India-Bangladesh Agriculture Trade

Demystifying Non-Tariff Barriers to India-Bangladesh Trade in Agricultural Products and their Linkages with Food Security and Livelihood

CUTS International

#1904

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Abbreviations

AEO	Authorised Economic Operator
AEZ	Agri Export Zone
AGR	Annual Growth Rate
APEDA	Agricultural and Processed Food Products Export Development Authority
AQ	Animal Quarantine
ASYCUDA	Automated System for Customs Data
BBIN	Bangladesh Bhutan India Nepal
BFSA	Bangladesh Food Safety Authority
BIDR	Bilateral Import Dependency Ratio
BIS	Bureau of Indian Standards
BSTI	Bangladesh Standard and Testing Institution
BTFA	Bangladesh Trade Facilitation Activity
C&F	Clearing & Forwarding
CAGR	Compound Annual Growth Rate
CBIC	Central Board of Indirect Taxes and Customs
CCSP	Customs Cargo Service Provider
CFL	Central Food Laboratory
CHA	Customs House Agent
CUTS	Consumer Unity & Trust Society
CWC	Central Warehousing Corporation
DA	Documents against Acceptance
DGCI&S	Directorate General of Commercial of Intelligence and Statistics
DGFT	Directorate General of Foreign Trade
eBRC	Electronic Bank Realisation Certificate
ECGC	Export Credit Guarantee Corporation of India
EDI	Electronic Data Interchange
EIC	Export Inspection Council
EIU	Economist Intelligence Unit
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organisation
FGDs	Focus Group Discussions
FICS	Food Import Clearance System
FIEO	Federation of Indian Export Organisations
FPOs	Farmer Producer Organisations
FSSAI	Food Safety and Standards Authority of India
FTP	Foreign Trade Policy
FY	Financial Year

GFSI	Global Food Security Index
GOI	Government of India
GST	Goods & Services Tax
HLA	Household Livelihood Approach
HS	Harmonised System of Product Classification
ICEGATE	Indian Customs EDI Gateway
ICD	Inland Container Depot
ICP	Integrated Check Post
IDR	Import Dependency Retio
IWT	Inland Waterway Transport
LoC	Letter of Credit
LCS	Land Customs Station
LPAI	Land Port Authority of India
MEP	Minimum Export Price
MRA	Mutual Recognition Agreement
MoCI	Ministry of Commerce & Industry
MoU	Memorandum of Understanding
mm	Millimetre
MT	Metric Tonne
NAFED	National Agricultural Cooperative Marketing Federation of India Ltd.
NCCD	National Center for Cold Chain Development
NCCF	National Cooperative Consumers Federation of India Limited
NCTF	National Committee on Trade Facilitation
nes	Not elsewhere specified
NGO	Non-governmental Organisation
NPOP	National Programme for Organic Production
NTBs	Non-Tariff Barriers
PQ	Plant Quarantine
RBI	Reserve Bank of India
RVCs	Regional Value Chains
SAFTA	South Asian Free Trade Area
SIP	Sanitary Import Permit
SPS	Sanitary and Phytosanitary
STCs	State Trading Corporations
STEs	State Trading Enterprises
SWIFT	Single Window Interface for Facilitation of Trade
TBT	Technical Barriers to Trade
TFA	Trade Facilitation Agreement
TLP	Trade Liberalisation Programme
ToR	Terms of Reference
UN	United Nations
USA	United States of America
USAID	United States Agency for International Development
US$	US Dollars
WITS	World Integrated Trade Solutions
WTO	World Trade Organisation

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This study is an outcome of a project supported by the United States Agency for International Development (USAID) under Bangladesh's Trade Facilitation Activity (BTFA). USAID/BTFA was a five-year activity with the goal of bolstering economic growth by creating greater efficiency in cross border trade. BTFA, based in Dhaka, primarily worked with the Government of Bangladesh to improve trade facilitation in Bangladesh. The activity also focussed on cross-border trade and completed a complementary study on the Non-Tariff Barriers (NTBs) to trade on the Bangladesh side of the border. Under the India-specific component, the study reviewed various types of NTBs hindering bilateral trade in agricultural products and their implications on the livelihood of the farmers, by surveying Indian public and private sector entities. Through this space, we would like to acknowledge all the support availed during the study from various individuals.

First of all, we offer our sincere thanks to the USAID India, USAID/BTFA and their funding support and continuous guidance. Special thanks to Simrat Labana, Project Management Specialist (Agriculture), Food Security Office - USAID India for her continuous support throughout the entire study. Her constructive comments throughout the study really helped in improving the quality of this report.

We would like to thank all respondents who have been interviewed during the study. We highly appreciate their timely and valuable cooperation. We sincerely thank all the participants of two stakeholder consultation meetings - at Kolkata and Agartala, and one high profile workshop organised at New Delhi for their enthusiastic support and knowledge.

We sincerely thank our colleagues (Taramani Agarwal, Subhanil Banerjee, Sayandeep Chattopadhyay, Simanti Das, Arnab Ganguly, Mohini Ganguly, Susan Mathew, Debolina Mukherjee, Bijaya Roy, Sarbjit Singh, and Veena Vidhyadharan) and, especially, Rahul Arora for working as a lead researcher in this project. Without their help, it would have not been possible for us to complete this study. Finally, thanks to Bipul Chatterjee, Executive Director, CUTS International for his advisory role throughout the project.

At the end, we thank to our editorial and layout team for final editing/layout - and finance team for handling the financial aspect of this project. Many other names deserve special mention but could not be referred here for want of anonymity. We thank them all for their support.

Finally, any error that may have remained is solely our responsibility. Our dedication to improve the level of integration in this region in particular will be sustained. Please communicate with us in case of any query regarding the contents of the report.

Project Team
CUTS International

Foreword

Mark Anthony White
Mission Director
USAID/India

USAID is committed to working with India and Bangladesh to realize our shared goals of building a more prosperous, secure and interconnected South Asia. This is why I am pleased that the USAID supported study, 'Demystifying Non-Tariff Barriers to India-Bangladesh Trade in Agricultural Products and their Linkages with Food Security and Livelihood' is complete and now available as a tool for policy makers. I would like to thank CUTS International, our partner in this endeavor. More specifically, I would like to thank CUTS Executive Director, Bipul Chatterjee and his team, whose expertise and guidance are critical, not only for this study, but in advancing economic growth in South Asia.

This study will contribute to the discourse on regional food security and agricultural value chains. The study analyzed trends and patterns of India-Bangladesh bilateral agricultural trade, and provides a roadmap on specific steps that need to be taken to harmonize divergent food standards, infrastructural barriers and port restrictions to grow agricultural trade between India and Bangladesh.

In this report, readers will find a number of policy recommendations that could be implemented in the short, medium and long term to stimulate bilateral trade. It is our hope that this study will generate interest in enhancing bilateral agricultural trade between India and Bangladesh.

Preface

Bipul Chatterjee
Executive Director
CUTS International

Since early 1990s, Bangladesh and India have taken various initiatives to expand their economic and trade ties. Among others, they include a treaty on transit, duty-free/quota-free access for Bangladeshi products into the Indian market, an Agreement on South Asia Free Trade Area (SAFTA). Though SAFTA has made some progress in liberalising trade in the South Asian region, import tariffs for agricultural products are still high. In addition to tariff barriers, non-tariff barriers (NTBs) are also escalating the cost of doing cross-border trade which hampers the smooth flow of bilateral trade.

Often, NTBs are more harmful than tariffs because the impacts of such barriers are hidden and difficult to assess. Most of the trade between Bangladesh and India takes place via land custom stations (LCSs) with 60-70 per cent of their total volume through Agartala and Petrapole land ports. Various kinds of barriers at the border, behind the border and beyond the border, hinder cross-border trade between these two countries. These include technical, infrastructural, procedural and policy-induced barriers that raise the cost of doing cross-border trade, thereby hindering them from achieving their true trade potentiality.

Owing to these constraints, the World Bank's Trading Across Borders Index ranks India at number 146 and Bangladesh at 173, which are much below than some of the other South Asian countries such as Bhutan (26), Nepal (76), Sri Lanka (86).

Therefore, deeper integration between India and Bangladesh would be beneficial for both countries. For Bangladesh, this will be beneficial in terms of greater market access for its exports, source for cheaper imports and development of cross border and regional value chains (RVCs).

On the other hand, for India, areas of benefits would be the prospects of developing RVCs as well as greater access to market for its exports. Overall, the deeper integration between these countries would be beneficial for better economic integration in the South Asian region.

Thus, keeping this context in mind, this study attempts to identify existing NTBs that are restricting agriculture trade between India and Bangladesh and provides feasible recommendations to address them. It focussed on seven land ports in West Bengal and Tripura, and examined 15 agricultural commodities

that are traded through these ports. It highlighted some key NTBs that must be addressed and proposes recommendations on short, medium and long term basis to improve the volume of bilateral trade.

The report provides many useful insights on food security and livelihood aspects of trade and highlights some specific issues in this regard faced by Indian farmers. It recognises the importance of capacity building of small farmers to address knowledge and skill gaps related to production techniques, export procedures and quality parameters.

CUTS believes that if the set of policy recommendations provided in this study are recognised and implemented, the volume of bilateral trade in agriculture will be increased, which will have far-reaching socio-economic impacts on the ground and will contribute towards better livelihood of producers and consumers of such commodities.

I thank the India Office of the United States Agency for International Development for supporting this study and for their guidance, and my colleagues at CUTS for their diligent work.

Executive Summary

Being the largest trading partners in South Asia, India and Bangladesh have defined their trade relations by geographical proximity and socio-cultural linkages. They share a long, porous border of more than 4,000 kilometres with many inter-change points – land custom stations (LCSs) through which trade takes place. The current volume of bilateral trade between India and Bangladesh is about US$ 9 billion; with estimates suggesting that the trade potential is at least three times the present level. Strengthening Indo-Bangladesh ties can be a catalyst for regional and sub-regional integration, progress and stability in South Asia.

With regard to bilateral trade in agricultural commodities including plantation and animal products, India is a principal supplier of these commodities to Bangladesh. However, Indian exports and imports of agricultural products with Bangladesh have shown a declining trend in the past few years. The declining trade in food products between India and Bangladesh is attributable to the presence of numerous non-tariff barriers (NTBs), increase in domestic production of previously imported agricultural commodities in Bangladesh, and diversion of trade to other countries. NTBs not only increase trade costs but also have implications on food security and livelihood of producers. It restricts effective market access for traders and consumers in India and Bangladesh. The trade potential between both countries can be realized by addressing existing NTBs related to standards, processes, procedures and infrastructural challenges.

Assuming the trade expansionary effects of addressing/removing NTBs, the study has highlighted linkages of trade with food security challenges of both the countries and marked possible linkages of bilateral trade with livelihoods of actual producers of agricultural products. Agriculture plays a significant role in the economies of India and Bangladesh and supports the livelihoods of significant population, particularly women. The sector engages 56.35 and 60.4 per cent of women population in India and Bangladesh, respectively.

Agriculture plays a significant role in the economies of India and Bangladesh through its involvement in trade across borders and also supports the livelihoods of significant population, particularly women

This study has identified existing NTBs to bilateral agricultural trade between India and Bangladesh through land routes and examines their linkages with livelihood and food security

Given this context, the study provides a 'granular analysis' of product and port specific issues that hinder cross-border agriculture trade to examine their linkages with livelihood and food security. It covers seven land ports in West Bengal and Tripura (Agartala, Chengrabandha, Fulbari, Ghajadanga, Hili, Mohedipur, Petrapole). Agricultural commodities selected under the study include 10 items exported by India to Bangladesh: animal feed, capsicum, fish meal, grapes, ginger, lentils, onion, rice, seeds, and tea; and five items imported by India from Bangladesh: fish, fruit juice, potato flakes, sugar confectionary, and vegetable oil.

This analysis is based on primary as well as secondary data from approximately 250 stakeholders which includes farmers, supply chain actors, policy makers, exporters, importers, custom house agents, transporters and port authority officials in West Bengal and Tripura. The findings were further validated in stakeholder workshops conducted in Kolkata, Agartala and New Delhi.

It identifies several NTBs such as export restrictions on agricultural products and infrastructure deficiencies at land custom stations, gaps related to sanitary and phyto-sanitary measures and technical barriers to trade between both countries. Regulatory NTBs imposed by Bangladesh which has placed an export ban on Hilsa fish, import ban through land ports in Tripura, different packaging requirements, imposition of mandatory requirement of using jute bags for exporting food items, and publication of trade rules and regulations in local language are some of the barriers, affecting Indo-Bangladesh bilateral agriculture trade.

Most of the ports along India-Bangladesh border are non-EDI ports, thus acting as a barrier to trade. This affects the clearance time of goods at land ports

The study has also identified technical NTBs[1] like multiple testing requirements in case of fish imports and divergent food quality standards, which should be harmonised to encourage bilateral trade. Divergence arises when Maximum Residue Limit (MRL) of specified parameters by importing country is more than MRL of same parameters specified by exporting country. For instance, fruit juice and rice are two such products with divergent standards in both countries.

With regard to procedural NTBs, delay in trade processes due to unavailability of required testing facility near the border was highlighted in stakeholder interactions. For instance, in case of Tripura, stakeholders raised the common point of not having plant quarantine/animal quarantine (PQ/AQ) facilities at most land ports and highlighted the need for such facilities to export bamboo products and import fisheries related items, particularly from Khowaighat and Simantapur Land Custom Stations.

1 On the basis of available information, technical NTBs are found in case of five export items (grapes, ginger, rice, seeds and tea) and four import items (fish, fruit juice, potato and sugar confectionary) selected for the study purpose (for details, see Annexure IV).

Majority of ports along the India-Bangladesh border are non-Electronic Data Interchange (EDI) ports, which lead to paper submission of documents and delay timely clearance of goods at land ports.

Also, there are policy-induced barriers that exist at selected ports under the study. Development of LCSs into an Integrated Check Posts (ICPs) has escalated the cost of trading due to high warehousing and transhipment charges. Diversion of trade from Mohedipur LCS to Ghajadanga LCS in West Bengal is an example of such barriers.

Furthermore, the existence of infrastructural NTBs, particularly sub-optimal trade infrastructure, limited cold storage and warehousing, limited banking facilities, poor internet connectivity and inadequate testing laboratories, among others, have created bottlenecks at the border. The problems such as involvement of syndicates near the border and the presence of fake intermediaries have also raised by several respondents during the field work.

In addition, the study has covered specific production centres and their linkages with exports. It provides a new thinking to policy-makers on how trade affects the livelihood of farmers, particularly small and marginalized ones. The linkages between agriculture trade and farmers' livelihood are blurred due to existing information asymmetries, lack of marketing infrastructure, supply chain bottlenecks and extensive involvement of intermediaries along the entire supply chain.

In case of India and Bangladesh, the presence of multiple intermediaries in their land ports is justified given the existence of sub-optimal trade infrastructure. These intermediaries were seen to be maximising profit through trading while the primary grower or farmers remain on subsistence level.

While surveying farmers, it was found that most farmers do not have access to market intelligence and are not aware of the final destination of their produce - i.e. if it is meant for domestic consumption or international markets. In a few clusters of production for high value cash crops like grapes in Nashik (Maharashtra), and tea and capsicum growers in West Bengal, there is some awareness about their produce being procured for export purposes. However, these farmers are not aware of export specific compliance measures or MRL specifications. Knowledge and skill gaps are more evident in small and marginal farmers, whereas large farmers are more integrated with the local market economy.

In order to address the fragmented nature of agricultural markets, the study recommends greater public-private sector partnerships to address technical capacity related gaps and lack of infrastructure in export centric clusters of production to improve the farm productivity. It will be useful to adopt global best practices of

The study also established direct linkage of trade and livelihood in case of Tripura, where stakeholders have highlighted that restrictions on crossing the border or trading in vegetables across countries are affecting the livelihood of the local people

collectivising farmers to facilitate their direct participation in trade related activities – both as a means of facilitating their direct participation in national and cross border trade, and for better price realisation at farm gate.

Apart from this, the study has also established direct linkage between trade and livelihoods in case of Tripura. Tripura shares two-third of its border with Bangladesh. It takes only four hours for goods to travel by road from Bangladesh to Tripura in India. However, to reach Tripura by road it takes almost 10 hours from Assam and 18 hours from Kolkata. Stakeholders in Tripura have highlighted restrictions on trade in vegetables such as potato, chillies, brinjal and tomato that affect the livelihood and food security of people living along border towns on both sides. This may be true for other North Eastern states of India and Bangladesh.

In short, the study provides an in-depth analysis on the barriers inhibiting trade and the need for an action oriented trade facilitation agenda to reap the actual potential of trade between the two countries. Keeping this in mind, the study has divided its recommendations into three categories on the basis of anticipated time taken to implement them: short term (6-12 months), medium term (3-5 years), and long term (5-7 years). In this study, technical standards and infrastructural constraints have emerged as the main NTBs restricting bilateral agricultural trade. Most recommendations are being categorised under the medium and long term as it could take time to implement them.

In order to improve the volume of bilateral agriculture trade, collective efforts from both the countries are required. One-sided reform will not work until these will be complemented by reforms in the partner country

In the short term, coordination between officials from ICPs, various chambers of commerce, and border management agencies in selected land ports mentioned in this study should be promoted through annual meetings and exchange visits to carry forward the agenda of trade facilitation. At the same time, the Government of India should incentivise the use of programmes, such as Authorised Economic Operators (AEOs) to encourage self-compliance driven clearance to reduce time taken for inspection at the border. The study has also recommended eliminating port-specific restrictions, especially from Bangladesh side, while importing from the state of Tripura in India.

Furthermore, there is a need to establish quarantine facilities near LCSs or ICPs to improve the current level of bilateral trade. This could take three to five years to materialise and is included under medium-term recommendations. In order to overcome the problem of inadequate or unavailability of laboratory infrastructure in the short term, it is recommended that the Government of India invite public and private accredited testing laboratories to set up mobile testing facilities at strategic locations near land ports. The study recommends one mobile testing facility at Siliguri to cover all land ports situated in North Bengal and another somewhere adjacent

to Khowaighat LCS and Simantapur LCS in Tripura. In addition to this, there is a need to improve the capacity of already existing testing facilities at Petrapole and Agartala ICPs.

Divergence in food standards could get resolved by brokering a Mutual Recognition Arrangement between India and Bangladesh. The Bureau of Indian Standards (BIS) and the Bangladesh Standards and Testing Institute (BSTI) could establish a technical working group to expedite the process of harmonisation of standards and technical regulations for selected agricultural commodities. Concerted efforts should be made to align food standards with international standards such as those of Codex Alimentarius.

There is a need to prepare and follow an action oriented trade facilitation agenda to reap the actual potential of trade between the two countries

The study recommends the establishment of Inland Container Depots (ICDs), dry ports and bonded warehouses at strategic locations to ease congestion at land ports. In addition to this, existing government schemes on direct port delivery and authorized economic operators can be introduced at land ports to expedite the clearance of imported cargo. Private sector participation should be encouraged for the development of ICDs and dry ports.

Improving the volume of bilateral agriculture trade requires a collective approach from both countries to strike a balance between producer and consumer welfare. India and Bangladesh are committed to deepening economic and trade ties. Given that India is one of the fastest growing economies in the world and Bangladesh is graduating out of its least-developed-country status, time is ripe to further strengthen this bilateral cooperation.

1

Introduction

Capsicum Farm near Ghajadanga Land Port, India

1

In the South Asian region, India and Bangladesh are major trading partners. Economic and trade relations between these two countries are shaped by geographical proximity, social, economic, and cultural linkages. In both countries, agriculture is an important source of livelihood and a significant proportion of population is still dependent upon this sector (see Figure 1.1).

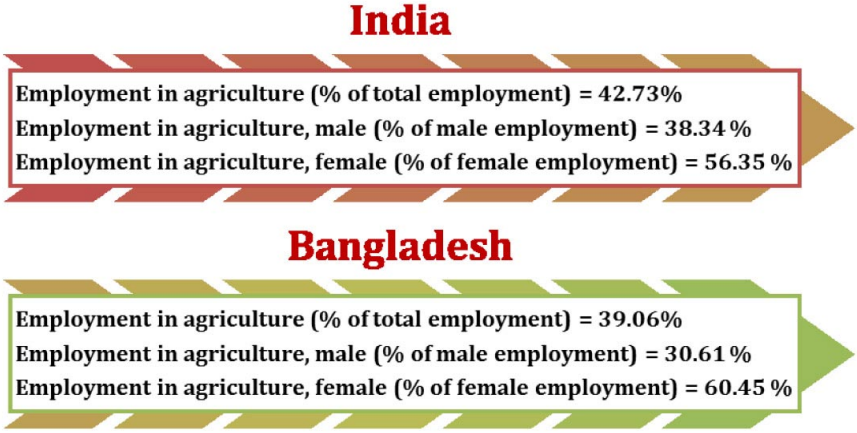
Agriculture also contributes to the national income of both countries through its involvement in trade activities across borders. At present, the contribution of this sector is around 11 per cent in India's total trade with Bangladesh. This sector is getting support from imported inputs, such as seeds, fertilisers, machinery, and engages in exporting food items to other countries.

At present, the contribution of agriculture sector is around 11 per cent in India's total trade with Bangladesh

Official data indicates a decline in the share of agricultural trade in India's total trade with Bangladesh over the last 10 years (see Figure 1.2). However, the total bilateral trade is increasing over the years as shown in Figure 1.3.

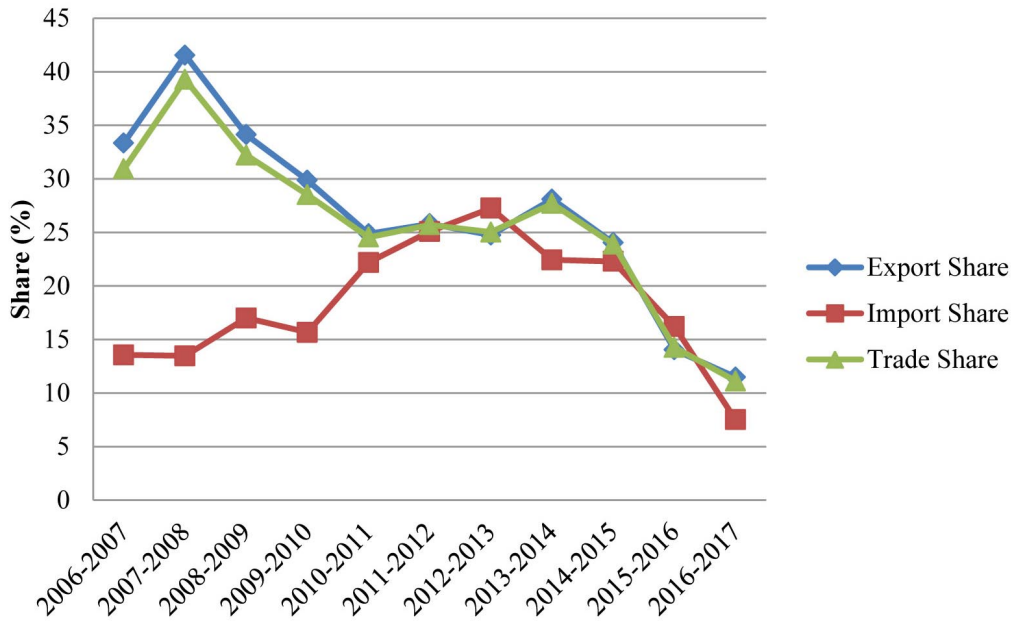
It is believed that trade in agricultural goods can be enhanced between these two countries through various connectivity initiatives.

Figure 1.1: Employment Generated by the Agriculture Sector in India and Bangladesh



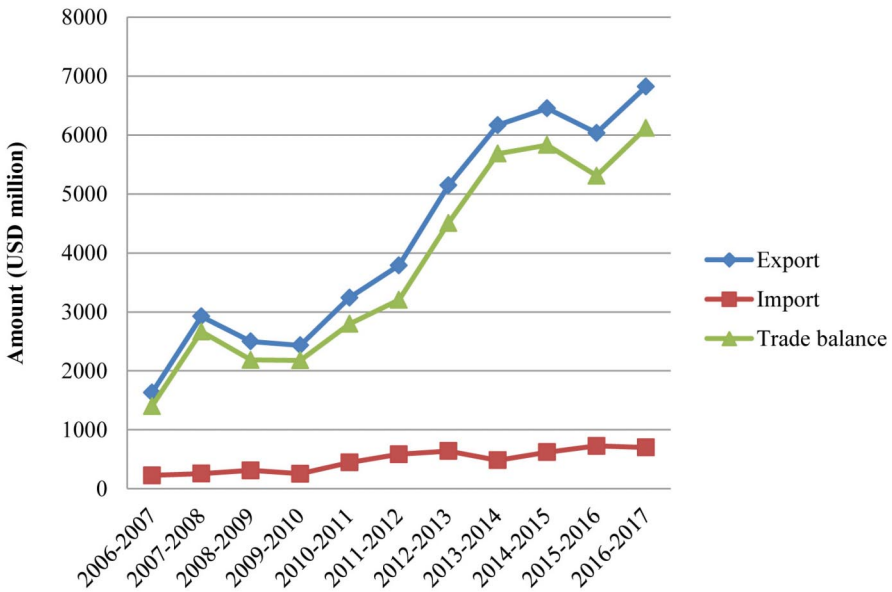
Source: World Development Indicators, World Bank (2017)

Figure 1.2: India's Agriculture Trade with Bangladesh (Shares)



Source: CUTS calculations using data from MoCI, GoI

Figure 1.3: Trade Trends between India-Bangladesh



Source: CUTS calculations using data from MoCI, GoI

These connectivity initiatives include the removal of existing barriers to trade. Increase in volume of trade, particularly in food products', influence the degree of self-reliance of an economy in food security by affecting both demand and supply-side aspects.

1.1 Agriculture Trade Pattern between India and Bangladesh

Increase in volume of trade, particularly in food products, influences the degree of self-reliance of an economy in food security by affecting both demand and supply side aspects

1.1.1 Agriculture Exports to Bangladesh

India is a principal supplier of agriculture commodities to Bangladesh. On an average, India's agriculture exports constitute quarter of its total exports to Bangladesh. India's agriculture exports peaked at US$ 1214.46 mn in FY 2007-08, contributing approximately 41.54 per cent of total exports to Bangladesh. Since then agricultural exports have declined and remained at an all-time low of US$ 1 bn for three consecutive financial years before increasing to US$ 1272.68 mn in FY 2012-13. It increased to US$ 1732.42 mn in FY 2013-14 but declined to US$ 782.86 mn in 2016-17. The declining trend of past three financial years can also be seen in India's agriculture exports to other countries. The primary reason of this trend is the declining competitiveness of India in agricultural products due to fall in world prices (Commerce and Industry Minister Nirmala Sitharaman said in a written reply to the Rajya Sabha)[1].

As shown in Table 1.1, top five product categories (at HS 2-digit level) constitute more than 80 per cent of agriculture exports of India to Bangladesh. It is seen that cereals (product code 10) and animal fodder (product code 23) are common product categories of Indian export basket to Bangladesh. The other most commonly traded items are: sugar and sugar confectionary (product code 17), edible vegetables and certain roots and tubers (product code 07), edible fruit and nuts (product code 08).

Cereals and animal fodder are the main agricultural products exported by India to Bangladesh

Further, seasonal analysis of agriculture trade data provides more insights about commodities traded in different seasons within one year. Agricultural commodities that have the probability of being traded in a particular season and whose volume of trade fluctuate over the years are commodities from the broad categories of fruit and nuts, agriculture allied products, edible vegetables and sugar.

The monthly data reveals that cereals were exported in large quantities to Bangladesh in the *Rabi* season followed by summer season in the year 2015. However, in 2016, the same items were exported in large quantities in both summer and *Kharif* seasons. As per the latest year trend, in 2017, cereals were exported to Bangladesh in large volumes in the *Kharif* season. In addition to

1 Excerpted from Economic Times, August 09, 2017 from the article named "*Agriculture exports decline to $33.87 billion in FY17*" https://economictimes.indiatimes.com/news/economy/foreign-trade/agriculture-exports-decline-to-33-87-billion-in-fy17/articleshow/59987585.cms

Table 1.1: India's Top Five Agricultural Export Products to Bangladesh at HS 2 Digit Level of Product Classification

Year	Product 1 (HS code)	Product 2 (HS code)	Product 3 (HS code)	Product 4 (HS code)	Product 5 (HS code)	Share*
2006-2007	Cereals (10)	Edible Vegetables (07)	Sugars and Sugar Confectionery (17)	Animal Fodder (23)	Coffee, Tea, Mate and Spices (09)	88.85
2007-2008	Live Animals (01)	Meat and Edible Meat Offal (02)	Fish and Other Aquatic Invertebrates (03)	Dairy Produce (04)	Animal Products, nes (05)	92.55
2008-2009	Cereals (10)	Sugars and Sugar Confectionery (17)	Edible Vegetables (07)	Animal Fodder (23)	Edible Fruit and Nuts (08)	90.15
2009-2010	Edible Vegetables (07)	Animal Fodder (23)	Cereals (10)	Edible Fruit and Nuts (08)	Coffee, Tea, Mate and Spices (09)	89.74
2010-2011	Animal Fodder (23)	Cereals (10)	Edible Vegetables (07)	Sugars and Sugar Confectionery (17)	Coffee, Tea, Mate and Spices (09)	83.89
2011-2012	Cereals (10)	Animal Fodder (23)	Sugars and Sugar Confectionery (17)	Edible Fruit and Nuts (08)	Edible Vegetables (07)	85.18
2012-2013	Cereals (10)	Sugars and Sugar Confectionery (17)	Animal Fodder (23)	Edible Vegetables (07)	Dairy Produce (04)	85.61
2013-2014	Cereals (10)	Animal Fodder (23)	Edible Vegetables (07)	Dairy Produce (04)	Coffee, Tea, Mate and Spices (09)	89.02
2014-2015	Cereals (10)	Animal Fodder (23)	Edible Vegetables (07)	Coffee, Tea, Mate and Spices (09)	Sugars and Sugar Confectionery (17)	86.14
2015-2016	Cereals (10)	Edible Vegetables (07)	Animal Fodder (23)	Coffee, Tea, Mate and Spices (09)	Edible Fruit and Nuts (08)	81.48
2016-2017	Animal Fodder (23)	Edible Vegetables (07)	Coffee, Tea, Mate and Spices (09)	Cereals (10)	Edible Fruit and Nuts (08)	79.11

***Notes**: The numbers in brackets of type ( ) are the corresponding HS codes at 2 digit level of product classification; *: Percentage share of top five export products in total agricultural (Agricultural products of HS chapters 01 to 24) exports.*

***Source**: CUTS calculations using data from Ministry of Commerce and Industry, Government of India*

this, other important commodity, in terms of export volume and its consistency in trade with Bangladesh, is residues and waste from food industries. Due to its season neutral production, these items are traded throughout the year without any major fluctuations.

However, exports of other items like sugar and sugar confectionary, edible vegetable, fruit, coffee, and tea remain volatile. Sugar and sugar confectionary items were exported to Bangladesh in significant volume only in summer season of 2015 and in subsequent two years its exports have reduced. Total exports of two consecutive years are equal to volume of exports in the summer season of 2015.

India's import share of agricultural commodities is 18 per cent in its total import from Bangladesh

By looking at the trade in vegetables, data reveals that edible vegetables are exported in high volumes during the *Kharif* and summer seasons. On the other hand, different varieties of fruits were exported throughout the year. Moreover, there are no particular seasonal trend for exporting agriculture allied commodities, such as tea, coffee, mate and spices to Bangladesh. These products were traded with Bangladesh across all seasons and in significant volume over the last three years.

1.1.2 Agricultural Imports from Bangladesh

Product categories are very few in case of import of agricultural items of India from Bangladesh. As shown in Table 1.2, top five import categories constitute 91 per cent share of the total agricultural imports from Bangladesh over the past 10 years. The comparative figures of exports and imports show a high degree of similarity. There is no significant change in the agricultural commodities that have been imported over the years.

1.2 India-Bangladesh Trade Routes

India and Bangladesh share a long porous border and there are many inter-change border points through which trade between these two countries takes place

India and Bangladesh use three transport modes to exchange goods across borders. Those are: Railways, Roadways and Waterways.

1.2.1. Railways

Rail is the fastest means of transport after air. India and Bangladesh have very poor rail connectivity for border trade and movement of people. India uses railways to transport 27 per cent of its total freight movement.

Given the importance of increasing passenger and goods movements across countries, it is essential to have better rail links between both countries. At present, there are four main routes through which exchange of goods take place by rail: Gede (India) – Darsana (Bangladesh); Singhabad (India) – Rohanpur (Bangladesh); and Petrapole (India) – Benapole (Bangladesh); Radhikapur (India) – Birol (Bangladesh) – in operation from 08 April 2017.

Table 1.2: India's Top Five Agricultural import products from Bangladesh at HS 2 Digit Level of Product Classification

Year	Product 1 (HS code)	Product 2 (HS code)	Product 3 (HS code)	Product 4 (HS code)	Product 5 (HS code)	Share*
2006-2007	Fish and Other Aquatic Invertebrates (03)	Animal or Vegetable Fats (15)	Edible Fruit and Nuts (08)	Animal Fodder (23)	Beverages, Spirits and Vinegar (22)	94.60
2007-2008	Fish and Other Aquatic Invertebrates (03)	Animal or Vegetable Fats (15)	Edible Fruit and Nuts (08)	Animal Fodder (23)	Beverages, Spirits and Vinegar (22)	92.80
2008-2009	Fish and Other Aquatic Invertebrates (03)	Animal Fodder (23)	Edible Fruit and Nuts (08)	Sugars and Sugar Confectionery (17)	Coffee, Tea, Mate and Spices (09)	93.48
2009-2010	Fish and Other Aquatic Invertebrates (03)	Edible Fruit and Nuts (08)	Beverages, Spirits and Vinegar (22)	Preparations of Vegetables, Fruit, Nuts or other parts of Plants (20)	Animal Fodder (23)	97.19
2010-2011	Fish and Other Aquatic Invertebrates (03)	Edible Fruit and Nuts (08)	Animal or Vegetable Fats (15)	Animal Fodder (23)	Beverages, Spirits and Vinegar (22)	96.52
2011-2012	Fish and Other Aquatic Invertebrates (03)	Edible Fruit and Nuts (08)	Animal or Vegetable Fats (15)	Animal Fodder (23)	Beverages, Spirits and Vinegar (22)	96.38
2012-2013	Edible Fruit and Nuts (08)	Fish and Other Aquatic Invertebrates (03)	Animal Fodder (23)	Animal or Vegetable Fats (15)	Beverages, Spirits and Vinegar (22)	95.91
2013-2014	Edible Fruit and Nuts (08)	Fish and Other Aquatic Invertebrates (03)	Beverages, Spirits and Vinegar (22)	Animal or Vegetable Fats (15)	Animal Fodder (23)	87.08
2014-2015	Edible Fruit and Nuts (08)	Fish and Other Aquatic Invertebrates (03)	Beverages, Spirits and Vinegar (22)	Preparations of Cereals, Flour, Starch or Milk; Pastry cooks' products (19)	Sugars and Sugar Confectionery (17)	88.63
2015-2016	Edible Fruit and Nuts (08)	Edible Vegetables (07)	Fish and Other Aquatic Invertebrates (03)	Beverages, Spirits and Vinegar (22)	Preparations of Cereals, Flour, Starch or Milk; Pastry cooks' products (19)	80.14
2016-2017	Animal or Vegetable Fats (15)	Fish and Other Aquatic Invertebrates (03)	Beverages, Spirits and Vinegar (22)	Animal Fodder (23)	Preparations of Cereals, Flour, Starch or Milk; Pastry cooks' products (19)	82.11

***Notes**: The numbers in brackets of type ( ) are the corresponding HS codes at 2 digit level of product classification; *: Percentage share of top five import products in total agricultural (Agricultural products of HS chapters 01 to 24) imports.*

***Source**: CUTS calculations using data from Ministry of Commerce and Industry, Government of India*

In addition to these routes, governments of both countries have agreed to establish a 15 kms railway line from Agartala in India to Akhaura in Bangladesh. This rail link is expected to reduce the distance between Kolkata and Agartala significantly and strengthen connectivity of the North Eastern Region of India with Bangladesh.

1.2.2 Waterways

Waterways are the cheapest means of transport. Bangladesh is the largest delta, constituting three trans-boundary rivers systems. Ganges–Brahmaputra–Meghna – these three rivers are flowing through Bangladesh, originated in India. Bangladesh and India share 54 transboundary rivers which have a direct impact on food security in both countries.

These rivers play an important role in the daily lives of people in the catchment area. The usage of these rivers for navigational purposes is very low in India. In India, waterways are used to transport 0.5 per cent of total freight movement. Various infrastructural constraints are responsible for this current low volume of trade through waterways which include lack of regular dredging of the river, sub-optimal terminal and cargo handling facilities and shortage of Inland Waterway Transport (IWT) vessels in eastern and north-eastern part of India (ORF, 2015).

One litre of petrol can move 105 tonnes on water, while it moves only 24 tonnes by road and 85 tonnes by rail

India and Bangladesh have agreed to make mutually beneficial arrangements to develop already existing waterways between them to flourish inter-country, intra-country, and transit trade under Article VIII of trade agreement between India and Bangladesh. Following transit routes have been specified in the protocol[1] (both sides):

- Kolkata–Haldia–Raimongal–Chalna–Khulna–Mongla–Kaukhali–Barisal–Hizla–Chandapur–Narayanganj–Aricha–Sirajganj–Bahadurabad–Dhubri–Pandu
- Kolkata–Haldia–Raimongal–Mongla–Kaukhali–Barisal–Hizla–Chandpur–Narayanganj–Bhairab Bazar–Ajmiriganj–Markuli–Sherpur–Fenchuganj– Zakiganj–Karimganj
- Rajshahi–Godagari–Dhulian
- Karimganj–Zakiganj–Fenchuganj–Sherpur–Markuli–Ajmiriganj–Bhairab Bazar–Narayanganj–Chandpur–Aricha–Sirajganj–Bahadurabad–Chilmari–Dhubri– Pandu.

This protocol also mentions equal number of 'Ports of Call' in both countries. The names of those 'Ports of Call' are: Kolkata, Haldia, Karimganj, Silghat and Pandu in India and Narayananganj, Khulna, Mongla, Ashuganj and Sirajganj in Bangladesh.

1 Protocol on Inland Water Transit and Trade; Retrieved from: http://iwai.nic.in/showfile.php?lid=1133

Table 1.3: Active LCSs between India and Bangladesh for Trading Purpose

Indian State	Name of LCS	
	India Side	Bangladesh Side
West Bengal	Petrapole	Benapole
	Chengrabandha	Burimari
	Hili	Ghoraghat
	Mohedipur	Shibganj
	Ghajadanga	Satkhira
	Fulbari	Banglabandha
Assam	Sutarkandi	Sheola
	Mankachar	Natun Bandar
Meghalaya	Dawki	Tamabil
	Shella Bazar	Bastola
	Borsora	Borsora
	Mahendraganj	Dhanua Kamalpur
	Dalu	Nakugaon
	Baghmara	Bijoypur
Tripura	Agartala	Akhaura
	Srimanthapur	Bibir Bazar
	Manughat	Chatlapur
	Old Ragnabazar	Batuli

***Note**: Names in the parenthesis are referring to the interchanging point in Bangladesh.*

***Source**: Report of "Study of Trade and Transport Facilitation India-Bangladesh", AITD & Ministry of Development of North Eastern Region.*

1.2.3 Roadways

At present, roads are the main mode of transport for both passenger and goods movement between India and Bangladesh. Both countries share a long land border and business transactions takes place through various border points. A total of 18 Land Customs Stations (LCSs) operate along the Indo-Bangla border for cross border-trade. Names of active LCSs with their corresponding Indian states are given in Table 1.3.

18 LCSs facilitate trade along the Indo-Bangla border

1.3 Objectives of the Study

The objective of the study is to identify existing NTBs[1] to bilateral agricultural trade between India and Bangladesh through land routes. Assuming the trade expansionary effects of reducing NTBs, the study also highlights the linkage of trade with food security challenges of both countries and possible linkage of bilateral trade with the livelihood of the actual producers of agricultural products. The specific objectives of the study are to:

1 Any measure other than tariff which restricts flow of trade between two countries is classified under Non-Tariff Barriers (NTBs). As per the UN experts, NTBs may include anti-dumping measures, new technical standards applied to imports, new safety regulations, changed sanitary requirements, or more exacting procedures for import licensing and customs clearance.

- identify NTBs faced by Indian exporters and importers while doing trade with Bangladesh in agriculture and related products (only for the selected ones) with particular emphasis on such trade through selected land ports;
- understand the role of cross border agricultural trade in achieving the food security challenges in both countries;
- understand issues associated with the livelihood of Indian farmers involved in the production of agricultural export items; and
- identify priority areas and recommendations to facilitate trade in agricultural and related products between India and Bangladesh.

It is believed that despite the rising overall trade, there still exists huge untapped potential and the major reason is the prevalence of trade barriers. NTBs are major ones

Figure 1.4: Selected Land Ports and Products at Indo-Bangladesh Border

1.4 Project Implementation Plan

To pursue the objectives of the study, seven land ports (*Ghajadanga, Petrapole, Mohedipur, Hili, Fulbari, Chengrabandha, Agartala*) have been selected with major export and import items. The study analysed 15 agricultural commodities that are traded through the seven selected land ports in India. Of these, 10 items are exported by India to Bangladesh *(Animal Feed, Capsicum, Ginger, Grapes, Lentils, Fish Meal, Onion, Rice, Seed and Tea)* and five items are imported by India from Bangladesh *(Fish, Fruit Juice, Potato Flakes, Sugar Confectionary, and Vegetable Oil)*.

The framework of the entire study is highlighted using the flow diagram as shown in Figure 1.5.

The study is based on primary and secondary data analyses

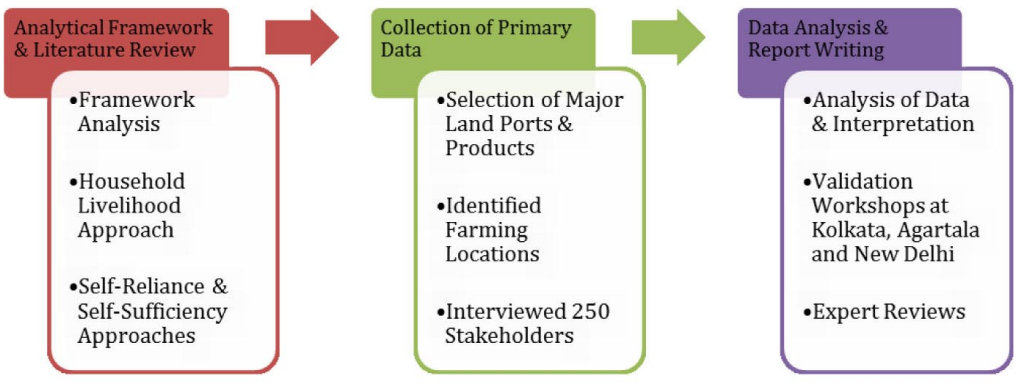
Primary data is collected to identify existing NTBs to trade between India and Bangladesh through selected land ports and study the livelihood challenges of concerned producers. Personal interviews have been conducted with stakeholders by using separate interview schedule for each stakeholder. About 250 stakeholders have been interviewed (See Annexure I for details on selected ports, products, and stakeholders).

On the other hand, the relationship between trade and food security is analysed with the help of secondary data analysis. Secondary data on production and bilateral trade (imports and exports) have been utilised to understand the changing dynamics of trade over last 10 years and the existing composition of agricultural trade between the two countries. It has also helped in proving the hypotheses of self-reliance and self-sufficiency that link trade in agricultural items with food security challenges of both countries.

Overall, three main frameworks have been utilised to pursue the objectives of the study (See Annexure II for detailed description of analytical frameworks used).

- Framework Analysis to analyse the qualitative information collected from the field survey;
- Calculation of dependency ratios to establish the link between trade and food security; and
- Household Livelihood Approach (HLA) to understand the strategies that household uses to attain the required livelihood and study the impact of trade activity on household's livelihood.

Figure 1.5: Framework of the Study



2

NTBs to Agricultural Trade between India and Bangladesh: *Empirical Evidence from the Survey*

Queue of Trucks at Chengrabandha Land Port, India

2

Trade creates employment opportunities, income, reduces costs for industries and consumers, motivates entrepreneurs, empowers women, and attracts investment in production and infrastructure. It also serves as a conduit through which we can share and exchange knowledge, ideas, innovations and technologies that have the power to transform lives in developing regions.

In short, trade lays the foundation to fuel progress across a broad range of Sustainable Development Goals (SDGs). However, cross border trading is not always easy. Trade can and does get restricted due to tariff and NTBs. A sharp decline in traditional tariff barriers has contributed to the growth of international trade. Reduction in tariffs has also shifted the attention to other kinds of barriers to trade - commonly known as NTBs. Anything which makes trade more difficult can be classed as a non-tariff barrier, including compliance with a different regulatory regime, paperwork, language differences, border checks, quotas, phytosanitary rules or labelling conditions.

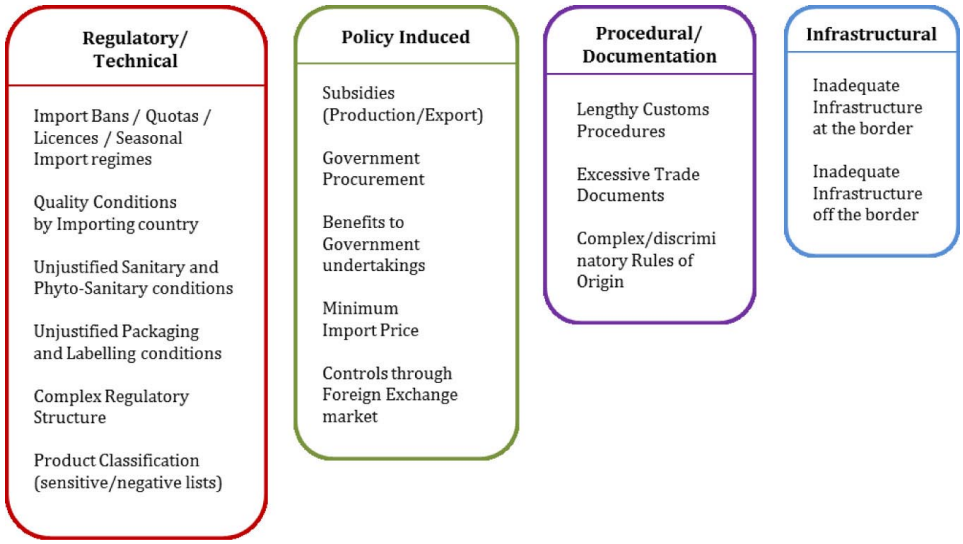
NTBs are more harmful in case of trade in agricultural products because of their perishable nature

NTBs still persist and restrict trade more than tariff barriers. Many existing studies have confirmed the prevalence of NTBs in South Asian region which are restricting inter and intra-regional trade and adversely affecting associated stakeholders.

Reduction in NTBs can be a game changer for bilateral trade in agricultural products

It is important to prioritise the task of reducing the incidence and impact of such barriers. Identification of such barriers is a priority and one needs to identify sources of such barriers. The present chapter is an attempt in this direction and highlights existing NTBs to agriculture trade between India and Bangladesh through selected land ports. All such barriers can be categorised into four broader categories as portrayed in Figure 2.1.

Figure 2.1: Categorisation of Non-Tariff Barriers



2.1 Regulatory Barriers

The NTBs under this category are related to regulatory measures (particularly NTMs) imposed by countries on imports and exports. Generally, as per the definition, these NTMs should not be trade distortionary but generally restrict trade and become NTBs. The study found evidence of regulatory NTBs in relation to India-Bangladesh agriculture trade.

NTBs can arise from the imposition of government laws, trade-related regulations, specific requirements linked with production & trade, and inadequate infrastructure

- **Export Ban:** Bangladesh imposed of ban on exporting Hilsa fish to India in 2012. In January 2018, Bangladesh announced lifting the ban, but no notification has been issued as yet.

- **Import Ban (Port Restrictions by Bangladesh):** Bangladesh banned import from India through Tripura on specific items such as rubber, bamboo, tea and cashew nuts. Only few items are allowed to enter in Bangladesh through Tripura, restricting Indian exports resulting in losses for Indian exporters. Tripura shares seven land ports with Bangladesh but the volume of exports from these ports is quite low in comparison to volume of imports. Port related export restrictions are impacting the business eco-system in Tripura, as the state can export many restricted commodities to Bangladesh. State Government has requested the Centre to resolve these issues with Bangladesh as the same restricted products are exported to Bangladesh from other land ports connecting India and Bangladesh.

- **Divergent Packaging Requirements:** Stakeholders in India have raised the issue of frequent changes in Bangladeshi regulations on product packaging. In 2017, Bangladesh has made it mandatory to use jute bags for packaging some export items. This move is against the Indian anti-dumping duty on imported

jute from Bangladesh. The stakeholders have emphasised that Bangladesh should avoid such practices because it negatively affects the volume of trade.

- **Language Barrier**: In Bangladesh, all notices and regulations related to standards and labelling are in Bengali language which makes it difficult for Indian exporters to understand instructions or miss out specific requirements. While none of the exporters have faced any language barrier as yet, this may become a problem for other Indian states which are not conversant with Bengali language.

2.2 Technical Barriers

Various types of technical regulations act as barriers to trade between both countries. This includes: product-level manufacturing standards, complex certification, and testing and registration requirements. Of the technical barriers, few are affecting the current volume of bilateral trade and the remaining are potential barriers. Following are the reasons due to which these barriers arise:

NTMs are policy measures other than customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices, or both

- **Excessive Testing Requirements**: Some food products are subject to tests from several laboratories. For instance, in case of Agartala, for fish imports from Bangladesh, Indian importers pay an additional charge on packing material which in this case is a bamboo cage. The import of bamboo is under Plant Quarantine (PQ) testing and the local PQ office at the Agartala ICP charges for testing bamboo cages. This increases the cost of importing fish.

  In another instance, fish importers have to procure a Sanitary Import Permit (SIP) from New Delhi over and above the quarantine certificate to import fish into India from Bangladesh. One of the member of Fish Importer' Association from West Bengal was of the view that SIP is mainly applicable on livestock products for personal consumption, but customs places fresh fish in the same category as livestock thereby making SIP mandatory. Obtaining SIP is lengthy which could take 10 to 12 days. This delay affects the demand for a particular type of fresh fish since its demand and availability are seasonal. Consequently, fish importers especially small ones face significant problems while importing fish from Bangladesh. The Association is of the view that if at all SIP is required it should be issued by the quarantine office at the Indo-Bangladesh border rather than awaiting clearances from a centralised facility in New Delhi.

- **Divergence in Quality Standards of Food Products**: This is a potential barrier which is related to the divergence of standards involved in food preparation and arises when consumers attain a level of affluence where they are consious of qualitative and residual limits of contaminants. As of now, importer and exporter are not facing any hurdle because of this reason, but the existing

divergences in quality standards of food products may come into play in the future, especially if no policy action is taken. On the availability of secondary information, product-wise divergence in quality standards of food products is given as follows (only for those products whose information is completely available at country level secondary sources).

Fruit Juice: There is high demand of Bangladeshi fruit juice in India, mainly in West Bengal and North East states. Divergence of standards in juice preparation across countries could act as potential barriers. The Food Safety and Standards Authority of India (FSSAI) has set standards for fruit juice with which Bangladeshi products shall have to comply while exporting to India. Bangladesh has a standard setting authority, BFSA, which sets its own standards for preparing fruit juice, both for domestic consumption and for imports.[1]

This study has found significant divergence between Indian and Bangladeshi food standards related to preparation of fruit juice. This divergence is because of different parameters and difference in residue limit (Maximum Residue Limit-MRL) within common parameters. All parameters are covered under two broad categories: Heavy Metals and Contaminants (see Table 2.1 for regulations of both countries related to juice preparation). Among heavy metals, three metals: lead, tin and zinc are common in both the countries.

Indian standards have included three additional metals: Cadmium, Mercury and Methyl Mercury which are absent in Bangladeshi standards. Similarly, one contaminant Aflatoxin which does not exist in the Bangladeshi food standard, while it is stated in Indian standards with MRL 30 ug/kg. To comply with Indian standards, Bangladeshi producers have to produce different export quality product exclusively for the Indian market which could make it difficult for small fruit juice producers compete with larger exporters. Harmonisation of standards between both countries can be one possible solution to overcome barriers related to food quality standards.

In case of fish, India is a good export market for Bangladesh. As per 2017 data, 92.93 per cent of Bangladesh's total fresh fish export (HS 0302) finds market in India, whereas for live fish (HS 0301), India is market for 8.5 per cent of Bangladeshi exports

Fish: Among the selected products, fish is an import item of India from Bangladesh. The analysis of technical regulations related to fish production (see Table 2.2 for details on production standards in case of fish) reveals that there is lack of homogeneity in the existing standards in both countries as there are few common parameters.

In Bangladesh, there exists few production standards in case of fish and even fewer related to the presence of heavy metals. However, India has many standards across variety of antibiotics, biotoxins, contaminants, and insecticides. These standards can make it difficult for Bangladesh to export to India.

1 As per the FSSAI notification on 3rd April 2017, the Bangladesh Standard and Testing Institution (BSTI), Dhaka is authorized to issue certificate of test analysis for fruit juice (and also other food products listed in annexure of the notification) for the purpose of import into India.

Table 2.1: Production Standards for Fruit Juice Preparation by India and Bangladesh

Heavy Metal for Fruit Juice

Name of Heavy Metal	Exists in India's Regulation	Exists in Bangladesh's Regulation	Applicable Type of Juice in India	Applicable Type of Juice in Bangladesh	MRL of India (in ppm)	MRL of Bangladesh (in ppm)
Lead	✓	✓	All Type	All Type	1.00	0.05
Tin	✓	✓	Juice of orange, grape, apple, tomato, pineapple and lemon	All Type	250	150
Zinc	✓	✓	Juice of orange, grape, apple, tomato, pineapple and lemon	All Type	5	5
Cadmium	✓	×	All Type	Not Applicable	1.5	NA
Mercury	✓	×			1	NA
Methyl Mercury	✓	×			0.25	NA

Contaminants for Fruit Juice

Name of Contaminants	Exists in India's Regulation	Exists in Bangladesh's Regulation	Applicable Type of Juice in India	Applicable Type of Juice in Bangladesh	MRL of India (in ppm)	MRL of Bangladesh (in ppm)
Agaric acid	✓	✓	All Type	All Type	100	100
Hydrocyanic acid	✓	✓			5	5
Hypericin	✓	✓			1	1
Safrole	✓	✓			10	10
Acrylonitrile	×	✓	NA		NA	0.02
Vinyl chloride monomer	×	✓			NA	0.01
Aflatoxin	✓	×	All Type	NA	30 ug/kg	NA

Source*: *For Indian Food Standard*: *Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011; Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011;

For Bangladesh Food Standard*: *Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017, Published in Extraordinary Gazette Notification of Bangladesh, dated on 10th July, 2017

Potato: In this study, potato is considered as an import item and the comparative study of production standards (see Table 2.3 for details on production standards) in both countries reveals that there is lack of homogeneity in the present standards for both countries. Also, there are very few common parameters. For instance, in case of heavy metals, India has established standards for four different metals, whereas Bangladesh has established standard for one metal. A similar trend is visible in other categories as well, where India and Bangladesh have taken into consideration different parameters.

Potato falls under the restricted list. Import is permitted for sowing or planting without a licence only in accordance with an import permit granted under PQ Order, 2003

Table 2.2: Production Standards for Fish by India and Bangladesh

Heavy Metal for Fish					
Name of Heavy Metals	**Applicable Types of Fish**	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in PPM)**	**MRL of Bangladesh (in PPM)**
Cadmium	Fresh Water Fish	✓	✓	0.3	0.05
	Sea Water Fish		✓		0.25
	Crustaceans		✓		0.50
Plumbum	Fresh Water Fish	×	✓	NA	0.30
	Sea Water Fish		✓	NA	0.30
	Crustaceans		✓	NA	0.50
Hydrargyrum	Fresh Water Fish	×	✓	NA	0.50
	Sea Water Fish		✓	NA	1.00
	Crustaceans		✓	NA	0.50
Chromium	Fresh Water Fish	✓	✓	12	1
	Sea Water Fish		✓		1
	Crustaceans		✓		1
Arsenic	Fresh Water Fish	✓	✓	76	5
	Sea Water Fish		✓		5
	Crustaceans		✓		5
Cuprum	Fresh Water Fish	×	✓	NA	5
	Sea Water Fish		✓	NA	5
	Crustaceans		✓	NA	5
Zinc	Fresh Water Fish	×	✓	NA	50
	Sea Water Fish		✓	NA	50
	Crustaceans		✓	NA	50
Lead	All Types	✓	×	0.3	NA
Mercury	Non-Predatory	✓	×	0.5	NA
	Predatory			1	NA
Methyl Mercury	All types	✓	×	0.5	NA
Tin	Canned Fish	✓	×	200	NA
Contaminants for Fish					
Name of Contaminants	**Applicable Types of Fish**	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in PPM)**	**MRL of Bangladesh (in PPM)**
Agaric acid	All types	✓	×	100	NA
Hydrocyanic acid	All types	✓	×	5	NA
Hypericine	All types	✓	×	1	NA
Saffrole	All types	✓	×	10	NA
Histamine level	All types	✓	×	n=9, c=2; m=100mg/kg, M=200mg/kg	NA

Insecticides for Fish						
Name of Contaminants		**Applicable Types of Fish**	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in PPM)**	**MRL of Bangladesh (in PPM)**
Carbaryl		All Type	✓	×	0.2	NA
D.D.T. (D.D.T., D.D.D D.D.E. single or in any combination)					7.0	NA
Endosulfan					0.20	NA
Hexachlorocycle hexane and its Isomers	Alfa Isomer				NA	NA
	Beta Isomer				NA	NA
	Gamma Isomer				NA	NA
	Delta (d) Isomer				NA	NA
Polychlorinated biphenyls (Sum of PCB28, PCB52, PCB101, PCB138, PCB153 and PCB180)		Inland and Migratory Fish	✓	×	2	NA
		Marine Fish, Crustaceans and molluscs	✓	×	0.5	NA
Biotoxins for Fish						
Name of Biotoxins		**Applicable Types of Fish**	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in ug/kg)**	**MRL of Bangladesh (in ug/kg)**
Paralytic Shellfish Poison (PSP)		Bivalve Molluscs	✓	×	80 µg/100g (Saxitoxin Equivalent)	NA
Amnesic Shellfish Poison (ASP)		Bivalve Molluscs	✓	×	80 µg/100g (Saxitoxin Equivalent)	NA
Diarrhetic shellfish poison (DSP)		Bivalve Molluscs	✓	×	160 µg of Okadaic acid equivalent/Kg	NA
Azaspiracid poison (AZP)		Bivalve Molluscs	✓	×	160 µg of azaspiracid equivalent/Kg	NA
Brevetoxin (BTX)		Bivalve Molluscs	✓	×	200 mouse units or equivalent/Kg	NA
Antibiotics for Fish						
Name of Antibiotics		**Applicable Types of Fish**	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Quinolphos		All Type	✓	×	0.01	NA
Tetracycline			✓	×	0.1	NA
Oxytetracycline			✓	×	0.1	NA
Trimethoprim			✓	×	0.05	NA
Oxolinic acid			✓	×	0.3	NA

Source*: *For Indian Food Standard*: *Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011; Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011;

For Bangladesh Food Standard*: *Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017; Published in Extraordinary Gazette Notification of Bangladesh, dated on 10th July, 2017.

Table 2.3: Production Standards for Potato by India and Bangladesh

Heavy Metal for Potato					
Name of Heavy Metals		**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in PPM)**	**MRL of Bangladesh (in PPM)**
Zinc		✓	×	50	NA
Cadmium		✓	✓	1.5	0.10
Mercury		✓	×	1	NA
Methyl Mercury		✓	×	0.25	NA
Contaminants for Potato					
Name of Contaminants		**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in PPM) or µg/kg)**	**MRL of Bangladesh (in PPM)**
Aflatoxin		✓	×	30 µg/kg	NA
Agaric acid		✓	×	100	NA
Hydrocyanic acid		✓	×	5	NA
Hypericine		✓	×	1	NA
Saffrole		✓	×	10	NA
Acrylonitrile		×	✓	NA	NA
Vinyl chloride monomer		×	✓	NA	NA
Insecticides for Potato					
Name of Insecticides		**Exist in India's Regulation**	**Exist in Bangladesh's Regulation**	**MRL of India (in PPM)**	**MRL of Bangladesh (in PPM)**
Aldrin, dieldrin (the limits apply to aldrin singly or in any combination and are expressed as dieldrin)		✓	×	0.1	NA
Carbaryl		✓	×	0.2	NA
Chlordane		✓	×	0.2	NA
D.D.T. (The limits apply to D.D.T., D.D.D., D.D.E. singly or in any combination)		✓		3.5	NA
Diazinon		✓	✓	0.5	0.01
Dichlorvos (content of di- chloroacetaldehyde		✓	×	0.15	NA
Dicofol		✓	×	5.0	NA
Dimethoate		✓	✓	2.0	0.05
Endosulfan		✓	×	2.0	NA
Fenitrothion		✓	×	0.3	NA
Heptachlor		✓	×	0.05	NA
Hexachlorocycle hexane and its Isomers	Alfa Isomer	✓	×	1	NA
	Beta Isomer	✓	×	1	NA
	Gamma Isomer	✓	×	1	NA
	Delta Isomer	✓	×	1	NA

Malathion	✓	×	3	NA
Parathion	✓	×	0.5	NA
Parathion methyl	✓	×	1	NA
Phosphamidon residues	✓	×	0.2	NA
Pyrethrins	✓	×	1	NA
Chlorienvinphos	✓	×	0.05	NA
Chlorpyrifos	✓	✓	0.01	2
2,4D	✓	×	0.2	NA
Ethion	✓	×	1	NA
Formothion	✓	×	2	NA
Monocrotophos	✓	×	0.05	NA
Paraquat Dichloride	✓	×	0.2	NA
Phosalone	✓	×	0.1	NA
Trichlorfon	✓	×	0.1	NA
Thiometon	✓	×	0.05	NA
Aldicarb	✓	×	0.5	NA
Carbendazim	✓	×	0.5	NA
Benomyl	✓	×	0.5	NA
Captan	✓	×	15	NA
Carbofuran	✓	×	0.1	NA
Copper Oxychloride	✓	×	1	NA
Fenthion	✓	×	0.05	NA
Dithiocarbamates	✓	×	0.1	NA
Phorate	✓	×	0.05	NA
Malic Hydrazide	✓	×	50	NA
Dimethomorph	✓	✓	0.05	0.05
Chlorothalonil	✓	×	0.1	NA
Propineb	✓	×	0.5	NA
Abamectin	×	×	0.01	NA
Cyfluthrin/beta-cyfluthrin	×	×	0.01	NA
Deltamethrin	×	×	0.01	NA
Fipronil	×	×	0.02	NA
Indoxacarb	×	×	0.02	NA
Methomyl	×	×	0.02	NA
Oxydemeton-Methyl	×	×	0.01	NA
Permethrin	×	×	0.05	NA
Spirotetramate	×	×	0.80	NA
Thiacloprid	×	×	0.02	NA
Azoxystrobin	×	✓	NA	7.00
Benalaxyl	×	✓	NA	0.02

Difenoconazole	×	✓	NA	4.00
Metalaxyl	×	✓	NA	0.05
Propamocarb	×	✓	NA	0.30
Pyraclostrobin	×	✓	NA	0.02
Trifloxystrobin	×	✓	NA	0.02
Glufosinate-Ammonium	×	✓	NA	0.10
Radionuclides for Potato				
Name of Radionuclides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in Bq/kg)**	**MRL of Bangladesh (in Bq/kg)**
134Cs,137Cs, 239Pu, 90Sr, 131I	×	✓	-	50

***Source**: **For Indian Food Standard**: Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011; Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011;*
***For Bangladesh Food Standard**: Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017; Published in Extraordinary Gazette Notification of Bangladesh, dated on 10th July, 2017.*

Sugar Confectionery: Sugar confectionery containing cocoa is an import item from Bangladesh and the comparative analysis of existing production standards reveals that there is a huge discrepancy in the standards regarding this food item between both countries (see Table 2.4 for details on production standards of this product). Bangladesh has specified only eight parameters wherein five are common to Indian standards.

Ginger: The comparative analysis of production standards in case of ginger shows heterogeneity in acceptable quality standards of ginger across two countries (see Table 2.5 for details on production standards of this product). As per the regulations, existing quality standards of FSSAI does not test the presence of residue of radionuclides in it. However, Bangladesh food quality standards tests ginger for measuring one radionuclide and shall be permitted to sell in domestic market only if tested one kg of ginger contain maximum 50 Bq.

India is the largest producer of ginger and it is in high demand in Bangladesh

Similarly, presence of six residues shall be tested additionally by BFSA according to respective MRL limits before sale in the domestic market, whereas the testing for these contaminants presence is not required in Indian market. Indian regulation has mentioned the MRL limit: residue of one insecticide, three heavy metals, one microbiological parameter, and one preservative, which are not present in Bangladesh food safety standard regulation on ginger.

Table 2.4: Production Standards for Sugar Confectionery by India and Bangladesh				
Heavy Metals for Sugar Confectionery				
Name of Heavy Metals	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in PPM)**	**MRL of Bangladesh (in PPM)**
Lead (in sugar confectionery)	✓	×	2	NA
Lead (in Cocoa)	✓	×	5	NA
Copper (in sugar confectionery)	✓	×	5	NA
Copper (in cocoa)	✓	✓	70	70
Arsenic	✓	×	1	NA
Tin	✓	×	5	NA
Zinc	✓	×	5	NA
Methyl Mercury	✓	×	0.25	NA
Mercury	✓	×	1	NA
Additives for Sugar Confectionery				
Saccharin Sodium	✓	×	3000	NA
Aspartame (methylester)	✓	×	10000	NA
Acesulfame Potassium	✓	×	3500	NA
Sucralose	✓	×	1500	NA
acid treated starch	✓	×	GMP*	NA
Spreadasil silicon spray	✓	×	10	NA
Monosodium Glutamate	✓	×	0	NA
Trehalose	✓	×	5.0-7.5 per cent[1]	NA
Ascorbyl Esters	✓	×	500	NA
Acesulfame potassium	✓	×	350	NA
Ammonium salts of phosphatidic acid	✓	×	GMP	NA
Aspartame	✓	×	3,000	NA
Benzoates	✓	×	1500	NA
Sorbates	✓	×	1500	NA
Phosphates	✓	×	1,100	NA
Propylene glycol esters of fatty acids	✓	×	5,000	NA
Saccharin sodium	✓	×	300	NA
Ammonium salts of phosphatidic acids	✓	×	GMP	NA
Sulfites in Dried glucose syrup used to manufacture sugar confectionery (Dried glucose syrup)	✓	×	20	NA
Sulfites in Glucose syrup used to manufacture sugar confectionery (Golden syrup)	✓	×	20	NA
Sulphur Dioxide	✓	×	2000	NA
Isomaltulose	✓	×	50% of the total sugar with adversely affecting the stability of the product[2]	NA

Gellan gum	✓	×	2%	NA
Polyols- Sorbitol, Manitol, Xylitol, Isomalt, Lactitol, Maltitol	✓	×	GMP	NA
Mycotoxins for Sugar Confectionery				
Agaric acid	✓	✓	100	100
Hydrocyanic acid	✓	✓	5	5
Hypericine	✓	✓	1	1
Saffrole	✓	✓	10	10
Aflatoxin	✓	×	30 µg/kg	NA
Vinyl chloride monomer	×	✓	NA	0.01
Acrylonitrile	×	✓	NA	0.02
Radionuclides for Sugar Confectionery				
134Cs,137Cs, 239Pu, 90Sr, 131I	×	✓	NA	50 Bq/kg
Preservatives				
Benzoic Acid, Sodium and Potassium Benzoate	✓	×	1500	NA
Sulphur dioxide	✓	×	2000	NA
Sorbic acid and its Calcium, Sodium, Potassium Salts	✓	×	2000	NA
Class 1 Preservative	✓	×	GMP	NA
Colours for Sugar Confectionery				
Chlorophyll	✓	×	GMP	NA
Erythrosine	✓	×	100	NA
Titanium dioxide	✓	×	10000	NA
Flavours for Sugar Confectionery				
Natural flavour and Natural flavouring substances/Nature identical flavouring substances/Artificial flavouring substances	✓	×	GMP	NA
Vanillin	✓	×	GMP	NA
Ethyl vanillin	✓	×	GMP	NA
Alkalising Agents for Sugar Confectionery				
Sodium, Potassium, Calcium, Magnesium and Ammonium carbonates	✓	×	Calcium carbonate: GMP	NA
Sodium, Potassium, Calcium, Magnesium bicarbonates as K2CO3	✓	×	Calcium carbonate/ sodium bicarbonate: GMP	NA
Neutralising Agents for Sugar Confectionery				
Phosphoric acid	✓	×	1300	NA
Citric acid	✓	×	GMP	NA
L-Tartaric acid	✓	×	2000	NA
Sodium hexametaphosphate	✓	×	GMP	NA
Malic Acid	✓	×	GMP	NA
Antioxidants for Sugar Confectionery				
BHA	✓	×	100	NA
TBHQ	✓	×	100	NA
Tocopherol	✓	×	500	NA

L-Ascorbic acid	✓	×	GMP	NA
Lecithin	✓	×	GMP	NA
Lubricants for Sugar Confectionery				
Talc	✓	×	0.2%	NA
Icing sugar	✓	×	GMP	NA
Mineral oil	✓	×	0.2%	NA
Glycerine	✓	×	GMP	NA
Paraffin wax or liquid Paraffin	✓	×	GMP	NA
Calcium, Magenesium, sodium salts of Stearic acid	✓	×	GMP	NA

*GMP: Good Manufacturing Practices

***Source**: For Indian Food Standards: Food Safety and Standards (Food Product Standards and Food Additives) Regulation, 2011 (Part I and II) For Bangladesh Food Standard: Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017; Published in Extraordinary Gazette Notification of Bangladesh, dated on 10th July, 2017.*

Grapes: India exports grapes in large quantities to Bangladesh. The existing food safety standards with respect to grapes in India and Bangladesh have been mapped in this study (see Table 2.6 for regulations on production standards of both countries). The information contained in the table shows that there is lack of homogeneity in the present standards for both countries, as there are only seven common parameters out of total 78 parameters.

In case of insecticides, India has established standards in 47 different chemicals, whereas Bangladesh has established standards for 36 chemicals with very little convergence. However, it is easy to see that except for carbendazim, India is able to meet other standards for export to Bangladesh.

India was consistently a major supplier of grapes to Bangladesh till the year 2010-12, but there has been a decline since then. The data shows that the quantity of grapes exported by India to Bangladesh is very high

Rice: Divergence in test parameters has been observed while comparing rice quality standards (see Table 2.7 for regulations in both countries). One of the radionuclides (134Cs, 137Cs, 239Pu, 90Sr, 131I) has to be tested while importing all types of rice, whereas it is not considered as a testable parameter in Indian food standard. While exporting rice to Bangladesh, Indian exporters have to comply with MRL limit of 50 Bq per kg of rice containing residue of this specific radionuclide. Parameters to be tested for existing residue of used insecticides are different in regulations of both countries. BFSA accredited testing laboratory tests for residue of insecticides as per permissible MRL limit. If Indian farmers use those insecticides to grow rice, they have to be cautious about using it, if it is to be exported to Bangladesh.

1 http://files.indiantradeportal.in/download.aspx?file=uploads/SPSTBT/India/SPS/Food/Food_Safety_And_Standards_(Food_Product_Standards_And_Food_Additives)_Regulation_2011_-_Amendment_5_Dated_18.02.2015.pdf
*http://files.indiantradeportal.in/download.aspx?file=uploads/SPSTBT/India/SPS/Food/Notice_Operationalization_Food_Additives_Standards.pdf

2 http://files.indiantradeportal.in/download.aspx?file=uploads/SPSTBT/India/SPS/Food/Notification_ARA_DHA_Regulation.pdf

Table 2.5: Production Standards for Ginger by India and Bangladesh				
Radionuclides for Ginger				
Name of Radionuclides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in Bq/kg)**	**MRL of Bangladesh (in Bq/kg)**
134Cs,137Cs,239Pu,90Sr,131I	×	✓	NA	50
Contaminants				
Name of Contaminants	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Agaric acid	×	✓	NA	100
Hydrocyanic acid	×	✓	NA	5
Hypericin	×	✓	NA	1
Safrole	×	✓	NA	10
Acrylonitrile	×	✓	NA	0.02
Vinyl chloride monomer	×	✓	NA	0.01
Aflatoxin	✓	×	30 ug/kg	NA
Insecticides for Ginger				
Name of Insecticides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Acephate	×	✓	NA	0.20
Bifenthrin	×	✓	NA	0.05
Carbaryl	×	✓	NA	0.10
Carbofuran	×	✓	NA	0.10
Carbosulfan	×	✓	NA	0.10
Chlorpyrifos	×	✓	NA	1.00
Cyfluthrin/beta-cyfluthrin	×	✓	NA	0.05
Cypermethrin including alpha-and zeta- cypermethrin	×	✓	NA	0.20
Deltamethrin	×	✓	NA	0.50
Diazinon	×	✓	NA	0.50
Dimethoate	×	✓	NA	0.10
Ethion	×	✓	NA	0.30
Fenitrothion	×	✓	NA	0.10
Fenvalerate	×	✓	NA	0.05
Malathion	×	✓	NA	0.50
Profenofos	×	✓	NA	0.05
Triazophos	×	✓	NA	0.10
Inorganic bromide	✓	✓	400 mg/kg	NA

Fungicides for Ginger				
Name of Fungicides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Carbendazim	×	✓	NA	0.10
Heavy Metals for Ginger				
Name of Heavy Metals	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Lead (tuber root)	✓	×	0.10	NA
Lead (Spice)	✓	×	10	NA
Cadmium	✓	×	0.10	NA
Arsenic	✓	×	5.00	NA
Microbiological Parameter for Ginger				
Name of Microbiological Parameter	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India**	**MRL of Bangladesh**
Salmonella	✓	×	Absent in 25 gm	
Preservative for Ginger				
Name of Preservative	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Sulphur Dioxide	✓	×	2000	NA

Source*: *For Indian Food Standard*: *Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011; Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011.
For Bangladesh Food Standard*: *Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017; Published in Extraordinary Gazette Notification of Bangladesh, dated on July 10, 2017.

Indian standards have not mentioned any parameters for fungicides and herbicides. But Bangladesh standards specifies testing residue of five fungicides and three herbicides parameters in rice at the time of import. In addition to this, if rice is stored at a warehouse, BFSA's food regulation state that it has to be tested for insecticide methyl bromide and import permit will be granted only if the residue limit does not exceed one ppm. Indian food regulation does not prescribed any test for residues of methyl bromide for safe storage of rice.

Looking at packaging and labelling-related issues, instead of labelling mandatory language, the study did not find any significant difference in terms of labelling and packaging instruction. On labelling language, BFSA has specified that the labelling of the product shall be in Bengali language. Even if the product is being imported and labelled in foreign language, separate labelling in Bengali should be pasted on the product container or packaged bag. FSSAI has specified mandatory language for labelling which can be either in English or Hindi in Devanagari script. Packaging material other than jute is not permitted. Rice packed in jute bag is allowed to be imported to Bangladesh.

On labelling language, BFSA has specified that the labelling of the product shall be in Bengali

Table 2.6: Production Standards for Grapes by India and Bangladesh

Heavy Metals for Grapes						
Name of Heavy Metals		**Type of Fruit**	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in PPM)**	**MRL of Bangladesh (in PPM)**
Copper		Foods not specified	✓	✓	30	5
Lead small fruits		Berries and other	✓	✓	0.2	1
Methyl Mercury		All Food	✓	×	0.25	NA
Tin		Grapes	×	✓	NA	250
Zinc		Grapes	×	✓	NA	5
Insecticides for Grapes						
Name of Insecticides		**Type of Fruit**	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Chlormequatchloride		Grapes	✓	×	1	NA
Diuron		Grapes	✓	×	1	NA
Iprodione		Grapes	✓	✓	10	10
Tridemorph		Grapes	✓	×	0.5	NA
Penconazole		Grapes	✓	×	0.2	NA
Myclobutanil		Grapes	✓	×	1	NA
Cymoxanil		Grapes	✓	×	0.1	NA
Triadimefon		Grapes	✓	×	2	NA
Fosetyl-A1		Grapes	✓	×	10	NA
Dimethomorph		Grapes	✓	✓	0.05	3
Propineb		Grapes	✓	×	0.5	NA
Aldrin, dieldrin		Fruits	✓	×	0.1	NA
Chlordane		Fruits	✓	×	0.1	NA
D.D.T. (The limits apply to D.D.T., D.D.D. and D.D.E. singly or in any combination)		Fruits	✓	×	3.5	NA
Dichlorvos		Fruits	✓	×	0.1	NA
Dicofol		Fruits	✓	×	5	NA
Dimethoate		Fruits	✓	×	2	NA
Endosulfan		Fruits	✓	×	2	NA
Fenitrothion		Fruits	✓	×	0.5	NA
Inorganic bromide		Fruits	✓	×	30	NA
Hexachlorocycle hexane and its Isomers specified	Alfa Isomer	Fruits	✓	×	1	NA
	Beta Isomer	Fruits	✓		1	
	Gamma Isomer	Fruits	✓		1	
	Delta Isomer	Fruits	✓		1	
Malathion		Fruits	✓	✓	4	5
Parathion		Fruits	✓	×	0.5	NA

Parathion methyl	Fruits	✓	×	0.2	NA
Phosphamidon residues	Fruits	✓	×	0.2	NA
Pyrethrins	Fruits	✓	×	1	NA
Chlorobenzilate	Fruits	✓	×	1	NA
Chlorpyrifos	Fruits	✓	✓	0.5	0.5
2,4 D	Fruits	✓	✓	2	NA
Ethion	Fruits	✓	×	2	NA
Formothion	Fruits	✓	×	1	NA
Monocrotophos	Fruits	✓	×	1	NA
Paraquat Dichloride	Fruits	✓	×	0.05	NA
Phosalone	Fruits	✓	×	5	NA
Trichlorfon	Fruits	✓	×	0.1	NA
Thiometon	Fruits	✓	×	0.5	NA
Carbendazim	Fruits	✓	✓	5	3
Benomyl	Fruits	✓	×	5	NA
Captan	Fruits	✓	×	15	NA
Carbofuran	Fruits	✓	×	0.1	NA
Copper Oxychloride	Fruits	✓	×	20	NA
Ethylene bis- dithiocarbamates	Fruits	✓	×	3	NA
Phorate	Fruits	✓	×	0.05	NA
Acetamiprid	Fruits	×	✓	NA	0.50
Buprofezin	Fruits	×	✓	NA	1.00
Cyhexatin	Fruits	×	✓	NA	0.30
Cypermethrin including alpha-and Zeta-cypermethrin	Fruits	×	✓	NA	0.20
Deltamethrin	Fruits	×	✓	NA	0.20
Emamectin Benzoate	Fruits	×	✓	NA	0.03
Etofenprox	Fruits	×	✓	NA	4
Flubendiamide	Fruits	×	✓	NA	2
Imidacloprid	Fruits	×	✓	NA	1
Indoxacarb	Fruits	×	✓	NA	2
Methomyl	Fruits	×	✓	NA	0.30
Permethrin	Fruits	×	✓	NA	2
Spirotetramate	Fruits	×	✓	NA	2
Azoxystrobin	Fruits	×	✓	NA	2
Benalaxyl	Fruits	×	✓	NA	0.30
Difenoconazole	Fruits	×	✓	NA	3
Flusilazole	Fruits	×	✓	NA	0.20
Metalaxyl	Fruits	×	✓	NA	1
Pyraclostrobin	Fruits	×	✓	NA	2
Tebuconazole	Fruits	×	✓	NA	6

Trifloxystrobin	Fruits	×	✓	NA	3
Glufosinate-Ammonium	Fruits	×	✓	NA	0.15
Bromopropylate	Fruits	×	✓	NA	2
Mycotoxins for Grapes					
Agaric acid	Fruits	×	✓	NA	100
Hydrocyanic acid	Fruits	×	✓	NA	5
Hypericin	Fruits	×	✓	NA	1
Safrole	Fruits	×	✓	NA	10
Acrylonitrile	Fruits	×	✓	NA	0.02
Vinyl chloride monomer	Fruits	×	✓	NA	0.01

***Source**: For Indian Food Standard: Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011; Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011;*
For Bangladesh Food Standard: Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017; Published in Extraordinary Gazette Notification of Bangladesh, dated on July 10, 2017.

India can be a good source of high quality and disease resistant seed varieties for Bangladesh

Seeds: Good quality seeds are critical to sustain growth in agriculture. India has made good progress in seed sector. India can be a good source of high quality and disease resistant seed varieties for Bangladesh. However, Indian seed exporters face hurdles while exporting to Bangladesh - possibly on account of divergent standards. These divergences have been mapped and shown in Table 2.8.

It can be seen that Indian standard regulatory body has not set any residue limit for any type of contaminants for radionuclides, mycotoxins, fungicides, herbicides, and plant growth controller in seeds. Bangladeshi regulations specify permissible limits and tests for the presence of one type of radionuclides, six types of mycotoxins, nine types of fungicides, four types of herbicides, and one type of plant growth controller for specific seeds: cotton, rape and sunflower seeds.

On the presence of insecticides in seeds, standards regulatory body of both the countries have prescribed names of different types of insecticides. However, among specified insecticides, dissimilarity in test parameters across the countries is evident. BFSA has mentioned 26 insecticides, and the presence of their residue shall be tested on the import of specific type of seeds.

Of the 26 prescribed insecticides, only nine are common. Even within common nine insecticides, either maximum residue limits or the applicability of test on type of seeds are not similar across standards of both countries.

Table 2.7: Production Standards for Rice by India and Bangladesh

Heavy Metal for Rice						
Name of Heavy Metals	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Rice in India**	**Applicable Type of Rice in Bangladesh**	**MRL of India (in PPM)**	**MRL of Bangladesh in PPM)**
Cadmium	✓	✓	Polished Rice	Polished Rice	0.4	0.40
		Radionuclides for Rice				
Name of Radionuclides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Rice in India**	**Applicable Type of Rice in Bangladesh**	**MRL of India (in Bq/kg)**	**MRL of Bangladesh (in Bq/kg)**
134Cs,137Cs,239Pu, 90Sr,131I	×	✓	NA	All Type of Rice	NA	50
		Insecticides for Rice				
Name of Insecticides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Rice in India**	**Applicable Type of Rice in Bangladesh**	**MRL of India (in PPM)**	**MRL of Bangladesh in PPM)**
Acephate	×	✓	NA	Rice, Husked	NA	1.00
Carbaryl	✓	✓	All Type	Polished Rice	2.5	1.00
Carbofuran	×	✓	NA	Rice Husked	NA	0.10
Chlorpyrifos	×	✓	NA	All Type	NA	0.50
Cypermethrin including alphaand zetacypermethrin	×	✓	NA		NA	2.00
Etofenprox	✓	✓	All Type		0.01	0.01
Fenthion	×	✓	NA	Rice Husked		0.05
Fipronil	×	✓	NA	All Type	NA	0.01
Thiacloprid	✓	✓	All Type		0.01	0.02
Triazophos	✓	✓		Polished Rice	0.05	0.60
Hexachlorocycle hexane and its α isomer	✓	×	Unpolished Rice	NA	0.10	NA
			Polished Rice		0.05	
Hexachlorocycle hexane and its β isomer	✓	×	Unpolished Rice	NA	0.10	NA
			Polished Rice		0.05	
Hexachlorocycle hexane and its γ isomer	✓	×	Unpolished Rice	NA	0.10	NA
			Polished Rice		0.05	
Hexachlorocycle hexane and its λ isomer	✓	×	Unpolished Rice	NA	0.10	NA
			Polished Rice		0.05	
Edifenphos	✓	×	All Type	NA	0.02	NA
Decamethrin/ Deltamethrin	✓	×		NA	0.05	NA
Pirimiphos-methyl	✓	×		NA	0.5	NA
Cartaphydrochloride	✓	×		NA	0.5	NA
Methyl Chloro-phenoxy-acetic Acid (M.C.P.A.)	✓	×		NA	0.05	NA
Oxadiazon	✓	×		NA	0.03	NA
Quinolphos	✓	×		NA	0.01	NA
Ethoxysulfuron	✓	×		NA	0.01	NA

Oxyfluorfen	✓	×		NA	0.05	NA
Carbosulfan	✓	×		NA	0.2	NA
Tricyclazole	✓	×		NA	0.02	NA
Imidacloprid	✓	×		NA	0.05	NA
Butachlor	✓	×		NA	0.05	NA
Pendimethalin	✓	×		NA	0.05	NA
Pretilachlor	✓	×		NA	0.05	NA
Cyhalofop-butyl	✓	×		NA	0.5	NA
Thiamethoxam	✓	×		NA	0.02	NA
Fenobucarb	✓	×		NA	0.01	NA
Anilophos	✓	×		NA	0.1	NA
Kitazin	✓	×		NA	0.2	NA
Isoprothiolane	✓	×		NA	0.1	NA
Benfuracarb	✓	×		NA	0.05	NA
Buprofezin	✓	×		NA	0.05	NA
Carpropamid	✓	×		NA	1	NA
Oxadiargyl	✓	×		NA	0.1	NA
Pyrazosulfuron ethyl	✓	×		NA	0.01	NA
Clomazone	✓	×		NA	0.01	NA
	Fungicides for Rice					
Name of Fungicides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Rice in India**	**Applicable Type of Rice in Bangladesh**	**MRL of India (in PPM)**	**MRL of Bangladesh in PPM)**
Azoxystrobin	×	✓	NA	All Type of Rice	NA	5.00
Carbendazim	×	✓	NA	Rice, Husked	NA	2.00
Iprodione	×	✓	NA	Rice, Husked	NA	10.00
Tebuconazole	×	✓	NA	All Type of Rice	NA	1.50
Trifloxystrobin	×	✓	NA	All Type of Rice	NA	5.00
		Herbicides for Rice				
Name of Herbicides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Rice in India**	**Applicable Type of Rice in Bangladesh**	**MRL of India (in PPM)**	**MRL of Bangladesh in PPM)**
2,4-Dichlorophenoxyacetic acid	×	✓	NA	Rice, Husked	NA	0.10
Glufosinate-Ammonium	×	✓	NA	All Type of Rice	NA	0.90
Paraquat	×	✓	NA	All Type of Rice	NA	0.05
	Insecticides (Applicable to Storage at Warehouse products) for Rice					
Name of Insecticides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Rice in India**	**Applicable Type of Rice in Bangladesh**	**MRL of India (in PPM)**	**MRL of Bangladesh in PPM)**
Methyl Bromide	×	✓	NA	All Type	NA	1.00

Source*:*For Indian Food Standard: *Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011; Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011;*
For Bangladesh Food Standard: *Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017; Published in Extraordinary Gazette Notification of Bangladesh, dated on July 10, 2017.*

Table 2.8: Production Standards for Seeds by India and Bangladesh

Radionuclides for Seeds						
Name of Radionuclides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Seed in India**	**Applicable Type of Seed in Bangladesh**	**MRL of India (in (Bq/kg)**	**MRL of Bangladesh (Bq/kg)**
134Cs,137Cs,239Pu, 90Sr,131I	×	✓	NA	Rape seed	NA	50
Mycotoxins for Seeds						
Name of Mycotoxins	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Seed in India**	**Applicable Type of Seed in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Agaric acid	×	✓	NA	All Type	NA	100
Hydrocyanic acid	×	✓	NA		NA	5
Hypericin	×	✓	NA		NA	1
Safrole	×	✓	NA		NA	10
Acrylonitrile	×	✓	NA		NA	0.02
Vinyl chloride monomer	×	✓	NA		NA	0.01
Insecticides for Seeds						
Name of Insecticides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Seed in India**	**Applicable Type of Seed in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Abamectin	×	✓	NA	Cotton Seed	NA	0.01
Acetamiprid	×	✓	NA		NA	0.70
Amitraz	×	✓	NA		NA	0.50
Bifenthrin	✓	✓	Cotton Seed	Cotton Seed	0.50	0.50
				Rape Seed		0.05
Carbaryl	✓	✓	Cotton seed (whole)	Sunflower Seed	1	0.20
Carbofuran	✓	✓	Oil seeds	Rape Seed	0.10	0.05
				Cotton Seed		0.10
				Sunflower Seed		0.10
Carbosulfan	×	✓	NA	Cotton Seed	NA	0.05
Chlorpyrifos	✓	✓	Cotton Seed	Cotton Seed	0.05	0.30
Cyfluthrin/beta-cyfluthrin	✓	✓	Cotton Seed	Rape Seed	0.02	0.07
				Cotton Seed		0.70
Cypermethrin including alpha-and Zeta-cypermethrin	✓	✓	Oil Seed	Oil Seed	0.20	0.10
Deltamethrin	✓	✓	Cotton Seed	Sunflower Seed	0.10	0.05
Emamectin Benzoate	×	✓	NA	Cotton Seed	NA	0.002
Esfenvalerate	×	✓	NA	Cotton Seed	NA	0.05
			NA	Rape Seed	NA	0.01
Etofenprox	×	✓	NA	Rape Seed	NA	0.01
Fipronil	×	✓	NA	Sunflower Seed	NA	0.002
Flubendiamide	×	✓	NA	Cotton Seed	NA	1.50

Imidacloprid	×	✓	NA	Sunflower Seed	NA	0.05
			NA	Rape Seed	NA	0.05
Indoxacarb	✓	✓	Cotton Seed	Cotton Seed	0.10	1.00
Malathion	×	✓	NA	Cotton Seed	NA	20.00
Methomyl	×	✓	NA	Cotton Seed	NA	0.20
			NA	Rape Seed	NA	0.05
Oxydemeton-Methyl	×	✓	NA	Cotton Seed	NA	0.05
Permethrin	✓	✓	Cotton Seed	Cotton Seed	0.50	0.50
				Rape Seed		0.05
			Sunflower Seed	Sunflower Seed	1.00	1.00
Profenofos	×	✓	NA	Cotton Seed	NA	3.00
Thiacloprid	✓	✓	Cotton Seed	Cotton Seed	0.05	0.02
				Mustard Seed		0.50
				Rape Seed		0.50
Thiamethoxam	×	✓	NA	Oil Seed	NA	0.02
Triazophos	×	✓	NA	Cotton Seed	NA	0.20
Endosulfan	✓	×	Cotton seed	NA	0.5	NA
Chlorienvinphos	✓	×	Cotton seed	NA	0.05	NA
Ethion	✓	×	Cotton seed	NA	0.5	NA
Formothion	✓	×	Cotton seed	NA	0.1	NA
Paraquat Dichloride	✓	×	Cotton seed	NA	0.2	NA
Trichlorfon	✓	×	Oil seeds	NA	0.1	NA
Acephate	✓	×	Safflower seed	NA	2	NA
			Cotton Seed		2	
Methamido-phos	✓	×	Safflower seed	NA	0.1	NA
(A metabolite of Acephate)			Cotton Seed		0.1	
Carbendazim	✓	×	Cotton Seed	NA	0.1	NA
Benomyl	✓	×	Cotton Seed	NA	0.1	NA
Fenvalerate (fat soluble residue)	✓	×	Cotton Seed	NA	0.2	NA
Phenthoate	✓	×	Oilseeds	NA	0.03	NA
Phorate (sum of Phorate, its oxygenanalogue and their sulphoxides and sulphones,expressed as phorate)	✓	×	Oil seeds	NA	0.05	NA
Alachlor	✓	×	Cotton Seed	NA	0.05	NA
Chlormequatchloride	✓	×	Cotton Seed	NA	1.00	NA
Diflubenzuron	✓	×	Cotton Seed	NA	0.2	NA
Diuron	✓	×	Cotton Seed	NA	1	NA
Fluchloralin	✓	×	Cotton Seed	NA	0.05	NA
Iprodione	✓	×	Rape seed	NA	0.5	NA
			Mustard seed		0.5	
Myclobutanil	✓	×	Groundnut seed	NA	0.1	NA

Fenoxy-prop-p-ethyl	✓	×	Soyabean seed	NA	0.02	NA
Quizalofop-ethyl	✓	×	Soyabean seed	NA	0.05	NA
Metiram	✓	×	Ground nut seed	NA	0.1	NA
Novaluron	✓	×	Cotton seed	NA	0.01	NA
Clomazone	✓	×	Soyabean seed	NA	0.01	NA
Fungicides for Seeds						
Name of Fungicides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Seed in India**	**Applicable Type of Seed in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Azoxystrobin	×	✓	NA	Sunflower Seed	NA	0.50
				Cotton Seed		0.70
Carbendazim	×	✓	NA	Rape Seed	NA	0.05
Difenoconazole	×	✓	NA	Rape Seed	NA	0.05
				Sunflower Seed		0.02
Flusilazole	×	✓	NA	Rape Seed	NA	0.10
				Sunflower Seed		0.10
Iprodione	×	✓	NA	Rape Seed	NA	0.50
				Sunflower Seed		0.50
Metalaxyl	×	✓	NA	Cotton Seed	NA	0.05
				Sunflower Seed		0.05
Propiconazole	×	✓	NA	Rape Seed	NA	0.02
Pyraclostrobin	×	✓	NA	Oil Seeds	NA	0.40
Tebuconazole	×	✓	NA	Cotton Seed	NA	2.00
Herbicides for Seeds						
Name of Herbicides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Seed in India**	**Applicable Type of Seed in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Dicamba	×	✓	NA	Cotton Seed	NA	0.04
Glufosinate-Ammonium	×	✓	NA	Cotton Seed	NA	5.00
				Rape Seed		1.50
Glyphosate	×	✓	NA	Rape Seed	NA	30.00
				Sunflower Seed		7.00
				Cotton Seed		40.00
Paraquat	×	✓	NA	Sunflower Seed	NA	2.00
				Cotton Seed		2.00
Plant Growth Regulator for Seeds						
Name of Plant Growth Regulator	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Seed in India**	**Applicable Type of Seed in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Ethephon	×	✓	NA	Cotton Seed	NA	2.00

Source*: *For Indian Food Standard*: *Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011; Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011.
For Bangladesh Food Standard*: *Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017; Published in Extraordinary Gazette Notification of Bangladesh, dated July 10, 2017.

Some instances are: According to Indian seed standards, presence of bifenthrin insecticide in cotton seed is to be tested and permitted up to MRL 0.50 ppm. But presence of this insecticide in both cotton and rape seeds are to be tested by BFSA.

Another insecticide, carbaryl, whose existence in cotton seed is to be tested by *FSSAI*, wherein its presence in sunflower seed is to be tested by BFSA. Insecticide cypermethrin's presence in oil seeds is to be tested when it is meant for domestic consumption in both countries. But the MRL limits of this insecticide in oil seeds are not similar across countries. Similarly, presence of thiacloprid insecticide in oil seeds is to be tested only for cotton seed in India with MRL comparatively higher than Bangladesh. In Bangladesh, presence of this insecticide shall be tested for rape and mustard seeds along with cotton. From the above discussion one can conclude that there exists prominent divergence in quality standards between India and Bangladesh.

Bangladesh was a tea exporting country till 1985 and is now a tea importing country because of significant increase in domestic demand

Tea: Through detailed investigation of the capabilities of exporters for compliance with developed countries' standards, it is found that only large exporters able to comply with high quality standards. Micro and small tea growers face problems while exporting to Bangladesh. Hurdles in exports arises from the divergence in the acceptable quality standards of both the countries (Table 2.9 for regulations of both countries).

BFSA's regulations test presence of six micotoxins residues in final products, whereas according to FSSAI food regulations, it is not tested for sales in domestic market. Tea growers have to restrict the usage of these mycotoxins in a manner that the consumable tea can permit the maximum residue limit to get clearance from BFSA for export to Bangladesh.

India is exporting tea to developed countries such as US, UK, Russia, Germany, China, Japan, among others

Another test is to measure the presence of different insecticides residue in tea. Table 2.9 shows considerable testable parameters of insecticides which are totally different across standard regulations. BFSA-accredited laboratory has tested the presence of residue of 11 insecticides. Of these 11 insecticides, test is carried out on consumable black and green tea for nine insecticides. And in case of organic tea, presence of one insecticide residue is to be tested according to prescribed MRL limit.

FSSAI also specifies the names of seven insecticides in which the presence of residue has to be tested in all types of tea from any domestic or foreign origin. These insecticides have not been considered as testable parameters in Bangladesh food regulations.

Table 2.9: Production Standards for Tea by India and Bangladesh

Heavy Metal for Tea						
Name of Heavy Metals	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Tea in India**	**Applicable Type of Tea in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Copper	✓	✓	All Type	Tea, Green, Black (black, fermented and dried)	150	150
Lead	✓	×	All Type	NA	10	NA
Mycotoxins for Tea						
Name of Mycotoxins	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Tea in India**	**Applicable Type of Tea in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Agaric acid	×	✓	NA	Tea, Green, Black (black, fermented and dried)	NA	100
Hydrocyanic acid	×	✓	NA		NA	5
Hypericin	×	✓	NA		NA	1
Safrole	×	✓	NA		NA	10
Acrylonitrile	×	✓	NA		NA	0.02
Vinyl chloride monomer	×	✓	NA		NA	0.01
Insecticides						
Name of Insecticides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Tea in India**	**Applicable Type of Tea in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Bifenthrin	×	✓	NA	Tea, Green, Black (black, fermented and dried)	NA	30.00
Buprofezin	×	✓	NA	Tea, Green	NA	30.00
Chlorpyrifos	×	✓	NA	Tea, Green, Black (black, fermented and dried)	NA	2.00
Cypermethrin including alpha-and zeta- cypermethrin	×	✓	NA		NA	15.00
Deltamethrin	×	✓	NA		NA	5.00
Fenpropathrin	×	✓	NA		NA	3.00
Flubendiamide	×	✓	NA		NA	50.00
Indoxacarb	×	✓	NA		NA	5.00
Permethrin	×	✓	NA		NA	20.00
Profenofos	×	✓	NA	Tea and Organic Tea	NA	0.50
Thiamethoxam	×	✓	NA	Tea, Green, Black (black, fermented and dried)	NA	20.00
Dicofol	✓	×	All Type	NA	5	NA
Ethion	✓	×	All Type	NA	5	NA
Quinolphos	✓	×	All Type	NA	0.01	NA
Glyphosphate	✓	×	All Type	NA	1	NA
Fenazaquin	✓	×	All Type	NA	3	NA

Glufosinate-ammonium	✓	×	All Type	NA	0.01	NA
Propargite	✓	×	All Type	NA	10	NA
Herbicides for Tea						
Name of Herbicides	**Exists in India's Regulation**	**Exists in Bangladesh's Regulation**	**Applicable Type of Tea in India**	**Applicable Type of Tea in Bangladesh**	**MRL of India (in ppm)**	**MRL of Bangladesh (in ppm)**
Paraquat	×	✓	NA	Tea, Green, Black (black, fermented and dried)	NA	0.20

Source*: *For Indian Food Standard*: *Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011; Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011.
For Bangladesh Food Standard*: *Food Safety (Contaminants, Toxins and Harmful Residues) Regulations, 2017; Published in Extraordinary Gazette Notification of Bangladesh, dated July 10, 2017.

However, Bangladesh has mentioned tests for residue of one usable herbicides *'paraquat'* in black and green tea, while Indian standards does not include any tests for presence of herbicide residue. Mutual recognition of each other's standards could be a possible solution particularly, for micro and small tea growers in India to capture relatively easy and accessible markets in Bangladesh.

2.3 Procedural Barriers

Procedural barriers arise because of too many procedures/ procedural delays/ documentation

This category includes NTBs that arise because of multiple procedures and excessive delays that slow down trade. Stakeholders face obstacles in obtaining the required certificates from relevant authorities nearby LCS/ICP. This leads to delay in the entire trade process. This problem has been highlighted during the primary survey and the main reason behind such problems is the unavailability of required testing facility near the border. Stakeholders commented that 'they have become used to for such procedural delays'. These procedures can be very challenging for new entrants in cross-border trade business, as the entire trade process is very confusing and cumbersome. Port-wise instances of such barriers are highlighted in Table 2.10.

2.4 Policy Induced Barriers

- **Construction of ICP Raises Cost of trade:** According to stakeholders in Tripura, construction of ICP raises the cost of trading through increased labour cost and warehousing charges. Land Port Authority provides labourers and their remuneration is more than the labourers hired previously. The charges of Central Warehousing Corporation (CWC) are very high and they are charging twice - once to unload a consignment and then again to load a consignment.

Table 2.10: Port-wise Instances of Procedural Barriers	
Land Port	**Barrier**
Agartala	No food testing lab for products of PRAN, PROMI, Sujeev etc. is available. Testing has to be done at Kolkata and it takes six-seven days for the test report to come and hence increases waiting time.
Fulbari	Because of absence of AQ and PQ facilities near the border, for some products like animal feed, certification could not be done locally and has to be done at CFL, Kolkata thereby making the process time consuming.
Ghajadanga	Through this LCS, the average detention time for non-perishable goods is 10- 12 days. These delays are due to infrastructure deficits at the border such as, manual inspection of consignments, intermittent internet and electricity services, lack of well-equipped quarantine and food testing labs, inadequate office space and facilities for the custom officials.
Hili	No food testing laboratories near to this border leads to delay in getting required certificate for the concerned products. Testing has to be done from Kolkata and it takes six-seven days for the test report to come. Another concern is raised by the Secretary of the Balurghat Chamber of Commerce on certificate of origin that is issued only by the Maldaha Chamber of Commerce. Traders from Dakshin Dinajpur have to wait minimum seven days to get back the same after applying. He portrayed that the businessmen have to travel to Maldaha (up and down distance of 200 kms) and this results in huge opportunity cost and delay in entire trade process.
Petrapole	For products such as animal feed, an Atomic Energy Certificate is required from BARC which may take 10-15 days to issue. The PQ facility is available at Petrapole but they are not allowed to issue this certificate because of low capacity.

***Source**: Primary survey conducted by CUTS International*

Due to these reasons, traders in Tripura do not want to upgrade other operational land ports into ICPs. Their demand is to setup minimum infrastructure in the remaining operational land ports for smooth functioning of trade process.

- **Gaps in Infrastructure Availability from Bangladesh Side:** At many places, Bangladesh has visible gaps in trade infrastructure at their land ports. Stakeholders demanded the conversion of Benapole and Akhaura customs stations into ICPs and construction of ICDs around ICPs. Via Petrapole, India can send 1000 trucks per day to Bangladesh but due to less intake capacity of land ports in Bangladesh it can only accomodate 300-400 trucks per day. As per rules, an Indian truck after reaching Benapole (Bangladesh) is supposed to empty the cargo and return to India within 24 hours. However, due to inadequate parking facilities, truckers take up to 12-15 days to complete offloading and returning to India. They have to pay parking fees of Rs 100 for first day and Rs 80 per day onwards in Bangladesh which has cost implications.

Policy-induced and regulatory barriers arise because of imposition of NTMs by importing country on its imports. Such barriers can arise from improper imposition of some of the NTMs, complex regulatory structure or sub-optimal implementation infrastructure

Labourers at Agartala ICP, India

- **Case of Route Diversion because of Sub-Optimal Infrastructure:** During desk research, it was concluded that various fruits from India are exported to Bangladesh through Mohedipur LCS in West Bengal. However, the primary survey revealed that fruit trade through the concerned port is a thing of past.

  One of the ex-fruit exporters who used to trade through the Mohedipur LCS informed the survey team that nowadays fruit trade has shifted to Ghajadanga LCS. This has been cross verified with the survey team that visited Ghajadanga. Border crossing from Mohedipur is subject to severe delays of 20-25 days, though the officials claim that perishable goods are allowed within a day. Trucks have to queue up irrespective of the perishable nature of products and quick pass is based on informal payments made to local parking syndicate which has no fixed rate. The infrastructure at the opposite side of the border near Sonamasjid also fails to match the flow of Indian trucks and leads to further congestion related delays.

  In sharp contrast, trucks carrying fruits through Ghajadanga are allowed to pass within a day. Again, trade is always subject to demand, importers adjacent to Ghajadanga may have higher demand for fruits. It has been reported that entire Jessore belt in Bangladesh has very high demand for fruits and there is not much geographical distance between highly congested Petrapole and free movement of trucks throuh Ghajadanga LCS. Furthermore, Ghajadanga became functional much later than Mohedipur, and behavioural

Sub-optimal infrastructure at both sides of the border promotes opportunities to gain from rent seeking activities

aspect comes into play. Often exporters and importers consider a new port to be more efficient that facilitate trade in comparaison to a relatively older port.

2.5 Infrastructural Barriers

Under this category, the study puts infrastructure barriers that are related to sub-optimal trade infrastructure at the border including: parking facility, approach road, cold storage facility, warehousing facility, customs office, banking facility, internet connectivity, testing facilities, among others. Table 2.11 shows port-wise infrastructural deficiencies restricting trade between India and Bangladesh.

Infrastructural barriers arise from sub-optimal trade infrastructure at-the-border and off-the-border

Additionally, some major port-wise problems related to infrastructure deficiencies are given as follows:

- At Agartala ICP, testing facility is not adequate to issue the required certificate for food products. There is a small AQ office but officials operate from Kolkata office and no official is available at port office. Importers from Tripura are therefore dependent on the state food testing laboratories run by the Department of Health, Government of Tripura and other testing laboratories based in Kolkata and Guwahati. Testing samples take approximately 10 working days–from sample collection to the receipt of requisite certificates.

Table 2.11: Port-wise At the Border Infrastructure Deficiencies

Land Port	Inadequate Public Parking	Non – Functional EDI	Inadequate AQ/PQ Facility	Internet Connectivity Problem	Warehouse Inadequacy	Inadequate Cold Storage	Lack of Banking Infrastructure
Agartala		✓	✓	✓			
Chengrabandha	✓	✓	✓	✓	✓	✓	
Fulbari	✓	✓		✓			✓
Ghajadanga	✓						✓
Hili	✓				✓	✓	
Mohedipur	✓	✓		✓	✓	✓	✓
Petrapole	✓		✓				

***Source**: Primary survey conducted by CUTS International*

There is a need to upgrade the level of infrastructure at land ports connecting India and Bangladesh

- At Chengrabandha in West Bengal, the present parking slot can accommodate only 500 trucks whereas the requirement is for 1,000 trucks. Only three government provided warehouses (by Zilla Parishad) are present and all of them are occupied by PRAN products. Lack of a cold storage facility at this port makes it difficult to export fruits and vegetables, especially Bhutanese apples and oranges that transit via India to reach end markets. Further, owing to the absence of AQ/PQ facilities, import of Hilsa fish from Bangladesh has stopped. This leads to increase in price of Hilsa fish in North Bengal.

- At Fulbari, banks are present near the port but these are not authorised to collect customs duty which compels Customs House Agents (CHAs) to go to Siliguri for payment of custom duties.

- At Ghajadanga, owing to a dearth of a centralised weighbridge, truckers are forced to use private weighing machines, which are often found to be faulty. Truckers' don't face this problem at Bomrah in Bangladesh, which is equipped with a proper weighbridge. Lack of banking facilities and absence of a local bank branch/ATM facility adds to the time and costs involved in processing cargos by CHAs. The nearest branch of the State Bank of India is located in Basirhat (North

Existing Infrastructure at Ghajadanga Land Port, India

24 Paraganas, West Bengal), which is about 10-15 kms away from the Ghajadanga check post. This poses a logistical problem for all those involved in transacting through this port.

- At Hili in West Bengal, there is need for parking spaces to accomodate additional 500 trucks. The existing parking does not have a shade which is a problem during rainy season. Lack of warehouse facilities is also an area of concern as it leads to high truck detention time ranging from 15-20 days.

- At Mohedipur in West Bengal, there is a need for good parking facility which can accommodate at least 1,000 more trucks. The existing parking does not have a shade and there are problems during monsoon. Lack of warehouse and cold storage facilities at Mohedipur, makes it difficult to export perishable products from this port. Banking facilities near the border are inadequate. More branches and ATMs are needed.

- At Petrapole in West Bengal, the main parking facility is Kalitala Parking at Bongaon which is owned by municipality. The parking fee is Rs 80 per day. Often, transporters opt for private parking facility which is more expensive - approximately Rs 100 per day. Moreover, truckers opting for private parking have to pay at Kalitala parking to get registered. This escalates the costs to Rs 180 per day.

Sub optimal trade infrastructure including inadequate parking, limited cold storage and warehousing facilities, improper banking facilities, poor internet connectivity, among others are creating hurdles at the border

2.6 Other Barriers

Involvement of Syndicate

- **Chengrabandha LCS:** The survey at Chengrabandha highlighted the presence of four labour unions that create an artificial labour crisis, fix high labour hire charges and distort markets.

- **Fulbari LCS:** One local political syndicate dominates the Fulbari LCS which controls trade through this port. The LCS is used for transporting boulders collected from the bank of Teesta river and sent to Bangladesh for infrastructural projects. Trucks carrying boulders at Fulbari LCS make queue in such a way that leads to delay in the clearance timing of the truck carrying other products. This increases the detention time to more than 10 days and by that time the quality of perishable food products deteriorates, which negatively affects the future demand of such products from Bangladesh. Exporters now prefer using Chengrabandha instead of Fulbari, even though it takes more time to cover the distance from Chengrabandha to Siliguri.

Involvement of syndicates near the border, poor institutional arrangement such as long delays, presence of fake intermediary (at Bangladesh side) and the prevalence of informal payments for fast clearance constitute other barriers

- **Ghajadanga LCS:** Informal payments/money collection at various junctions by local civic volunteers is identified as a major impediment for truckers and transporters who are involved in trade between India and Bangladesh, through the Ghajadanga–Bhomrah corridor. Bashirhat Transporter Welfare Association, the locally formed association for transporters and truckers, in their recent statement, condemned the local CHAs for charging an additional fee of Rs 400-500 for six wheeler trucks and Rs 1,000-1,200 for 10 wheeler trucks and went on a two days' strike in April 2018 to highlight the problem. Transporters are subject to payments for various religious festivals and development programmes, which seem to be politically motivated.

- **Hili LCS:** The survey team observed that just opposite the CHA office along the road, each truck is liable to pay Rs 20 (pink coupon) and Rs 10 (green coupon). Considering the tense environment, queries cannot be initiated on this issue; however, it is assumed that the payment might be informal.

- **Mohedipur LCS:** The survey team found that a syndicate is operational in Mohedipur LCS to regulate allocation of parking slots. Considering the limited capacity to accomodate trucks at the Bangladesh side, trucks from India have to wait for longer periods to cross the border and because of congestion they are assigned a serial number for crossing. If a truck is amenable to paying an informal payment of Rs 2000 or more, then its entry is prioritised by the syndicate.

Queue of Trucks Carrying Boulders at Fulbari LCS

Institutional Arrangement

- **Case of Export of Jute Seeds to Bangladesh:** Harvesting of jute commences in Bangladesh after the monsoon season. Before monsoon, Bangladesh imports jute seeds from India. These seeds are produced mostly in Andhra Pradesh, an Indian state, and transported to Bangladesh via Petrapole in West Bengal. However, trucks carrying seeds through Petrapole have to wait for long periods of time due to lack of trade infrastructure in Bangladesh. In several instances, by the time trucks are allowed to enter Bangladesh, harvesting season has already commenced and Indian consignments are sent back due to low demand.

  Moreover, seeds are semi-perishable and their quality deteriorates due to high detention time which is also another reason for return of consignments. The rejected consignment of seeds leads to losses for Indian exporter and Bangladeshi importers. There is a provision for same day clearance of perishable products through all the borders. The study recommends that similar steps should be taken for clearing transportation of semi-perishable products such as seeds to promote cross-border trade in agricultural commodities.

Impacts of such barriers are larger in case of perishable products

- **Case of Ghajadanga LCS:** There is no fixed rate at private parking places and the rates differ as per demand. Private warehouses (locally termed as *'Kata'*) are found to be aplenty, although most of the CHAs doubt on the accuracy of their weighing facilities. Weight calculations with these private warehousing facilities often vary with the government procured weighing mechanisms at the Bangladesh side, impeding the trade flow.

Presence of Fake Intermediaries at the Other Side of the Border

- **Case of Fulbari:** After releasing the truck from Indian border towards Bangladesh, customs at Bangladesh has to sign the invoice released by Indian customs. Usually, agents in Bangladesh sign the same document which leads to problems in getting payments from importers and in filing GST return. Exporters believe that such problems will get resolved once the port becomes EDI operational.

Institutional reforms are need of the hour

Rent Seeking Behaviour of Officials

- **Case of Ghajadanga:** The level of coordination between CHAs and Indian custom officials is not proper. CHAs generally pay an informal amount to custom officials for faster processing of cross border consignment, the amount of which varies proportionately with the type and its volume.

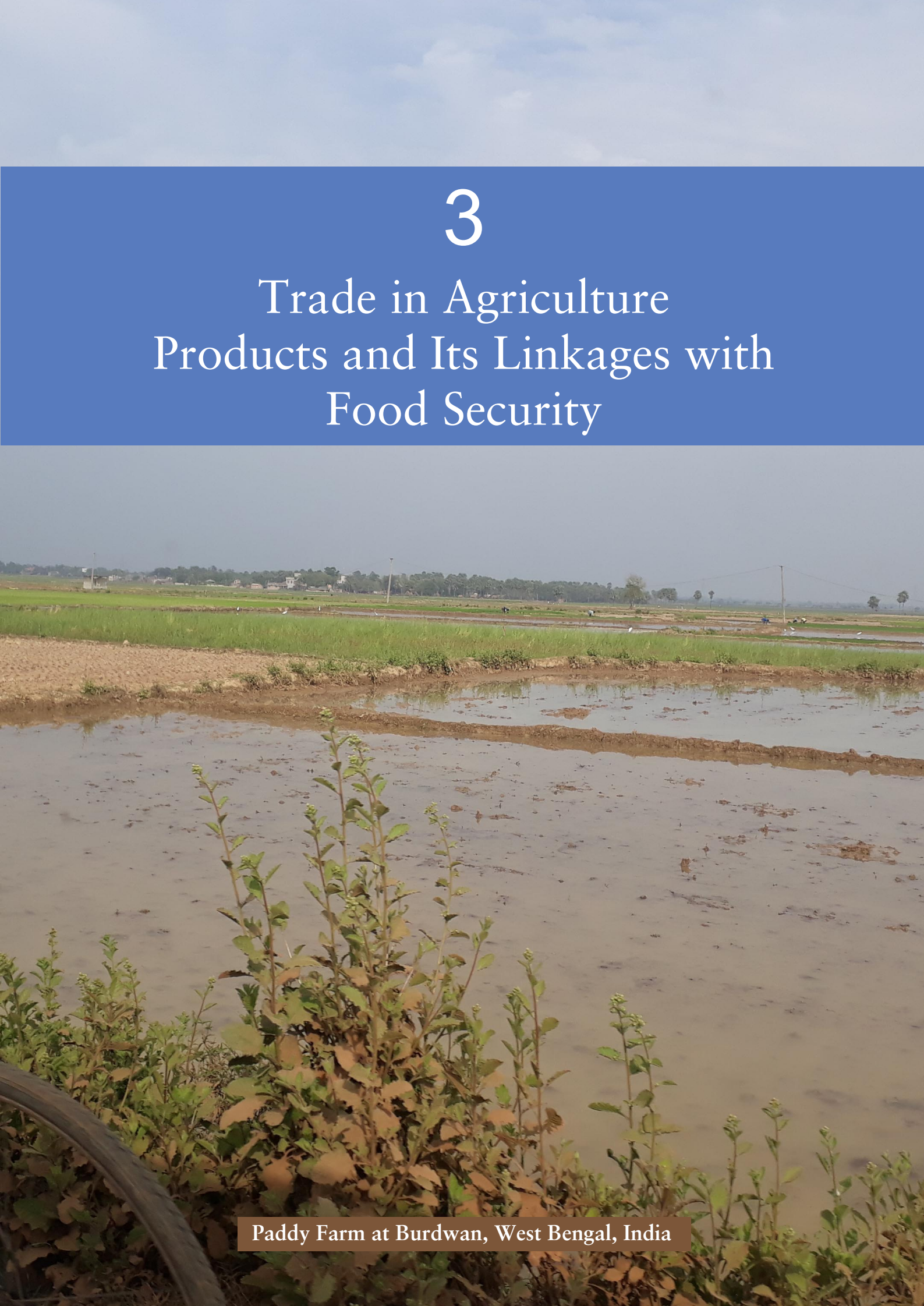
Complaints have also been raised about late arrival of customs officials, who are supposed to commence work by 10 o'clock every morning. Inadequacies in the support staff strength of the Indian customs hamper business. There is no systematic allotment of serial number for trucks to pass through land ports.

Reduction in NTBs can be a powerful driver to foster Agriculture Value Chains

The study provides the evidence of the existence of many kinds of NTBs to agriculture trade between India and Bangladesh through land route. The existing barriers are mostly related to the unavailability/sub-optimal trade infrastructure. At some ports, few facilities are available but are not adequate. Hence, existing NTBs can be easily addressed through the provision of optimum trade infrastructure at the border. However, potential barriers related to technical measures can be addressed through greater harmonisation of standards across countries.

3

Trade in Agriculture Products and Its Linkages with Food Security



Paddy Farm at Burdwan, West Bengal, India

3

Trade in agricultural products, particularly trade in food items, is directly linked with food security. The linkage of food security with trade is established with the help of two concepts: *self-sufficiency* and *self-reliance*. Under *self-sufficiency* argument trade can be beneficial only if it improves agricultural productivity of an importing country. It can be improved by importing agricultural inputs such as agricultural machinery, new varieties of seeds, and fertilisers, among others.

Hence, under this argument, an exporting country can help its partner importing country in achieving food security by providing affordable and good quality inputs which can raise agricultural productivity and profitability. The idea of *self-sufficiency* concentrates only on the macro aspect of food security and ignores the micro perspective.

The self-sufficiency argument opposes trade in food products and emphasises policies to improve domestic production to meet the increasing domestic consumption requirements

On the other hand, the idea under *self-reliance* is more micro in nature and captures relationship between trade and food security (Brooks, Ferrarini & Go, 2013). This argument links trade with food security. Trade in food products makes food available and easily accessible for all. This argument is more consistent with the latest definition of food security given by Food and Agriculture Organisation (FAO) of United Nations (Brooks, Ferrarini & Go, 2013).

According to the latest definition, five main aspects together are capable to ensure food security, which are: availability; accessibility & affordability; utilisation; and stability

In case of India and Bangladesh, ever increasing population is burdening the capacity of production. Both countries face food insecurity due to similar causes which can be bifurcated into two categories: supply-side and demand-side.

Under the supply-side causes, both countries are dependent on the climate for crop production. Climatic changes impact agricultural production which directly influences prices of agricultural goods, prices of those goods using agricultural products as raw material and hence to the level of real income. Such changes mostly affect the poor and maginalised (Chakravarty & Dand (2005); Patnaik (2008); Shaheen & Islam (2012); Parvin & Reazul (2013); among others). Droughts, famines and floods have been a recurring causes

of food insecurity in both India and Bangladesh. Problems associated with climatic changes are further exacerbated by improper storage and warehousing facilities, high percentage of chronic and acute poverty, and failed public distribution schemes and policies.

On the demand-side, the main cause that can be cited is the opening up of economy to foreign competition wherein domestic farmers and producers face severe competition from low cost international producers. Domestic producers have to sell their produce at low prices which reduces the profit level and hence their incomes (Chakravarty & Dade, 2005).

The focus of this chapter is to establish the link between bilateral trade of India and Bangladesh with their food security concerns. While analysing, the study only considers trade in selected agricultural items. Both *self-sufficiency* and *self-reliance* arguments have been used to establish the link between trade and food security.

3.1 Conditions Associated with Trade in Agriculture Products

Indian trade policy has put some conditions on exports of some agricultural products which exporters have to follow before exporting. The trade policy has notified some agriculture products as 'restricted' for which certain special conditions have to be followed while trading

Agricultural commodities, including live animals, meat products and processed food products, come under the chapters 01 to 24 (at HS 2-digit level of product classification). Indian trade policy has placed conditions on exports of restricted agricultural products.

A total of 133 import products are notified as restricted. About 62 tariff line products are strictly prohibited to export, whereas this number is 50 in case of prohibited import items. Wheat, different kinds of rice and copra are being imported exclusively through the State Trading Enterprises (STEs). The Food Corporation of India (FCI) is the only exclusive agency which can import wheat and different kinds of rice. Copra is imported solely by State Trading Corporations (STCs).

In the list of selected export items a few commodities are subject to some additional requirements over and above normal requirements. Lentils can be exported only through EDI port. However, while exporting to Bangladesh and Nepal, exporters can export through non-EDI ports but with the condition that one must register himself/herself with the DGFT and declare the total quantity to be exported.

In another Gazette notification, number 03/2015-2020, states that organic lentils shall be duly certified with APEDA as organic under the National Programme for Organic Production (NPOP). For organic lentils, exports shall be allowed only through EDI port. Under this notification, ceiling of permissible export quantity has been raised from 10,000 MT per annum to 50,000 MT per annum. This is an improvisation with respect to previous notifications under foreign trade policy 2009-2014.

In case of rice (basmati rice-dehusked brown), semi milled and milled varieties (parboiled or raw condition), export shall be allowed subject to the registration of contracts with the APEDA, New Delhi. One specification in Gazette notification no. 18/2015-2020 in exercise of the power given in Section 5 of the said foreign trade act. As per the specification, the grain of rice shall be more than 6.61 mm of length and the ratio of length to breadth shall be more than 3.5. It is also stated that the export shall be permitted through non-EDI port while exporting to Bangladesh. But, this export is subject to registration of quantity with DGFT. Moreover, export of basmati rice shall not be permitted on the basis of Documents against Acceptance (DA) unless the export is covered either by Bank Guarantee or ECGC guarantee.

In case of non-basmati rice, exports can be made by private enterprise from the privately held stocks. State Trading Enterprises including M/S., NCCF, & NAFED are also allowed to do export but only from privately held stocks. Another restriction put on the export of non-basmati rice to Bangladesh is that rice can be exported through non-EDI port but this export shall be subject to registration of quantity with DGFT. However, according to Gazette notification number 03/2015-2020, organic non-basmati rice exported from EDI port shall be exempted from any ceiling of quantity. But, certificate under NPOP from APEDA shall be required to export organic non-basmati rice.

In case of seed exports, for saffron seeds or corms, exports are restricted. Exports of those shall be permitted only if exporters have valid licence. Seeds of all trees (excluding seeds of all forestry species), hedges, ornamental plants and flowers and vegetable seeds other than onion are not restricted for export. Any breeder or foundation or wild variety seeds are not allowed for export. Exporter should clearly declare in an affidavit form the source of procurement. Rest of the products do not have any specific requirements.

The GFSI considers core issues of affordability, availability and quality across a set of 113 countries. The index is a dynamic quantitative and qualitative benchmarking model, constructed from 28 unique indicators, that measures these drivers of food security across both developing and developed countries

3.2 Food Security Status of India and Bangladesh

As per the Global Food Security Index (GFSI),[1] prepared by the Economist Intelligence Unit (EIU) Limited 2017, India and Bangladesh have not yet achieved food security and are still trying to reach the mid-way of the food security path. As per this index, India is on 74th position and Bangladesh is on 89th position among 113 countries of the World for which this index has been calculated. The value of this index reflects the relative status of the countries on food security. Table 3.1 shows the different aspects of food security and their status in both countries. As per the defined parameters used by GFSI, India is better placed in all dimensions of food security.

1 *For more details, please see the Global Food Security Index 2017 Report by The Economist Intelligence Unit*. Available at: http://foodsecurityindex.eiu.com/

Table 3.1: Level of Food Security in India and Bangladesh				
Indicator	**India**		**Bangladesh**	
	Score (0 to 100)	**Rank**	**Score (0 to 100)**	**Rank**
Affordability	41.1	79	30.8	89
Availability	55.9	60	50.7	75
Quality and Safety	48.8	79	31.6	104

***Source**: Global Food Security Index 2017 Report, EIU*

Further, Table 3.2 shows strengths and challenges faced by India and Bangladesh on various indicators of food security. Here, strengths are defined as any indicator with a score above 75 and challenges are defined as any indicator with a score below 25 on a scale of 0 to 100. Moreover, panel B of Table 3.2 shows challenges faced by both countries in achieving the level of food security in their respective countries.

Table 3.2: Strengths and Challenges related to Food Security			
Panel A: Food Security Strengths			
S.N.	**Indicators**	**India**	**Bangladesh**
1	Nutritional standards	100	100
2	Food safety	95	87.5
3	Volatility of agricultural production	94.7	97.5
4	Food loss	86.4	84.9
5	Urban absorption capacity	80.7	75.3
6	Access to financing for farmers	75	—
Panel B: Food Security Challenges			
India	Public expenditure on agricultural R&D, Protein quality		
Bangladesh	Public expenditure on agricultural R&D, Protein quality, Corruption, Dietdiversification, Micronutrient availability, Food consumption as a share of household expenditure		

***Source**: Global Food Security Index 2017 Report, EIU*

3.3 Bilateral Trade in Food Products and Food Security: Case of Bangladesh

As discussed, trade in food products affects the level of food security by maintaining the supply of food products for current consumption and maintaining food stocks. Table 3.3 shows that Bangladesh is importing food products from India and other countries from the world.

Table 3.3: Share (%) of India in Total Product-wise Imports of Bangladesh in 2016

Product	Rice	Lentils	Potato	Onion	Ginger	Grapes	Tea
Share from India	88.00	1.01	17.17	99.87	7.38	63.88	99.81
Major Competitors	Pakistan, China	Canada, Australia, Turkey	Netherlands, Belgium, China	Pakistan, China	Indonesia, China, Thailand	China, United States, Australia	China, Singapore

***Source**: CUTS calculations using data from WITS*

Table 3.4: Product-Wise Analysis of Products Selected in the Study

Rice	It is a staple food of Bangladesh. Significant proportion of population of Bangladesh depends on rice as their main food item. The trend of Bangladeshi imports of rice is fluctuating and its imports are declining over the last three years. At the same time, production of this product in Bangladesh is increasing. Consumption is also increasing because of an increase in population over the years. As shown in the Table 4.3, India is the largest supplier of rice to Bangladesh but the dependence of Bangladesh on India is declining, as its share has been declined from more than 98 per cent in 2014 to 88 per cent in the year 2016. However, Pakistan's share has improved over the last three years and it is now the second largest supplier of rice to Bangladesh (0.65 per cent in 2014 to 9.52 per cent in 2016). The other two countries supplying rice to Bangladesh are: China (1.42 per cent in 2016) and Myanmar (0.51 per cent in 2016).
Lentils	Lentils consumption has declined in Bangladesh in past three years whereas its production and imports have been increased since 2014. Increase in imports is greater than the increase in production since 2014. Further, it is also found that India's share in total lentils imports of Bangladesh is miniscule of under one per cent. Its share in total imports of lentils of Bangladesh has increased in the past three years from 0.51 per cent in 2015 to 1.01 per cent in 2016. The main supplier of lentils to Bangladesh is Canada (47.95 per cent) followed by Australia (45.38 per cent) in the year 2016.
Potato	Potato production in Bangladesh is following an upward trend. The trade trends show that imports and exports are falling over the last two years. However, India's share in total imports of potato to Bangladesh has increased from 0.15 per cent in the year 2015 to 17.17 per cent in the year 2016. European countries are the main suppliers of potatoes to Bangladesh.
Onion	In case of onion, India is the main supplier to Bangladesh and supplies almost 99 per cent onion to Bangladesh. The other small suppliers are: Pakistan and China. The imports in the latest year (2016) have been increased from the last year's imports and exports have been declined for the same period.
Ginger	In case of ginger, the trend in exports and imports to Bangladesh is fluctuating and in the latest available year (2016), the production, imports and exports have declined from the previous year. Declining import/production ratio reveals that decline in imports are greater than decline in production of ginger in Bangladesh. Further, analysis of share of major exporting countries of ginger to Bangladesh reveals that India's share has declined significantly in the last three years. Among other suppliers, China and Thailand is increasing their ginger exports to Bangladesh and replacing Indian ginger. The reason behind this replacement may be the low production of ginger in India or the cheap availability of ginger from other suppliers.
Grapes	The production of grapes in Bangladesh is rising and is their exports. However, trends for imports are fluctuating. Its imports have declined by half since 2013. India is a major source of grapes to Bangladesh but its share (86.67 per cent in 2014, 27.56 per cent in 2015, and 63.88 per cent in 2016) as a supplier is fluctuating and it is facing competition from China, US and Australia.
Tea	In case of tea, the trend of Bangladesh production is almost constant over the years but the trend of imports and exports is fluctuating. For tea, India is a major supplier and contributes almost 99 per cent in total imports of tea in Bangladesh.

3.3.1 Analysis using Dependence Indices

The study has also calculated dependency ratios to show the level of dependence of Bangladesh on outsider suppliers. Table 3.5 reveals that Bangladesh is more dependent in case of lentils followed by grapes, tea and ginger on outside suppliers. Except lentils, the dependency of Bangladesh is more on India than other suppliers globally. However, for all other products, Bangladesh is self-dependent and as per these ratios Bangladesh is able to provide sufficient amount of such products to its own population.

Table 3.5: Dependency Indices of Bangladesh

S.N.	Product	Index	2014	2015	2016
1	**Rice**	IDR	1.67	1.07	0.06
		BIDR	1.64	1.07	0.05
2	**Lentils**	IDR	64.78	83.73	72.36
		BIDR	1.63	0.43	0.00
3	**Potato**	IDR	0.13	0.12	0.08
		BIDR	0.00	0.00	0.01
4	**Ginger**	IDR	39.20	42.25	6.07
		BIDR	14.10	8.75	7.64
5	**Grapes**	IDR	26.99	8.68	19.07
		BIDR	23.40	2.39	12.18
6	**Tea**	IDR	8.87	17.43	8.54
		BIDR	9.04	12.03	11.69

***Source**: CUTS calculations using data from WITS & FAO Databases*

3.4 Bilateral Trade in Food Products and Food Security: Case of India

Indian dependency in selected import items from Bangladesh is shown in Table 3.6. India is dependent on Bangladesh for only one commodity, i.e. fish. This dependency is shown by the 99 per cent contribution of Bangladesh in total imports of fish by India from the world. The dependence on other products is very less as indicated by low levels of imports from Bangladesh.

Table 3.6: Share of Bangladesh in Total Imports of India from the World in the same Product

Year	Fish	Potato Flakes	Sugar Confectionary	Processed Drinks	Vegetable Oil
2014	99.64	20.69	9.06	0.02	0.21
2015	99.60	28.26	8.71	0.03	0.22
2016	99.11	5.46	9.53	0.04	0.18

***Source**: CUTS calculations using data from WITS database*

3.5 Trade in Agricultural Inputs and Food Security under Self-Sufficiency Argument: Case of India

Under *self-sufficiency* argument, trade is related with food security through trade in agricultural inputs that raises the level of agriculture productivity in the importing country. This argument portrays the benefits of trade in agricultural inputs between two countries in raising the level of domestic food production.

India supplies fertilisers to Bangladesh which directly contributes to agricultural productivity

3.5.1 Fertilisers

India supplies fertilisers to Bangladesh which directly contributes to agricultural productivity. As shown in Table 3.7, India is a good source of chemical fertilisers (phosphatic and Nitrogenous) for Bangladesh in year 2017. It also supplies other types of fertilisers but share of those fertilisers is very less.

Table 3.7: India's Share in Bangladesh Imports of Fertilizers (At HS 4-Digit Level)

Year	Import from World (In Kgs)	Import from India (In Kgs)	Share of India in Total Imports
Product: Animal or Vegetable Fertilisers (3101)			
2015	21086896	7700	0.04
2017	20349915.75	201500	0.99
Product: Mineral or Chemical Fertilisers, Nitrogenous (3102)			
2014	777094633	721400	0.09
2015	593325634	239100	0.04
2016	649164750	117500	0.02
2017	2578992	1593200	61.78
Product: Mineral or Chemical Fertilisers, Phosphatic (3103)			
2017	120000	120000	100
Product: Mineral or Chemical Fertilisers, Potassic (3104)			
2014	539704401	4744	0.00
2015	823998768	3488	0.00
2016	668851816	1040	0.00
2017	569064928.3	250	0.00
Product: Mineral or Chemical Fertilisers Containing two or three fertilising elements Nitrogen, Phosphorus and Potassium; Other Fertilisers (3105)			
2014	364996190	659740	0.18
2015	636593876	934776	0.15
2016	461644963	1000843	0.22
2017	5855288	24800	0.42

***Source**: CUTS calculations using data from WITS database*

3.5.2 Tractors

India supplies agricultural tractors (HS Product Code: 87019090) to Bangladesh through Petrapole (land border in Indian state of West Bengal) and Jawaharlal Nehru Port Trust (sea port in Indian State of Maharashtra). As shown in Table 3.8, the value of its exports to Bangladesh is increasing. As per the figures from Ministry of Commerce & Industry, agricultural tractors are ranked number 18 among the top exporting commodities from India to Bangladesh (in terms of trade value). Further, the total value (US$ 55.81 mn) of tractors (HS Product Code: 870190) exported to Bangladesh in year 2016 (calendar year) by all countries of world reflects that India is the main exporter of agricultural tractors to Bangladesh.

Table 3.8: Value of Agricultural Tractors' Exporting to Bangladesh

Year	Trade Value (in US$ mn)	Annual Growth Rate	Rank
2013-14	29.77	—	34
2014-15	36.47	22.52	29
2015-16	43.86	20.25	17
2016-17	57.07	30.12	18

***Source**: Ministry of Commerce and Industry, Government of India*

3.5.3 Animal Feed

As shown in Table 3.9, India is a good source of animal feed (HS Product Code: 230990) to Bangladesh. This animal feed indirectly works as an input to the agriculture and allied sector to Bangladesh.

Table 3.9: India's Share in Feeding Animals of Bangladesh (Excluding Cats & Dogs)

Year	Import from World (In Kgs)	Import from India (In Kgs)	Share of India in Total Imports
2014	73164959	20438223	27.93
2015	113615456	21412904	18.85
2016	133868667	25221630	18.84
2017	67538002	19335670	29.62

***Source**: CUTS calculations using data from WITS*

3.5.4 Seeds

India supplies many types of seeds to Bangladesh. Table 3.10 reports data for those seeds whose data is available. In terms of value, India is the main source of maize (HS Product Code: 100510) and vegetable seeds (HS Product Code: 120991) for Bangladesh. As per the WITS database, in year 2016 (calendar year), total value of exports of maize and vegetable seeds received by Bangladesh from the world are US$ 14.56 mn and US$ 12.72 mn respectively which is almost equal to the value exported by India in the corresponding year (as shown in Table 3.10). India also supplies other seeds such as coriander, cumin, cabbage, cauliflower and tomato, among others.

Table 3.10: Value of Seeds Exports to Bangladesh			
Year	**Trade Value (in US$ mn)**	**Annual Growth Rate**	**Rank**
Product: Coriander Seed (09092110)			
2013-14	1.09	—	508
2014-15	0.07	-93.75	2188
2015-16	0.19	173.98	1559
2016-17	0.03	-86.39	3175
Product: Cumin Seed – Black (09093111)			
2013-14	0.55	—	785
2014-15	0.5	-8.44	909
2015-16	2.38	376.22	340
2016-17	1.47	-38.44	542
Product: Cumin Seed – not Black (09093121)			
2013-14	0.39	—	971
2014-15	1.11	187.88	560
2015-16	.62	-44.43	862
2016-17	1.92	210.99	458
Product: Maize Seed (10051000)			
2013-14	12.74	—	76
2014-15	15.36	20.59	66
2015-16	11.62	-24.35	84
2016-17	14.29	23	82
Product: Cabbage Seed (12099110)			
2013-14	0.03	—	2852
2014-15	0.06	148.61	2260
2015-16	0.06	1.92	2365
2016-17	0.11	70.75	2088
Product: Cauliflower Seed (12099120)			
2013-14	0.18	—	1431
2014-15	0.29	58.5	1224
2015-16	0.32	12.36	1231
2016-17	0.22	-30.86	1579
Product: Tomato Seed (12099160)			
2013-14	0.32	—	1082
2014-15	0.45	39.91	992
2015-16	0.41	-8.6	1073
2016-17	0.55	34.92	1015
Product: Vegetable Seed for Planting (12099190)			
2013-14	2.41	—	279
2014-15	3.29	36.64	234
2015-16	4.41	33.93	194
2016-17	8.34	89.27	125

***Source**: Ministry of Commerce and Industry, Government of India*

3.5.5 Fish Meal

India's role in providing fish meal (HS Product Code: 230120) to Bangladesh is significant. The calculations in Table 3.11 show the amount of fishmeal supplied by India to Bangladesh. In Bangladesh, fishmeal is used for dual purpose: as fertiliser and in preparing feed for other animals.

Table 3.11: India's Share in Bangladeshi Import of Fish Meal

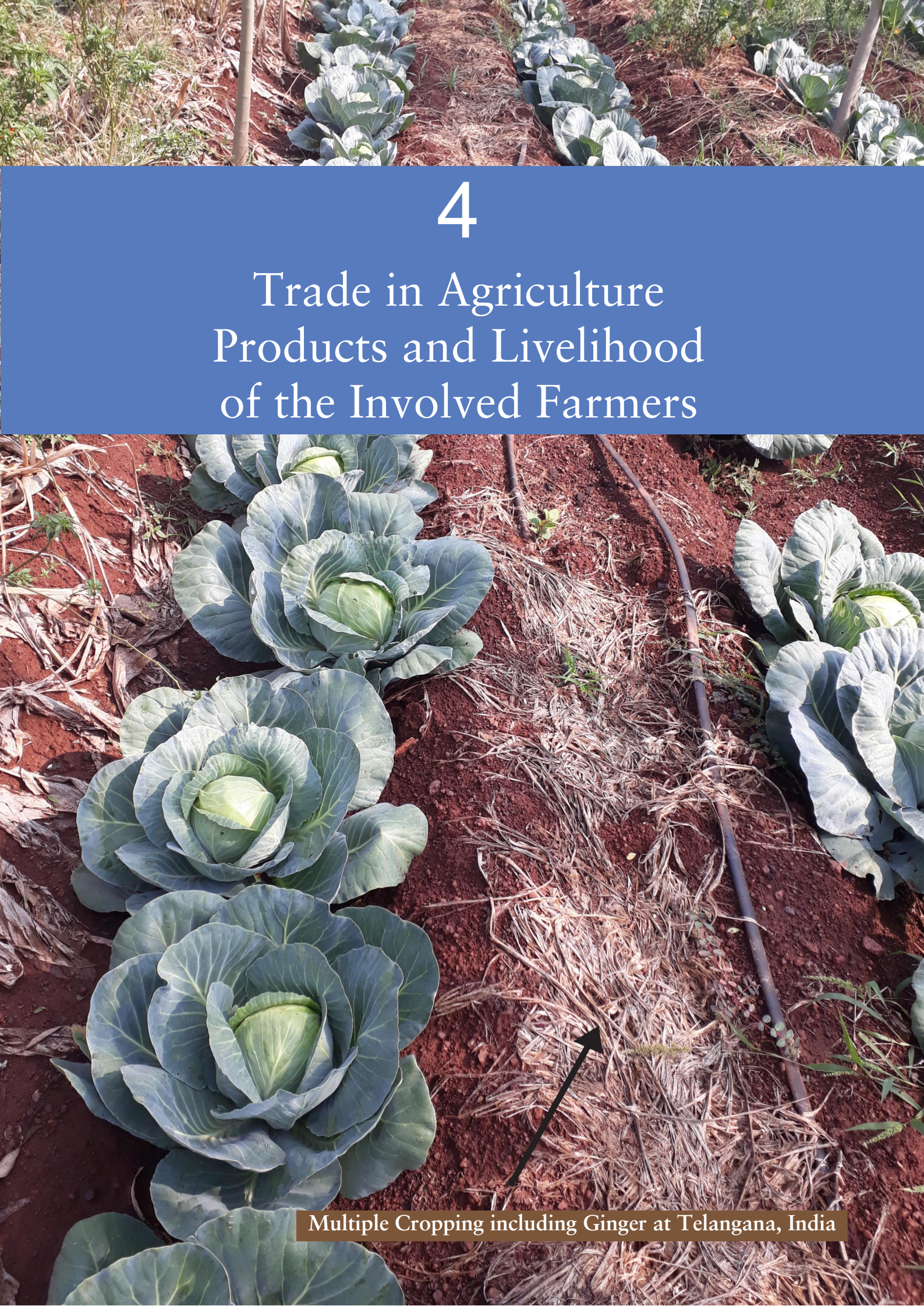
Year	Import from World (In Kgs)	Import from India (In Kgs)	Share of India in Total Imports
2014	10989536	5408070	49.21
2015	28143843	15216380	54.06
2016	29624730	12133000	40.96

***Source**: CUTS calculations using data from WITS database*

The study found that trade between India and Bangladesh in food products is declining over the years. Bangladesh is importing similar types of food items from other countries but still India plays an important role in ensuring food security in Bangladesh by providing direct food products and agriculture inputs. This reiterates that there is a huge potential for Indian agricultural in Bangladesh, which can be traded with relative ease due to geographical proximity.

4

Trade in Agriculture Products and Livelihood of the Involved Farmers



Multiple Cropping including Ginger at Telangana, India

4

Agriculture plays an important role in the economies and livelihoods of people in India and Bangladesh. In India, agriculture contributes to 15.5 per cent of GDP (as of 2017), but it remains the primary source of livelihood for about 58 per cent of India's population. India attained food grain production of 275.11 mn tonnes in 2016-17 and is among the top 15 exporters of agricultural products in the world. Agricultural exports from India stand at approximately US $38.21 bn in the fiscal year 2018.

Non-Tariff Barriers not only increase trade costs but also have implications for food security and livelihood of the producers

In spite of India's rising food grain production and increasing share in global agricultural exports, the linkages between agriculture trade and farmers' livelihood are blurred due to existing information asymmetries, lack of marketing infrastructure, supply chain bottlenecks and extensive involvement of intermediaries along the entire supply chain.

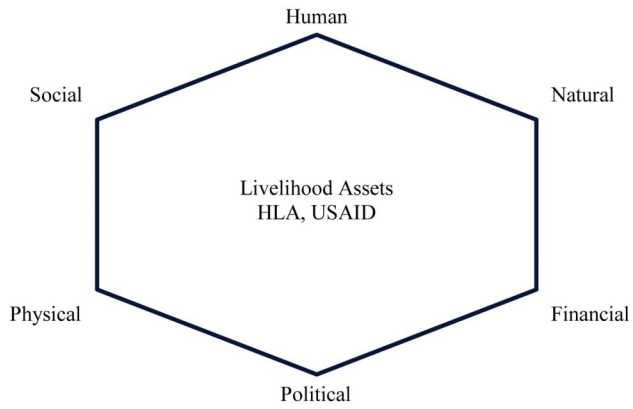
Theoretically, the impact of agricultural trade on livelihood can be assessed in two ways: firstly, from the import lens - imports can adversely affect the livelihood of domestic farmers by limiting their ability to grow certain crops and may reduce their income. On the other hand, farmers in the exporting country may stand to benefit by selling to international buyers. Increase in farmers' incomes has a positive impact on the domestic economy.

CUTS in its recent studies examined the livelihood aspects of producers engaged in producing selected exportable products in the 'Bangladesh- Bhutan- India- Nepal' (BBIN) sub-region and found a positive association between trade liberalisation and livelihoods. In another study which evaluated the impact of informal trade between India-Bangladesh and India-Nepal, results revealed a positive impact of cross border trade on the livelihoods of producers and traders involved.

The income generation effect of trade is not direct for all stakeholders. The impact is direct for those who are directly involved in trade activity

In the present study, livelihood aspect of 140 farmers has been studied with the help of Household Livelihood Approach (HLA) given by USAID. As per this approach, livelihood is defined as means by which households obtain and maintain access over necessary resources for their survival. On the basis of these resources, households plan activities which are known as livelihood strategies.

Figure 4.1: Livelihood Assets as per the HLA, USAID



These strategies vary from household to household, given that each household has different goals and ownership of resources.

These strategies are also affected by government policies. The common goal is to earn minimum amount of income to become food secure. This framework provides six categories of such resources which are shown in Figure 4.1. These are assets that a household holds to pursue the activities that allows him/her to become food secure.

Under all activities, trade is one of the activities. The study tried to evaluate the impact of trade on livelihoods of Indian farmers who are involved in farming of selected export items. Approximately 20 farmers are selected for each of the seven products selected in the study. These farmers are selected from five Indian states to get a good representation of farming practices in India. (see Table 4.1 for products and place of survey).

Table 4.1: Selected Products and Places of Survey

Product	Place of Survey
Capsicum	Basirhat, West Bengal
Ginger	Zaheerabad, Telangana
Grapes	Nashik, Maharashtra
Lentils	Hamirpur, Uttar Pradesh
Onion	Nashik, Maharashtra
Rice	Burdwan, West Bengal
Tea	Jalpaiguri, West Bengal

4.1 Livelihood Status of Surveyed Farmers

To evaluate the status of surveyed households, semi-structured interviews are conducted with the help of an interview schedule. On the basis of the collected information, the study divided surveyed households into three main categories: large, medium, and small farmers. Figure 4.2 shows the characteristics of each type of household on the basis of information obtained from the field with some pertinent examples.

Figure 4.2: Categories of Surveyed Farmers

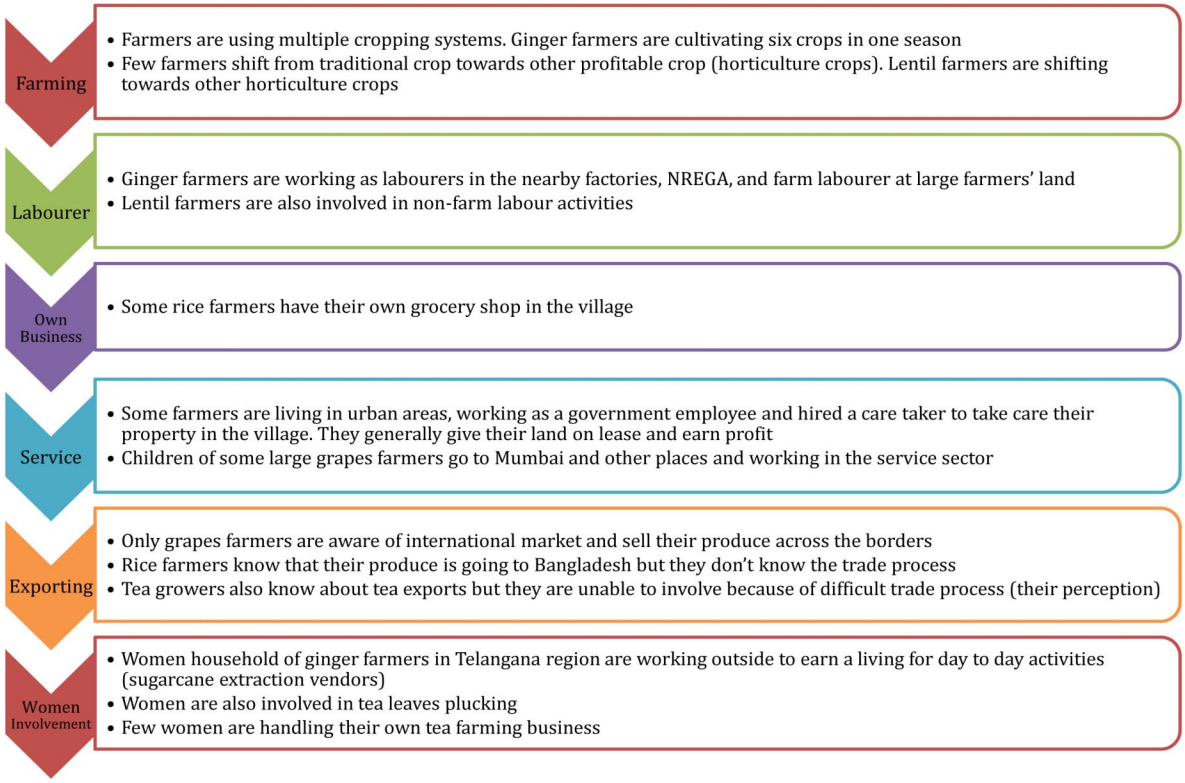
Large Farmers	• **Own land and agriculture machinery:** Grapes farmers are mostly large farmers and they export to developed countries such as European countries • **Educated family members working in services sector:** Grapes farmers are aware of MSP, international market, and some are aware of input requirements for tradable products • **Own irrigation system and seller of water:** Some large farmers of lentils sell water to small farmers at some fixed price • **Women are housewives:** Occasionally help in farming activities
Medium Farmers	• **Cultivating own and leased land:** Some lentils farmers also take land on lease and pay Rs 4,500 per bigha • **Low farm mechanization:** Hire tractor and other machinery from large farmers • **Own household physical assets:** Such as two wheeler, mobile phone, among others • **Women are involved in farming:** Only in peak seasons
Small Farmers	• **Size of land holdings is very less:** Capsicum farmers grow capsicum in leased land • **Also working as labourers:** Ginger farmers are working as labourers to earn money for day to day activities • **Less usage of machinery:** More use of labourers) • **Buy water for irrigation purpose:** Small lentils, tea, and capsicum farmers buy water for irrigation purpose • **Women are involved in farm and non-farm activities:** For earning

4.2 Livelihood Strategies

Of the surveyed households, the study found six types of strategies which household pursue to attain their livelihood. Figure 4.3 shows those main strategies with few relevant examples from the field survey.

Multiple Cropping System at Telangana, India

Figure 4.3: Livelihood Strategies of Surveyed Farmers



4.3 Livelihood Issues

While examining issues with livelihood of surveyed households, the study found five common problems faced by most households: unavailability of good quality inputs, costly irrigation facility, supply chain challenges, lack of storage facility and low profit. Product-wise issues associated with the livelihood are shown in Figure 4.4.

The existence of NTBs creates hurdles mostly for small farmers. Bad road conditions, non-availability of nearby agriculture market, lack of storage facilities, among others are the main factors which affect their livelihood

4.4 Export Supply Chain and Livelihood Issues

From livelihood perspective, any type of trading activity is an income generating activity for all actors involved in the entire supply chain. The supply chain starts from the producer (farmers) and ends with consumers in the importing country (see Figure 4.5).

Many stakeholders are involved in earning their livelihoods from trading activities. In case of agricultural trade, the linkage of trade with the livelihood of producers is indirect. It is very difficult to say that the benefits of increased income are reaching to the actual producer, i.e. to farmers. The reason is the presence of many intermediaries along the supply chain who benefit the most from trading, whereas farmers remain at subsistence level.

Because of this reason, the income generation effect of trade is not direct for farmers. The impact is direct for those who are directly

Figure 4.4: Product-wise Livelihood Issues

Capsicum
- Market price for capsicum is very fluctuating which affect farmers adversely
- The logistic services, such as, road conditions and the local transport systems are inadequate, which stop farmers to sell their produce directly to the exporters

Ginger
- An individual farmer cannot afford to purchase seeds from Kerala because of high transportation cost
- Farmers are getting less price than expected and in some cases, the price is below the breakeven point
- They are unable to get enough profit by following multiple cropping system

Grapes
- Production cost is increasing day by day due to increase in the prices of seeds, pesticides, and insecticides including the labour costs
- Transport cost has also increased. Bangladesh has increased the import duty on grapes
- Huge detention period at the border

Lentils
- Farmers used to buy water for irrigation because it is costly to setup an own irrigation system
- Road infrastructure is very poor which becomes hurdle in getting appropriate price of the produce
- Farmers are shifting to other crops and lentils production in India is falling

Onion
- There is lack of storage facilities near to the farming areas. For storage purposes, they generally make a small shed by gathering money from the involved farmers, but this shed lacks in cold storage and other facilities

Rice
- System has been evolved in such a way that selling directly to Rice mills becomes a costly affair

Tea
- Aggregators and companies take undue advantage of perishable nature of tea leaves and offer less price to the women tea leaves pluckers

Open Shed for Onion Storage at Nashik, Maharashtra, India

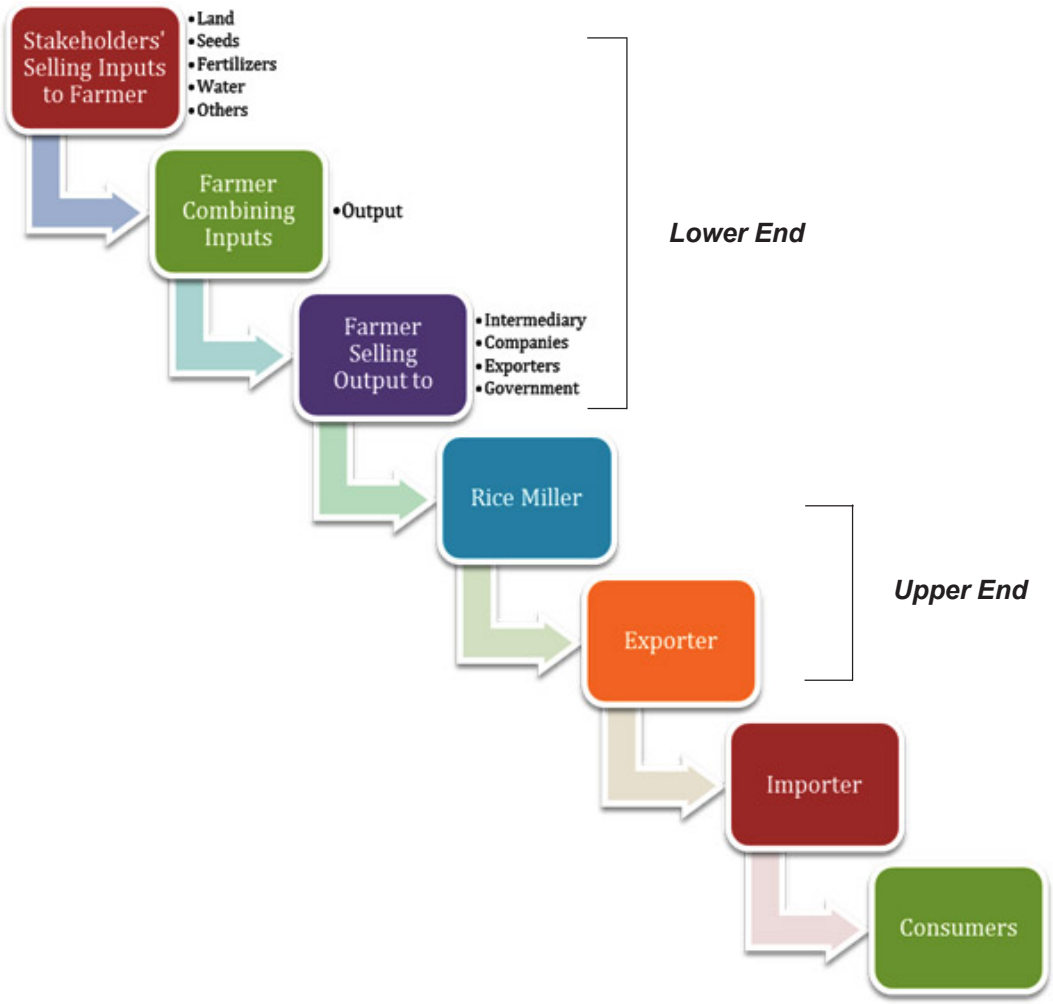
involved in trade activity and indirect for those who are not directly involved. Often, it is difficult to judge the impact of trade on the livelihood of farmers who are at the lower end of supply chain. As shown in Figure 4.5, farmers selling agriculture produce are in the central point in this supply chain. They purchase inputs and sell their output to other intermediaries who are also a part of the supply chain.

Stakeholders' who are at the upper end of the supply chain are directly impacted by trade and those sitting at the lower end are indirectly impacted by trade

In India and Bangladesh, the presence of too many intermediaries in the supply chain is justified assuming the sub-optimal trade infrastructure. The existence of sub-optimal trade infrastructure is confirmed by many studies in the literature. The existence of NTBs, particularly infrastructural, creates hurdles mostly for small farmers. Bad road conditions, non-availability of nearby agriculture market, lack of storage facilities, among others are the main factors which affect their livelihood.

Often, an intermediary purchases the entire output from the farmer at less price and sells at a higher price to the next buyer in the supply chain to profit from trade, with the farmer receiving a fraction of the cost paid by the end consumer.

Figure 4.5: Representation of Export Supply Chain



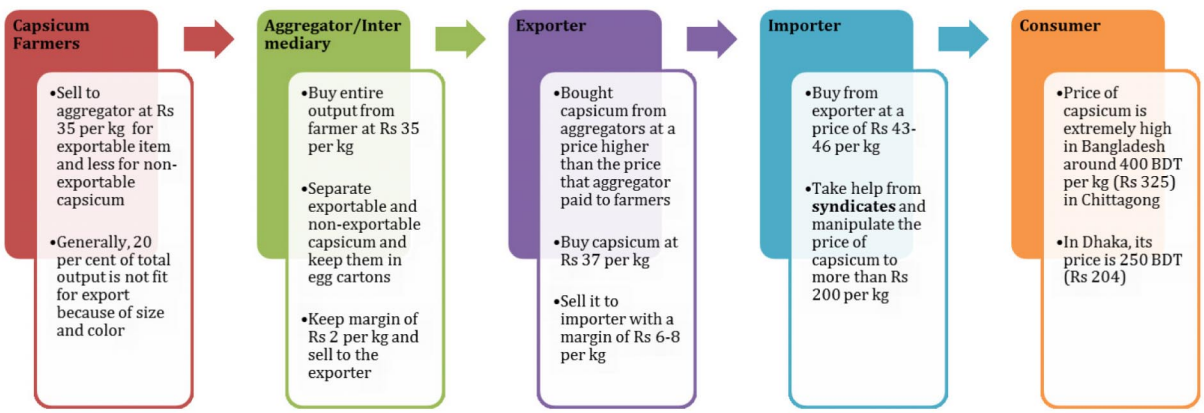
4.4.1 Intermediation in Capsicum Supply Chain

The survey team observed the impact of long intermediation in the entire export supply chain of capsicum from West Bengal in India to Bangladesh.

As shown in Figure 4.6, farmers in West Bengal generally sell their produce to aggregators at a price of Rs 35 per kg and because of long intermediation and manipulations; consumers in Dhaka (Bangladesh) pay approximately Rs 204 for the same. The capsicum supply chain highlights high cost paid by end consumers in Bangladesh – seven times the cost at the point of origin- whereas the producer (farmer) receives nothing out of huge profit made by importers or syndicates.

Capsicum Farm and Farmers, West Bengal, India

Figure 4.6: Consumer Loss in Importing Country: Case of Capsicum



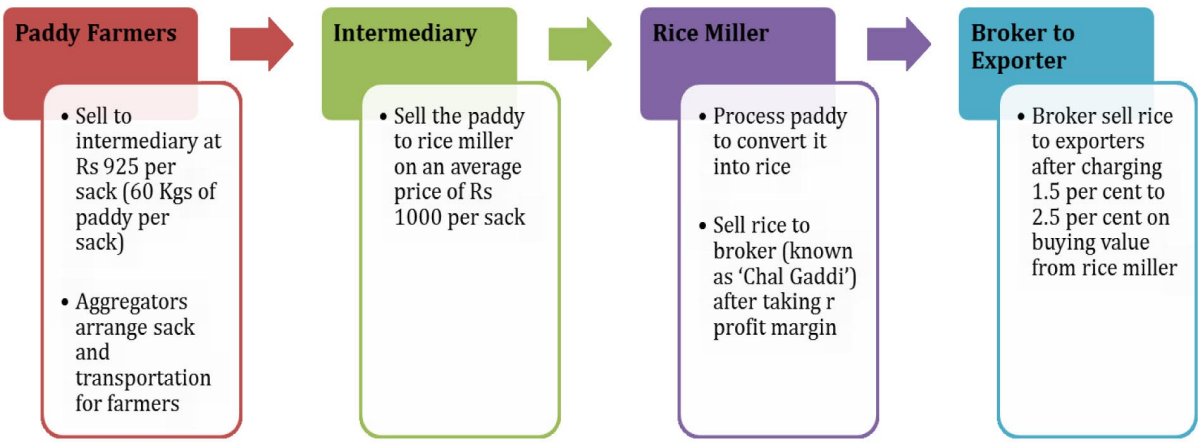
4.4.2 Rice Farmers in West Bengal: Intermediation and Producer Loss

During the field survey, the team observed a case where producer/ farmer selling rice to a known intermediary (Mahajan or Arawdwars) at a lesser price than what they would have received if it was sold directly to rice millers who process it for exports.

Inadequate infrastructure, information asymmetries and market linkages compel farmers to sell their produce at lower price

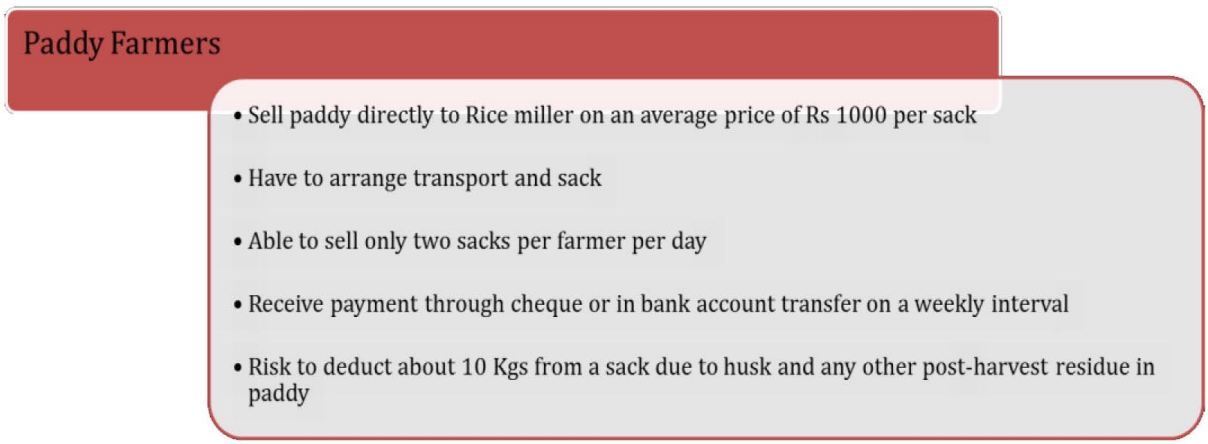
The farmer received Rs 75 lesser on a sack of 60 kg from the know intermediary at farm gate, but agreed to do so as it saves time and money required to transport produce, long queues for selling, chances of deduction in total quantity sold and indirect payment issues. All these reasons encourage farmers to sell to the intermediary, who takes care of the transportation, packing and pays direct cash to the farmers. This example justifies the role of intermediaries at the village level, but it also points to inadequate infrastructure, information asymmetries and market linkages for farmers which compel them to sell produce at lower prices. Figure 4.7 shows the role of intermediary and loss to farmers by not selling directly to the rice miller.

Figure 4.7: Intermediation and Producer Loss: Case of Rice Exports



Further, Figure 4.8 shows the dealing of paddy farmers directly with the rice miller where the farmer receives Rs 1000 per sack but faces issues.

Figure 4.8: Interaction of Paddy Farmers and Rice Miller



4.5 Perceived Livelihood Benefits from Free Trade: Some Case Stories

The study also found some case stories from the field which show the associated benefits with free trade between India and Bangladesh. Following two boxes contains such case stories.

Box: 4.1: Case of Agartala Local People

(Availability of Cheap Vegetables on the Bangladeshi side)

- In Tripura, stakeholders' highlighted that restriction on crossing the border or trade in vegetables with Bangladesh affects the livelihood of communities in border areas. The removal of restriction can enhance the livelihood of local people in terms of gain in their real income. They presented a case of availability of low priced vegetables at other side (Bangladesh) of the border. The same thing is confirmed by the latest study of CUTS on consumer gains from bilateral trade between India and Bangladesh, particularly from Tripura side in specific agricultural commodities. The study mentioned that both countries have natural complementarities in terms of producing goods and there exists a possibility of exchanging them. Given the geographical proximity, similar culture and consumption pattern, it makes economic sense to trade in agricultural and other products across borders, particularly the vegetables (potato, tomato, green chilli and brinjal).

Benefit of removing restrictions

- Without restrictions, residents of Agartala will get the same types of vegetables at cheaper rate than the existing selling price of the same type of vegetables which comes from West Bengal and other areas of India. There is a strong case for promoting trade in agricultural commodities between Bangladesh and Tripura-India, given the gains that can accrue in terms of better availability and lower price to the end consumers in Tripura.

Box 4.2: Case of Tea growers in West Bengal (Lack of Awareness about Trade Procedures)

Women Tea Pluckers and Growers at West Bengal, India

- The team surveyed small tea growers' associations in two villages - Lataguri and Bakshipara in Jalpaiguri in West Bengal. The tea growers have an average land holding of three acres and are involved in cultivation of raw tea which is sold to aggregators and brokers. While around 61 per cent of respondents were aware of their produce getting exported, they were not aware of the export destination which in this case is Bangladesh or any of export related procedures. Members of this tea growers association had no knowledge of institutions which can be approached to understand the procedure and necessary documentations required to export directly to other countries, including Bangladesh.

- The survey found that some small tea grower's associations are trying to integrate with markets by undertaking value addition at source - processing raw tea into final 'made tea' with the help of Tea Board – but they require substantial handholding to enter domestic and regional markets in South Asia. While this is a very important step, more initiatives are required to make farmer associations export-focussed. The 'Tea Board' can organise workshops for such small associations to guide tea grower association about export process, documentation and certification requirements. Some of the small tea grower's associations can be invited in B2B meetings, trade shows and exhibitions to showcase their products and have direct linkages with new buyers and markets.

- Tea cultivation is a labour-intensive process and creates immense employment opportunities for rural poor, including women engaged as labour in tea estates. With Indian tea exports – rising from 188.10 mn kg in 2016-17 to 200 mn kg in 2017-18, this sector offers an opportunity for tea growers associations and farmer collectives' transition from sellers of raw tea to processed tea that meets national and international standards. Relevant agencies like the Tea Board, the Export Promotion council of India; and the Ministry of Micro, Small and Medium Enterprises could offer skill development and credit to selected farmer collectives to link them with domestic and international markets. This could potentially create efficient and profitable regional value chains between India and Bangladesh.[1]

1 https://economictimes.indiatimes.com/news/economy/agriculture/tea-exports-rise-7-per-cent-in-april-january-in-fy18/articleshow/63267637.cms

4.6 Role of Women in Earning Livelihood

More women are getting into farming in India. With growing rural to urban migration by men, women are taking on multiple roles as cultivators, entrepreneurs and labourers in the rural landscape. While 'feminisation' of agriculture' has been a noticeable trend, women's identity as a 'farmer' remains unclear. Land ownership is an important factor which comes into play to be recognised as a 'farmer', but patriarchal norms oppose inheritance to women farmers, which limits their access to benefits and rights as a farmer. The latest Agriculture Census which takes place once in five years shows a rise in the percentage of female farmers. The percentage of female operational land holders increased from 12.79% in 2010-11 to 13.87% in 2015-16.

The survey respondents acknowledged women's contribution is agriculture but their decision making role is fairly limited and they had modest role in agriculture related financial transactions. There is a weak correlation between women engaged in agriculture and agricultural trade.

In case of grapes and onion, farmers revealed that the ratio of the male and female participation in the agricultural practices is 50:50

- During the field survey, women's participation is seen to be high in grapes, onion and tea growing areas. In case of grapes and onion, farmers revealed that the ratio of male and female participation in agriculture is 50:50. In several casses, women were contributing more than their male counterparts. Farmers engaged in onion cultivation admitted that their incomes are entirely based on women's participation as they are solely involved in the cleaning, stacking and grading of crops. Women are also the primary caregivers for children and older family members and are responsible for household activities.

- In tea farming in West Bengal, women are actively involved in the plucking of tea leaves. About 70 per cent of pluckers are women and they are paid Rs 150 for plucking 25 Kgs leaves. There is no formal training for pluckers. The team

Women Tea Leaves Pluckers waiting for the Aggregator in Jalpaiguri, West Bengal

Manual Extraction of Sugarcane Juice by Women in Hyderabad, Telangana

came across several instances where female head looks after and manages the entire tea farming business in the absence of male heads. Women avail credit through Self-Help Group (SHG) in Bakshipara village in Jailpaiguri.

- The women of Telangana rural area are also involved in income generating activities given the fact that their male counterparts are unable to generate adequate income from farming.

Both countries can attain maximum benefit from trade activity through deeper integration, bilaterally as well as regionally

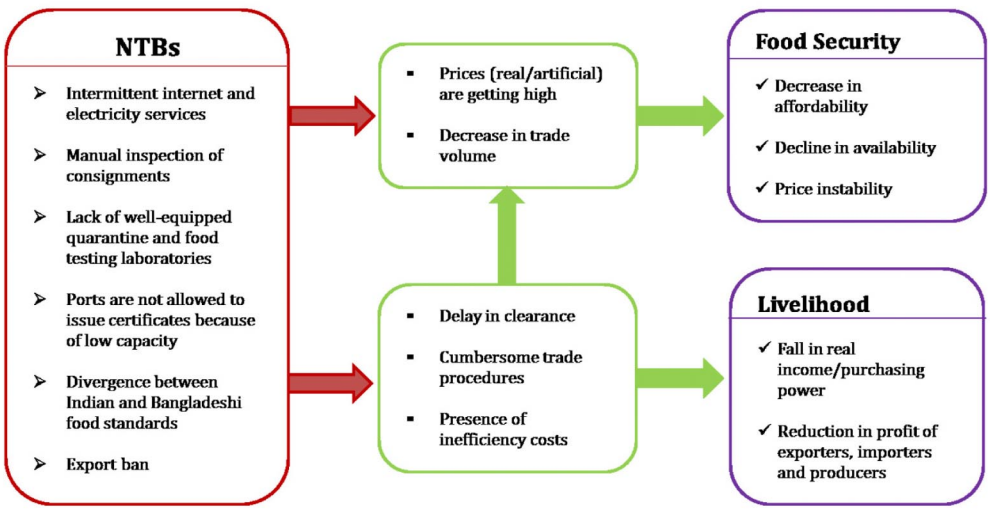
The study found no direct linkages between women farmers and agricultural trade. On the basis of study's findings, one can say that SHGs can be important drivers of women empowerment in rural areas. Women collectives could be used to encourage 'value addition at source' for farm produce and greater participation in agricultural trade.

4.7 Conclusion: A Case in Favour of Trade Facilitation

The growth of bilateral trade in agricultural products between India and Bangladesh is affected by diverse NTBs that restrict trade between two countries. Most of these are at the border and affect agriculture trade more than trade in other commodities. The study found the existence of such barriers to trade, particularly for agriculture trade items, through selected seven land port of West Bengal and Tripura connecting India and Bangladesh.

These NTBs not only increase trade costs but also have implications on food security and livelihood of producers. Due to the low profit associated with producing agriculture items, farmers

Figure 4.9: Implications of NTBs for Livelihood and Food Security



are leaving this profession. This is an alarming situation from many angles. NTBs escalate the cost of trading which is compensated through low prices paid to the actual producer i.e. the farmer. Figure 4.9 portrays the overall linkage of existence of NTBs and their implications to the livelihood and food security.

The existence of NTBs has a direct impact on the availability of a product in the importing country, which indirectly influences the price of that commodity either at the border or in the country of origin. In case of food products, the influence is more and directly impacts the food security in an importing country and livelihood of the producers in exporting country.

Overall, the study reveals that farmers of selected products are facing many issues and the most of them are common. To resolve these issues, reforms at domestic level are required.

Visuals of CUTS Team in the field

CUTS Team with Ginger Farmers at Telangana, India

CUTS Team with Grapes Farmers at Nashik, Maharashtra, India

CUTS Team with Lentils Farmers at Uttar Pradesh, India

CUTS Team with Onion Farmers at Nashik, Maharashtra, India

5

Policy Recommendations

Market Place for Selling Ginger at Hyderabad, India

5

5.1 Need for an Action Oriented Trade Facilitation Agenda

Intra-regional trade within South Asia is low compared to other sub-regions in the World. India and Bangladesh have a shared common objective of closer economic integration within South Asia. Bilateral trade flows between the two countries stood at US$ 9 billion in 2017-18, far below its potential which is around three times of this level. Even though India and Bangladesh are committed to expanding bilateral trade, there are many reasons behind the untapped trade potential – with one of them being the presence of Non-Tariff Barriers (NTBs). These NTBs are more harmful in case of trade in agricultural products because of their perishable nature.

There is significant potential for increased trade in South Asia

To achieve this vision of continued coordination, cooperation and support is the key. Government of India through its various departments and agencies have already taken many initiatives to facilitate cross border trade (see Annexure III for the Government of India initiatives) but still there is a gap in the implementation of existing policy reforms. On the basis of study findings, following recommendations have been suggested for improving India-Bangladesh trade, particularly in agriculture sector. The recommendations are categorised under four main headings.

5.1.1 Capacity related

The presence of NTBs is one among the reasons of untapped trade potential between India and Bangladesh

- **Capacity building of government officials involved in trade process:** There are hurdles related to HS classification of products for quality checks. Customs usually refer imported food products to FSSAI and PQ, but the product falls under the purview of one agency only. This causes delay in getting SPS certificates. During the first stakeholder workshop at Kolkata, a fish importer raised his concern about incorrect specification of the imported product (fresh fish), due to which imported items are referred to the Forest Department for testing.

Generally, import of frozen fish is subject to this testing. When the sample of fresh fish reaches the forest department, they inform the concerned importer that this testing is not required and send back the case file to customs. The entire process takes a lot of time. Such problems can be resolved by the Directorate General of Foreign Trade (DGFT) in coordination with FSSAI, PQ and AQ through product-wise mapping of regulations.

Trade related information should be available as per the HS code

- **Address capacity constraints related to availability of testing laboratories**: There is a dire need to establish quarantine facilities near the border to improve the current level of bilateral trade. To address the problems of unavailability of lab infrastructure, mobile testing facility is recommended at strategic location near land ports. The study recommends one mobile testing facility each at Siliguri to cover all land ports situated in North Bengal and adjacent to Khowaighat and Simantapur LCSs to address challenges faced by exporters and importers while trading with Bangladesh. Also, there is a need to improve the capacity of already existing testing facilities at Petrapole ICP in West Bengal and Agartala ICP in Tripura.

  The Ministry of Agriculture has already prepared strategies to strengthen the capacity of minor PQ stations and build new ones that are equipped with advanced tools for testing; develop protocols for an advanced pest risk analysis system; prepare an integrated phyto-sanitary order control system to regulate plant and plant material from exotic pest attack; and to develop an effective and credible phyto-sanitary system to meet the international standards.

Integrated information should be available at one place to reduce efforts, duplication and delay in clearances

- **Easy availability of trade related information**: Information related to trade procedures and regulations on standards in Bangladesh is available in Bengali which is a problem for those who don't understand this language. The Government of Bangladesh should provide all trade related regulations and procedures in English as well.

Following table shows key priorities and possible measures required to address capacity related constraints with their time horizon.

Table 5.1: Measures to Address Capacity related Constraints

Area of Reforms	Key Priorities and Possible Measures	Time Frame	Implementing Agencies
Capacity of government officials	Capacity building on classification of products as per HS codes	Short term	Directorate General of Foreign Trade (DGFT) and Central Board of Indirect Taxes and Customs (CBIC)
Product specific information	Mapping of products under different categories	Short term	Food Safety and Standards Authority of India (FSSAI), Plant Quarantine (PQ) and Animal Quarantine (AQ)
	Easy availability of trade related information in English		DGFT and Federation of Indian Export Organization (FIEO)
Testing laboratories near the border	Mobile testing facility near the borders (one at Siliguri, one near to Khowaighat & Simantapur LCSs)	Medium term	FSSAI, Department of Agriculture, Cooperation & Farmers Welfare and private sector participation
	Strengthen the capacity of minor PQ/AQ stations with advanced tools for testing	Long term	

* Short term – 6 to 12 months; Medium term – 3 to 5 years; Long term – 5 to 7 years

5.1.2 Policy reforms

- **Harmonization of product manufacturing standards across countries, particularly for food items:** Divergent food standards (see Annexure IV) are one of the barriers to agriculture trade between India and Bangladesh. These should be resolved by both countries through Mutual Recognition Arrangement (MRA).

- **Technical working group to harmonize standards in food products:** The Bureau of Indian Standards (BIS) and the Bangladesh Standards and Testing Institute (BSTI) could establish a technical working group to expedite the process of harmonisation of standards and technical regulations for selected agricultural products. Product-wise regulations on standards in food preparation and packaging should be mapped by both countries to reduce the cost of non-compliance. Both countries should make concerted efforts to align their food standards with international standards, such as CODEX.

- **Promote farmers' extension services and information on market intelligence and crop forecasting:** Lack of extension services, market intelligence and crop forecasting is a barrier to production and trade. Farmers require reliable extension services and market information to plan their annual cropping calendar.

National level agencies can work together and expedite the process of harmonisation of standards and technical regulations

This is an area, where the private sector, farmer collectives and technical agencies can play an important role in providing specialised services to improve farmers' incomes. It has already been seen in the case of Brazil and Venezuela.

- **Same day clearance for semi-perishable products:** There is a provision for same day clearance of perishable products through all the borders. The study recommends steps to be taken for same day or speedy clearance of semi-perishable products such as seeds to promote cross-border trade.

- **Revision of warehousing charges:** CWC should reduce the charges of using warehouse at ICPs. In addition, charges should remain same for both sides (imports and exports).

Following table shows key priorities and possible measures suggested under policy reforms with their time horizon.

Table 5.2: Measures under Policy Reforms

Area of Reforms	Key Priorities and Possible Measures	Time Frame	Implementing Agencies
Food Quality Standards	Harmonization of standards through MRAs	Long term	Bureau of Indian Standards (BIS India) & Bangladesh Standards and Testing Institute (BSTI Bangladesh) in consultation with Codex Alimentarius
	Mapping of product-wise regulations on standards' in food preparation and packaging	Long term	
	Alignment with international standards'	Long term	
Warehouse Charges	Revision in warehousing charges in downward direction	Short term	Central Warehousing Corporation (CWC)
Specific Restrictions	Remove all port-specific restrictions from Tripura side and restriction on export of Hilsa fish by Bangladesh	Medium term	Ministry of Commerce & Industry (MoCI), Government of India and Commerce Ministry Bangladesh
Capacity of farmers	Farmers' Extension Services	Long term	Non-Governmental Organizations (NGOs) and State Governments'

* Short term – 6 to 12 months; Medium term – 3 to 5 years; Long term – 5 to 7 years

5.1.3 Congestion related

- **Develop 'at the border' infrastructure:** This includes the development of parking facilities, warehousing, cold storages, restrooms, approach road, banking facility, customs office space, internet facility, electricity supply, among others. The

up-gradation of LCSs to ICPs would help to address this challenge. Public-Private Partnership should be encouraged to improve infrastructural bottlenecks at LCSs and ICPs along the Indo-Bangladesh Border.

- **Relocate Clearance Points:** Establishment of ICDs and dry ports at potential strategic locations (key industrial zones) can help in this regard. On the other hand, the government should think of implementing Direct Port Delivery (DPD) at selected land ports. DPD has been very successful model in reducing congestion at sea ports.

Establishment of ICDs, dry ports and DPD implementation can help to reduce congestion at the border

Following table shows key priorities and possible measures required to address congestion related constraints with their time horizon.

Table 5.3: Measures to Address Congestion related Constraints

Area of Reforms	Key Priorities and Possible Measures	Time Frame	Implementing Agencies
At the border infrastructure	Development of parking facilities, warehousing, cold storages, restrooms, approach road, banking facility, official space, internet, and electricity supply Up-gradation of LCSs to ICP	Long term	Land Port Authority of India (LPAI) through private sector participation and Reserve Bank of India (RBI) for the solution of banking related problems
Clearance points	Relocation of clearance points such as establishment of Inland Container Depots (ICDs), dry port, Implementation of DPD at land ports	Long term	Central Board of Indirect Taxes and Customs (CBIC), LPAI and private sector participation for developing ICDs and dry ports

* Short term – 6 to 12 months; Medium term – 3 to 5 years; Long term – 5 to 7 years

5.1.4 Supply chain challenges and solutions

- **Development of Cold Chain (Cold Supply Chain):** This will ensure the quality of food and other agricultural products that are perishable in nature. Stakeholders often complaint about the unavailability of cold supply chain that fetches them less value from the importers because of harm caused to their products due to delays.

- **Develop an E-portal for sale/purchase of agriculture commodities:** The idea of e-Portal is to ensure augmented export benefits to farmers or farmer collectives and small traders who are not linked to the market economy. In this portal, any farmer can register as a supplier of a commodity,

An e–Portal may offer an alternate arrangement for farmers that will directly provide present and actual market price of that particular product in different markets and also connect with different buyers

upload their product details with necessary specification, and seek quotes from buyers. This portal can also provide information on export procedures and product manufacturing standards in various countries to help farmer/ farmer collectives and small traders in accessing international markets. As a start, Government of India may pilot this initiative between India and Bangladesh to promote bilateral trade in agriculture.

India and Bangladesh should consider advantages of geographical proximity, identical value system, shared culture and act accordingly

- **Special emphasis on developing export based agro-clusters:** While it is important to develop infrastructure 'at the port', it is equally important to develop infrastructure and technical capacity of agricultural clusters which target international markets. For instance, farmers in the chillies cluster in Andhra Pradesh, grapes producing cluster in Maharashtra and tea producing centres in West Bengal could be trained in agronomic practice to minimise MRL, educate them on SPS issues and promote micro-enterprises on grading, sorting and value addition at source to improve the quality of produce. This could result in better price realisation for farmers and improve the quality of agricultural produce to be able to compete in international markets. In order to address the fragmented nature of agricultural markets, the study recommends greater public-private sector partnerships to address technical capacity related gaps and lack of infrastructure in export centric clusters of production.

The farmer producer organisations will facilitate linkages between farmers, processors, traders and retailers to coordinate supply and demand and access key business development services

- **Promote Farmers Producer Organization (FPOs) and micro-entrepreneurs in regional value chains in South Asia:** In 2013, the Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India has prepared guidelines to promote FPOs in the country to remove hurdles in accessing markets by farmers both as buyers and sellers. It covers all aspects of cultivation including processing and marketing.

  It will be useful to adopt global best practices to collectivise farmers and facilitate their direct participation in trade related activities – both as a means of facilitating their direct participation in national and cross border trade, and for better price realisation at farm gate. As a starting point, relevant FPO's and micro-enterprises in West Bengal and Agartala may be identified and trained to trade with Bangladesh. The study recommends active participation of government ministries, research institutes and private sector representatives to make Indian agriculture competitive.

Following table shows key priorities and possible measures required to address issues related to supply chain challenges.

Table 5.4: Measures to Address Supply Chain Challenges

Area of Reforms	Key Priorities and Possible Measures	Time Frame	Implementing Agencies
Cold Chain Facility	Develop integrated cold-chain for perishable products	Long term	National Centre for Cold-chain Development (NCCD)
Agriculture Marketing	Develop e-portal for sale/purchase of agriculture output directly to the consumers	Medium term	Ministry of Agriculture and Farmers Welfare, government of India and State Ministries
Rural infrastructure	Develop connecting road from farmers' place to nearby market	Medium term	Ministry of Rural Development, government of India with private sector participation
Private sector participation	Promote Farmer Producer Organisations (FPOs) (Found such example during field survey in District Kanpur, India)	Short term	Ministry of Agriculture and Farmers Welfare, government of India and State Ministries

* Short term – 6 to 12 months; Medium term – 3 to 5 years; Long term – 5 to 7 years

In short, in order to improve the level of bilateral agriculture trade, collective efforts from both countries are required. One-sided reform will not work until these will be complemented by reforms in the partner country. Hence, both countries should come forward and reform their domestic as well as trade policies in such a way that it strikes a balance between producer and consumer welfare.

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Annexures

Annexure I

Sampling Design

Sampling design covers the detailed description of selected ports, products, and stakeholders covered in this study.

i) **Target Population:** The target population is defined on the basis of study's objectives. The target population includes those objects (respondents) which possesses the information sought by the researcher. Broadly, for the study purpose, all respondents are categorised into eight categories. Those are: Indian Exporters of selected products exporting to Bangladesh; Indian Importers of selected products importing from Bangladesh; CHAs for exports and imports, C&F for exports and imports, Transporter deals in exports and imports, Government Officials (Customs & Quarantine), Farmers, and Members of associations (particularly, FPOs) and Apex Industry associations concerned with the selected product(s).

ii) **Geographical Coverage:** Since the focus of the study is to identify NTBs through land ports, therefore, seven land ports (see Table A1.1 for the list of selected ports) have been selected. The main reasons behind selecting these land ports are: Ports given in the Terms of Reference (ToR) document, port significance in terms of volume of agricultural trade (as shown in Table A1.1), and suggestions from initial stakeholder consultation.

Table A1.1: Selected Port-wise Export and Import with their Corresponding Shares

Land Port	Export in 2016 (US$mn)	Export Share (in per cent)	Import in 2016 (US$mn)	Import Share (in per cent)
Ghajadanga	13.30	0.21	36.78	5.09
Petrapole	1910.09	29.92	476.50	65.97
Mohedipur	496.11	7.77	14.99	2.08
Hili	7.62	0.12	4.44	0.61
Fulbari	72.77	1.14	100.39	13.90
Chengrabandha	23.08	0.36	15.57	2.16
Agartala	0.88	0.01	32.05	4.44
Total	**2529.52**	**39.54**	**711.25**	**94.24**

***Source**: CUTS calculations using Port-Wise trade data from DGCI&S*

iii) **Product Selection:** Since the focus of the study is agricultural goods, therefore, only few agricultural goods (see Table A1.2 for the list of selected products) have been selected to identify existing NTBs. For this selection, products from 24 HS codes (01 to 24) have been considered. There are four main reasons of selecting these products: maximum traded; food and nutritional security; livelihood; and gender aspect. In total, 15 products have been selected under this study where 10 are export[1] items from India to Bangladesh and five are import[2] items of India from Bangladesh.

Table A1.2: Selected Products per Port

S.N.	Port	Indian State	Trade Flow	Product 1	Product 2	Product 3	Product 4	Product 5
1	Ghajadanga	West Bengal	Exports	Ginger	Rice	Grapes*	Capsicum@	—
			Imports	Vegetable Oil	Sugar Confectionary	Fruit Juice*	—	—
2	Petrapole	West Bengal	Exports	Ginger	Meals for Fish	Seed	Tea	—
			Imports	Fish	Potato Flakes	Veg. Oil	—	—
3	Mohedipur	West Bengal	Exports	Seed	Rice	Tea	Animal Feed	Grapes*
			Imports	—	—	—	—	—
4	Hili	West Bengal	Exports	Rice	Seed	Ginger	Onion	Animal Feed
			Imports	Vegetable Oil	—	—	—	—
5	Fulbari	West Bengal	Exports	Lentils	Animal Feed	—	—	—
			Imports	Fruit Juice*	—	—	—	—
6	Chengra-bandha	West Bengal	Exports	Rice	Seed	Tea	—	—
			Imports	—	—	—	—	—
7	Agartala#	Tripura	Exports	Seed	—	—	—	—
			Imports	Fish	Potato Flakes	Sugar Confectionary	Fruit Juice*	—

***Notes**: #: Agartala is selected to find out the reason why exports are not happening from Indian side through this port; *: As per the USAID-India suggestions and pilot survey, we include Grapes as an additional export item from Mohedipur and Fruit Juice as an additional import item from Ghajadanga, Fulbari, and Agartala; @: Capsicum export can be a good example to show the relationship between trade and livelihood because the farmers of this product are living nearby areas of Ghajadanga land port and can be reached directly; Other products have been selected on the basis of port-wise maximum traded agricultural items, food security, and gender aspect.*

***Source**: CUTS Analysis using Port-wise data available at DGCI&S, GOI*

The trade trends of the selected tradable items are given in following tables.

Export Items

Table A1.3 shows that all products, except capsicum and lentils, follow the first criterion of continuity in trade activities over the last three years. Capsicum had taken entry into the export basket in 2014-15 but exporting very small amount to Bangladesh. Though, it contributed insignificantly in export value to Bangladesh, but the reason behind its selection is its livelihood implications and its trade potential.

1 Animal Feed; Capsicum; Ginger; Grapes; Lentils; Meal for Fish; Onion; Rice; Seed; and Tea.

2 Fish; Fruit Juice; Potato Flakes; Sugar Confectionary; and Vegetable Oil.

Further, India started exporting ginger to Bangladesh in 2013-14 with a value of US$ 1.27 mn and continuously exporting this product with an increasing trend. Similarly, fish meal exports have started from 2009-10 with an export value of US$ 0.01 mn and rose to US$ 5.74 mn in the year 2015-16. In the latest year, its export value declines to US$ 3.21 mn as shown in Table A1.3.

In case of lentils, it was exported in a very high volume and contributed 7.11 per cent in total agricultural exports of India to Bangladesh in the year 2006-07 but its exports declines in huge amount (zero in most of the years) and reaches to less than 0.5 per cent share in total agricultural exports to Bangladesh.

The consistent exported products are: Animal feed, Grapes, Onion, Rice, Seeds and Tea. The trend of animal feed exports over the last 10 years show that its export value is increasing over the years and also its share in total Indian agricultural exports to Bangladesh. In the year 2006-07, its share in Indian agricultural exports was 0.25 (US$ 1.36 mn) per cent and it rose to 4.91 (US$ 38.42 mn) per cent in 2016-17.

Turning to export of grapes, only one selected fruit item, value of its exports to Bangladesh was US$ 7.01 mn in 2006-07 and contributed 1.29 per cent share in total agriculture export to Bangladesh. It continuously increased till 2010-11 around US$ 12 mn and after falling a bit for two consecutive years suddenly reached at the highest value US$ 20.76 mn (with a share of 2.12 per cent) in 2011-12. Further, the value of grapes exports falls to the lowest level in 2014-15 and then starts rising for the last two years with a share approximately 2 per cent.

Table A1.3: Value (US$mn) and Share of Indian Exports to Bangladesh of Selected Products in Total Agriculture Exports

S.N.	Product	2014-2015	2015-2016	2016-2017
1.	Animal Feed	23.99 (1.55)	29.17 (3.45)	38.42 (4.91)
2.	Capsicum	0.01	—	0.01
3.	Ginger	7.76 (0.50)	4.33 (0.51)	4.69 (0.60)
4.	Grapes	1.96 (0.13)	4.78 (0.56)	15.41 (1.97)
5.	Lentils	—	2.05 (0.24)	3.83 (0.49)
6.	Fish Meal	0.45 (0.03)	5.74 (0.68)	3.21 (0.41)
7.	Onion	127.71 (8.24)	145 (17.13)	145.45 (18.58)
8.	Rice	448.51 (28.93)	131.87 (15.58)	28.46 (3.64)
9.	Seed	25.56 (1.65)	27 (3.19)	48.98 (6.26)
10.	Tea	0.19 (0.01)	1.99 (0.24)	1.62 (0.21)

***Note**: Values in the brackets are the shares of corresponding product's exports in total value of agriculture exports to Bangladesh in the respective year*
***Source**: CUTS calculations using data from Ministry of Commerce & Industry, Government of*

In case of onion, India is continuously exporting this product to Bangladesh over many years. On an average, the value of onion exports lies between US$ 70 mn to 150 mn with an exception of US$ 239.65 mn in 2009-10.

In case of rice, it is a staple food product in both of the countries. This product has high food security implication and also has livelihood impact because of its huge land coverage. Rice was exported in significant value to Bangladesh since many years but its trade trend is not stable. Rice exports has jumped up to six times from US$ 109.03 mn in 2006-07 to US$ 660.85 mn and contributed more than half of total agriculture exports to Bangladesh in 2007-08. But in later periods, it has fallen and slashed suddenly to US$ 0.06 mn in 2009-10. Further in 2011-12, rice exports raised by more than 27 times to US$ 54.18 mn and again reduced to US$ 13.68 mn in 2012-13. In 2013-14, rice export increased to US$ 250.54 mn and increased further to US$ 448.51 mn in 2014-15. In the last two financial years, there is sudden fall in rice exports to Bangladesh.

Seed is the only agriculture input that has been selected in this study. Here, seed includes different kinds of seeds, such as vegetables, fruits and plants. The trend of bilateral exports of Indian seeds shows that exports are continuously increasing over the last 10 years. Its share is also increasing over the years.

Finally, the study has selected tea as one of the export items. It falls under the agriculture allied product category and large numbers of labourers (including women) are engaged in making consumable tea product from its activity of cultivation to post harvest processing. India is the one of the major source of tea for Bangladesh. Its exports trends are fluctuating but the trend shows that its share in total agricultural exports is increasing from 0.01 per cent in 2014-15 to 0.2 per cent in 2016-17.

Import Items

Among selected import items, India has started importing fish and potato flakes from 2013-14. Compare to the import value of potato flakes, the amount of fish imports is higher. Share of fish imports shows that India is importing fish in significant amount from Bangladesh (see Table A1.4 for latest trends in imports of selected items of India from Bangladesh).

Table A1.4: Value (US$mn) and Share of Indian Imports from Bangladesh of Selected Products in Total Agriculture Imports

S.N.	Product	2014-15	2015-16	2016-17
1.	Fish	17.97 (12.98)	16.10 (13.67)	6.49 (12.32)
2.	Fruit Juice	3.69 (2.66)	1.93 (1.64)	5.02 (9.53)
3.	Potato Flakes	0.88 (4.90)	0.83 (5.16)	0.19 (2.93)
4.	Sugar Confectionary	1.26 (0.91)	0.76 (0.65)	0.76 (1.44)
5.	Vegetable Oil	0.88 (0.64)	3.08 (2.62)	12.62 (23.97)

***Note**: Values in the brackets are the shares of corresponding product's import in total value of agriculture import from Bangladesh in the respective year*
***Source**: CUTS calculations using data from Ministry of Commerce & Industry, Government of India*

Further, in case of fruit juice, presently India is importing Bangladeshi brand 'Pran' fruit juice in significant amount which contributes up to 10 per cent in its total import share of agriculture products from Bangladesh. Vegetable oils and sugar confectionary, including 'containing cocoa product' and 'non-containing cocoa product', are two processed agricultural food products which India is importing continuously from Bangladesh over the last ten years.

Coming to the sugar confectionary, its import was below US$ 1 mn till 2012-13 and then it suddenly increased to US$ 3.67 mn in 2013-14. Since then, its imports start falling and reached below US$ 1 mn in 2016-17. In case of vegetable oil, its import has increased from US$ 0.02 mn in 2006-07 to US$ 12.62 mn in 2016-17. In the latest financial year (2016-17), its share in total agricultural imports from Bangladesh is the highest among the selected import items.

iv) **Sampling Technique:** Table A1.5 presents the types of sampling method which are used to select the sample size. The study has used the non-probability sampling wherein sample elements are chosen as per their relevance to the study.

Table A1.5: Stakeholder-wise Sampling Method used for the Analysis

S.N.	Respondent Type	Sampling Method
1.	Exporters (India)	Quota with Convenience Sampling
2.	Importers (India)	Quota with Convenience Sampling
3.	Custom House Agent (Export & Import)	Convenience Sampling
4.	Transporter (Export & Import)	Convenience Sampling
5.	Clearing & Forwarding Agent (Export & Import)	Convenience Sampling
6.	Government Officials (Customs & Quarantine)	Convenience Sampling
7.	Farmer	Quota with Judgmental Sampling
8.	Association Member	Convenience Sampling

v) **Sample Size:** As per the qualitative nature of the study, the sample size for all stakeholders is small. Port-wise sample size is given in Table A1.6. In addition to the number of respondents, given in Table A1.6, CUTS teams have also interviewed members of related associations and few policy experts that provids some important insights related to our work.

vi) **Execution Method:** The study obtained the information through semi-structured interviews by using separate interview schedule for each respondent.

Table A1.6: Port-Wise Sample Size (excluding Association Members and Experts)							
Stakeholders	**Ghajadanga**	**Petrapole**	**Mohedipur**	**Hili**	**Fulbari**	**Chengrabandha**	**Agartala**
Exporters	2R, 2G, 2C, 1Gr	1S, 1MF, 1AF	1R, 2Fr, 2AF	2R, 5O, 3G	1L	2R	NAP
Importers	NA	2F	NAP	1VO	NA	NAP	2F, 1FJ, 1PF, 1PFL
CHA (Export)	2R, 1G, 2C, 1O, 1Gr	NA	NA	NA	1	NA	NAP
CHA (Import)	NA	NA	NA	NA	1PF	NA	NA
Transporter (Export)	4	2S, 1R, 1O, 1G	2R, 1O	2R, 2O	NA	1	NAP
Transporter (Import)	2R, 1C	1F, 2VO	NA	NA	NA	1	3F, 1PF
C&F (Export)	NA	1S, 1MF	2R, 2Fr, 2AF	NA	NA	1O, 1R, 1Other	NAP
C&F (Import)	NA	1PFL	NA	NA	NA	1 PF	NA
Customs Official	1	1	1	2	1	1	1
Quarantine Official	NA	1	NA	NA	NA	NA	1
Farmer (Exporting Products)	20G, 20C	20O	20Gr	20R	20L	20T	NAP
Total	**62**	**38**	**35**	**37**	**24**	**29**	**11**

NA: Not Available; NAP: Not Applicable; AF: Animal Feed; C: Capsicum; F: Fish; FJ: Fruit Juice; Fr: Fruits; G: Ginger; Gr: Grapes; L: Lentils; MF: Meal for Fish; O: Onion; PFL: Potato Flakes; PF: Processed Food; R: Rice; SC: Sugar Confectionary; T: Tea; VO: Vegetable Oil.

Secondary Data and Its sources

The relationship between trade and food security has been established by using the secondary data. Secondary data have also been used to report the trade trends between India and Bangladesh. Data on exports and imports for both countries have been culled out from various country-level and international sources. Sources of trade data are: World Integrated Trade Solutions (WITS) by World Bank; EXIM Data Bank by Ministry of Commerce & Industry, Government of India; Port-wise trade data from Foreign Trade Data Dissemination Portal of Directorate General of Commercial Intelligence and Statistics (DGCI&S), Kolkata, Government of India. For the production data of selected agricultural products, the study has used FAOSTAT database provided by Food and Agriculture Organisation (FAO) of the United Nations.

Annexure II

Analytical Frameworks

The study uses both quantitative and qualitative research tools to analyse the primary and secondary information/data. The qualitative research analysis will provide results on the basis of experiences and views of concerned stakeholders whereas quantitative tools will analyse the numbered data obtained from the primary survey and secondary sources. Following sub-sections provide the short description of frameworks used for the analysis purpose.

Framework Analysis

The study uses the 'framework analysis' to analyse the qualitative information collected from primary and secondary sources. It is a theme based approach where the obtained information is fragmented into themes and sub-themes. The ultimate objective is conglomerating those themes and form a matrix and thereafter analysing the interconnection of those themes to develop profound understanding of the data.

Framework analysis is a method generally used in those studies whose focus is to review existing policies and procedures to ensure optimum efficiency. This analysis assesses policies and procedures using responses taken from those people who have affected from them. The study mainly focuses on the explanation of existing system in place and the problems within that system. The points taken from FGDs, such as stakeholder consultations, are taken into account for the analysis. Port-wise case studies have developed on the basis of qualitative research analysis. Each case study provides the procedural hurdles affecting bilateral trade between India and Bangladesh.

Import Dependency Ratios

To establish the linkage between bilateral trade between India-Bangladesh and its relationship with food security, the role of India in ensuring food security of Bangladesh is assessed on the basis of calculation of intensity of dependency of the latter on India. The study has used two main indices: Import Dependency Ratio (IDR); and Bilateral Import Dependency Ratio (BIDR). Here, the term dependency refers to the degree of dependency of Bangladesh on Indian products (imports for Bangladesh) to feed domestic consumers of Bangladesh.

IDR measures the country's overall dependency on world to meet domestic demand of commodity k. Following expression has been used to compute the value of IDR (FAO).

$$IDR_{i,t}^{k} = \frac{M_{i,t}^{k}}{P_{i,t}^{k} + M_{i,t}^{k} - X_{i,t}^{k}} \times 100$$

Where $M_{i,t}^{k}$ is the total import quantity of country i of product k from all countries of the world at a given time t; $P_{i,t}^{k}$ is the domestic production of commodity k at time t; $X_{i,t}^{k}$ is the total export quantity of commodity k at the same point of time. Further, to show the bilateral dependence, i.e., dependence of one country on another country, the study has calculated bilateral import dependency ratio (BIDR). In this case, instead of using total imports in the numerator, the study

has used bilateral imports ($m^k_{ij,t}$) of concerned commodity at time t and assume the same denominator as in IDR. The final expression used to calculate the bilateral ratio is given as:

$$BIDR^k_{ij,t} = \frac{m^k_{ij,t}}{P^k_{i,t} + M^k_{i,t} - X^k_{i,t}} \times 100$$

The values of both ratios lie between zero to 100, where zero means no dependence and 100 mean full dependence. These ratios will show the extent of dependence only when imports are mainly utilised for domestic consumption and not re-exported. The opposite of these ratios are the *self-sufficiency* ratios.

Household Livelihood Approach (HLA)

To understand the impact of increase in volume of trade on the livelihood of the producers, the study has tried to find out the linkage of the producer's income with the exports of produced output. The study targeted those Indian farmers who are involved in producing that product of which supply goes to the Bangladesh.[1]

Through the interviews of selected number of respondents, the study has recorded the information on their existing livelihood sources and tried to estimate the impact of changes in volume of trade on their livelihood. This is done on the basis of farmers' perceptions about the impact of reformed supply chain process on the livelihood. The study has adapted the HLA developed by the USAID to study the impact of change in volume of trade/fluctuations in trade activities/trade policies on producers' livelihood. This framework includes the detailed investigation of the living standards/conditions of the target respondents.

As per this framework, "*Livelihoods are the means by which households obtain and maintain access to the resources necessary to ensure their immediate and long-term survival. These essential resources can be categorised into six categories: physical, natural, human, financial, social, and political. Households use these assets to increase their ability to withstand shocks and to manage risks that threaten their well-being*". Under this framework, the study looks at the alternative strategies to achieve targeted livelihood under diverse circumstances. It provides the ways of achieving targeted livelihood by respondents through alternative income generation methods at the time of any external uncontrollable shock (trade policy, among others).

1 Due to difficulty in mapping the exact farmers involved in the production of exported commodities, the study has taken the sample of farmers from the mapped area specified by the exporters from where the concerned product(s) are coming.

Box A2.1: Types of Livelihood Assets as per HLA

1. **Human assets** indicate the knowledge of livelihood and also capabilities possessed by individuals. It also includes current status of health which determines how effectively an individual can use their capabilities to pursue the livelihood activities.

2. **Physical assets** include the physical public economic infrastructure and household's productive and other assets. These are: roads, rail and communication networks under public economic infrastructure and gold (Jewellery), furniture, electronic appliances, vehicles and animals among others.

3. **Social assets** are built with the help of more connections of a household in the society and trustworthiness. The social assets can help in getting benefits in future and the person, who successfully uses its connections, also holds political assets as per this approach.

4. **Political assets** are the ability to use political connections or power to affect livelihood options and outcome.

5. **Financial assets** are available to the household and include saving, credit, insurance, remittances, pensions, cash transfer from social welfare programmes, and assets retained as store of value, such as livestock or Jewellery.

6. **Natural assets** comprise all natural resources that can be controlled by the household and used to expand or enhance livelihoods.

Annexure III

India's Initiatives to Facilitate Trade

Under the trade facilitation agenda, the Government of India has taken many initiatives to reduce the time and cost involved in existing trade processes. This chapter highlights major initiatives by the Government of India to facilitate cross-border trade.

Customs Authorities

To revive ease of doing business (EoDB) across borders, Central Board of Indirect Taxes and Customs (CBIC) has taken various initiatives time to time. The major among them are as follows:

- Customs has specified the fine amount for importers who are late in filing an import declaration (Bill of Entry). This measure will enable discipline among trade and reduce time for import as well.
- Indian Customs has launched e-SANCHIT application to facilitate Single Window Interface for Facilitation of Trade (SWIFT). Traders can submit all the documents with digital signature, necessary for customs clearance, online through this application at single point. e-SANCHIT has now been implemented on import side which started from April 01, 2018 at all customs stations with EDI facility.
- Customs' Authorised Economic Operator (AEO) scheme ensure speedy clearance and simplified customs procedures to those importers who offer high degree of security guarantee with respect to their role in different supply chains. Furthermore, Indian Customs has introduced new AEO programme for those who have strong internal control systems and compliance to CBIC. Beneficiaries under this programme can avail extra facilities, including self-certification of export consignments.
- Insurance charges levied by Customs Cargo Service Providers (CCSPs) for goods stored at customs area for 30 days, have been lowered. Traders now have to pay insurance charges for 10 days only. The same treatment has been done with bond charges. As a consequence, bank guarantee payment is reduced, lowering transaction cost.

Land Port Authority of India

Land Port Authority of India (LPAI) has made ICPs at Agartala and Petrapole to smooth process of trade with Bangladesh. Another ICP-enabled land port with Bangladesh at Dawki, is under development. LPAI has proposed to build seven more ICPs at Bangladesh borders, namely, at Hili, Changrabandha, Ghajadanga, Mohedipur, Fulbari, Sutarkandi, and Kawrpuichhuah.

Ministry of Agriculture

With the objectives to prevent plant from exotic pest attack, access markets of diversified products, promote and facilitate safe agriculture practices, Ministry of Agriculture has issued New Seed Policy in 1988. The policy was last amended on July 04, 2018. Strategies under this includes: strengthening capacity of minor PQ station and also built new PQ stations equipped

with advanced tools for testing, inventing most advanced pest risk analysis system, make an integrated phyto-sanitary order control system for regulating plant and plant material from exotic pest attack, develop effective and credible phyto-sanitary system to meet international standards.

Ministry of Commerce

- To double farmer's income and agriculture exports, Ministry of Commerce & Industry, Government of India has come up with draft Agriculture Export Policy. This policy requirement is in line with the needs of the Indian economy as agriculture provides livelihood to nearly 58 per cent of total population.
- The Ministry in its new Foreign Trade Policy (FTP) 2015-20 reduced the number of mandatory export as well as import documents. Mandatory import documents have been reduced from 10 to three and export from seven to only three. Now, the three required documents for imports are: bill of lading, commercial invoice-cum-packing list and bill of entry. For exports, required documents are: bill of lading, commercial invoice-cum-packing list and shipping bill/bill of export.
- The Ministry has taken an initiative to extend the use of Electronic Bank Realisation Certificate (eBRC) system which can help capturing details of foreign exchange received by exporters. The received data is then transmitted to state governments for speedy processing of GST refunds.
- The Ministry of Commerce in their policy circular No. 04/2015-20, dated February 26, 2018, provided the notification on removal of Minimum Export Price (MEP) on all quality of onion and the same should be permitted to export without Letter of Credit (LoC).

Food Safety and Standards Authority of India (FSSAI)

FSSAI has introduced Food Import Clearance System (FICS) which is an online platform to lodge application for seeking NoC for imported food items. This arrangement allows the importer to file application with the Customs on ICEGate which is seamlessly integrated with FICS. This online application submission facility results in hazard free paperless procedure for importers.

Export Inspection Council and Bureau of Indian Standards

Export Inspection Council (EIC) was set up by the Government of India to develop exports and ensure the delivery of quality products to importers of other countries. EIC is responsible for providing services of issuing certificate of origin, phyto-sanitary and health certificates, among others, through online portal which enables hassle free services in minimal time.

The Bureau of Indian Standards (BIS) is actively involved in regional and bilateral cooperation programmes pertaining to standardisation and it has signed various MoUs and Mutual Recognition Agreements (MRAs) in the fields of standardisation and conformity assessment with many countries. The aim is to facilitate acceptance of Indian products in international market.

Reserve Bank of India

To simplify the trade process, RBI in a published notification dated on May 14, 2015, stated that declaration of export goods in Statutory Declaration Form (SDF) is only required if goods are being exported through EDI port.

Other Initiatives

In addition, the government has taken some more initiatives to flourish agriculture trade. Those are enlisted below:

- The Central Government has established an Agri-Export Zone (AEZ) under the Export-Import (EXIM) policy 2001. Under this scheme, both Central and State governments disbursed funds to provide financial and fiscal assistance to the stakeholders of the notified cluster and area of development. The government has made AEZ for selected products: Onion, Grapes, Ginger, Lentil, and Basmati rice in different states of India.
- APEDA is the implementing agency of the Agriculture and Processed Food Export Promotion Scheme. Under this scheme, financial assistance has been provided on raw produce and processed food products on account of development of export infrastructure, quality of products and increases the accessibility of products to new markets.
- The Government has proposed to launch 'Operation Greens' on the lines of 'Operation Flood' with an allocation of Rs 500 crore. It aims to promote Farmer Producer Organisations (FPOs), agri-logistics, processing facilities and professional management.

Annexure IV

Summary of Divergences in Food Manufacturing Standards of Selected Products

There are different types of SPS and TBT regulations that act as impediments to bilateral agriculture trade between India and Bangladesh. These technical barriers are – excessive testing requirements and divergence in SPS and TBT standards. The SPS standards in India and Bangladesh are different in most agricultural products. The study found divergent standards in case of five selected export items of India to Bangladesh (ginger, grapes, rice, various varieties of seeds and tea) and four import items by India from Bangladesh (fish, fruit juice, potato and sugar confectionary). This is particularly noted in case of parameters such as contaminants, additives, preservatives and divergence in maximum residue limits.

Indian Exports to Bangladesh	
Product	**Source of Divergence**
Ginger	• Existing quality standards of FSSAI does not test the presence of residue of radionuclides. However, Bangladesh food quality standards tests ginger for measuring one radionuclide and shall be permitted to sell in domestic market only if tested one kg of ginger contain maximum 50 Bq. • Presence of six residues shall be tested additionally by BFSA according to respective MRL limits before sale in the domestic market, whereas the testing for these contaminants presence is not required in Indian market. • Indian regulation has mentioned the MRL limit in case of residue of one insecticide, three heavy metals, one microbiological parameter, and one preservative, which are not present in Bangladesh food safety standard regulation on ginger.
Grapes	• There are only seven common testing parameters out of 78 parameters. • In case of insecticides, India has established standards in 47 different chemicals, whereas Bangladesh has established standard for 36 chemicals with very little convergence. • Except for carbendazim, India is able to meet other standards for export to Bangladesh.
Rice	• One of the radionuclides (134Cs, 137Cs, 239Pu, 90Sr, 131I) has to be tested while importing all types of rice, whereas it is not considered as a testable parameter in Indian food standards. • Parameters to be tested for existing residue of used insecticides are different in regulations of both countries. • Indian standards have not mentioned any parameters for fungicides and herbicides. However, Bangladesh has specified testing residue of five fungicides and three herbicides parameters in rice at the time of import. • If rice is stored at a warehouse, BFSA's food regulation requires testing for insecticide methyl bromide and grant import permit only if the residue limit does not exceed one ppm. Indian food regulation does not prescribed any test for residues of methyl bromide for safe storage of rice.

Indian Exports to Bangladesh	
Seeds	• Indian standard regulatory body has not set any residue limit for any type of contaminants for radionuclides, mycotoxins, fungicides, herbicides, and plant growth controller in seeds. Bangladeshi regulations specify permissible limits and tests for the presence of one type of radionuclides, six types of mycotoxins, nine types of fungicides, four types of herbicides, and one type of plant growth controller for specific seeds: cotton, rape and sunflower seeds. • On the presence of insecticides in seeds, standards regulatory body of both the countries' have prescribed names of different types of insecticides. BFSA has mentioned 26 insecticides, and the presence of their residue shall be tested on the import of specific type of seeds. Of the 26 prescribed insecticides, only nine are common. Even within common nine insecticides, either maximum residue limits or the applicability of test on type of seeds are not similar across standards of both the countries.
Tea	• BFSA's standards regulations tests presence of six mycotoxins residues in final product, whereas according to FSSAI food regulation, it is not a testable parameter for sales in domestic market. • Testable parameters of insecticides are totally different across standard regulations. BFSA-accredited laboratory tests the presence of residue of 11 insecticides whereas FSSAI specifies the names of seven insecticides that are not covered under a list of 11 insecticides specified by Bangladesh. • Bangladesh has mentioned tests for residue of one usable herbicides *'paraquat'* in black and green tea, while Indian standard does not include any tests for presence of herbicide residue.
Indian Imports from Bangladesh	
Fish	• Comparatively, India has more number of standards in case of producing fish. It has specified many standards across variety of antibiotics, biotoxins, contaminants, insecticides, and heavy metals.
Fruit Juice	• Indian standards have included three additional metals: cadmium, mercury and methyl mercury which are absent in Bangladeshi standards. • A contaminant aflatoxin which does not exist in the Bangladeshi food standard but it is stated in Indian standards with MRL 30 ug/kg.
Potato	• In case of heavy metals, India has established standards for four different metals, whereas Bangladesh has established standard for only one metal (cadmium). • A similar trend is visible in contaminants and insecticides.
Sugar Confectionary	• Bangladesh has specified only eight parameters wherein five are common to Indian standards. • India has specified a long list of parameters to be tested in case of production of sugar confectionary which includes parameters covered under heavy metals, additives, mycotoxins, radionuclides, colours, flavours, alkalising agents, neutralising agents, antioxidants and lubricants.

***Source**: See Chapter 2, Tables 2.1 to 2.9*

Trade creates employment opportunities, income, reduces costs for industries and consumers, motivates entrepreneurs, empowers women, and attracts investment in production and infrastructure. It also serves as a conduit through which we can share and exchange knowledge, ideas, innovations, and technologies that have the power to transform lives in developing regions. In short, trade lays the foundation to fuel progress across a broad range of Sustainable Development Goals (SDGs).

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