it is not statistically significant is 0.73 at 1% of level of significance and 0.60 at 5% of level of significance.

Section I in the table provides the correlation coefficient for prices of rice. The table shows that producer prices of rice in all South Asian countries are strongly correlated. The degree of correlation was more than 0.85 in most cases. Except correlation between Sri Lanka's and Nepal's prices, all other price series are statistically significant either at 1% or 5% level. Among different countries, rice prices in Bangladesh showed the strongest relation with prices in other countries. These results can be used to infer that rice prices in South Asia in terms of producer prices are strongly integrated.

The results for wheat are presented in Section II of the table. Like rice, producer prices of wheat also show significant positive correlation across countries. Except in the case of Pakistan and Nepal, wheat prices were statistically significant in all other pairings. Producer prices of wheat in Nepal showed a correlation of 0.99 with wheat prices in India. Similarly, wheat prices in Bangladesh–India and Bangladesh–Nepal were also strongly integrated.

The results for maize prices are presented in Section III. Like rice and wheat, maize prices also show significant positive correlation in prices prevalent in various countries. Apart from the relationship between Bangladesh and Pakistan, price series in all other countries showed significant correlation.

Price data for chickpeas was available only for Bangladesh, India, Nepal, and Sri Lanka. Among these four countries only the Bangladesh

and Nepal markets showed significant correlation. The correlation between prices in India and Bangladesh and India and Nepal was close to zero.

Data on groundnut prices was not available for Nepal. Among other countries, Sri Lankan and Indian prices alone showed significant correlation, which was more than 0.9. The results show that there was no integration in groundnut markets in South Asia except for Sri Lanka and India.

The correlation coefficient for onion prices are presented in Section VII. Onion prices in Bangladesh showed either negative or close to zero correlation with prices in other countries. This indicates that the onion market in Bangladesh did not have any integration with markets in other countries in the region. In contrast, onion prices in India–Nepal, India–Pakistan, India–Sri Lanka, Nepal–Pakistan and Nepal–Sri Lanka were significantly correlated. Onion prices in Sri Lanka and Pakistan showed positive but nonsignificant correlation.

As with onions, potato prices in Bangladesh did not show significant correlation with prices in India, Pakistan, and Sri Lanka. However, potato prices in Bangladesh have a very high correlation with potato prices in Nepal. Potato prices in Sri Lanka also did not show any significant correlation with other countries in the region (Table 7.2). The correlation matrix of potato prices shows that the Bangladesh–Nepal and India–Pakistan markets have significant correlation.

Producer price data for mustard was available only for Bangladesh, Pakistan, and India. Prices of mustard in Bangladesh showed significant correlation with Pakistan but not with India. Mustard prices in Pakistan and India were much more strongly correlated.

The correlation coefficient between milk prices in different countries indicate that Bangladesh prices were not linked to the other countries. Milk markets in India–Nepal, Pakistan–Nepal, Sri Lanka–Nepal, India–Pakistan, and India–Sri Lanka were strongly integrated.

**Table 7.2: Correlation Coefficient between Producer Prices
in South Asian Countries**

Commodity	Country	India	Nepal	Pakistan	Sri Lanka
I. Rice	Bangladesh	0.89	0.84	0.89	0.85
	India		0.67	0.74	0.88
	Nepal			0.8	0.56
	Pakistan				0.65
II. Wheat	Bangladesh	0.88	0.88	0.73	
	India		0.99	0.61	
	Nepal			0.58	
III. Maize	Bangladesh	0.61	0.63	0.53	0.86
	India		0.74	0.76	0.85
	Nepal			0.73	0.75
	Sri Lanka			0.6	
IV. Chickpea	Bangladesh	(0.04)	0.92		
	India		(0.13)		0.13
	Sri Lanka				
V. Groundnut	Bangladesh	0.11		0.21	(0.1)
	India			0.36	0.91
	Sri Lanka			0.22	
VI. Mustard	Bangladesh	0.44		0.64	
	India			0.92	
VII. Onion	Bangladesh	(0.28)	(0.43)	0.07	(0.46)
	India		0.91	0.74	0.69
	Nepal			0.66	0.89
	Pakistan				0.49
VIII. Potato	Bangladesh	(0.33)	0.95	0.4	(0.14)
	India		(0.3)	0.62	0.05
	Nepal			0.42	0
	Pakistan				0.06
IX. Cow Milk	Bangladesh	(0.2)	(0.25)	(0.17)	(0.15)
	India		0.73	0.85	
	Nepal			0.74	0.84
	Sri Lanka			0.53	
X. Eggs	Bangladesh	0	(0.27)	(0.1)	0.16
	India		0.92	0.94	0.95
	Nepal			0.81	0.82
	Sri Lanka			0.88	

() = negative

Source: FAOSTAT. faostat3.fao.org

Egg markets in India, Nepal, Pakistan, and Sri Lanka were strongly integrated. The correlation between producer prices in these countries ranged between 0.81 and 0.95. However, egg prices in Bangladesh did not show any significant association with other countries.

From these results, it can be concluded that prices in the region are correlated only for a few food items and between selective countries. Prices of rice, wheat, and maize are strongly correlated with each other in South Asian countries. Prices for other food items, like onions, potatoes, milk, eggs, etc., are not correlated. The integration is selective and generally missing in the case of chickpeas and groundnuts.

7.4 Intracountry Domestic Market Integration in South Asia

At the conceptual level, market integration implies tradability i.e. transfers of excess demand from one market to another through actual or potential physical flows. Positive trade flows are sufficient to demonstrate that markets are integrated and prices need not equilibrate across markets. It is clear that this concept implies a Pareto inefficient distribution (Barrett 2001). Alternatively, the spatial equilibrium model suggests that the dispersion of price in two locations for an otherwise identical good is bound from above by cost of arbitrage when trade is unrestricted and, from below when trade quotas exist. In line with this, to estimate the extent of domestic market integration within South Asian countries, we use the Gonzalo–Granger (G–G) model.¹

In this model, a market is said to be integrated if there exists a *single common factor* (single linear combination of a subset of prices). This implies that if n markets are integrated there are $n-1$ cointegrating vectors. We estimate the standard Vector Error Correction Model (VECM) and then use these estimates to determine the number of

¹ See Enke 1951; Samuelson 1952; Takayama and Judge 1971, Gonzalez and Helfand 2001.

common factors and also identify the specific markets influencing price formation.² Prices for each commodity have been estimated using the standard VECM, after controlling for general movements in prices and seasonality of agricultural prices.

This vector error-correction model has been estimated for each commodity:

$$\Delta p_t = \gamma \alpha' p_{t-1} + \sum_{i=1}^{\infty} \Gamma_i \Delta p_{t-i} + WPI_t + MD_t + \varepsilon_t \text{ where } \Delta = I - L$$

where L is the lag operator and p_t is a vector of prices at n markets (of order $n \times 1$). α = cointegrating vectors, γ = Weights (speed of adjustment) of the cointegrating equations, Γ_i is the vector of short-run coefficients and ε is the error term. Two exogenous variables have been included, i.e. wholesale (or retail) price index (WPI_t) of the commodity and monthly dummies (MD_t) to control for the general price movements in the commodity and seasonal fluctuations in market prices respectively. All the variables are tested for order of integration and found to be $I(1)$.

We start with an appropriately large number (n_1) markets out of a total number of n markets such that $n_1 < n$. We then test for the number of cointegrating vectors in this set of markets. If the number of cointegrating vectors is $n_1 - 1$, then we add one more market to the set and again test for the number of cointegrating vectors. If the number of cointegrating vectors is still $n_1 - 1$ (instead of n_1) then we drop the newly-included market and try another market. This process is continued till we have the largest set (say n_2) of integrated markets. If all the n markets are integrated, then $n_2 = n$.

Starting with different sets of markets will provide different answers to the question of how many markets are integrated. We start with a

² For details see Gonzalo–Granger 1995, Gonzalez–Helfand 2001 or Sekhar 2012.

set of n_1 important markets in each country based on data availability. Obviously this leads to some degree of arbitrariness. To address the potential problems with this initial selection, we have experimented with different orders. The results (the number of cointegrating vectors) have remained largely invariant to the order of initial selection. However, the econometric problems with such sequential selection are one potential area for future research.

The results of market integration are presented in Tables 7.3 (retail prices) and 7.4 (wholesale prices). The results show that many commodity markets within each country are not adequately integrated.

Table 7.3: Domestic Market Integration in South Asia
(Retail prices)

Country	Crops	Total Number of Markets	Number of Integrated Markets	Number of Nonintegrated Markets
Afghanistan	Bread	4	3	1
	Wheat flour	4	4	0
	Wheat	4	2	2
Bangladesh	Rice	2	2	0
	Wheat	2	0	2
India	Chickpea	4	4	0
	Onions	3	3	0
	Rice	4	2	2
	Sugar	4	4	0
	Wheat	4	3	1
Pakistan	Rice, basmati	5	3	2
	Rice, irrigated	5	3	2
	Wheat flour	5	2	3
	Wheat	4	2	2
	Flour + wheat	9	7	2
Sri Lanka	Rice and wheat	2	2	0

Source: Authors' analysis.

Table 7.4: Domestic Market Integration in South Asia
(Wholesale prices)

Country	Crops	Total Number of Markets	Number of Integrated Markets	Number of Nonintegrated Markets
Bangladesh	Rice	2	2	0
	Wheat	2	2	0
India	Rice	4	2	2
	Wheat	4	4	0
	Sugar	4	4	0

Source: Authors' analysis.

In particular, the integration of domestic wheat and rice markets is of concern. Domestic market integration is a necessary precondition for border reforms. Across countries, retail rice markets are better-integrated as compared to wheat and wheat flour markets.

An important conclusion which emerges from these two analyses is that food markets are more integrated in terms of comovement of prices across countries but may not be sufficiently cointegrated within the domestic boundaries. This is plausible because of the existing spatial constraints in the region. India shares borders with five out of seven countries and has a free trade agreement with Sri Lanka. This may be a plausible explanation for why producer prices of rice show strong correlations between India and other neighboring countries, but within India, all four sugar retail markets are not found to be integrated. To improve intraregional trade in a development-oriented manner would require integration of domestic markets in food so that the gains are favorably distributed across the country. Special attention needs to be paid to tariff and nontariff barriers across countries.

Existing Nontariff Measures in Intraregional Agriculture Trade in South Asia

8.1 South Asia Free Trade Agreement and Nontariff Barriers

South Asia Free Trade Agreement (SAFTA) requires elimination of tariffs, paratariffs and nontariff restrictions on the movement of goods, and any other equivalent measure, in addition to the adoption of trade facilitation and other measures, and the progressive harmonization of legislations by the countries concerned. However, there are no binding commitments on the removal of nontariff barriers (NTBs) in SAFTA and much remains to be done to harmonize nontariff measures (NTMs) in the region. There is also no mechanism to ensure that measures are implemented in the least restrictive manner and paratariffs are removed. The establishment of the SAARC Standard Coordination Board which functions as a precursor to the SAARC Regional Standard Body for achieving uniform quality standards within the region is an important step in this direction.

Mandatory standards seem to be particularly challenging because there are currently no Mutual Recognition Agreements (MRAs) in

operation within the region, which means 100% testing at borders. Testing facilities are not always located close to borders which results in procedural delays for traders within the region. This is an important barrier to intraregional trade in agriculture given the perishable nature of many agricultural goods. Poor customs procedures and other logistical constraints are formidable barriers to intraregional trade. These barriers include, for example, lack of cold storage facilities at borders and limited space for loading bays. Tariff harmonization is ongoing within the region which means that revaluation at borders is reported to be common. This suggests a need for better and more coordinated information systems across customs authorities.

In addition to regulatory barriers, such as those related to the lack of MRAs, there are other types of NTBs that are in widespread use within the region and remain undisciplined. This includes the use of export restrictions to deal with seasonal shortages of goods, such as onions, cotton, and rice.

Some multilateral agencies have now started collecting and providing measures on existing NTBs and NTMs in different regions or countries. The extent to which NTBs and NTMs exist in South Asian countries is examined in Section 8.2, based on these three indices.

8.2 Constraints on Intraregional Trade

World Bank's Trade Restrictiveness Index (TRI) seeks to measure the effectiveness of trade protection. It constructs an index of trade restrictiveness that takes NTMs into account, in addition to tariffs. The index is based on UNCTAD TRAINS data and includes the following four types of policy barriers: (i) quantitative restrictions; (ii) voluntary export restraints; (iii) enforcement of decreased prices; and (iv) tariff quotas. As soon as NTMs are incorporated into the TRI, overall levels of trade restrictiveness increase for India and Bangladesh (Table 8.1). In terms of agriculture, the overall trade restrictiveness index is highest

Table 8.1: Trade Restrictiveness Indices for South Asia, 2006–2009

Index	SAARC		Bangladesh	India	Nepal	Pakistan	Sri Lanka
	Wt. Avg.	Simple Avg.					
Tariff Trade Restrictiveness	All goods	11.7	11.5	10.6	12.0	12.2	6.2
Index (applied tariff, incl. preferences)	Agri	24.0	14.3	7.9	28.0	7.9	16.2
	Non-agri	11.0	11.4	11.0	11.0	12.5	4.9
Overall Trade Restrictiveness	All goods	17.6	14.8	20.1	18.0	n/a	6.3
Index (applied tariff, incl. preferences + NTMs)	Agri	38.2	32.9	43.6	39.0	n/a	16.2
	Non-agri	16.4	12.9	16.7	17.0	n/a	4.9

n/a = not available

NTM = Non-tariff Measures

Note: No data for Afghanistan, Bhutan and Maldives.

Source: World Bank. World Trade Indicators. data.worldbank.org/topic/trade

for Bangladesh, closely followed by India, while it is comparatively low for Sri Lanka. The TRI for agriculture more than quadruples in the case of Bangladesh and almost doubles for India.

Some of the NTMs in agricultural trade that may act as a barrier to intraregional trade can be use of non-ad valorem tariffs; Tariff Rate Quotas (TRQ) usage in agricultural (Agreement on Agriculture) goods, which reflects the share of agriculture tariff lines that are subject to tariff rate quotas, that specify one (mostly lower) tariff for imports within the quota, and a higher tariff for imports beyond the quota limits; and export taxes. Table 8.2 shows that the frequency ratio of non-ad valorem tariffs is highest for Sri Lanka, where the total number of ad valorem agriculture tariff lines as a percentage of total tariff lines is around 8%, followed by Pakistan (5%). Tariff rate quota usage in agriculture is highest for India, it being the only country in the region to use it. Export tariffs are the highest in Pakistan.

The table also shows that most favored nation (MFN) applied tariff escalation in agriculture, calculated as the percentage point difference between the applied tariffs for finished (or fully processed) goods and the applied tariffs for raw materials (or primary products) is highest in Pakistan and Sri Lanka. The share of tariff lines with zero MFN applied tariffs in agriculture is lowest for Pakistan, while the share of tariff lines with domestic peaks in agriculture is highest for India.

Table 8.3 reports trade logistics for South Asian countries. These can be important constraints to intraregional trade. The overall Logistic Performance Index (LPI) is found to be highest for India, followed by Pakistan and Bangladesh. However, there exists considerable variation in the region in the liner shipping connectivity index,¹ which ranges

¹ UNCTAD – Liner Shipping Connectivity Index is a computed average index of efficiency in shipping which combines the available information of fleet assignment, liner services, and vessel and fleet size in maritime transport in 162 countries (0 to 100, best).

Table 8.2: Extent of Nontariff Measures in South Asian Countries, 2006–2009

Country	Frequency Ratio of Non-Ad Valorem Tariff (as a % of total lines) – Agricultural (AOA)	TRQ Usage in Agricultural (AOA) (%)	Export Taxes (as a % of goods exports)	MFN Applied Tariff Escalation (diff, finished-raw) – Agricultural (AOA) (%)	Share of Tariff Lines with MFN-0 – Agricultural (AOA) (%)	Share of Tariff Lines with Domestic Peaks – Agricultural (AOA) Goods (%)
Afghanistan	5.85	0.00	0.00	0.01	1.17	0.88
Bangladesh	0.41	0.00	1.14			
Bhutan	0.00			(0.02)		5.23
India	0.13	0.07	0.02	6.00	4.10	14.20
Maldives	0.08			0.42	0.51	0.08
Nepal	3.49	0.00		9.94	0.15	9.17
Pakistan	4.73	0.00	13.47	13.83	15.07	2.24
Sri Lanka	7.73	0.00	0.00	13.75	4.53	5.08

() = negative

MFN = Most Favored Nation

TRQ = Tariff Rate Quota

Note: No data for Afghanistan, Bhutan, and Maldives.

Source: World Bank, World Trade Indicators. data.worldbank.org/topic/trade

AOA = Agreement of Agriculture in the WTO

Table 8.3: Trade Logistics in South Asian Countries, 2006–2009

Country	LPI–Overall	UNCTAD – Liner Shipping Connectivity Index	No. of Documents for Export	Days for Export	Days for Import	No. of Documents for Import
Afghanistan	2.24		12	74	77	11
Bangladesh	2.74	6.40	6	25	29	8
Bhutan	2.38		8	38	38	11
India	3.12	42.18	8	17	20	9
Maldives	2.40	5.45	8	21	20	9
Nepal	2.20		9	41	35	10
Pakistan	2.53	24.61	9	22	18	8
Sri Lanka	2.29	46.08	8	21	20	6

LPI = Logistic Performance Index

Note: No data for Afghanistan, Bhutan, and Maldives.*Source:* World Bank. World Trade Indicators. data.worldbank.org/topic/trade

from 46.08 (for Sri Lanka) to 5.4 (for Maldives). India and Sri Lanka fare better than Thailand (36.48), Indonesia (24.85), and Brazil (30.87). However, in terms of days for export and import, the region does not fare well. The minimum time taken for exports in India is 17 days and more than 20 days for all other countries, as compared to Brazil which takes 12 days. Similarly time taken for imports is the highest in Afghanistan, followed by Bhutan and Nepal. The number of documents needed for exports is lowest in Bangladesh at 6, while comparative figures are 4 in Thailand and 5 in Indonesia.

Analysis of reported NTBs in the UNCTAD TRAINS database across countries within South Asia suggests that most NTBs are price and quantity control measures, including such practices as non-automatic licensing as well as price setting and interventions in food and commodity markets.² The results from this type of analysis suggest that the higher the number of NTBs the more challenging it is to enter the market for exporters. Analysis of NTB peaks and troughs across the HS6-digit level for India's imports suggests that Nepal is the only South Asian import partner to feature as a top import partner across the products most susceptible to NTBs for wheat and meslin products (HS100190) and soy beans (HS120100).³ In terms of value, the largest source of imports for India is Pakistan, followed by Afghanistan, Bhutan, and Nepal. For these countries, the products most susceptible to NTB peaks appear to fall within HS chapters 70, 80, and 90. In the case of Sri Lanka, only India features amongst the top five import partners for those products most susceptible to NTBs at the HS6-digit level.

² UNCTAD's TRAINS database uses a classification of over 100 trade measures, including those with a discretionary or variable component. It contains NTBs reported for over 150 countries from 1988 to 2001 (Annex I).

³ Overseas Development Institute. 2011. *Feasibility Study on Reducing Nontariff Barriers in South Asia*. London, UK: Overseas Development Institute.

8.3 Identified Potential Nontariff Barriers and Nontariff Measures in Agriculture Trade in South Asia

Nontariff barriers in the region are imposed in several forms, especially in the trade of agriculture products. These include price controls, non-auto licenses, quota restrictions, export certification, and other duties and charges. UNCTAD's TRAINS database uses a classification of over 100 trade measures, including NTBs, reported for over 150 countries from 1988 to 2001. Some of the NTBs and NTMs reported are based on:

1. Price control measures, such as multiple exchange rates, or foreign exchange allocation
2. Finance control measures, such as antidumping or countervailing measures, relating to credit allocations
3. Quantity restrictions, such as nonautomatic licensing, quotas
4. Monopolistic measures
5. Technical measures, such as regulations and customs procedures
6. Miscellaneous, such as subsidies

Table 8.4 summarizes some of the most frequently targeted products and measures in the specific products affected as identified by the UNCTAD database and ODI (2011).

Technical Barriers to Trade (TBT) and Sanitary Phytosanitary (SPS) measures in many developing countries do not always adhere to WTO obligations (ODI 2011). It remains an ongoing process and some members have made more progress than others (e.g. India compared to the Maldives). One of the main limitations of the region in addressing TBT and SPS issues is that not all members have the right regulatory framework in place as yet.

Besides the NTMs identified above, there exist other NTMs which

Table 8.4: Most Frequently Targeted Products and Measures

Country	Measure	Import/ Export	Product
Bangladesh	ODC	Imports	Mineral water, fruit juice, alcohol.
	QRs	Imports	Chicks, eggs, salt.
	Nonautomatic licenses	Imports	Salt, alcohol.
	Price control	Both	Salt, sugar, red lentil, onion, soybean oil. Min, export prices specified for jute.
	Export certification	Exports	Frozen fish, products of plant origin, tea, jute, live animals.
India	Export certification	Exports	Fish and fish products, dairy, egg and meat products.
	Price controls	Both	In place for 25 major agricultural commodities.
	QRs	Imports	TRQs: milk powder, maize, sunflower seed, safflower oil, rape, mustard and colza oil. Bilateral deal with Sri Lanka permits TRQs for tea. Other import restrictions: fats, margarines, chicks, eggs, feathers, pig meat. Sensitive products monitored and subject to ad hoc restrictions include: edible oil, cotton, silk, milk, cereals, fruit and vegetables, spices, tea, coffee, alcoholic beverages and other products produced by small scale industry. Quotas in place for: wheat, grain, barley, lentils, beans and flour.

Country	Measure	Import/ Export	Product
	QRs	Exports	Export restrictions issued on an ad hoc basis which includes on: wheat, pulses, sugar, and onions.
	State trading	Both	Onions may be exported through 13 designated state trading enterprises. Import side: wheat, rye, oats, maize, rice, grain sorghum, buckwheat, millet and other cereals, copra, coconut oil, etc.
Maldives	Price controls/ state trading	Both	Retail prices of staple foods (rice, sugar and wheat flour) are capped. The presence of state trading is to ensure sufficient domestic supplies of staples and accounts for around 25% of all imports into the Maldives.
	QRs	Imports/ Exports	Trade in timber is controlled. Exports of certain marine species are prohibited.
Pakistan	Price controls	Both	Beef, mutton, and various other essential commodities.
	Quotas	Imports	Ad hoc import bans permitted if in the public interest.
	QRs	Both	Wheat flour exports banned in 2007 due to domestic supply shortages. Vegetable ghee and cooking oil exports are permitted so long as there is a minimum value addition of 15% for edible uses (50% for nonedible uses).
	ODCs	Exports	35% duties applied on pulses due to domestic shortages.

Country	Measure	Import/ Export	Product
Sri Lanka	Price controls	Both	Any item or good may be specified as an essential commodity and therefore require ministerial approval related to domestic, import and export sale prices. Products currently subject to these price regulations include: chicken meat, dairy products, rice wheat flour, white sugar, dried chilies, onion, dal, canned fish, amongst others. Tea board has the authority to regulate price of green leaf paid by factories.
	Nonautomatic licenses	Both	Nonautomatic licensing in place covering a total of 512 items at the 8-digit level including grains
	ODCs	Both	Special commodity levy introduced in 2007 on 11 essential food stuffs including milk powder, dhal, sugar, potatoes and onions – rates are adjusted to reflect price, supply and demand development; adjustments may be general or limited to some products. An export cess levied on cashew nuts, rubber, and coconut products in order to discourage exports in raw form and ensure local supplies.

ODC = Other Duties and Charges

QR = Quantitative Restrictions

TRQs = Tariff Rate Quotas

Source: Overseas Development Institute. 2011. *Feasibility Study on Reducing Nontariff Barriers in South Asia*. London, UK: Overseas Development Institute. UNCTAD NTM database.

pertain to the political economy of the region, which are beyond the scope of this study. There also remain a number of outstanding questions pertaining to identified NTMs. For example, the questions of who can undertake trade surveillance and NTB monitoring mechanisms within the region, whether it should be the SAARC Secretariat or the SAARC Chamber of Commerce and Industry remain unresolved. Much work is yet to be done within SAARC to address NTBs and oversee reductions in the reported barriers. There do not exist robust dispute settlement mechanisms to enforce decisions on identified NTMs.

Conclusions and Way Forward

9.1 Conclusions

Agriculture is the mainstay for South Asian economies and serves as the most important livelihood option for the poorest of the poor. Understandably, agriculture has been the most protected sector in the region and least integrated in terms of intraregional trade and investments. However, lack of regional integration has led to resource constraints, limited the size of potential markets and lowered productive capacities in individual countries. The changing economic structures in many countries of the region and the growing demand for agricultural products have increased the potential for regional trade and investments in this sector. The presence of a fast-growing emerging economy within the region has further raised the possibility of greater and more productive integration. It is therefore timely to revisit the policies with respect to trade and investments in the agricultural sector in the region.

Intraregional exports, which are 6% of global exports of the region, provide higher opportunities to the countries to diversify their exports. The study estimates the extent of export diversification for different countries of the region and finds it to be higher in intraregional exports as compared to global exports. Intraregional trade has also offered higher opportunities to the countries to trade more

agricultural products. While intraregional trade increased by 5% in the period 2000–2010, intraregional trade in agriculture increased by 13%. The least developed countries (LDCs) in the region have benefited more from intraregional trade than their global trade. For Afghanistan, Bhutan, and Nepal, intraregional exports were more than 50% of their total exports in 2010, with Bhutan exporting more than 80% to the region. Bhutan and Nepal import more than 50% of their total imports from the region.

The study estimates the potential intraregional trade in agriculture to be much higher than the actual intraregional trade. Estimating a dynamic gravity model, it is found that intraregional trade has the potential to increase the existing trade thrice over. The potential of intraregional trade in food processing industries (FPI) is 1.5 times the existing trade. The maximum potential for trade in food processing industries is found between India and Pakistan, which can increase from around \$200 million per annum to around \$600 million. Except for the Maldives, most of the countries have yet to reach their bilateral potentials.

The study has estimated the contribution to trade index (CTB) and position in international markets (POS) index to identify a list of agricultural products for each country, where the country has a comparative advantage and can export to the region and the region has a demand for the product. Using this, the study further identifies three lists for each country of the region which can be used by the country for linking and forming potential regional supply chains in the food processing industry. These are:

1. Potential outputs of FPI for exports to the region where the country has comparative advantage and regional demand exists
2. Potential imports of inputs of FPI from the region where the region has supply capacity and the country can import at a lower cost from the region

3. Investment potential in the country for outputs and inputs of FPI

In the first list, India is found to have maximum export potential in the outputs of FPI (220 products) followed by Pakistan (109 products) and Sri Lanka (80 products). The LDCs of the region can also effectively participate in the potential supply chain as 97 products have been identified for them for which they have the supply capacity to export to the region. In the second list, 221 products have been identified for which the global imports are worth \$159 million, while the region exports \$9.2 billion. This indicates that the region has the competitive advantage in these inputs as it is supplying to the world. These need to be harnessed within the region for value addition to improve the gains to the exporting country. Pakistan can regionally import 58 inputs followed by Sri Lanka (51 inputs) and Bangladesh (28 inputs). Bhutan, Nepal, and Maldives can also source 68 inputs from within the region. The third list reports those products at the country level for which the country has the export potential but lacks the supply capacity to feed into the identified supply chains in FPI. 288 outputs and inputs of FPI have been identified which require investments. More than 50 products of FPI have been identified for potential investments in India, Pakistan, and Sri Lanka, while 40 products have been identified for Bangladesh and 32 for Nepal.

The study further reviews the agricultural trade policies of different countries in the region and finds high tariffs on agricultural products as well as long sensitive lists in agriculture trade. The implications of lowering tariffs on exports and imports of the countries are analyzed through computable general equilibrium analysis. Four case scenarios are considered:

1. India gives duty-free market access on agricultural products to all LDCs in the region

2. India gives duty-free market access to all South Asian countries on all agricultural products
3. South Asian countries fully liberalize agricultural trade amongst themselves
4. South Asian Free Trade Agreement (SAFTA) is fully implemented—all countries remove all tariffs for the region

The simulations show that the region has maximum gains in terms of welfare implications, from full SAFTA. However, this may be a futurist approach. If countries fully liberalize agriculture, the region gains more than if only India gives tariff liberalization to LDCs in agriculture or to all South Asian countries in agriculture. Gains to LDCs will be highest if India gives tariff concessions only to LDCs.

One important issue with respect to low intraregional trade and high tariffs in agriculture is the lost opportunity of securing food security for the region. A detailed examination of surpluses and deficits in the region for food reveals that South Asia has large surpluses of rice, sugar, and meat, and small surpluses of eggs and vegetables at the current level of consumption. The region shows a large deficit of vegetable oils and pulses. However, within the region there is large variation in terms of surpluses and deficits. Using the growth rates and future trends, it is clear that some export surplus of rice exists in Pakistan and India, while there is potential for export surplus in Bangladesh and Sri Lanka, but Afghanistan is in dire need of imports. With respect to wheat, it appears that there is inadequate export surplus of wheat in the region to meet the import requirements of Bangladesh and Sri Lanka. Afghanistan also needs stable import supply. Presently export surplus for sugar (refined) exists only in India, while large potential deficits are emerging in Pakistan. Maldives is totally dependent on imports. The analysis indicates that for pulses, a slight potential for exports exists only in Pakistan while all other countries in the region either expect

to face deficits or have the potential to attain self-sufficiency in pulses. In case of soybean oil, there is some exportable surplus in the region and potential for self-sufficiency or slight export surplus exists in India and Bangladesh, but major deficits may continue in Pakistan. These variations emphasize the need for intraregional trade in food in order to secure a stable supply of food in all the countries of the region.

The variability in per capita supply of various food items can also be taken as an indicator of existing demand as well as supply of food in the region. The overall inference from this analysis is that South Asia as a region faces a deficit of food in some countries, while other countries have a potential for surpluses in food. India and Pakistan together have the potential to provide food security to the region as they have potential for surpluses in most of the food items. However, there are many barriers to intraregional trade in food, lack of price and market integration being one of them.

The study estimates the extent of price and market integration in food using different methodologies. The results show that prices in the region are correlated only for few food items and between selective countries. Prices of rice, wheat, and maize are strongly correlated with each other in South Asian countries, while prices for other food items, like onions, potatoes, milk, eggs, etc., are not correlated. The integration is selective and generally missing in the case of chickpeas and groundnuts. The results also show that many commodity markets within each country are not adequately integrated. In particular, the integration of domestic wheat and rice markets are of concern. Domestic market integration is a necessary precondition for border reforms. Across countries, retail rice markets are better integrated as compared to wheat and wheat flour markets.

An important conclusion which emerges from the above two analyses is that the markets in food are more integrated in terms of comovement of prices across countries but may not be sufficiently

cointegrated within the domestic boundaries. This is plausible because of the existing spatial constraints in the region. India is a large economy that shares borders with five out of the seven countries in the region and has a free trade agreement with Sri Lanka. This may be an explanation for why producer prices of rice show strong correlation between India and other neighboring countries, but within India, none of the four sugar retail markets is not found to be integrated. To improve intraregional trade in a development-oriented manner would require integration of domestic markets in food so that the gains are favorably distributed across the country. Special attention needs to be paid to tariff and nontariff barriers across countries.

An analysis of nontariff barriers (NTBs) and nontariff measures (NTMs) in intraregional trade in South Asia shows that these exist to a significant extent. In terms of agriculture, the overall trade restrictiveness index is highest for Bangladesh, closely followed by India while it is comparatively low for Sri Lanka. The study identifies some of the existing NTMs in intraregional trade in agriculture. TRQ usage in agriculture is highest for India, while export tariffs are found to be highest in Pakistan. These are the two countries which have the potential for providing food security to the region. Lack of good trade logistics also hinders intraregional trade and raises significant barriers. Although South Asian countries, especially India and Pakistan, are found to be better placed in terms of connectivity than many other developing countries like Thailand and Indonesia, in terms of the number of days taken for exports or imports and the number of documents required to trade, they rank low.

9.2 Way Forward in Regional Integration

For successful advances in terms of regional integration, efforts are required both at the country level as well as at the regional level. These involve short-term actions for increasing the momentum of intraregional

trade and investments, as well as long-term planning which would address domestic constraints and improve the capacity of the country to productively integrate with the region. Some policy recommendations suggested at the regional as well as at the country level for furthering regional integration through trade and investments in agriculture follow:

Identifying the Potential to Integrate Productively in the Region.

In order to integrate gainfully, countries need to be able to identify their potential and weaknesses in agricultural products with respect to the region. There needs to be a clear policy direction on developing the strengths of the country and promoting regional trade in those products. In agriculture, the focus needs to be both on food items as well as on FPIs, as the latter provides an opportunity to industrialize and diversify regional export baskets. In terms of food items, the surpluses and deficits of each country as well as of the region need to be identified and regional arrangements like SAFTA need to be explored to match these in order to attain food security in the region. In terms of agricultural products, potential regional supply chains that can be formed need to be identified and promoted. There exists growing demand (global imports) as well as supply (global exports) for processed food and beverages in the region. This should be channeled in a way that regional demand is catered to by the other countries of the region through intraregional trade and investments. Regional cooperation in South Asia may be boosted by providing special incentives for agricultural products through policy initiatives agreed upon by all the countries in the region. Agriculture can be the missing thread for integrating the countries gainfully in the region as no country has a surplus in all food items. Efforts to provide food security for the region and form regional supply chains in FPIs are bound to lead to a win-win situation for all countries.

Coordination in Pricing Policies. Alleviation of poverty and attaining food security are important policy objectives of all the countries in

the region. The paths followed in achieving these objectives are also broadly similar across countries, making it possible to identify areas of possible collaboration. Geographical proximity can also be a facilitating factor in such coordination. The results of the study show that domestic market integration is low in most countries, particularly in rice and wheat markets. There is a need to liberalize the domestic trade policy framework and improve transport infrastructure to ensure better integration of domestic markets in each country, which is a prerequisite for external (border) liberalization. Also, major countries like India, whose trade engagement with other South Asian neighbors is low, need to engage in more agricultural trade within the region. The borders shared by India, Bangladesh, and Nepal are porous and therefore any effort to isolate the agricultural economies of these countries will only lead to distortions. These countries cannot pursue input or output price policies while disregarding their implications across borders. A mechanism for regular consultation on price policies may need to be devised.

Establishing a Common Buffer Stock. Research has shown that stocks have a crucial bearing on prices in the short run. Efforts were made to evolve a regional reserve in South Asia for the two staple cereals to withstand sharp spikes in world prices. In pursuance of the decision taken in the 14th SAARC Summit held in New Delhi in 2007, SAARC countries have established a SAARC Food Bank. The Food Bank will supplement national efforts to provide food security to the people of the region. As per this agreement, the SAARC Food Bank shall have a reserve of food grains to be maintained by each member state, consisting of either wheat or rice, or a combination of both as assessed by the share of the country. Initially the food bank held 243 thousand tons of stocks. India has been making the highest contribution to the food bank with 153.2 thousand tons (62% of the total reserve) whereas Pakistan and Bangladesh contribute 40 thousand tons each (17%). Nepal and Sri

Lanka contribute 4 thousand tons each (2%), followed by Afghanistan with 1,420 tons (0.6%), Bhutan and the Maldives with 180 tons each (less than 0.1%). Keeping in view the rising population and threat of natural disasters, SAARC countries have agreed to double the food reserve in the food bank. The third meeting of the SAARC Food Board decided to increase the stock to 486 thousand tons across the SAARC region. India's contribution to the reserves has correspondingly been doubled.

However, it needs to be noted here that despite several attempts in different parts of the world to institute regional food security programs, only a few have been successful. The ASEAN Emergency Food Reserves arrangement is relatively successful but this success can be ascribed to two important conditions: increasing political cohesion and economic coordination among the member countries; and much greater complementarity in the food economy of ASEAN. There is a major food surplus country (Thailand) and a major food importing country (Malaysia). These conditions provide a strong ground for regional cooperation. In South Asia both these conditions are more or less absent. In the absence of any country with adequate food surpluses in the region, such an arrangement may be difficult to sustain. A second problem is the paucity of resources for grains procurement and storage. Notwithstanding these obstacles, attempts need to be made to develop regional reserves. There is increasing evidence that speculative attacks were also partly responsible for the food crisis witnessed in 2008. To avert such attacks, South Asia may also evolve a mechanism of information sharing on market situations and a small fund to serve as virtual reserves to avert such attacks.¹

¹ Joachim von Braun and Maximo Torero. 2008. Physical and Virtual Global Food Reserves to Protect the Poor and Prevent Market Failure. *IFPRI Policy Brief* 4. June. Washington, DC: International Food Policy Research Institute.

Collaborative Agricultural Research. The results of the study show that the region does not possess adequate surpluses, particularly in wheat, edible oils, and pulses. The production and productivity trends in the medium term (2001–2011) are not encouraging vis-à-vis consumption. Therefore, it is extremely important for these countries to rapidly increase domestic production. As the scope for increasing land area under cultivation is limited, production increases have to come through improvements in yield. The countries' research systems need to collaborate to develop appropriate technology for the region. The National Agricultural Research Systems (NARS) in some countries, such as India, Pakistan, and Sri Lanka are fairly well developed. The cropping patterns in these countries are dominated by rice and wheat for which generic research would be useful. The contiguous regions on two sides of the India–Pakistan and India–Bangladesh borders have similar agro–climatic–ecological conditions and collaborative efforts on crops and practices appropriate for these regions can benefit all the countries. Also, some of the countries in the region, such as India, have made significant advances in biotechnology, tissue culture, plant genetics, etc. Other countries in the region can benefit from these advances. Cooperation and coordination in agricultural research can go a long way in achieving food security for the region.

Collaboration in Improving Health Status. As our foregoing analysis has shown, the health and food consumption indicators in the South Asian region are way below the world average and are only marginally better than the sub-Saharan Africa region. There is an urgent need to improve these outcomes. Even within the region, there is heterogeneity with countries like Sri Lanka, Bangladesh, and Maldives showing much faster improvement than other large countries like India and Pakistan. A collaborative effort is needed to improve the health status which, along with its intrinsic importance, is also important for better absorption of the food consumed. India and Pakistan may benefit by

exploring the possibility of replicating some of the successful practices followed in countries like Sri Lanka and Bangladesh. Further, learning from each other may provide innovative solutions to address these issues. At present, there is no joint regional effort or initiative that addresses the low nutrition and health status of the people of the region. Such initiatives need to be designed.

Early Warning Systems. South Asia is a disaster-prone region. Large parts of the region are subject to floods and droughts. Deforestation, leading to soil and water erosion, has further aggravated the impact of natural disasters. An early warning system, developed and managed through regional cooperation, can go a long way in coping with the disasters.

River Water Utilization. Efficient and sustainable use of natural resources is of paramount importance in this resource-poor region. Proper and judicious use of river waters is the most important in this context. Major rivers in the region flow across national borders. The countries in the region, whether located at the head reaches or sea-mouths of the river, should be able to make the best use of these waters, which is possible only if the countries can work collaboratively on this important issue. There are some encouraging examples, such as, the Indo-Pak treaty on the Sindh river system and agreement on use of Ganga waters at Farraka, which can be emulated. There should be regular consultations and exchanges of information among the water regulatory bodies of different countries.

Accelerating Customs and Logistics Procedures. One of the major constraints to intraregional trade in South Asia is poor trade infrastructure. The role played by trade facilitation measures in generating momentum to intraregional trade in South Asia is critical but it assumes even greater significance when it comes to agricultural trade, given the perishable nature of many agricultural commodities. Many studies have highlighted the gains of accelerating customs and logistics

procedures. Reduced transit time leads eventually to lower production costs. Lowering transit time is also important for making countries and regions more attractive for forming supply chains. Djankov et al. (2010) found that an extra day of transit time reduced trade volumes by 1%. Highlighting the role of trade facilitation measures in improving the intra-SAARC trade in agriculture, Weerahewa (2009) observed that reducing the trade costs and time delays in South Asian countries up to the average values of the best performer in South Asia can increase the value of agricultural trade by 18% and 27% respectively. According to Ahmed and Ghani (2007), the category of trade facilitation that will produce the greatest gains is service-sector infrastructure, followed by efficiency in air and maritime ports. The region requires upgrading ports and information technology infrastructure and continued reforms in customs clearance procedures and regulatory harmonization. India, representing 80% of the total GDP in South Asia, can act as a catalyst along with partners in the region to advance a trade facilitation agenda.

Improvement in Physical and Telecommunication Infrastructure.

Adequate road or rail infrastructure is imperative for reducing transportation time, direct cost and maintaining quality in production. Ports and cargo-handling facilities are also an important part of that infrastructure (Brooks, 2008). Cheap and reliable communication networks are a necessary part of ensuring that the correct goods are shipped at the correct time between production nodes in a supply chain. Therefore, reducing the transaction costs of trade also means improving the means of communication within and across national borders. This is also an area where the presence of large externalities suggests significant rewards to regional cooperation (Brooks, 2008). India can play a catalyst role in the region with respect to building telecommunication infrastructure.

Accelerating and Deepening Regional Trading Arrangements. A large number of sensitive products (negative list) and the presence of nontariff

barriers prevent SAFTA from having greater impact on agricultural trade integration in South Asia. Harmonization of regulations and procedures, along with lower tariffs and addressing nontariff trade barriers are some of the outcomes of regional trading arrangements that are a critical part of reducing transit cost and time across borders. Identifying areas for Mutual Recognition Agreements (MRAs), especially to address issues related to technical barriers to trade (TBT) and Sanitary and Phytosanitary (SPS) aspects in agriculture trade, along with targeted policies to promote regional trade in agriculture, are important. Though there exists a system for reporting existing NTBs in the region under SAFTA, there is a lack of adequate NTB monitoring mechanism within the region. A dedicated executive body could be set up to oversee reductions in reported barriers and a robust dispute settlement mechanism can be put in place to enforce decisions within SAFTA.

Intraregional Investments and Technology Sharing in Agriculture.

Given its size and diversity, the agriculture sector in the region has the potential to become one of the strengths of South Asia. The food processing industry provides an opportunity to all countries in the region to contribute productively and gainfully in terms of higher output and trade in agriculture. The sector has high employment multipliers and requires relatively low skills. It can therefore address the problems related to unemployment effectively. Intraregional investments and sharing of technology within the region can help in fostering regional and global supply chains. Attention of policymakers on developing this industry within their country as well as at the regional level is required.

Resource Mobilization. The development and expansion of regional supply chains requires the development and/or expansion of new firms and the capital investments. Sources of invested capital can either be internal or external. For LDCs the main source of external investment capital is foreign direct investments (FDI). It is important

that countries define (and emphasize) their comparative advantage and provide the necessary information to potential investors with regard to those advantages. With respect to regional supply chains, much of the production expansion is likely to come from the expansion of firms within the region (from more advanced economies in the region to LDCs). Therefore, particular attention needs to be paid to the environment for flow of regional FDI. In that regard, regional investment agreements need to be explored. Further, another source of finance which is yet to be tried, but is potentially feasible for supply chains, is intrafirm trade credit. Larger or better financed firms may be able to provide trade credit to less financed firms within their network if given the right incentives such as tax concessions, insurance or limited guarantees.² This may have the added benefit of making production within supply chains more attractive to nascent firms. The use of development banks can be leveraged for developing regional supply chains, especially in the agriculture sector.

Common Goals for Industrial Policies in the Region. Regional arrangements in other parts of the world are now moving toward common regional industrial policy, e.g., West African Common Industrial Policy (WACIP). This may at present be farfetched for South Asia. However, the region can decide on pursuing some common goals in their respective industrial policies. Those industries can be identified where potential for forming regional supply chains exist. In industries like agro-processing, textiles and clothing, and leather, common goals for the region can be set and policies and incentives to promote regional integration through trade and investments designed. Special regional initiatives can be taken to integrate LDCs by promoting industrialization in these countries and building their capacities to move up the value chains. This will help in deepening regional trade

² Interfirm financing through trade credit was a very important tool in the early industrialization of Japan.

agreements as well, since efforts to promote regional industry will lead to lowering of barriers to regional trade and investments in these industries.

Regional Industry Associations. Regional industry associations can be set up in identified industries which have the potential for forming regional supply chains. These associations can play an important role in promoting intraregional investments, information sharing and technology sharing within the region. Another important role that these associations can play is to raise the concerns and promote the interests of the industry identified in the national and international forums. These associations can also play an important role in the harmonization of technical standards for the industry for smooth movement of intermediate products as well as final products within the region.

Political Economy of the Region. Some of the important constraints to forming production supply chains in the region may not be visible but pertain importantly to the existing political economy of the region. It is important to identify what factors lead to policy decision making and what role different players play in the process. Awareness of the existing political economy can help in reducing these constraints. Initiatives that bring the civil societies, media, private sector and, most importantly, the people of the region together need to be undertaken to promote good will and reduce the trust deficit in the region.

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ANNEXES

**Annex I: Identified Export Potential for South Asian Countries: The
country is most competitive in the region
(Based on average exports in 2008–2010)**

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
Bangladesh					
1	50290	Pigs', hogs' or boars' bristles and hair; badger hair and other brush making hair; waste of such bristles or hair.	105	952	0
2	71333	Dried leguminous vegetables, shelled, whether or not skinned or split.	548	73,082	0
3	81050	Other fruit, fresh.	24	3,167	0
4	410221	Raw skins of sheep or lambs (fresh, or salted, dried, limed, pickled or otherwise preserved, but not tanned, parchment-dressed or further prepared), whether or not with wool on or split, other than those excluded by Note 1 (c) to this Chapter.	58	25,939	10.7
India					
5	10190	Live horses, asses, mules and hinnies.	75	211	69
6	10592	Live poultry, that is to say, fowls of the species Gallus domesticus, ducks, geese, turkeys and guinea fowl.	15	182	11

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
7	20311	Meat of swine, fresh, chilled or frozen.	181	2,334	3
8	20430	Meat of sheep or goats, fresh, chilled or frozen.	111	241	6
9	20622	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen.	74	95	13
10	20714	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	128	3,920	20
11	20736	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	233	833	15
12	40210	Milk and cream, concentrated or containing added sugar or other sweetening matter.	96,394	106,918	29
13	40221	Milk and cream, concentrated or containing added sugar or other sweetening matter.	2,681	263,490	9
14	40229	Milk and cream, concentrated or containing added sugar or other sweetening matter.	11,844	24,909	18
15	40291	Milk and cream, concentrated or	81	3,577	28

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
16	40410	containing added sugar or other sweetening matter. Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.	4,961	14,859	2
17	40490	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.	1,332	2,479	3
18	40520	Butter and other fats and oils derived from milk; dairy spreads.	24	42	37
19	40610	Cheese and curd.	2,115	4,426	9
20	40630	Cheese and curd.	4,100	5,701	2
21	40690	Cheese and curd.	1,894	4,789	11

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
22	50590	Skins and other parts of birds, with their feathers or down, feathers and parts of feathers (whether or not with trimmed edges) and down, not further worked than cleaned, disinfected or treated for preservation; powder and waste of feathers or parts of feathers.	21	960	5
23	110520	Flour, meal, powder, flakes, granules and pellets of potatoes.	680	1,747	2
24	120100	Soya beans, whether or not broken.	10,710	59,979	10
25	120999	Seeds, fruit and spores, of a kind used for sowing.	8,468	12,130	27
26	150200	Fats of bovine animals, sheep or goats, other than those of heading 15.03.	41	53,642	0
27	151529	Other fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined, but not chemically modified.	47	1,227	39
28	160220	Other prepared or preserved meat, meat offal or blood.	34	38	0

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
29	160250	Other prepared or preserved meat, meat offal or blood.	140	604	1
30	160290	Other prepared or preserved meat, meat offal or blood.	22	119	0
31	170290	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	939	4,553	6
32	180610	Chocolate and other food preparations containing cocoa.	522	2,834	34
33	180631	Chocolate and other food preparations containing cocoa.	22	3,848	61
34	190110	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis,	17,082	47,206	41

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
		not elsewhere specified or included; food preparations.			
35	190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations.	33,902	50,225	30
36	190300	Tapioca and substitutes thereof prepared from starch, in the form of flakes, grains, pearls, siftings or in similar forms.	1,748	3,214	1
37	200892	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	189	1,186	13
38	210500	Ice cream and other edible ice, whether or not containing cocoa.	506	2,609	45

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
39	230110	Flours, meals and pellets, of meat or meat offal, of fish or ceans, mollusks or other aquatic invertebrates, unfit for human consumption; greaves.	267	19,632	11
40	240220	Cigars, cheroots, cigarillos and cigarettes, of tobacco or of tobacco substitutes.	45,200	65,227	4
41	440410	Hoopwood; split poles; piles, pickets and stakes of wood, pointed but not sawn lengthwise; wooden sticks, roughly trimmed but not turned, bent or otherwise worked, suitable for the manufacture of walking-sticks, umbrellas, tool handles or the like.	35	1,345	1
42	520100	Cotton, not carded or combed.	1,422,743	1,471,358	28
Nepal					
43	60110	Bulbs, tubers, tuberous roots, corms, crowns and rhizomes, dormant, in growth or in flower; chicory plants and roots other than roots of heading 12.12.	109	1,428	0

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
44	71331	Dried leguminous vegetables, shelled, whether or not skinned or split.	125	373,129	8
45	71332	Dried leguminous vegetables, shelled, whether or not skinned or split.	18	1,019	0
46	71340	Dried leguminous vegetables, shelled, whether or not skinned or split.	35,259	334,905	55
47	151411	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	23	11,930	0
48	430130	Raw furskins (including heads, tails, paws and other pieces or cuttings, suitable for furriers' use), other than raw hides and skins of heading 41.01, 41.02 or 41.03.	34	1,139	60
Pakistan					
49	80940	Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.	106	1,421	6
50	110819	Starches; inulin.	1,169	3,992	2
51	121010	Hop cones, fresh or dried, whether or not ground, powdered or in the form of pellets; lupulin.	170	265	3

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
52	121110	Plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered.	121	180	7
53	170240	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	691	2,034	31
54	180100	Cocoa beans, whole or broken, raw or roasted.	24	22,059	8
55	200850	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	14	237	0

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
56	220710	Undenatured ethyl alcohol of an alcoholic strength by volume of 80 % vol or higher; ethyl alcohol and other spirits, denatured, of any strength.	17,582	22,595	13
57	510111	Wool, not carded or combed.	147	1,832	66
58	510211	Fine or coarse animal hair, not carded or combed.	97	6,305	52
59	510219	Fine or coarse animal hair, not carded or combed.	207	1,180	0
60	510220	Fine or coarse animal hair, not carded or combed.	105	161	7
Sri Lanka					
61	60220	Other live plants (including their roots), cuttings and slips; mushroom spawn.	42	1,107	12
62	120930	Seeds, fruit and spores, of a kind used for sowing.	212	2,859	0
63	130220	Vegetable saps and extracts; pectic substances, pectinates and pectates; agar-agar and other mucilages and thickeners, whether or not modified, derived from vegetable products.	518	3,376	0

S. No.	HS 6-Digit Line	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region Average Import from World (\$ '000)	Country's Exports to Region (%)
64	151311	Coconut (copra), palm kernel or babassu oil and fractions thereof, whether or not refined, but not chemically modified.	2,284	6,543	0
65	200820	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	748	3,541	0
66	220890	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol; spirits, liqueurs and other spirituous beverages.	118	21,417	7

Annex II: Identified Export Potentials for South Asian Countries (Two or more countries in the region have comparative advantage)

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
Afghanistan						
1	403	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavored or containing added fruit, nuts or cocoa.	113	1,774	3.52	1
2	802	Other nuts, fresh or dried, whether or not shelled or peeled.	6,156	119,729	65.57	1
3	909	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries.	9,451	59,015	54.08	2
4	1207	Other oil seeds and oleaginous fruits, whether or not broken.	7,101	8,978	0.00	1
5	1209	Seeds, fruit and spores, of a kind used for sowing.	393	2,851	48.45	1
6	2009	Fruit juices (including grape must) and vegetable juices, unfermented and not	480	764	0.00	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		containing added spirit, whether or not containing added sugar or other sweetening matter.				
Bangladesh						
7	202	Meat of bovine animals, frozen.	86	306	0.00	1
8	210	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal.	416	982	0.00	1
9	302	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	69	214	0.00	1
10	303	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	55	103	0.00	2
11	304	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	1,890	3,841	2.88	2
12	305	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	13,101	63,270	1.75	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
13	306	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	28	29	0.00	1
14	307	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	1,057	4,152	1.67	3
15	504	Guts, bladders and stomachs of animals (other than fish), whole and pieces thereof, fresh, chilled, frozen, salted, in brine, dried or smoked.	190	638	9.08	1
16	507	Ivory, tortoise-shell, whalebone and whalebone hair, horns, antlers, hooves, nails,	161	182	0.00	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		claws and beaks, unworked or simply prepared but not cut to shape; powder and waste of these products.				
17	701	Potatoes, fresh or chilled.	814	41,061	0.12	1
18	708	Leguminous vegetables, shelled or unshelled, fresh or chilled.	194	1,247	0.00	2
19	710	Vegetables (uncooked or cooked by steaming or boiling in water), frozen.	11	596	0.00	1
20	711	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	809	857	0.00	1
21	810	Other fruit, fresh.	2,981	6,384	0.17	1
22	811	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	43	366	0.00	1
23	902	Tea, whether or not flavored.	866	17,149	33.73	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
24	910	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices.	16	3,796	0.00	1
25	1207	Other oil seeds and oleaginous fruits, whether or not broken.	1,518	8,975	0.34	1
26	1404	Vegetable products not elsewhere specified or included.	428	24,317	63.29	1
27	1514	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	53	2,145	0.00	1
28	1703	Molasses resulting from the extraction or refining of sugar.	206	332	53.99	1
29	1904	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	1,953	11,111	0.06	3
30	1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether	4,343	20,092	10.51	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.				
31	2001	Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid.	214	977	24.28	1
32	2004	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading 20.06.	516	2,161	2.83	1
33	2008	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	413	3,777	11.54	2
34	2009	Fruit juices (including grape must) and vegetable juices, unfermented and not	2,804	31,318	27.07	6

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		containing added spirit, whether or not containing added sugar or other sweetening matter.				
35	2202	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavored, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 20.09.	1,400	11,202	71.12	1
36	2401	Unmanufactured tobacco; tobacco refuse.	32,460	73,647	4.89	2
37	2402	Cigars, cheroots, cigarillos and cigarettes, of tobacco or of tobacco substitutes.	67	826	0.00	1
38	2403	Other manufactured tobacco and manufactured tobacco substitutes; homogenized or reconstituted tobacco; tobacco extracts and essences.	643	2,089	2.43	1
39	4103	Other raw hides and skins (fresh, or salted, dried, limed, pickled or	229	12,441	7.43	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		otherwise preserved, but not tanned, parchment-dressed or further prepared), whether or not dehaired or split, other than those excluded by Note 1 (b) or 1 (c) to this Chapter.				
40	5001	Silk-worm cocoons suitable for reeling.	45	240	0.00	1
Bhutan						
41	709	Other vegetables, fresh or chilled.	32	533	0.00	1
42	1006	Rice.	173	1,482	0.00	1
43	2003	Mushrooms and truffles, prepared or preserved otherwise than by vinegar or acetic acid.	22	755	0.00	1
India						
44	102	Live bovine animals.	15	5,592	47.78	1
45	106	Other live animals.	30	200	0.63	1
46	201	Meat of bovine animals, fresh or chilled.	73	3,483	1.02	1
47	202	Meat of bovine animals, frozen.	233	368	25.65	1
48	203	Meat of swine, fresh, chilled or frozen.	603	1,501	2.62	1
49	207	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	1,043	2,953	43.42	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
50	210	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal.	257	986	3.37	1
51	301	Live fish.	82	543	46.26	1
52	302	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	223	427	1.35	2
53	303	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	2,155	4,204	4.86	2
54	305	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	7,888	63,360	56.10	1
55	401	Milk and cream, not concentrated nor containing added sugar or other sweetening matter.	455	1,201	29.77	2
56	402	Milk and cream, concentrated or containing added sugar or other sweetening matter.	929	2,789	52.31	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
57	403	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavored or containing added fruit, nuts or cocoa.	738	1,546	0.01	1
58	602	Other live plants (including their roots), cuttings and slips; mushroom spawn.	67	137	1.49	1
59	701	Potatoes, fresh or chilled.	1,654	13,054	63.49	1
60	703	Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled.	56	568	40.47	1
61	704	Cabbages, cauliflowers, kohlrabi, kale and similar edible brassicas, fresh or chilled.	347	2,307	27.93	2
62	705	Lettuce (<i>Lactuca sativa</i>) and chicory (<i>Cichorium</i> spp.), fresh or chilled.	742	2,354	10.18	2
63	706	Carrots, turnips, salad beetroot, salsify, celeriac, radishes and similar	98	1,126	18.40	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		edible roots, fresh or chilled.				
64	708	Leguminous vegetables, shelled or unshelled, fresh or chilled.	463	1,151	31.00	2
65	709	Other vegetables, fresh or chilled.	596	1,540	26.99	6
66	714	Manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar roots and tubers with high starch or inulin content, fresh, chilled, frozen or dried, whether or not sliced or in the form of pellets; sago pith.	128	136	17.08	1
67	801	Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled.	828	7,503	6.33	2
68	804	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.	758	2,655	53.90	1
69	810	Other fruit, fresh.	84	507	54.45	2
70	813	Fruit, dried, other than that of headings Nos. 08.01 to 08.06;	492	1,011	26.94	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		mixtures of nuts or dried fruits of this Chapter.				
71	901	Coffee, whether or not roasted or decaffeinated; coffee husks and skins; coffee substitutes containing coffee in any proportion.	11	153	1.52	1
72	908	Nutmeg, mace and cardamom.	16,339	17,314	22.06	1
73	1006	Rice.	10,856	17,610	18.12	2
74	1101	Wheat or meslin flour.	10,041	250,743	29.54	1
75	1105	Flour, meal, powder, flakes, granules and pellets of potatoes.	837	849	1.28	1
76	1206	Sunflower seeds, whether or not broken.	4,114	51,005	17.02	1
77	1209	Seeds, fruit and spores, of a kind used for sowing.	819	4,167	36.59	1
78	1211	Plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered.	22	62	7.61	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
79	1214	Swedes, mangolds, fodder roots, hay, lucerne (alfalfa), clover, sainfoin, forage kale, lupines, vetches and similar forage products, whether or not in the form of pellets.	101	185	1.11	1
80	1404	Vegetable products not elsewhere specified or included.	17,998	21,259	43.03	1
81	1514	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	57	578	68.31	1
82	1516	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	88	90	4.05	1
83	1522	Degras; residues resulting from the treatment of fatty substances or animal or vegetable waxes.	37	7,824	1.68	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
84	1602	Other prepared or preserved meat, meat offal or blood.	628	3,476	0.39	2
85	1604	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	1,521	36,030	1.20	3
86	1704	Sugar confectionery (including white chocolate), not containing cocoa.	3,770	4,796	3.98	1
87	1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	879	1,023	17.54	1
88	2005	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading 20.06.	753	2,381	4.70	1
89	2007	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by	137	162	3.94	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		cooking, whether or not containing added sugar or other sweetening matter.				
90	2009	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	233	908	17.69	3
91	2103	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	320	1,057	37.40	1
92	2106	Food preparations not elsewhere specified or included.	57,075	57,255	7.04	1
93	2203	Beer made from malt.	9,620	10,186	11.51	1
94	2308	Vegetable materials and vegetable waste, vegetable residues and by-products, whether or not in the form of pellets, of a kind used in animal feeding, not elsewhere specified or included.	137	199	12.63	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
95	4103	Other raw hides and skins (fresh, or salted, dried, limed, pickled or otherwise preserved, but not tanned, parchment-dressed or further prepared), whether or not dehaired or split, other than those excluded by Note 1 (b) or 1 (c) to this Chapter.	5,353	11,230	0.02	1
96	4404	Hoopwood; split poles; piles, pickets and stakes of wood, pointed but not sawn lengthwise; wooden sticks, roughly trimmed but not turned, bent or otherwise worked, suitable for the manufacture of walking-sticks, umbrellas, tool handles or the like.	703	1,336	1.19	1
97	5001	Silk-worm cocoons suitable for reeling.	153	173	3.05	1
Maldives						
98	301	Live fish.	561	643	29.21	1
99	302	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	1,736	26,087	1.29	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
100	304	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	1,157	3,653	3.62	2
101	1504	Fats and oils and their fractions, of fish or marine mammals, whether or not refined, but not chemically modified.	29	1,180	0.00	1
Nepal						
102	202	Meat of bovine animals, frozen.	39	10,721	0.00	1
103	203	Meat of swine, fresh, chilled or frozen.	10	1,665	0.22	1
104	210	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal.	26	135	0.00	1
105	601	Bulbs, tubers, tuberous roots, corms, crowns and rhizomes, dormant, in growth or in flower; chicory plants and roots other than roots of heading 12.12.	33	2,154	0.00	1
106	602	Other live plants (including their roots), cuttings and slips; mushroom spawn.	137	5,770	21.98	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
107	603	Cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes, fresh, dried, dyed, bleached, impregnated or otherwise prepared.	120	1,319	0.00	1
108	712	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	58	159	0.00	1
109	901	Coffee, whether or not roasted or decaffeinated; coffee husks and skins; coffee substitutes containing coffee in any proportion.	721	48,471	39.33	1
110	902	Tea, whether or not flavored.	264	14,087	28.33	2
111	1101	Wheat or meslin flour.	846	251,531	0.47	1
112	1207	Other oil seeds and oleaginous fruits, whether or not broken.	37	27,187	0.00	1
113	1211	Plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried,	4,863	41,191	34.40	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		whether or not cut, crushed or powdered.				
114	1701	Cane or beet sugar and chemically pure sucrose, in solid form.	5,691	533,162	0.00	1
115	1902	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	623	1,920	39.03	1
116	1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	70	117	5.71	1
117	2402	Cigars, cheroots, cigarillos and cigarettes, of tobacco or of tobacco substitutes.	79	1,717	0.02	1
Pakistan						
118	104	Live sheep and goats.	62	6,828	0.00	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
119	201	Meat of bovine animals, fresh or chilled.	668	710	0.00	1
120	204	Meat of sheep or goats, fresh, chilled or frozen.	11	27	0.00	1
121	206	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen.	97	140	0.00	2
122	208	Other meat and edible meat offal, fresh, chilled or frozen.	44	285	48.69	1
123	301	Live fish.	318	543	6.49	1
124	302	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	9,918	32,555	0.55	4
125	303	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	1,954	3,700	2.87	3
126	304	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	265	2,747	0.00	1
127	305	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	4,112	64,728	16.96	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
128	306	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	595	1,610	0.00	2
129	307	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	973	1,061	1.56	2
130	405	Butter and other fats and oils derived from milk; dairy spreads.	383	17,251	5.19	1
131	409	Natural honey.	3,306	3,587	0.15	1
132	511	Animal products not elsewhere specified or included; dead animals of Chapter 1 or 3, unfit for human consumption.	572	3,821	1.11	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
133	601	Bulbs, tubers, tuberous roots, corms, crowns and rhizomes, dormant, in growth or in flower; chicory plants and roots other than roots of heading 12.12.	44	2,153	61.01	1
134	602	Other live plants (including their roots), cuttings and slips; mushroom spawn.	73	450	17.62	2
135	603	Cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes, fresh, dried, dyed, bleached, impregnated or otherwise prepared.	366	541	2.69	1
136	604	Foliage, branches and other parts of plants, without flowers or flower buds, and grasses, mosses and lichens, being goods of a kind suitable for bouquets or for ornamental purposes, fresh, dried, dyed, bleached, impregnated or otherwise prepared.	47	143	5.50	1
137	704	Cabbages, cauliflowers, kohlrabi, kale and	249	2,555	42.17	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		similar edible brassicas, fresh or chilled.				
138	706	Carrots, turnips, salad beetroot, salsify, celeriac, radishes and similar edible roots, fresh or chilled.	131	1,090	4.03	1
139	709	Other vegetables, fresh or chilled.	211	661	0.00	2
140	711	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	36	841	0.00	1
141	712	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	751	4,406	3.97	3
142	802	Other nuts, fresh or dried, whether or not shelled or peeled.	27	58	0.00	1
143	804	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.	161	33,813	4.45	1
144	805	Citrus fruit, fresh or dried.	142	24,609	8.12	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
145	810	Other fruit, fresh.	2,970	7,587	15.91	3
146	811	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	87	441	0.00	2
147	813	Fruit, dried, other than that of headings Nos. 08.01 to 08.06; mixtures of nuts or dried fruits of this Chapter.	932	7,306	9.03	1
148	814	Peel of citrus fruit or melons (including watermelons), fresh, frozen, dried or provisionally preserved in brine, in sulfur water or in other preservative solutions.	15	67	0.00	1
149	902	Tea, whether or not flavored.	1,246	22,893	12.92	2
150	910	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices.	146	147	1.18	1
151	1005	Maize (corn).	16,962	70,237	2.38	1
152	1106	Flour, meal and powder of the dried leguminous vegetables of heading	47	92	0.00	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		07.13, of sago or of roots or tubers of heading 07.14 or of the products of Chapter 8.				
153	1107	Malt, whether or not roasted.	18	5,801	0.00	1
154	1108	Starches; inulin.	4,107	5,968	21.36	1
155	1207	Other oil seeds and oleaginous fruits, whether or not broken.	2,050	49,937	22.77	2
156	1211	Plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered.	7,305	36,918	46.07	1
157	1401	Vegetable materials of a kind used primarily for plaiting (for example, bamboos, rattans, reeds, rushes, osier, raffia, cleaned, bleached or dyed cereal straw, and lime bark).	60	852	69.12	1
158	1404	Vegetable products not elsewhere specified or included.	1,360	1,751	0.01	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
159	1514	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	21	576	52.39	1
160	1515	Other fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined, but not chemically modified.	1,802	14,045	16.62	3
161	1604	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	3,494	34,716	0.21	2
162	1702	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	7,994	9,608	10.31	1
163	1902	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni,	5,248	14,075	18.05	3

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.				
164	1904	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	333	554	0.00	1
165	1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	7,947	10,755	65.20	1
166	2005	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading 20.06.	15	62	40.63	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
167	2007	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	1,984	3,795	17.48	2
168	2008	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	334	3,842	20.67	1
169	2009	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	5,897	10,263	66.98	1
170	2104	Soups and broths and preparations thereof; homogenized composite food preparations.	91	702	9.91	1
171	2301	Flours, meals and pellets, of meat or meat	1,940	19,192	11.03	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		offal, of fish or oceans, mollusks or other aquatic invertebrates, unfit for human consumption; greaves.				
172	2302	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	262	10,034	12.16	3
173	2303	Residues of starch manufacture and similar residues, beet-pulp, bagasse and other waste of sugar manufacture, brewing or distilling dregs and waste, whether or not in the form of pellets.	60	176	0.00	1
174	2306	Oil-cake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of vegetable fats or oils, other than those of heading 23.04 or 23.05.	980	33,239	0.00	2
175	2401	Unmanufactured tobacco; tobacco refuse.	2,992	44,672	0.23	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
176	2403	Other manufactured tobacco and manufactured tobacco substitutes; homogenized or reconstituted tobacco; tobacco extracts and essences.	322	2,967	2.44	1
Sri Lanka						
177	207	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	192	2,782	3.01	1
178	208	Other meat and edible meat offal, fresh, chilled or frozen.	27	284	0.14	1
179	302	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	1,300	32,331	1.82	3
180	303	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	1,063	1,283	0.04	1
181	305	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	209	271	0.33	3

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
182	306	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	1,029	1,626	58.36	2
183	307	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	1,142	4,143	23.12	3
184	402	Milk and cream, concentrated or containing added sugar or other sweetening matter.	731	3,144	57.05	1
185	506	Bones and horn-cores, unworked, defatted, simply prepared (but not cut to shape), treated with acid or	23	167	8.12	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		degelatinized; powder and waste of these products.				
186	511	Animal products not elsewhere specified or included; dead animals of Chapter 1 or 3, unfit for human consumption.	95	3,075	10.07	1
187	602	Other live plants (including their roots), cuttings and slips; mushroom spawn.	4,336	5,378	5.16	1
188	603	Cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes, fresh, dried, dyed, bleached, impregnated or otherwise prepared.	696	1,903	5.23	2
189	702	Tomatoes, fresh or chilled.	14	27,298	37.39	1
190	711	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	218	773	0.16	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
191	801	Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled.	1,170	3,908	7.44	1
192	803	Bananas, including plantains, fresh or dried.	794	3,088	0.64	1
193	804	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.	1,024	46,693	16.37	2
194	805	Citrus fruit, fresh or dried.	1,101	1,887	1.86	1
195	810	Other fruit, fresh.	1,481	8,861	67.25	2
196	811	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	42	339	2.67	1
197	812	Fruit and nuts, provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	57	70	0.19	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
198	901	Coffee, whether or not roasted or decaffeinated; coffee husks and skins; coffee substitutes containing coffee in any proportion.	118	48,516	14.41	1
199	904	Pepper of the genus Piper; dried or crushed or ground fruits of the genus Capsicum or of the genus Pimenta.	23,085	55,539	73.82	1
200	908	Nutmeg, mace and cardamom.	213	31,109	2.46	1
201	910	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices.	674	1,332	2.99	2
202	1006	Rice.	984	17,554	13.77	2
203	1008	Buckwheat, millet and canary seed; other cereals.	18	2,073	0.20	1
204	1101	Wheat or meslin flour.	48,639	250,484	1.13	1
205	1102	Cereal flours other than of wheat or meslin.	605	4,213	0.85	2
206	1105	Flour, meal, powder, flakes, granules and pellets of potatoes.	53	884	7.18	1
207	1106	Flour, meal and powder of the dried leguminous vegetables of heading 07.13, of sago or of	606	1,046	5.35	2

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		roots or tubers of heading 07.14 or of the products of Chapter 8.				
208	1207	Other oil seeds and oleaginous fruits, whether or not broken.	860	8,932	0.03	1
209	1209	Seeds, fruit and spores, of a kind used for sowing.	24	4,369	0.39	1
210	1212	Locust beans, seaweeds and other algae, sugar beet and sugar cane, fresh, chilled, frozen or dried, whether or not ground; fruit stones and kernels and other vegetable products (including unroasted chicory roots of the variety <i>Cichorium intybus sativum</i>)	37	788	0.25	1
211	1213	Cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form of pellets.	74	1,214	13.07	1
212	1404	Vegetable products not elsewhere specified or included.	13,145	18,519	48.78	1
213	1504	Fats and oils and their fractions, of fish or marine mammals,	500	1,025	0.00	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		whether or not refined, but not chemically modified.				
214	1601	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products.	2,046	3,101	50.99	1
215	1604	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	21	85	3.28	1
216	1605	Crustaceans, mollusks and other aquatic invertebrates, prepared or preserved.	13	322	0.41	1
217	1902	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	640	14,085	6.52	4
218	1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers,	5,339	36,116	34.55	3

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
		empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.				
219	2006	Vegetables, fruit, nuts, fruit-peel and other parts of plants, preserved by sugar (drained, glacé or crystallized).	32	433	12.36	1
220	2007	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	717	4,364	26.18	3
221	2009	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	1,335	17,619	6.52	3
222	2104	Soups and broths and preparations thereof; homogenized composite food preparations.	15	713	0.00	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
223	2106	Food preparations not elsewhere specified or included.	21,488	81,213	9.73	2
224	2201	Waters, including natural or artificial mineral waters and aerated waters, not containing added sugar or other sweetening matter nor flavored; ice and snow.	98	160	36.16	1
225	2202	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavored, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 20.09.	991	44,283	1.05	1
226	2203	Beer made from malt.	1,482	11,892	38.45	1
227	2302	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	473	545	74.45	1
228	2306	Oil-cake and other solid residues, whether or not ground or in the	5,130	6,675	63.10	1

S. No.	HS 4-Digit Code	Description at 4-Digit	Country's Average Global Exports (\$ '000)	Region's Average Global Imports (\$ '000)	Region's Imports Share from Country (%)	No. of HS 6-Digit Lines
229	2401	form of pellets, resulting from the extraction of vegetable fats or oils, other than those of heading 23.04 or 23.05. Unmanufactured tobacco; tobacco refuse.	28,596	40,196	0.00	1

List I: Identified Outputs of Food Processing Industry for Potential Regional and Global Exports by South Asia

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
Bangladesh – Products Identified for Regional Exports					
1	Beer made from malt.	82	0.0	10,052	1
2	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	4,847	6.6	30,284	3
3	Cane or beet sugar and chemically pure sucrose, in solid form.	8,503	0.6	569,804	2
4	Extracts, essences and concentrates, of coffee, tea	71	0.0	3,692	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof.				
5	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	2,542	0.6	4,306	3
6	Flour, meal, powder, flakes, granules and pellets of potatoes.	658	0.0	1,258	1
7	Food preparations not elsewhere specified or included.	578	8.2	74,080	1
8	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	2,737	27.2	28,807	4
9	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	527	18.2	8,117	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
10	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods.	1,622	0.0	41,326	1
11	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal.	416	0.0	982	1
12	Meat of bovine animals, frozen.	86	0.0	306	1
13	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading 20.06.	516	2.8	2,161	1
14	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	161	3.1	10,811	1
15	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for	1,953	0.1	11,111	3

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).				
16	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	323	0.0	2,244	2
17	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	51	0.5	10,961	1
18	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	809	0.0	857	1
19	Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid.	214	24.3	977	1
20	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or	241	0.0	14,672	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	not containing added sugar or other sweetening matter, not elsewhere specified or included.				
Bangladesh – Products Identified for Global Exports					
21	Crustaceans, mollusks and other aquatic invertebrates, prepared or preserved.	15,135	0.0	295	
22	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	1,616	0.0	829	
23	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	38,820	1.7	5,895	
24	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	2,538	99.4	8,815	3
25	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	624	85.8	748	1
26	Molasses resulting from the extraction or refining of sugar.	1,032	90.6	4,126	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
27	Sugar confectionery (including white chocolate), not containing cocoa.	239	67.8	16,544	1
	Total	86,938	7.1	864,059	51
Bhutan – Products Identified for Regional Exports					
28	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	1,679	1.2	220	1
Bhutan – Products Identified for Global Exports					
29	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	9,889	100.0	103,882	1
30	Beer made from malt.	520	100.0	7,459	1
31	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	102	100.0	3,136	1
32	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	2,007	100.0	16,140	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
33	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	67	100.0	192	1
34	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this Chapter, other than edible fats or oils or their fractions of heading 15.16.	626	100.0	19,748	1
35	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol; spirits, liqueurs and other spirituous beverages.	380	100.0	51,536	2
36	Wheat or meslin flour.	566	99.4	250,473	1
	Total	15,834	89.5	452,787	11

India – Products Identified for Global Exports

37	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	35,659	3.5	28,129	2
38	Beer made from malt.	9,620	11.5	10,186	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
39	Birds' eggs, not in shell, and egg yolks, fresh, dried, cooked by steaming or by boiling in water, molded, frozen or otherwise preserved, whether or not containing added sugar or other sweetening matter.	36,446	2.6	1,023	4
40	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	30,584	11.8	5,391	3
41	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	116,929	13.2	27,610	6
42	Butter and other fats and oils derived from milk; dairy spreads.	36,461	2.3	6,457	2
43	Cane or beet sugar and chemically pure sucrose, in solid form.	735,294	28.0	651,326	2
44	Cereal flours other than of wheat or meslin.	10,916	0.9	4,005	2
45	Cereal grains otherwise worked (for example, hulled,	769	7.2	140	3

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	rolled, flaked, pearled, sliced or kibbled), except rice of heading 10.06; germ of cereals, whole, rolled, flaked or ground.				
46	Cereal groats, meal and pellets.	6,361	8.0	1,315	3
47	Cheese and curd.	8,109	5.9	14,917	3
48	Chocolate and other food preparations containing cocoa.	522	33.9	2,834	1
49	Cocoa butter, fat and oil.	3,200	0.3	2,056	1
50	Coconut (copra), palm kernel or babassu oil and fractions thereof, whether or not refined, but not chemically modified.	9,690	38.5	19,942	2
51	Coffee, whether or not roasted or decaffeinated; coffee husks and skins; coffee substitutes containing coffee in any proportion.	2,229	20.2	1,396	3
52	Crustaceans, mollusks and other aquatic invertebrates, prepared or preserved.	158,919	0.1	599	5
53	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried,	147	2.0	6	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	salted or in brine; flours, meals and pellets.				
54	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	49,214	14.1	2,087	5
55	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen.	5,208	2.1	200	5
56	Enzymes; prepared enzymes not elsewhere specified or included.	531	7.9	246	1
57	Extracts and juices of meat, fish or crustaceans, mollusks or other aquatic invertebrates.	4,647	5.2	176	1
58	Extracts, essences and concentrates, of coffee, tea or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof.	170,558	0.6	3,472	3
59	Fats and oils and their fractions, of fish or marine mammals, whether or not refined, but not chemically modified.	4,723	1.2	372	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
60	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	61,902	2.1	3,173	3
61	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	4,262	24.3	860	3
62	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	276,768	0.4	15,733	17
63	Flour, meal and powder of the dried leguminous vegetables of heading 07.13, of sago or of roots or tubers of heading 07.14 or of the products of Chapter 8.	10,836	2.3	627	3
64	Flour, meal, powder, flakes, granules and pellets of potatoes.	1,517	1.6	2,596	2
65	Flours and meals of oil seeds or oleaginous fruits, other than those of mustard.	10,576	17.2	887	2
66	Food preparations not elsewhere specified or included.	66,034	6.5	60,061	2
67	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit,	7,871	9.9	22,034	9

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	whether or not containing added sugar or other sweetening matter.				
68	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	22,865	9.2	8,039	4
69	Ground-nut oil and its fractions, whether or not refined, but not chemically modified.	16,469	0.1	191	2
70	Ice cream and other edible ice, whether or not containing cocoa.	506	44.9	2,609	1
71	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	50,888	1.8	3,103	3
72	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not	50,984	33.8	97,431	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	elsewhere specified or included; food preparations of goods.				
73	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this Chapter, other than edible fats or oils or their fractions of heading 15.16.	1,778	2.1	11,819	1
74	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal.	3,285	0.4	1,356	3
75	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	1,977	17.0	7,593	4
76	Meat of bovine animals, fresh or chilled.	10,163	6.9	4,508	3
77	Meat of bovine animals, frozen.	955,799	1.3	11,436	3
78	Meat of sheep or goats, fresh, chilled or frozen.	91,822	0.1	3,349	9
79	Meat of swine, fresh, chilled or frozen.	1,220	5.2	3,836	3
80	Milk and cream, concentrated or containing added sugar or other sweetening matter.	111,000	27.4	398,894	4
81	Molasses resulting from the extraction or refining of sugar.	30,048	0.6	95	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
82	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	804	0.0	33	1
83	Mushrooms and truffles, prepared or preserved otherwise than by vinegar or acetic acid.	11,093	0.0	698	2
84	Other fermented beverages (for example, cider, perry, mead); mixtures of fermented beverages and mixtures of fermented beverages and non-alcoholic beverages, not elsewhere specified or included.	1,488	3.0	141	1
85	Other fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined, but not chemically modified.	5,890	10.9	941	1
86	Other meat and edible meat offal, fresh, chilled or frozen.	380	0.0	287	1
87	Other oils and their fractions, obtained solely from olives, whether or not refined, but not chemically	509	2.8	128	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	modified, including blends of these oils or fractions with oils or fractions of heading 15.09.				
88	Other prepared or preserved meat, meat offal or blood.	769	0.5	4,080	3
89	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	19,721	13.3	15,925	3
90	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading 20.06.	7,965	0.9	1,487	1
91	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading 20.06.	20,847	0.4	2,966	4
92	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	8,305	15.7	8,472	5

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
93	Pig fat, free of lean meat, and poultry fat, not rendered or otherwise extracted, fresh, chilled, frozen, salted, in brine, dried or smoked.	343	0	0	1
94	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	22,554	9.5	7,340	3
95	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	49,148	0.2	36,563	5
96	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	2,252	25.2	186	2
97	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	9,995	2.2	7,771	3
98	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products.	317	0.0	1,724	1
99	Soups and broths and preparations thereof;	2,880	12.7	1,537	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	homogenized composite food preparations.				
100	Sugar confectionery (including white chocolate), not containing cocoa.	32,974	7.6	14,103	2
101	Sunflower-seed, safflower or cotton-seed oil and fractions thereof, whether or not refined, but not chemically modified.	92	24.2	13	1
102	Tapioca and substitutes therefor prepared from starch, in the form of flakes, grains, pearls, siftings or in similar forms.	1,748	1.2	3,214	1
103	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid.	193	28.2	3,174	1
104	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80 % vol; spirits, liqueurs and other spirituous beverages.	66,840	2.8	12,959	4
105	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	55,823	0.2	1,099	4
106	Vegetables, fruit, nuts and other edible parts of plants,	119,069	0.2	608	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	prepared or preserved by vinegar or acetic acid.				
107	Vegetables, fruit, nuts, fruit-peel and other parts of plants, preserved by sugar (drained, glacé or crystallized).	483	20.9	374	1
108	Wheat or meslin flour.	10,041	29.5	250,743	1
109	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.	6,293	2.1	17,338	2
110	Yeasts (active or inactive); other single-cell micro-organisms, dead (but not including vaccines of heading 30.02); prepared baking powders.	758	5.7	139	1
India – Products Identified for Global Exports					
111	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	2,212	73.2	1,575	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
112	Cane or beet sugar and chemically pure sucrose, in solid form.	87,118	61.3	46,225	2
113	Cereal flours other than of wheat or meslin.	1,910	67.7	507	1
114	Cereal grains otherwise worked (for example, hulled, rolled, flaked, pearled, sliced or kibbled), except rice of heading 10.06; germ of cereals, whole, rolled, flaked or ground.	67	50.6	40	1
115	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen.	383	52.0	199	1
116	Edible products of animal origin, not elsewhere specified or included.	53	50.2	25	1
117	Malt, whether or not roasted.	1,196	77.2	7,251	2
118	Milk and cream, concentrated or containing added sugar or other sweetening matter.	929	52.3	2,789	1
119	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	279	84.8	2,082	2
120	Undenatured ethyl alcohol of an alcoholic strength by	1,434	72.1	1,840	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	volume of less than 80% vol; spirits, liqueurs and other spirituous beverages.				
121	Wine of fresh grapes, including fortified wines; grape must other than that of heading 20.09.	78	64.6	33	1
Total		3,780,542	10.4	1,900,529	220
Maldives – Products Identified for Regional Exports					
	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	20,766	0.5	3,929	3
122	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	46,520	0.8	4,804	3
123	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	9,943	0.2	1,250	1
Total		77,229	0.7	9,983	7
Nepal – Products Identified for Regional Exports					
124	Beer made from malt.	99	33.3	12,225	1
125	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	70	5.7	117	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
126	Cane or beet sugar and chemically pure sucrose, in solid form.	5,691	0.0	533,162	1
127	Cereal groats, meal and pellets.	314	0.0	306	1
128	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	58	0.0	159	1
129	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this Chapter, other than edible fats or oils or their fractions of heading 15.16.	60	0.0	19,077	1
130	Meat of swine, fresh, chilled or frozen.	352	0.0	208	1
131	Mushrooms and truffles, prepared or preserved otherwise than by vinegar or acetic acid.	127	0.0	638	1
132	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	623	39.0	1,920	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
133	Sugar confectionery (including white chocolate), not containing cocoa.	226	5.5	15,119	1
134	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80 % vol; spirits, liqueurs and other spirituous beverages.	54	0.0	1,624	1
135	Wheat or meslin flour.	846	0.5	251,531	1
Nepal – Products Identified for Global Exports					
136	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	19,409	92.9	103,646	1
137	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	3,309	100.0	12,772	4
138	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	678	100.0	19,603	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
139	Butter and other fats and oils derived from milk; dairy spreads.	1,552	100.0	17,076	1
140	Cereal groats, meal and pellets.	242	97.2	329	1
141	Food preparations not elsewhere specified or included.	2,976	94.4	74,280	1
142	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	9,801	99.4	19,271	6
143	Molasses resulting from the extraction or refining of sugar.	716	100.0	3,775	1
144	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	55	100.0	11,318	1
145	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni,	7,871	91.6	15,474	3

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	gnocchi, ravioli, cannelloni; couscous, whether or not prepared.				
146	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	58	92.0	9,367	1
147	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid.	160	100.0	6,904	1
Total		55,346	81.0	1,129,902	35
Pakistan's Products Identified for Regional Exports					
150	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	3,492	11.5	11,427	3
151	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	4,559	18.1	15,491	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
152	Butter and other fats and oils derived from milk; dairy spreads.	500	8.5	22,235	2
153	Cereal flours other than of wheat or meslin.	2,223	4.7	382	2
154	Cereal grains otherwise worked (for example, hulled, rolled, flaked, pearled, sliced or kibbled), except rice of heading 10.06; germ of cereals, whole, rolled, flaked or ground.	4,862	0.0	608	2
155	Cereal groats, meal and pellets.	4,008	15.2	1,332	2
156	Crustaceans, mollusks and other aquatic invertebrates, prepared or preserved.	9,194	1.5	904	3
157	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	1,569	0.2	30	1
158	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	5,810	0.7	4,552	4
159	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules	70	0.0	96	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	or hinnies, fresh, chilled or frozen.				
160	Extracts, essences and concentrates, of coffee, tea or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof.	60	1.5	3,326	1
161	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	4,293	0.9	4,237	3
162	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	2,271	0.3	695	2
163	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	108,430	1.1	11,243	11
164	Flours and meals of oil seeds or oleaginous fruits, other than those of mustard.	3,226	0.6	122	1
165	Food preparations not elsewhere specified or included.	10,781	32.2	68,053	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
166	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	6,608	27.7	9,197	4
167	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	334	20.7	3,842	1
168	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	1,984	15.6	3,795	2
169	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods.	852	1.0	43,293	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
170	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal.	350	0.0	135	1
171	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	64	0.0	736	1
172	Meat of bovine animals, fresh or chilled.	32,166	1.8	4,500	3
173	Meat of bovine animals, frozen.	2,483	0.0	5,908	3
174	Meat of sheep or goats, fresh, chilled or frozen.	27,687	0.1	523	4
175	Molasses resulting from the extraction or refining of sugar.	60,330	0.1	3,794	1
176	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	8,967	11.9	14,715	3
177	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading 20.06.	133	8.9	1,019	1
178	Other vegetables prepared or preserved otherwise than	77	1.0	536	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	by vinegar or acetic acid, not frozen, other than products of heading 20.06.				
179	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	5,207	39.9	12,142	2
180	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	682	10.6	10,173	3
181	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	12,584	0.2	35,055	4
182	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	1,218	16.9	12,620	2
183	Soups and broths and preparations thereof; homogenized composite food preparations.	91	9.9	702	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
184	Sugar confectionery (including white chocolate), not containing cocoa.	35,809	37.6	20,887	2
185	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid.	230	13.2	5,660	1
186	Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid.	2,680	0.7	994	1

Pakistan – Products Identified for Global Exports

187	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	121,749	98.4	87,853	2
188	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	8,056	65.5	15,837	2
189	Cane or beet sugar and chemically pure sucrose, in solid form.	32,237	93.6	875,516	2
190	Cereal flours other than of wheat or meslin.	560	71.4	475	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
191	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	5,610	69.9	170	1
192	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	10,425	77.4	21,225	3
193	Ice cream and other edible ice, whether or not containing cocoa.	149	99.5	2,759	1
194	Jams, fruit, jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	183	52.5	132	1
195	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods.	1,194	98.5	18,968	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
196	Milk and cream, concentrated or containing added sugar or other sweetening matter.	8,687	88.4	366,117	4
197	Other fermented beverages (for example, cider, perry, mead); mixtures of fermented beverages and mixtures of fermented beverages and non-alcoholic beverages, not elsewhere specified or included.	1,753	97.5	128	1
198	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading 20.06.	902	86.3	2,247	1
199	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products.	128	99.5	3,001	1
200	Soups and broths and preparations thereof; homogenized composite food preparations.	94	76.5	1,514	1
201	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol; spirits, liqueurs and other spirituous beverages.	473	98.9	20,482	1
202	Vegetables, fruit, nuts, fruit-peel and other parts of	146	93.6	438	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	plants, preserved by sugar (drained, glacé or crystallized).				
203	Wheat or meslin flour.	34,934	94.7	245,265	1
	Total	593,162	40.4	1,997,086	109
Sri Lanka's Products Identified for Regional Exports					
204	Beer made from malt.	1,482	38.5	11,892	1
205	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	20,916	0.4	3,141	1
206	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	4,741	12.5	15,885	2
207	Cane or beet sugar and chemically pure sucrose, in solid form.	85	10.4	529,862	1
208	Cereal flours other than of wheat or meslin.	595	1.4	4,202	1
209	Coconut (copra), palm kernel or babassu oil and fractions thereof, whether or not refined, but not chemically modified.	2,284	0.3	6,543	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
210	Crustaceans, mollusks and other aquatic invertebrates, prepared or preserved.	616	0.0	164	1
211	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	67	1.0	3,294	1
212	Extracts, essences and concentrates, of coffee, tea or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof.	10,110	9.8	1,619	1
213	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	53,456	0.5	1,926	3
214	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	218	0.6	726	2
215	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	60,188	0.1	4,334	10

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
216	Flour, meal and powder of the dried leguminous vegetables of heading 07.13, of sago or of roots or tubers of heading 07.14 or of the products of Chapter 8.	630	3.1	1,052	2
217	Flour, meal, powder, flakes, granules and pellets of potatoes.	53	7.2	884	1
218	Food preparations not elsewhere specified or included.	21,488	11.3	81,213	2
219	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	1,335	9.8	17,619	3
220	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	23,942	3.7	10,487	3
221	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing	677	13.9	3,909	2

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	added sugar or other sweetening matter.				
222	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods.	1,925	5.0	66,671	2
223	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	192	3.0	2,782	1
224	Milk and cream, concentrated or containing added sugar or other sweetening matter.	1,205	5.0	197,012	3
225	Other fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined, but not chemically modified.	164	0.5	349	1
226	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	778	2.3	4,342	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
227	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	604	11.2	13,916	3
228	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	501	3.5	9,516	2
229	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	248	3.5	285	1
230	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	454	15.7	11,948	1
231	Sugar confectionery (including white chocolate), not containing cocoa.	688	36.6	15,496	1
232	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol;	118	7.0	21,417	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	spirits, liqueurs and other spirituous beverages.				
233	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	1,015	0.0	831	2
234	Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid.	7,749	0.5	996	2
235	Wheat or meslin flour.	48,639	1.1	250,484	1
Sri Lanka's Products Identified for Global Exports					
236	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	59,753	99.9	95,111	1
237	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	5,758	97.7	11,559	3
238	Bread, pastry, cakes, biscuits and other bakers' wares,	597	71.3	20,230	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Country's Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.				
239	Cane or beet sugar and chemically pure sucrose, in solid form.	51	79.8	43,224	1
240	Cocoa butter, fat and oil.	2,149	100.0	4,710	1
241	Coconut (copra), palm kernel or babassu oil and fractions thereof, whether or not refined, but not chemically modified.	1,088	92.5	26,071	1
242	Flours and meals of oil seeds or oleaginous fruits, other than those of mustard.	73	82.8	124	1
243	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	57	91.3	624	1
244	Ice cream and other edible ice, whether or not containing cocoa.	385	98.5	2,271	1
245	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or	13,577	77.1	13,015	1

S. No.	Description at 4-Digit	Country's Average Global Exports (\$ '000) (2007–2009)	Region's Share in Global Exports (%)	Region's Average Global Imports (\$ '000) 2007–2009	No. of HS 6-Digit Codes
	oils of this Chapter, other than edible fats or oils or their fractions of heading 15.16.				
246	Meat of bovine animals, frozen.	818	99.6	10,871	2
247	Milk and cream, concentrated or containing added sugar or other sweetening matter.	731	57.1	3,144	1
248	Other prepared or preserved meat, meat offal or blood.	355	97.5	880	3
249	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	373	73.2	2,947	1
250	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products.	2,046	51.0	3,101	1
	Total	354,974	25.4	1,532,684	80

**List II: Identified Inputs of Food Processing Industries for
Potential Imports from the Region**

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
Bangladesh – Inputs which can be imported by Bangladesh from the Region at a lower cost				
1	Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.	10.01	2,266	1
2	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavored or containing added fruit, nuts or cocoa.	46.05	934.3	1
3	Citrus fruit, fresh or dried.	1,825	50,480	1
4	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	1,481	798,039	1
5	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	17.48	311.7	1
6	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	11.94	5,289	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
7	Fruit, dried, other than that of headings Nos. 08.01 to 08.06; mixtures of nuts or dried fruits of this Chapter.	20.52	1,519	1
8	Live fish.	75.49	1,131	1
9	Milk and cream, not concentrated nor containing added sugar or other sweetening matter.	103.2	5,400	2
10	Nutmeg, mace and cardamoms.	8,388	33,861	1
11	Other nuts, fresh or dried, whether or not shelled or peeled.	74.2	14,217	1
12	Other oil seeds and oleaginous fruits, whether or not broken.	10,088	18,959	1
13	Husked (brown) rice	763.5	7,114	1
14	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries.	935.7	49,433	2
15	Tea, whether or not flavored.	27.85	1,069,738	1
	Total	23,868	2,058,692	17
<i>Inputs which can be imported by Bangladesh from the Region (not necessarily at a lower cost)</i>				
16	Carrots, turnips, salad beetroot, salsify, celeriac, radishes and similar edible roots, fresh or chilled.	34.02	267.8	1
17	Cloves (whole fruit, cloves and stems).	2,106	18,958	1
18	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	149.1	41,536	2

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
19	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices.	11.21	944.2	1
20	Natural honey.	277.2	25,638	1
21	Other fruit, fresh.	2.52	257.8	1
22	Other nuts, fresh or dried, whether or not shelled or peeled.	14,238	41,709	2
23	Pepper of the genus <i>Piper</i> ; dried or crushed or ground fruits of the genus <i>Capsicum</i> or of the genus <i>Pimenta</i> .	2.74	30,493	1
24	Rye.	526.6	540.9	1
	Total	17,347	160,345	11
Bhutan – Inputs which can be imported by Bhutan from the Region at a lower cost				
25	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	1.09	26,590	1
26	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.	0.68	43,303	1
27	Dried leguminous vegetables, shelled, whether or not skinned or split.	62.43	885.2	1
28	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	0.13	142.7	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
29	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	2.66	594.4	1
30	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	1.18	6,138	3
31	Fruit, dried, other than that of headings Nos. 08.01 to 08.06; mixtures of nuts or dried fruits of this Chapter.	0.47	8,481	1
32	Live poultry, that is to say, fowls of the species <i>Gallus domesticus</i> , ducks, geese, turkeys and guinea fowl.	3.27	132.4	1
33	Locust beans, seaweeds and other algae, sugar beet and sugar cane, fresh, chilled, frozen or dried, whether or not ground; fruit stones and kernels and other vegetable products (including unroasted chicory roots of the variety <i>Cichorium intybus sativum</i>)	0.22	1,081	1
34	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	1.15	1,786	3
35	Other fruit, fresh.	0.42	357.8	2
36	Other nuts, fresh or dried, whether or not shelled or peeled.	0.28	14,217	1
37	Other vegetables, fresh or chilled.	8.28	471	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
38	Husked (brown) rice	3.04	8,667	1
39	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries.	0.27	11,784	1
40	Sunflower seeds, whether or not broken.	0.3	4,125	1
Total		85.87	128,755	21
<i>Inputs which can be imported by Bhutan from the Region (not necessarily at a lower cost)</i>				
41	Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.	0.5	373.7	1
42	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	3	16,418	1
43	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	0.19	24,188	1
44	Fruit, dried, other than that of headings Nos. 08.01 to 08.06; mixtures of nuts or dried fruits of this Chapter.	6.41	25,225	1
45	Other vegetables, fresh or chilled.	0.61	16.27	1
Total		10.71	66,220	5
India – Inputs which can be imported by India from the Region at a lower cost				
46	Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.	164.4	2,242	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
47	Citrus fruit, fresh or dried.	22.16	50,459	1
48	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	6,226	516,732	2
49	Grapes, fresh or dried.	5,368	10,608	1
50	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	468.4	6,407	2
51	Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled.	83.29	14,049	1
52	Other vegetables, fresh or chilled.	396.3	40,451	1
53	Potatoes, fresh or chilled.	27.48	39,321	1
54	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries.	6,804	13,526	2
55	Vegetables (uncooked or cooked by steaming or boiling in water), frozen.	145.9	1,700	1
	Total	19,705	695,497	13
<i>Inputs which can be imported by India from the Region (not necessarily at a lower cost)</i>				
56	Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.	56.19	2,382	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
57	Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled.	1,299	6,161	1
58	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	200.1	15,700	2
59	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.	81.94	30,178	1
60	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	97.85	19,225	1
61	Leguminous vegetables, shelled or unshelled, fresh or chilled.	28.95	393.3	1
62	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	15.36	473.5	1
63	Natural honey.	2,843	3,414	1
64	Other nuts, fresh or dried, whether or not shelled or peeled.	18,780	21,783	1
	Pepper of the genus <i>Piper</i> ; dried or crushed or ground fruits.	2,065	6,303	1
	Total	25,466	106,012	11

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
Maldives – Inputs which can be imported by Maldives from the Region at a lower cost				
65	Buckwheat, millet and canary seed; other cereals.	18.52	5,655	1
66	Cabbages, cauliflowers, kohlrabi, kale and similar edible brassicas, fresh or chilled.	18.51	197.6	1
67	Citrus fruit, fresh or dried.	214.2	1,195	1
68	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	66.03	2,936	1
69	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.	2,788	267,727	2
70	Dried leguminous vegetables, shelled, whether or not skinned or split.	27.15	885.2	1
71	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	174.2	5,332	1
72	Fruit, dried, other than that of headings Nos. 08.01 to 08.06; mixtures of nuts or dried fruits of this Chapter.	39.65	25,225	1
73	Leguminous vegetables, shelled or unshelled, fresh or chilled.	139.9	1,466	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
74	Melons (including watermelons) and papaws (papayas), fresh.	209.2	2,564	1
75	Milk and cream, not concentrated nor containing added sugar or other sweetening matter.	933.9	18,501	1
76	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	392.2	1,786	3
77	Natural honey.	265.1	25,680	1
78	Other oil seeds and oleaginous fruits, whether or not broken.	11.19	18,959	1
79	Other vegetables, fresh or chilled.	18.34	652.7	1
	Total	5,317	378,761	18
<i>Inputs which can be imported by Maldives from the Region (not necessarily at a lower cost)</i>				
80	Cloves (whole fruit, cloves and stems).	83.55	18,960	1
81	Vegetables (uncooked or cooked by steaming or boiling in water), frozen.	48.91	7,382	1
	Total	132.5	26,342	2
Nepal – Inputs which can be imported by Nepal from the Region at a lower cost				
82	Birds' eggs, in shell, fresh, preserved or cooked.	25.19	57,875	1
83	Coffee not decaffeinated	85.45	313,335	1
84	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	153.7	50,283	2

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
85	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	9.7	805.6	2
86	Other nuts, fresh or dried, whether or not shelled or peeled.	180.4	14,217	1
Total		454.4	436,516	7
<i>Inputs which can be imported by Nepal from the Region (not necessarily at a lower cost)</i>				
87	Apples, pears and quinces, fresh.	8,740	10,604	1
88	Cinnamon and cinnamon-tree flowers.	6.37	4,564	1
89	Cloves (whole fruit, cloves and stems).	300.8	18,960	1
90	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices.	2,060	90,219	1
91	Grapes, fresh or dried.	254.8	66,351	1
92	Nutmeg, mace and cardamom.	1,465	20,499	2
Total		12,827	211,196	7
Pakistan – Inputs which can be imported by Pakistan from the Region at a lower cost				
93	Barley.	808.5	51,727	1
94	Birds' eggs, in shell, fresh, preserved or cooked.	1,773	57,692	1
95	Carrots, turnips, salad beetroot, salsify, celeriac, radishes and similar edible roots, fresh or chilled.	26.65	570.3	1
96	Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled.	11.96	52.57	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
97	Coffee not decaffeinated	12.41	314,056	1
98	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	63.1	6,093	1
99	Lettuce (<i>Lactuca sativa</i>) and chicory (<i>Cichorium spp.</i>), fresh or chilled.	15.57	248.7	1
100	Milk and cream, not concentrated nor containing added sugar or other sweetening matter.	126.3	173.6	1
101	Natural honey.	725.2	22,373	1
102	Nutmeg, mace and cardamom.	7,362	33,828	1
103	Rape or colza seeds, whether or not broken.	139.6	341.9	1
104	Vegetables (uncooked or cooked by steaming or boiling in water), frozen.	97.25	2,296	1
Total		11,161	489,452	12
<i>Inputs which can be imported by Pakistan from the Region (not necessarily at a lower cost)</i>				
105	Albumins (including concentrates of two or more whey proteins, containing by weight more than 80 % whey proteins, calculated on the dry matter), albuminates and other albumin derivatives.	96.05	3,712	1
106	Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.	34.82	2,603	2
107	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated	37.21	874	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
	or containing added sugar or other sweetening matter or flavored or containing added fruit, nuts or cocoa.			
108	Cloves (whole fruit, cloves and stems).	3,780	18,959	1
109	Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled.	1,471	597,494	2
110	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	0.18	1,747	1
111	Cucumbers and gherkins, fresh or chilled.	7.79	814.8	1
112	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.	1.17	194,683	2
113	Dried leguminous vegetables, shelled, whether or not skinned or split.	144.1	233	1
114	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	0.26	33,781	2
115	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	1.18	46,061	3

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
116	Fruit and nuts, provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	4.05	5,905	1
117	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	30.09	6,051	3
118	Fruit, dried, other than that of headings Nos. 08.01 to 08.06; mixtures of nuts or dried fruits of this Chapter.	6,188	10,102	2
119	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices.	1,851	55,449	1
120	Grapes, fresh or dried.	981	66,020	1
121	Hop cones, fresh or dried, whether or not ground, powdered or in the form of pellets; lupulin.	11.45	47.87	1
122	Manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar roots and tubers with high starch or inulin content, fresh, chilled, frozen or dried, whether or not sliced or in the form of pellets; sago pith.	17.81	1,342	1
123	Melons (including watermelons) and papaws (papayas), fresh.	0.36	4,121	1
124	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic	55.66	9,212	2

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
	invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.			
125	Nutmeg, mace and cardamom.	868	1,909	1
126	Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled.	35.32	72.49	1
127	Other fruit, fresh.	5.46	303.5	2
128	Other nuts, fresh or dried, whether or not shelled or peeled.	8,121	39,348	3
129	Other oil seeds and oleaginous fruits, whether or not broken.	50.14	345,459	1
130	Peel of citrus fruit or melons (including watermelons), fresh, frozen, dried or provisionally preserved in brine, in sulfur water or in other preservative solutions.	2.73	172.4	1
131	Pepper of the genus <i>Piper</i> ; dried or crushed or ground fruits of the genus <i>Capsicum</i> or of the genus <i>Pimenta</i> .	7,265	286,202	2
132	Husked (brown) rice	46.83	3,279	1
133	Vegetables (uncooked or cooked by steaming or boiling in water), frozen.	42.62	11,845	4
	Total	31,150	1,747,800	46
Sri Lanka – Inputs which can be imported by Sri Lanka from the Region at a lower cost				
134	Citrus fruit, fresh or dried.	1,686	19,979	3
135	Cloves (whole fruit, cloves and stems).	20.57	890	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
136	Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled.	123.1	789.9	1
137	Coffee not decaffeinated	40.78	313,938	1
138	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets.	256.6	1,279,755	2
139	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	2,361	14,456	1
140	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter.	78.73	5,915	2
141	Fruit, dried, other than that of headings Nos. 08.01 to 08.06; mixtures of nuts or dried fruits of this Chapter.	370	25,182	2
142	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices.	24.69	28,308	1
143	Grapes, fresh or dried.	3,082	83,617	1
144	Leguminous vegetables, shelled or unshelled, fresh or chilled.	25.72	661.3	1
145	Milk and cream, not concentrated nor containing added sugar or other sweetening matter.	77.59	18,501	1

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
146	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	56.03	1,695	2
147	Natural honey.	124.2	25,675	1
148	Nutmeg, mace and cardamom.	12.11	179.7	1
149	Other vegetables, fresh or chilled.	94.63	11,165	1
150	Peel of citrus fruit or melons (including watermelons), fresh, frozen, dried or provisionally preserved in brine, in sulfur water or in other preservative solutions.	25.04	183.8	1
151	Husked (brown) rice	49.62	7,943	1
152	Vegetables (uncooked or cooked by steaming or boiling in water), frozen.	39.62	5,652	1
	Total	8,548	1,844,484	25
<i>Inputs which can be imported by Sri Lanka from the Region (not necessarily at a lower cost)</i>				
153	Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.	22.31	2,755	2
154	Buckwheat, millet and canary seed; other cereals.	1.36	6,284	2
155	Citrus fruit, fresh or dried.	1,353	50,465	1
156	Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled.	537.8	602,624	2

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
157	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.	28.44	16,395	1
158	Dried leguminous vegetables, shelled, whether or not skinned or split.	8.91	32.04	1
159	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	0.51	142.7	1
160	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.	176.1	3,250	4
161	Grapes, fresh or dried.	918.2	66,349	1
162	Live horses, asses, mules and hinnies.	0.28	74.9	1
163	Manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar roots and tubers with high starch or inulin content, fresh, chilled, frozen or dried, whether or not sliced or in the form of pellets; sago pith.	3.83	888.1	1
164	Maté.	3.14	415.6	1
165	Mollusks, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and mollusks, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic.	453.7	129,521	2

S. No.	Description at HS 4-Digit	Country's Average Global Imports (\$ '000)	Region's Average Global Exports (\$ '000)	No. of HS 6-Digit Product
166	Other live animals.	0.45	30.3	1
167	Other nuts, fresh or dried, whether or not shelled or peeled.	2.46	25,992	2
168	Other vegetables, fresh or chilled.	1.43	23.58	1
169	Sunflower seeds, whether or not broken.	1.7	4,116	1
170	Vegetables (uncooked or cooked by steaming or boiling in water), frozen.	26.01	340.5	1
Total		3,540	909,697	26

List III: Identified Products of the Food Processing Industry for Potential Investments in South Asia

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
Afghanistan				
1	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavored or containing added fruit, nuts or cocoa.	113	1,774	1
2	Dried leguminous vegetables, shelled, whether or not skinned or split.	91	751,395	1
3	Other nuts, fresh or dried, whether or not shelled or peeled.	39,728	240,956	2

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
4	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries.	334	20,866	1
Total		40,266	1,014,991	5
Bangladesh				
5	Beer made from malt.	82	10,052	1
6	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	2,538	8,815	3
7	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	4,847	30,284	3
8	Cane or beet sugar and chemically pure sucrose, in solid form.	8,503	569,804	2
9	Extracts, essences and concentrates, of coffee, tea or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof.	71	3,692	1
10	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	1,890	3,841	2
11	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	326	667	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
12	Flour, meal, powder, flakes, granules and pellets of potatoes.	658	1,258	1
13	Food preparations not elsewhere specified or included.	578	74,080	1
14	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	3,360	29,554	5
15	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	527	8,117	2
16	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods.	1,622	41,326	1
17	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal.	416	982	1
18	Meat of bovine animals, frozen.	86	306	1
19	Molasses resulting from the extraction or refining of sugar.	1,032	4,126	2
20	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading 20.06.	516	2,161	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
21	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	161	10,811	1
22	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	1,953	11,111	3
23	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	53	2,145	1
24	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	51	10,961	1
25	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries.	1,391	20,678	1
26	Sugar confectionery (including white chocolate), not containing cocoa.	239	16,544	1
27	Tea, whether or not flavored.	10,129	273,799	1
28	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	809	857	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
29	Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid.	214	977	1
30	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.	241	14,672	1
Total		42,290	1,151,621	40
Bhutan				
31	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	9,889	103,882	1
32	Beer made from malt.	520	7,459	1
33	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	102	3,136	1
34	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	2,007	16,140	2
35	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	67	192	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
36	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this Chapter, other than edible fats or oils or their fractions of heading 15.16.	626	19,748	1
37	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol; spirits, liqueurs and other spirituous beverages.	380	51,536	2
38	Wheat or meslin flour.	566	250,473	1
	Total	14,156	452,567	10
India				
40	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	88	90	1
41	Beer made from malt.	9,620	10,186	1
	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	241	2,096	1
42	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	879	1,023	1
43	Cane or beet sugar and chemically pure sucrose, in solid form.	4,412	5,790	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
44	Cheese and curd.	8,109	14,917	3
45	Chocolate and other food preparations containing cocoa.	522	2,834	1
46	Coconut (copra), palm kernel or babassu oil and fractions thereof, whether or not refined, but not chemically modified.	9,690	19,942	2
47	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen.	74	95	1
48	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	2,155	4,204	2
49	Flour, meal, powder, flakes, granules and pellets of potatoes.	1,517	2,596	2
50	Food preparations not elsewhere specified or included.	57,075	57,255	1
51	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	3,177	17,908	8
52	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	189	1,186	1
53	Ice cream and other edible ice, whether or not containing cocoa.	506	2,609	1
54	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	137	162	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
55	Lettuce (<i>Lactuca sativa</i>) and chicory (<i>Cichorium</i> spp.), fresh or chilled.	177	350	1
56	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods.	50,984	97,431	2
57	Malt, whether or not roasted.	1,196	7,251	2
58	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this Chapter, other than edible fats or oils or their fractions of heading 15.16.	1,778	11,819	1
59	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal.	257	986	1
60	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	1,390	7,526	3
61	Meat of bovine animals, fresh or chilled.	73	3,483	1
62	Meat of bovine animals, frozen.	233	368	1
63	Meat of sheep or goats, fresh, chilled or frozen.	111	241	1
64	Meat of swine, fresh, chilled or frozen.	784	3,835	2
65	Milk and cream, concentrated or containing added sugar or other sweetening matter.	111,929	401,683	5
66	Other prepared or preserved meat, meat offal or blood.	769	4,080	3

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
67	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	939	4,553	1
68	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading 20.06.	753	2,381	1
69	Other vegetables, fresh or chilled.	257	528	1
70	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	5,053	8,457	4
71	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	1,477	35,709	2
72	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified.	279	2,082	2
73	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	320	1,057	1
74	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products.	317	1,724	1
75	Sugar confectionery (including white chocolate), not containing cocoa.	3,770	4,796	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
76	Tapioca and substitutes therefor prepared from starch, in the form of flakes, grains, pearls, siftings or in similar forms.	1,748	3,214	1
77	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid.	193	3,174	1
78	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80 % vol; spirits, liqueurs and other spirituous beverages.	1,981	2,970	2
79	Wheat or meslin flour.	10,041	250,743	1
80	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.	6,293	17,338	2
Total		301,496	1,020,673	72
Maldives				
81	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	1,157	3,653	2
Total		1,157	3,653	2
Nepal				
82	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	19,409	103,646	1
83	Beer made from malt.	99	12,225	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
84	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	1,991	12,277	3
85	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	748	19,720	3
86	Buckwheat, millet and canary seed; other cereals.	217	1,997	1
87	Butter and other fats and oils derived from milk; dairy spreads.	1,552	17,076	1
88	Cane or beet sugar and chemically pure sucrose, in solid form.	5,691	533,162	1
89	Cereal groats, meal and pellets.	242	329	1
90	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	58	159	1
91	Food preparations not elsewhere specified or included.	2,976	74,280	1
92	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	7,538	18,939	3
93	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices.	7,586	60,714	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
94	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this Chapter, other than edible fats or oils or their fractions of heading 15.16.	60	19,077	1
95	Molasses resulting from the extraction or refining of sugar.	716	3,775	1
96	Mushrooms and truffles, prepared or preserved otherwise than by vinegar or acetic acid.	127	638	1
97	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	55	11,318	1
98	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	8,494	17,394	4
99	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	58	9,367	1
100	Sugar confectionery (including white chocolate), not containing cocoa.	226	15,119	1
101	Tea, whether or not flavored.	14,090	273,587	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
102	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid.	160	6,904	1
103	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80 % vol; spirits, liqueurs and other spirituous beverages.	54	1,624	1
104	Wheat or meslin flour.	846	251,531	1
	Total	72,993	1,464,858	32

Pakistan

105	Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.	106	1,421	1
106	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	222	8,286	2
107	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	12,615	31,328	4
108	Butter and other fats and oils derived from milk; dairy spreads.	500	22,235	2
109	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavored or containing added fruit, nuts or cocoa.	60	1,822	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
110	Cane or beet sugar and chemically pure sucrose, in solid form.	32,237	875,516	2
111	Citrus fruit, fresh or dried.	128	22,706	1
112	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	751	4,406	3
113	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen.	70	96	1
114	Extracts, essences and concentrates, of coffee, tea or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof.	60	3,326	1
115	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	265	2,747	1
116	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	147	667	1
117	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	1,923	3,615	2
118	Food preparations not elsewhere specified or included.	10,781	68,053	2
119	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	11,807	26,169	5

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
120	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	334	3,842	1
121	Ice cream and other edible ice, whether or not containing cocoa.	149	2,759	1
122	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	1,984	3,795	2
123	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods.	2,046	62,261	2
124	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	64	736	1
125	Meat of bovine animals, fresh or chilled.	668	710	1
126	Meat of bovine animals, frozen.	173	5,547	1
127	Milk and cream, concentrated or containing added sugar or other sweetening matter.	8,687	366,117	4
128	Other fruit, fresh.	51	112	1
129	Other oil seeds and oleaginous fruits, whether or not broken.	1,329	23,079	1
130	Other sugars, including chemically pure lactose, maltose, glucose and fructose,	8,967	14,715	3

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
	in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.			
131	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading 20.06.	133	1,019	1
132	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading 20.06.	979	2,782	2
133	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	5,207	12,142	2
134	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	682	10,173	3
135	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	3,494	34,716	2
136	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	249	11,691	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
137	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products.	128	3,001	1
138	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries.	4,295	39,185	2
139	Soups and broths and preparations thereof; homogenized composite food preparations.	184	2,216	2
140	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid.	230	5,660	1
141	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80 % vol; spirits, liqueurs and other spirituous beverages.	473	20,482	1
142	Vegetables, fruit, nuts, fruit-peel and other parts of plants, preserved by sugar (drained, glacé or crystallized).	146	438	1
143	Wheat or meslin flour.	34,934	245,265	1
	Total	147,257	1,944,835	67
Sri Lanka				
144	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinized, whether or not refined, but not further prepared.	59,753	95,111	1
145	Beer made from malt.	1,482	11,892	1
146	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants.	5,758	11,559	3

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
147	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products.	5,339	36,116	3
148	Cane or beet sugar and chemically pure sucrose, in solid form.	136	573,086	2
149	Cereal flours other than of wheat or meslin.	595	4,202	1
150	Cocoa butter, fat and oil.	2,149	4,710	1
151	Coconut (copra), palm kernel or babassu oil and fractions thereof, whether or not refined, but not chemically modified.	3,372	32,615	2
152	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	67	3,294	1
153	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	218	726	2
154	Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	1,258	2,189	3
155	Flour, meal and powder of the dried leguminous vegetables of heading 07.13, of sago or of roots or tubers of heading 07.14 or of the products of Chapter 8.	565	997	1
156	Flour, meal, powder, flakes, granules and pellets of potatoes.	53	884	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
157	Flours and meals of oil seeds or oleaginous fruits, other than those of mustard.	73	124	1
158	Food preparations not elsewhere specified or included.	21,488	81,213	2
159	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter.	1,392	18,243	4
160	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	1,045	7,624	2
161	Ice cream and other edible ice, whether or not containing cocoa.	385	2,271	1
162	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter.	677	3,909	2
163	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40% by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods.	1,925	66,671	2
164	Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen.	192	2,782	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
165	Meat of bovine animals, frozen.	226	10,547	1
166	Milk and cream, concentrated or containing added sugar or other sweetening matter.	1,936	200,156	4
167	Other fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined, but not chemically modified.	164	349	1
168	Other prepared or preserved meat, meat offal or blood.	169	821	2
169	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel.	778	4,342	1
170	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared.	977	16,863	4
171	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal).	501	9,516	2
172	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	248	285	1

S. No.	Description at 4-Digit	Country's Average Exports to World (\$ '000)	Region's Average Imports from World (\$ '000)	No. of HS 6-Digit Lines
173	Rice.	87	16,119	1
174	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.	454	11,948	1
175	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products.	2,046	3,101	1
176	Sugar confectionery (including white chocolate), not containing cocoa.	688	15,496	1
177	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol; spirits, liqueurs and other spirituous beverages.	118	21,417	1
178	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption.	218	773	1
179	Wheat or meslin flour.	48,639	250,484	1
	Total	165,172	1,522,437	60

Annex III: Supply–Demand Ratios and Growth Trends in Key Crops

Table 1: Agriculture Supply–Demand Deficits, Rice (Milled)

Country	Period	Ratios			Instability	
		Import/ Consumption	Production/ Consumption	End Stock/ Consumption	PROD	YIELD
Afghanistan	1988–1990		100.00		18.40	15.70
	1998–2000	37.00	63.00		18.10	15.50
	2009–2011	44.60	55.40			
Bangladesh	1988–1990	0.90	99.10	3.20	4.80	4.20
	1998–2000	5.10	96.40	4.10	4.80	4.10
	2009–2011	2.20	98.10	3.50		
India	1988–1990	0.30	104.00	19.30	10.10	6.90
	1998–2000	0.04	108.70	22.80	10.00	6.80
	2009–2011		106.20	25.30		
Iran	1988–1990	39.30	57.60	19.30	14.80	9.20
	1998–2000	37.50	55.20	85.10	14.60	9.00
	2009–2011	44.10	50.70	17.90		
Nepal	1988–1990	0.04	100.00		13.30	10.50
	1998–2000	0.50	99.50		13.10	10.30
	2009–2011	1.60	98.40			

Country	Period	Ratios			Instability	
		Import/ Consumption	Production/ Consumption	End Stock/ Consumption	PROD	YIELD
Pakistan	1988-1990		150.20	57.60	12.50	5.90
	1998-2000		187.80	23.30	12.30	5.80
	2009-2011	0.80	224.70	25.70		
Sri Lanka	1988-1990	12.10	88.70	14.40	11.40	6.10
	1998-2000	6.50	94.60	16.70	11.20	6.00
	2009-2011	3.10	100.40	8.40		
South Asia	1988-1990	0.60	103.80	16.60	7.30	5.00
	1998-2000	1.30	107.30	18.20	7.20	4.90
	2009-2011	0.90	106.10	18.80		
World	1988-1990	3.30	102.60	35.80	2.40	1.60
	1998-2000	5.70	102.00	35.90	2.40	1.50
	2009-2011	6.70	101.20	21.70		

Table 2: Agriculture Supply–Demand Deficits, Wheat

Country	Period	Ratios			Instability	
		Import/ Consumption	Production/ Consumption	End Stock/ Consumption	PROD	YIELD
Afghanistan	1988–1990	0.20	99.80		26.50	20.60
	1998–2000	12.40	87.60		26.10	20.30
	2009–2011	42.90	57.50	1.20		
Bangladesh	1988–1990	61.80	37.60	18.30	17.20	11.90
	1998–2000	48.90	54.00	13.80	16.90	11.70
	2009–2011	82.20	24.00	39.00		
Bhutan	1988–1990		100.00		19.90	9.70
	1998–2000		100.00		19.60	9.50
	2009–2011	33.30	66.70			
India	1988–1990	1.50	100.30	8.10	6.90	5.30
	1998–2000	2.00	107.10	22.30	6.80	5.20
	2009–2011	0.20	102.20	20.60		
Iran	1988–1990	37.30	64.10	28.00	20.40	13.00
	1998–2000	35.10	63.50	28.90	20.10	12.80
	2009–2011	13.80	90.30	30.50		

Country	Period	Ratios			Instability	
		Import/ Consumption	Production/ Consumption	End Stock/ Consumption	PROD	YIELD
Nepal	1988–1990	0.40	99.60		7.50	5.50
	1998–2000	1.20	98.80		7.40	5.40
	2009–2011	0.30	99.70			
Pakistan	1988–1990	11.10	89.50	19.60	8.50	7.90
	1998–2000	8.50	92.60	17.10	8.30	7.80
	2009–2011	0.70	103.30	14.60		
Sri Lanka	1988–1990	104.30		20.30		
	1998–2000	100.10		11.60		
	2009–2011	140.00		51.30		
South Asia	1988–1990	6.70	94.70	10.80	5.80	4.60
	1998–2000	6.20	100.50	19.90	5.70	4.60
	2009–2011	6.40	96.60	19.00		
World	1988–1990	18.80	101.50	27.90	5.20	3.80
	1998–2000	17.70	101.10	36.10	5.10	3.80
	2009–2011	20.30	102.60	30.90		

Table 3: Agriculture Supply–Demand Deficits, Sugar (Refined Equiv)

Country	Period	Ratios			Instability	
		Import/ Consumption	Production/ Consumption	End Stock/ Consumption	PROD	YIELD
Bangladesh	1988–1990	43.60	56.00			
	1998–2000	60.90	50.90			
	2009–2011*	97.80	17.30			
India	1988–1990	0.50	99.70		20.10	
	1998–2000	4.10	96.60		19.70	
	2009–2011*	1.20	111.90			
Iran	1988–1990	41.80	45.40		13.30	
	1998–2000	59.90	50.30		13.00	
	2009–2011*	67.50	69.70			
Maldives	1988–1990	89.20				
	1998–2000	83.70				
	2009–2011*	104.40				
Nepal	1988–1990	46.50	51.10		25.90	
	1998–2000	38.10	72.40		25.40	
	2009–2011*	16.20	90.40			

Country	Period	Ratios			Instability	
		Import/ Consumption	Production/ Consumption	End Stock/ Consumption	PROD	YIELD
	1988–1990	8.60	92.50		19.40	
Pakistan	1998–2000	11.90	107.50		19.10	
	2009–2011*	26.30	76.70			
	1988–1990	92.20	15.50		22.20	
Sri Lanka	1998–2000	92.90	11.30		21.80	
	2009–2011*	107.70	9.00			
	1988–1990	8.90	90.30		16.50	
South Asia	1998–2000	12.30	91.90		16.20	
	2009–2011*	15.80	97.60			
	1988–1990	27.20	100.70		4.20	
World	1998–2000	30.00	104.90		4.20	
	2009–2011*	34.00	105.40			

Note: * indicates that data for Sugar (Refined Equiv) pertains to 2005–2007

Table 4: Agriculture Supply–Demand Deficits, Soybean Oil

Country	Period	Ratios			Instability	
		Import/ Consumption	Production/ Consumption	End Stock/ Consumption	PROD	YIELD
Bangladesh	1988–1990	107.70		39.80	27.00	
	1998–2000	103.30		16.30	25.20	
	2009–2011	96.60	4.90	3.40		
India	1988–1990	6.70	80.70	1.70	24.00	
	1998–2000	55.50	46.80	1.90	23.60	
	2009–2011	41.00	59.00	6.90		
Iran	1988–1990	96.90	3.10		42.90	
	1998–2000	90.00	10.90	8.60	42.20	
	2009–2011	71.00	30.80	18.30		
Pakistan	1988–1990	99.30		6.20	101.70	
	1998–2000	94.30	4.60	3.50	98.50	
	2009–2011	97.10	4.30	14.30		
South Asia	1988–1990	61.90	34.20	11.60	23.90	
	1998–2000	68.70	33.40	4.80	23.50	
	2009–2011	48.60	51.60	6.60		

Country	Period	Ratios			Instability	
		Import/ Consumption	Production/ Consumption	End Stock/ Consumption	PROD	YIELD
	1988–1990	23.00	100.70	11.80	4.30	
World	1998–2000	26.90	100.70	11.20	4.20	
	2009–2011	21.50	100.60	7.20		

Data Sources:

1. Food and Agricultural Organization (FAO). Rome. FAOSTAT. *faostat3.fao.org*
2. Production, Supply and Distribution (PS&D) database of the Economic Research Service, United State Department of Agriculture (ERS–USDA)

Table 5: Rice (Milled) Growth Trends by Country, 1980–2011

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Afghanistan	1980–1990	(3.25)	0	(4.45)	(38.56)	(4.82)	0	(4.82)	0	(4.82)	(1.24)
Afghanistan	1991–2000	(2.37)	0	(0.24)	17.44	4.42	0	4.42	0	4.42	2.2
Afghanistan	2001–2011	4.36	0	3.75	3.55	3.36	0	3.36	0	3.36	(0.32)
Afghanistan	1980–2011	(0.83)	0	0.23	30.53	2.84	0	2.84	0	2.84	1.04
Bangladesh	1980–1990	(0.03)	3.38	2.56	(7.11)	2.57	(19.58)	2.56	4.72	2.57	2.59
Bangladesh	1991–2000	0.56	3.1	3.3	47.46	3.78	0	3.58	10.8	3.78	2.73
Bangladesh	2001–2011	1.06	4.74	3.4	0.35	3.39	0	3.15	14.24	3.39	2.31
Bangladesh	1980–2011	0.37	2.67	3.06	6.96	3.11	(3.13)	3.11	3.13	3.11	2.68
India	1980–1990	0.53	8.75	3.76	(20.13)	4.33	0.52	3.4	11.85	4.33	3.19
India	1991–2000	0.78	(0.61)	1.87	(5.8)	1.55	13.9	0.74	4	1.55	1.06
India	2001–2011	0.38	1.17	1.89	(4.26)	1.61	(4.67)	1.1	6.36	1.61	1.51
India	1980–2011	0.31	3.45	2.03	(23.18)	2.21	11.08	1.81	3.62	2.21	1.71
Iran	1980–1990	1.34	(0.86)	2.31	1.43	1.55	0	2.94	(3.91)	1.55	0.95
Iran	1991–2000	(0.36)	23.82	(0.24)	(2.53)	6.15	0	2.78	12.14	6.15	0.14
Iran	2001–2011	(0.89)	(8.64)	(1.28)	4.19	(1.66)	0	0.21	(8.34)	(1.66)	(0.35)
Iran	1980–2011	0.81	3.2	1.8	2.58	2.45	0	2.4	2.4	2.45	0.98
Nepal	1980–1990	1.35	0	4.47	(30.61)	4.4	(43.35)	4.67	0	4.4	3.08
Nepal	1991–2000	2.01	0	3.82	10.27	3.84	0	3.84	0	3.84	1.74

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Nepal	2001–2011	0.18	0	0.45	19.07	0.56	0	0.56	0	0.56	0.26
Nepal	1980–2011	0.66	0	2.13	13.71	2.21	(7.37)	2.24	0	2.21	1.45
Pakistan	1980–1990	0.73	17.25	(0.24)	0	2.28	(0.9)	(0.17)	15.81	2.28	(0.99)
Pakistan	1991–2000	2.22	(13.02)	5.36	0	2.62	8.5	2.16	(9.08)	2.62	3.07
Pakistan	2001–2011	1.59	9.47	4.4	50.19	4.95	7.76	1.53	9.93	4.95	2.76
Pakistan	1980–2011	1.1	0.13	2.47	6.71	2.17	4.81	0.95	(0.45)	2.17	1.35
Sri Lanka	1980–1990	(0.67)	2.28	0.63	1.2	0.89	0	1.08	(0.08)	0.89	1.2
Sri Lanka	1991–2000	(0.06)	(1.71)	1.5	(10.59)	0.56	(8.67)	0.81	(0.96)	0.56	1.58
Sri Lanka	2001–2011	2.96	(1.47)	3.92	0.95	3.26	76.52	2.85	12.88	3.26	0.93
Sri Lanka	1980–2011	0.88	(4.78)	1.58	(4.87)	0.83	10.17	1.25	(4.53)	0.83	0.68
S. Asia	1980–1990	0.42	8.65	3.3	(0.2)	3.83	(1.22)	3.09	11.18	3.83	2.87
S. Asia	1991–2000	0.81	(1.06)	2.29	15.15	1.99	10.64	1.41	3.54	1.99	1.45
S. Asia	2001–2011	0.6	1.47	2.32	2.66	2.09	0.17	1.61	6.71	2.09	1.71
S. Asia	1980–2011	0.37	3.09	2.24	3.39	2.35	7.23	2.07	3.23	2.35	1.87
World	1980–1990	0.25	10.3	2.48	0.27	3.91	0.58	2.36	10.42	3.91	2.29
World	1991–2000	0.66	1.04	1.76	7.2	1.76	6.69	1.44	1.98	1.76	1.16
World	2001–2011	0.71	(3.37)	1.94	1.9	0.85	2.06	1.18	(0.64)	0.85	1.23
World	1980–2011	0.33	1.02	1.53	4.46	1.55	4.3	1.62	0.69	1.55	1.26

() = negative

Table 6: Wheat Growth Trends by Country, 1980–2011

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Afghanistan	1980–1990	(4.11)	0	(5.32)	(52.99)	(6.75)	0	(6.75)	0	(6.75)	(1.28)
Afghanistan	1991–2000	2.58	0	2.66	37.22	4.92	0	4.92	0	4.92	0.05
Afghanistan	2001–2011	2.45	80.89	3.55	20.21	8.88	0	8.74	120.4	8.88	1.06
Afghanistan	1980–2011	0.19	8.29	0.66	18.27	2.58	0	2.57	12.25	2.58	0.47
Bangladesh	1980–1990	0.69	1.16	(1.33)	2.71	0.93	0	0.99	1.33	0.93	(2.01)
Bangladesh	1991–2000	3.91	(2.07)	7.51	1.72	3.79	0	4.08	1.19	3.79	3.43
Bangladesh	2001–2011	(6.58)	5.15	(4.21)	8.7	4.6	0	3.67	7.15	4.6	2.52
Bangladesh	1980–2011	(0.87)	2.14	(0.13)	2.1	1.57	0	1.29	2.65	1.57	0.74
Bhutan	1980–1990	(2.33)	0	(6.7)	0	(6.7)	0	(6.7)	0	(6.7)	(4.47)
Bhutan	1991–2000	11.44	0	19.78	0	19.77	0	19.77	0	19.77	7.53
Bhutan	2001–2011	0	0	0	25.17	2.38	0	2.38	0	2.38	0
Bhutan	1980–2011	2.09	0	4.41	20.75	5.87	0	5.87	0	5.87	2.27
India	1980–1990	0.57	(4.15)	4.24	(19.93)	3.22	34.4	4.25	(5.24)	3.22	3.63
India	1991–2000	1.7	11.2	3.54	21.48	4.24	(20.05)	2.42	19.46	4.24	1.82
India	2001–2011	1.42	(3.42)	2.21	20.6	1.21	(36.43)	1.8	4.47	1.21	0.78
India	1980–2011	0.78	1.2	2.7	(4.21)	2.46	7.62	2.55	1.68	2.46	1.9

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Iran	1980-1990	0.66	14.19	1.88	10.95	5.7	0	4.3	12.69	5.7	1.21
Iran	1991-2000	(3.53)	4.3	(1.02)	9.05	2.75	35.91	2.61	3.24	2.75	2.62
Iran	2001-2011	1.06	2.27	1.51	(1.75)	1.47	106.05	0.82	3.04	1.47	0.45
Iran	1980-2011	0.09	4.81	2.93	(3.25)	2.66	30.52	2.36	4.03	2.66	2.83
Nepal	1980-1990	4.49	0	5.22	(32.62)	4.71	0	4.71	0	4.71	0.7
Nepal	1991-2000	2.44	0	4.5	60.4	4.61	0	4.61	0	4.61	1.97
Nepal	2001-2011	0.23	0	1.36	(27.56)	1.32	0	1.32	0	1.32	1.14
Nepal	1980-2011	1.49	0	3.58	(4.61)	3.49	0	3.49	0	3.49	2.05
Pakistan	1980-1990	1.05	13.09	2.64	15.87	4.66	(33.93)	3.9	10.07	4.66	1.56
Pakistan	1991-2000	0.61	0.89	3.22	(16.89)	2.33	(9.9)	2.53	1.02	2.33	2.6
Pakistan	2001-2011	1.28	4.04	2.89	0.53	3.04	6.79	2.56	6.23	3.04	1.6
Pakistan	1980-2011	0.71	1.92	2.66	(2.94)	2.42	35.3	2.41	1.45	2.42	1.94
Sri Lanka	1980-1990	0	3.59	0	3.63	3.68	0	3.1	6.17	3.68	0
Sri Lanka	1991-2000	0	(8.69)	0	1.19	(0.43)	(22.89)	0.76	(6.5)	(0.43)	0
Sri Lanka	2001-2011	0	18.53	0	3.62	6.25	64.43	1.5	12.28	6.25	0
Sri Lanka	1980-2011	0	5.87	0	2.62	3.41	36.97	1.73	6.06	3.41	0
S. Asia	1980-1990	0.46	0.96	3.41	0.24	3.1	27.29	3.6	(0.63)	3.1	2.94

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
S. Asia	1991–2000	1.56	6.65	3.55	0.81	3.78	(14.02)	2.57	12.08	3.78	1.96
S. Asia	2001–2011	1.3	(1.61)	2.29	10.96	1.97	(12.68)	2.27	3.93	1.97	0.98
S. Asia	1980–2011	0.72	1.67	2.59	2.24	2.44	15.84	2.47	1.89	2.44	1.85
World	1980–1990	(0.63)	3.12	2.26	0.88	2.27	0.9	2.32	3.07	2.27	2.92
World	1991–2000	(0.08)	2.29	1.06	(0.3)	1.17	(0.22)	0.87	2.86	1.17	1.15
World	2001–2011	0.57	(0.57)	2.02	3.26	1.66	3.28	1.34	1.74	1.66	1.43
World	1980–2011	(0.21)	0.82	1.17	1.01	1.09	0.99	1.19	0.8	1.09	1.39

() = negative

Table 7: Sugar (Refined Equivalent) Growth Trends by Country, 1980–2011
 Sugar, Refined Equiv:

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Bangladesh	1980–1990		1.19	22.35	10.58	9.11					
Bangladesh	1991–2000		(6.09)	23.65	0	1.55					
Bangladesh	2001–2007		0.59	20.82	127.43	15.33					
Bangladesh	1980–2007		0.09	13.99	9.49	5.67					
India	1980–1990		7.14	9.18	(26.34)	7.57					
India	1991–2000		4.32	82.78	(14.78)	4.72					
India	2001–2007		0.77	(2.25)	8	(0.46)					
India	1980–2007		5.18	8.64	10.66	4.76					
Iran	1980–1990		(0.47)	(0.39)	113.01	3.09					
Iran	1991–2000		0.23	5.91	87.05	1.72					
Iran	2001–2007		8.03	14.02	75.12	2.45					
Iran	1980–2007		2.65	2.57	56.32	2.39					
Maldives	1980–1990			5.6		6.89					
Maldives	1991–2000			(4.07)		(1.63)					
Maldives	2001–2007			0.64		3.03					
Maldives	1980–2007			3.48		3.2					
Nepal	1980–1990		5.76	29.86	16.78	14.28					

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Nepal	1991-2000			5.27	9.53		205.33	5.59			
Nepal	2001-2007			3.53	(4.82)		265.51	1.39			
Nepal	1980-2007			8.27	1.78		14.87	6.39			
Pakistan	1980-1990			9.63	44.74		41.27	12.19			
Pakistan	1991-2000			4.34	(1.79)		52.51	4.1			
Pakistan	2001-2007			(1.13)	32.14		16.64	3.13			
Pakistan	1980-2007			5.61	19.68		21.16	5.94			
Sri Lanka	1980-1990			10.43	5.69		130.31	4.51			
Sri Lanka	1991-2000			(0.31)	7.69		0.89	4.5			
Sri Lanka	2001-2007			(1.61)	1.2		75.73	(2.73)			
Sri Lanka	1980-2007			3.17	3.84		15.07	3.24			
S. Asia	1980-1990			6.84	5.37		(20.35)	7.48			
S. Asia	1991-2000			4.04	9.99		12.82	4.35			
S. Asia	2001-2007			0.89	14.48		12.32	0.61			
S. Asia	1980-2007			5.04	4.38		13.69	4.67			
World	1980-1990			1.86	0.4		0.37	2.07			
World	1991-2000			2.42	3.63		4.33	2.19			
World	2001-2007			2.18	4.37		4.66	1.63			
World	1980-2007			2.06	2.36		2.76	1.91			

() = negative

Table 8: Pulses (Total) Growth Trends by Country, 1980–2011

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Bangladesh	1980–1990			(0.96)	76.15		(43.32)	1.01			
Bangladesh	1991–2000			(3.11)	11.55		0	(0.33)			
Bangladesh	2001–2007			(5.29)	1.5		(28.48)	(1.35)			
Bangladesh	1980–2007			(2.43)	29.11		(4.04)	0.93			
India	1980–1990			2.5	27.22		30.05	3.1			
India	1991–2000			0.96	(0.54)		27.48	0.8			
India	2001–2007			2.94	3.48		8.64	2.93			
India	1980–2007			0.82	10.15		23.03	1.27			
Iran	1980–1990			2.27	(6.06)		156.72	3.31			
Iran	1991–2000			(2.2)	(13.2)		15.14	1.62			
Iran	2001–2007			2.22	86.01		(30.77)	2.82			
Iran	1980–2007			3.83	(5.12)		57.65	3.52			
Maldives	1980–1990			4.17	4.24			3.56			
Maldives	1991–2000			5.09	10.05			(14.05)			
Maldives	2001–2007			(3.67)	11.56			10.34			
Maldives	1980–2007			2.18	(5.69)			(5.2)			
Nepal	1980–1990			1.51	42.53		11.86	1.48			
Nepal	1991–2000			3.48	2.9		3.68	3.83			

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Nepal	2001–2007			0.54	(0.78)		(31.9)	3.82			
Nepal	1980–2007			2.6	10.56		2.97	2.83			
Pakistan	1980–1990			3.84	30.5		36.51	4.6			
Pakistan	1991–2000			2.09	7.42		(9.45)	3.04			
Pakistan	2001–2007			6.69	3.7		5.6	5.03			
Pakistan	1980–2007			0.88	12.77		7.26	2.07			
Sri Lanka	1980–1990			(1.39)	8.91		(6.38)	1.57			
Sri Lanka	1991–2000			(8.6)	9.7		0.82	3.79			
Sri Lanka	2001–2007			(1.52)	(0.82)		44.68	(1.42)			
Sri Lanka	1980–2007			(4.52)	9.86		(8.53)	4.03			
S. Asia	1980–1990			2.41	24.01		17.94	3.1			
S. Asia	1991–2000			0.8	4.03		13.64	0.99			
S. Asia	2001–2007			2.92	3.29		(2.73)	2.91			
S. Asia	1980–2007			0.83	10.38		12.35	1.4			
World	1980–1990			3.63	9.12		10.51	3.33			
World	1991–2000			0.46	1.31		1.88	0.57			
World	2001–2007			1.23	3.18		3.59	1.15			
World	1980–2007			1.04	4.67		4.66	1.07			

() = negative

Table 9: Soybean Oil Growth Trends by Country, 1980–2011

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
Bangladesh	1980–1990		20.77	0	24.15	24.55	0	24.19	26.26	24.55	
Bangladesh	1991–2000		(4.49)	0	7.28	5.14	0	6.04	1.64	5.14	
Bangladesh	2001–2011		(20.83)	65.23	0.29	(0.68)	0	0.34	(15.73)	(0.68)	
Bangladesh	1980–2011		2.37	25.62	7.36	6.85	0	7.9	1.3	6.85	
India	1980–1990		(25.38)	18.59	(29.4)	(5.95)	0	(5.14)	(45.04)	(5.95)	
India	1991–2000		(37.2)	8.16	50.21	18.16	38.27	18.54	(18.21)	18.16	
India	2001–2011		6.9	9.37	(3.98)	2.66	(11.21)	2.53	6.33	2.66	
India	1980–2011		1.33	10.65	7.3	6.63	21.9	7.2	3.56	6.63	
Iran	1980–1990		0	(5.57)	3.82	3.39	0	3.39	0	3.39	
Iran	1991–2000		178.07	25.61	6.21	8.92	113.01	7.82	87.24	8.92	
Iran	2001–2011		45.41	5.55	(8.31)	(3.66)	(9.66)	(4.23)	2.71	(3.66)	
Iran	1980–2011		40.73	11.51	1.9	3.95	26.99	3.17	41.25	3.95	
Pakistan	1980–1990		(0.6)	2.76	2.31	2.25	0	2.54	(1.41)	2.25	
Pakistan	1991–2000		(4.22)	22.94	1.75	2.07	0	2.73	(6.16)	2.07	
Pakistan	2001–2011		(13.29)	(23.93)	(6.97)	(8.88)	0	(9.7)	(8.92)	(8.88)	
Pakistan	1980–2011		(8.84)	15.47	(7.2)	(6.82)	0	(6.78)	(8.35)	(6.82)	

Country	Period	Area Harvested	Beginning Stocks	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks	Total Distribution	Yield
S. Asia	1980–1990		6.06	18.6	(4.74)	0.34	0	0.22	1.93	0.34	
S. Asia	1991–2000		(6.02)	8.36	16.92	12.19	38.27	13.04	2.52	12.19	
S. Asia	2001–2011		1.92	9.04	(3.24)	1.74	(11.21)	1.77	2.05	1.74	
S. Asia	1980–2011		0.26	10.75	3.54	4.86	21.9	5.42	0.11	4.86	
World	1980–1990		2.77	2.44	0.04	2.03	0.6	2.31	2.87	2.03	
World	1991–2000		2.62	5.32	9.25	5.73	8.7	5.59	1.56	5.73	
World	2001–2011		0.62	3.79	0.99	3.07	0.59	3.97	0.02	3.07	
World	1980–2011		2.88	4.38	4.29	4.25	4.34	4.39	2.69	4.25	

Data Sources:

1. Food and Agricultural Organization (FAO). Rome. FAOSTAT. faostat3.fao.org
2. Production, Supply and Distribution (PS&D) database of the Economic Research Service, United States Department of Agriculture (ERS–USDA)

Food Security in South Asia

Developing Regional Supply Chains for the Food Processing Industry

This report identifies potential regional supply chains in agriculture in South Asia with a focus on intraregional trade in processed food products taking into consideration food security concerns of the countries. Examining the South Asian Free Trade Agreement (SAFTA), it analyses the implications of tariff liberalization, concluding that full SAFTA is the key to ensuring food security in the region.

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ASIAN DEVELOPMENT BANK

6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org