

Indo- EU Agricultural Trade: Trade Restrictions and SPS Measures

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Abstract- Agricultural trade is becoming more important today due to its multi-dimensional importance. Technical standards such as sanitary and phyto- sanitary (SPS) measures impose barriers to agricultural- trade. In some cases SPS measures are also advantageous for countries from the point of protection of plant, animal and human health. Against this backdrop, this paper attempts to examine issues and trends related to trade restrictions and SPS measures with special reference to Indo- European Union (EU) agricultural trade. Results from various indices such as Trade Intensity Index: $T_{ij} = (x_{ij} / X_{it}) / (x_{wj} / X_{wt})$, Revealed Comparative Advantage Index: $RCA_{ij} = (x_{ij} / X_i) / (x_{wj} / X_w)$ and Export Specialization Index: $ES = (x_{ij} / X_{it}) / (m_{kj} / M_{kt})$ shows the growing trade potential between India and EU. India is in a more vulnerable position in agro- trade than EU due to the SPS measures adopted by the EU. Indian products such as rice, cotton, fruits and vegetables are mostly affected by the EU's SPS measures whereas from the EU side wines and spirits, raw hides and skins and other agro- products are more prone to SPS challenges. This paper also highlights the recent unilateral action of the EU Commission over ban on some agro- products of India which raised much apprehension and repercussions from both the trade partners. Results confirm that authorities from both the sides have adopted reciprocal and restrictive attitude towards trade through various non-tariff measures (NTMs). Proactive steps in trade may tap the Indo- EU agricultural-trade potential.

Keywords: agro- products, non- tariff measures, trade potential, RCA index, export specialization index.

I. INTRODUCTION

The purpose of this paper is to explore empirically India- European Union (EU) trade with focus on agricultural trade. This study discusses performance of the agriculture sector and the sanitary and phytosanitary (SPS) measures in detail of both the trading partners, and also validates this with the recently emerged agricultural trade restrictions. The paper tries to test three hypotheses. Hypothesis 1: India- EU agro trade is untapped. Hypothesis 2: India's SPS measures are restricting the EU's agricultural trade. Hypothesis 3: India and the EU both can grow through increasing trade.

Agriculture has today transformed into a strategic sector, which is comprised of many policy orientations and agreements. Countries rely heavily on agricultural exports for faster growth, wider markets, higher foreign exchanges, greater economies of scale and reduction in poverty. Ever since the Uruguay Round (1994) brought Agreement on Agriculture (AoA) and reformed agricultural trade with new rules and commitments for market policies, trade distortions started taking place in the form of protectionist policies by non- tariff measures (NTMs) like import quotas, export subsidies and SPS measures, etc. The Agreement on SPS measure was started in January 1995 giving nations a right to protect animal, plant and human health. When an agricultural- product is imported into a country, it is ensured that it meets all legal requirements of that importing country for the easier entry. Some of the laws which are taken into considerations are labeling, chemical residue tolerances, food safety laws, quotas and tariffs. World Trade Organization (WTO) member countries make domestic laws in such a manner, so that it meets all the obligations of SPS measures. Although member countries maintain SPS measures according to WTO norms, trade distortions still prevail. Thus, member countries try to maintain international high standards in food trade based on the scientific justifications outlined within the SPS measures.

The European Union follows a 'rule of law,' which says that every action taken by the EU is based on treaties (legislations), which are approved by all the EU members voluntarily and democratically. An EU law has equal rights and obligations to the authorities of every member EU country. Most recent European trade policy, i.e. 'Europe 2020 strategy' aims to strengthen trade relations of the EU with its strategic partners. It also looks into creating market access in agriculture, compliance with international standards, protection of the environment and strengthening its dispute settlement system. '- In the EU, agriculture has remained as a bulk activity and important domain for the past 30 years and subject to the mutual recognition principle in the EU's legislation policy [1]. But, at the same time, agriculture in the EU has been subject to different challenges due to emerging

globalisation in trade and issues of increasing competitiveness. The EU followed interventionism in agriculture early on. The 'European Model of Agriculture' started with the creation of 'EU Common Agricultural Policy' (CAP) in 1960 to meet self-sufficiency. This policy was also regarded as a multinational integration process. The CAP was further extended as 'Agenda 2000' which included more market orientation and issues such as food safety and quality and environmental concerns of agricultural policy, etc. [2]. The high protection of agriculture in the EU and the defensive steps of India towards agricultural trade has become an important area of concern. This has been exaggerated by the risks of SPS and technical barriers to trade (TBT) measures, which are established by both countries' legislation, which affects each other's macro environment [3]. According to an annual report of the Government of India, India's trade is hampered by SPS measures, technical barriers, a complex system of quota/tariff, and anti-dumping measures, etc. The EU's agro-product market has stringent quality norms and standards compared to India's market [4].

Some previous literature discusses the India- EU trade pattern, which Nataraj's investigation of India- EU trade relations over the period 2011-13 stated that trade and investment between these two trading partners has been hampered by different issues such as SPS, Technical Barriers to Trade (TBT) and other non-tariff measures [5]. Bhattacharya analysed India- EU trade over the period 1990-2000 and found that the EU frequently used severe SPS standards on its imports from the basket of Indian agricultural-products [6]. Bhattacharya analysed using a revealed comparative advantage index and a comparative export performance and argued that India had a comparative advantage over its main rivals in the EU market in the vegetables and fruit sectors but not in the flower sector [7]. Golder studied India- EU trade over the period 2009-13 and supported strengthening relations for more market access [8]. Sawhney argued that India suffered from institutional gaps in food safety regulation, testing and certification facilities, which created problems for a better market access in developed countries like the European Union and the United States which have stricter standards in safety and quality of food exports [9]. In an interesting empirical study Sinha, Bharti, Takács, and Takácsné- György critically analysed Indo- Hungary agricultural trade and pointed out to strengthen India- EU trade relations [10]. Bhutani, expressed that the EU was keen to include provisions on SPS and TBT in the India-EU free trade agreement (FTA). This may limit the power of local communities and national governments to set their own standards in relation to bio safety, food safety and other health concerns [11]. Sinha also quoted that one of the major challenges emerging before 'New India' i.e. for India after economic reforms, was the judicious use of non-tariff measures in which SPS measure had become-a

major area of concern for the exporters [12]. Gasiorek et al. provides a revealing insight that with increased demand for high-value food products, India could profit by viewing higher standards (SPS measures) as stimulus for investments in supply-chain modernisation and for a more long-term-sustainable and profitable trade. It was also suggested that India and the EU countries, should adopt compliance with SPS and TBT measures, appropriate standards, regulations, testing and certification procedures which did not create unnecessary obstacles in trade between these two countries [13].

The paper is structured as follows. Section I - deals with introduction, problem and related literature. Section II - provides the data and methodological parts. Section III - presents the results and findings which includes current situation of India- EU agro-trade, trade restrictions and empirical data analysis. Section IV - throws light on implications and Section V- summarizes the conclusion of the paper.

II. MATERIALS AND METHOD

The paper is based on an analytical framework, in which, for a qualitative study, agricultural trade disputes of both the trading partners was assessed. The study uses different indices like trade intensity index, revealed comparative advantage index and export specialization index to analyse the pattern of recent trends between both the trading partners. For this, the selected agricultural food products of- HS6 classification by UN Comtrade was computed for the period of 2011-2014. Data were collected from the different government sources like ITC, WTO, and Department of Commerce Govt. of India, etc. Document analysis of the agricultural trade dispute cases available at the Dispute Settlement Body (DSB) of WTO was completed to get a clear picture.

Trade intensity index was used to determine whether the value of trade between these two countries was greater or smaller, than would be expected, on the basis of their importance to world trade. It is calculated as,

$$T_{ij} = (x_{ij} / X_{it}) / (x_{wj} / X_{wt})$$

where

x_{ij} and x_{wj} are values of country i's exports to country j and world exports to country j
 X_{it} and X_{wt} are country i's total exports and total world exports respectively.

The value of more than 1 indicates that trade flow is larger than expected, given the partner country's importance in world trade and vice versa.

Revealed Comparative Advantage (RCA) index proposed by Balassa (1965) has been used to analyse product wise export potential and competitiveness. It is measured as the product’s share in a country to its share in the world trade. RCA value of less than 1 indicates that the country does not have revealed comparative advantage in the production of commodity j and a value of more than 1 show the comparative advantage in trade of commodity j. The value equal to 1 shows a similar level of specialization with the world’s specialisation. RCA index has been used to study the specialization pattern of agricultural export sectors of India and the European Union. RCA index has been calculated for both the trading partners individually for the period of 2011 to 2014, of different agro- products. The advantage of the RCA index is that it shows the degree of comparative advantages of a product compared to other products. But, its limitation is that it omits imports in the estimation, which further creates biasness.

It is calculated as:

$$RCA_{ij} = (x_{ij} / X_i) / (x_{wj} / X_w)$$

where

x_{ij} is ith country export of commodity j to world

X_i is ith country total exports to world

x_{wj} is world exports of commodity j and

X_w is total world exports.

Export Specialization Index provides product information on revealed specialization in the export sector of a country. It is the ratio of share of a product in country’s total exports to share of the same product in imports to a specific country. The value less than 1 shows the comparative disadvantage and value above 1 shows specialization in the market. The Export Specialization index has been calculated between both the trading partners over the period of 2011 to 2014 for different agro- products.

Its formula stands as:

$$ES = (x_{ij} / X_{it}) / (m_{kj} / M_{kt})$$

where

x_{ij} and X_{it} are export values of country i in product j and total exports of country i respectively

m_{kj} and M_{kt} are import values of product j in market k and total imports in market k respectively.

III.RESULTS AND DISCUSSIONS

A. India- European Union Trade

The European Union 28 is the world’s largest multi- nation trading bloc with 28 nations as of July 1, 2013 and is the

biggest importer and exporter of merchandise goods in the world. Its trade with rest of the world accounts for 20 percent of the global exports and imports excluding intra-EU trade. India was the EU’s ninth largest trading partner in imports and has a 2.1 % share in the EU’s trade in 2014. The EU was the second largest trading partner for India in 2013 [14]. The EU recognizes India as an emerging global player and important regional power in Asia which can help the EU improve its economic profile in Asia through ‘New Asia Strategy’. The EU also regards India as one of the world’s largest emerging economies where immense opportunity is present through an availability of a larger market [15]. The EU imports from India increased to €39.9 million in 2011 from €16.4 million in 2004 but decreased to €37.0 million in 2014. The EU exports to India shows the fluctuating trend as it was €17.1 million in 2004, which increased to €40.5 million in 2011, but came down to €35.4 million in 2014.

Table I shows that India’s trade intensity index (TII) with the EU increased, but EU’s TII with India has decreased during 2011-2014. This shows that trade from India with EU has increased consistently, but trade from EU with India has a slight declining trend during the given period [16].

TABLE I. TRADE INTENSITY INDEX OF INDIA AND EUROPEAN UNION

Year	India’s TII with EU	EU’s TII with India
2011	0.0092	0.5659
2012	0.5342	0.5429
2013	0.5170	0.4477
2014	0.5022	0.0456

Source: Author’s computations based on data available from ITC UN Comtrade (2015).

B. India- European Union Agricultural Trade

Agriculture in the EU is given special treatment to maintain the balance between agricultural output and foodstuffs demand. It is the principal source of income for 20 percent of the EU’s population and 3 percent share in the GDP of the country and 8.3 percent in the employment. In case of India, agriculture is regarded as the backbone of the economy. As per the 2011- census of Govt. of India, the share of agriculture and allied sector in India’s GDP was 13.9 percent and in employment it was 54.6 percent in 2013-14.

Table II -shows that India’s agricultural exports to the EU experienced an increasing trend over the period of 2009 to 2013. It increased from USD 2186 million in 2009-10 to USD 3895 million in 2011-12 and USD 4197 million in 2013-14. Indian agricultural imports from the EU countries were USD 294 million in 2009-10, which

reached to USD 632 million in 2011-12, but in 2013-14 it decreased to USD 609 million [17].

TABLE II. INDIA- EUROPEAN UNION AGRICULTURAL TRADE

Year	Export (USD million)	Import (USD million)
2009-10	2186	294
2010-11	2925	406
2011-12	3895	632
2012-13	3875	626
2013-14	4197	609

Source: Department of Commerce, Govt. of India (2015)

Table III shows the account of all major products exported to the EU -from India during 2013-14. Shrimps and prawns were major items of exports to the EU followed by cuttle fish, coffee and rice etc. In aggregate, the Indian agricultural exports to the EU countries increased from USD 3875 million in 2012-13 to USD 4197 million in 2013-14 [17].

TABLE III. INDIA'S TOP AGRI EXPORTS TO EUROPEAN UNION (value in USD million)

Product HS Code	Commodity	2012-13	2013-14
30617	Other Shrimps and prawns: frozen	-	559.39
30749	Cuttle fish and squids exclusive live fresh/chld	181.93	-
90111	Coffee neither roasted nor decaffeinated	431.2	389.83
100630	Semi/ wholly milled rice w/n polished/ glazed	385.77	363.37
230400	Oil- cake and other solid residue w/n grnd/ in pllt form obtained from soya-bean oil extraction	262.95	332.6
151530	Castor oil and its fractions	212.45	211.45
80132	Cashew nuts fresh/ dried shelled	178.8	196.88
80610	Grapes fresh	102.76	144.2
120740	Seasumum seeds w/n broken	118.74	142.62
130232	Muclgs and thickeners w/n modified derived from locust beans locust bean seeds/ guar seeds	177.16	144.51
	Total	3875.11	4197.4

Source: Department of Commerce, Govt. of India (2015)

Table IV throws light on the major agricultural commodities imported in India from the European Union. Total agricultural commodities imported in India were of USD 625.73 million in 2012-13, which declined to USD 608.52 million in 2013-14. Whiskies were mostly imported in India, of worth USD 98.72 million followed by ethyl alcohol, of worth USD 72.42 million in 2013-14. Preparations used in animal feeding were of USD 45.23 million in 2013-14 [17].

TABLE IV. INDIA'S TOP AGRI IMPORTS FROM EUROPEAN UNION (value in USD million)

Product HS Code	Commodity	2012-13	2013-14
220830	Whiskies	82.26	98.72
220890	Other under natured ethyl alcohol	66.81	72.42
230990	Other preparations of a kind used in animal feeding	43.02	45.23
150990	Other olive oil and its fractions (excluding virgin)	25.36	29.03
170211	Lacts and lacts syrup containing 99% or more lacts calculated on the dry matter	23.19	28.09
180690	Other	20.32	18.25
210690	Other food preparations	16.63	16.54
220820	Sprites obtained by distilling grape wine/ grape marc	10.8	14.08
121190	Other: seeds	9.81	14.01
220290	Other sweetened flavoured waters	10.35	13.57
	Total	625.73	608.52

Source: Department of Commerce, Government of India (2015)

C. India- EU Agricultural Trade Restrictions

Trade has an integral part in environment and regulation effect where safety in plant, animal and human health is given the utmost priority. Countries apply higher food safety standards on imports than domestic supplies. SPS measures distort trade by laying down import bans, prohibitive compliance costs, reducing trade flows and diverting trade from one trading partner to another trading partner through standards that discriminate between individual suppliers [18].

Agricultural trade is growing faster in high value-products where many technical standards and regulations are present. These regulations reflect a new era in the food sector where meeting demands of the consumer and the producers are strongly recommended. Inability to meet the regulations of food safety makes trade complex and controversial. The Dispute Settlement Body of the WTO plays a critical role in defining such regulations and solving the conflicts [19]. It was analyzed that increasing stringency imposed by SPS and technical requirements hinders food and agricultural trade and creates barriers which are greater in respects to developing and less developed countries [20]. Food safety and quality is still a challenge for a developing country like India. There is a need to create a strong base in domestic food health and safety regulations and certification systems according to international standards. Developing countries find SPS measures to be a source of tension and friction in

international trade but maintaining such measures can also create dynamic exports growth for them. So, thereby establishing a SPS standard facilitates trade by providing consumer standard food and reducing transaction cost for the exporters [21].

Table V highlights that nine complaints have been raised by the European Commission against India, related to trade of agro and other related agro- products through the Dispute Settlement Body of the WTO. Cases range from different agro- products and policies such as wines and spirits to Export and Import Policy of (1997-2002) to (2002-2007), custom duties, quantitative restrictions and patent protection for agricultural chemical products, etc. [22].

TABLE V. COMPLAINTS RAISED BY EUROPEAN COMMISSION AGAINST INDIA ON SPS CONCERNS

Dispute No.	Dispute	Request for complaints received	Comments
DS380	Certain taxes and other measures on imported wines and spirits	22 September, 2008	EC requested consultations with India regarding discriminatory taxation applied on imported bottled wines and spirits by Indian states Tamil Nadu, Maharashtra and Goa. This adversely affected exports of wines and spirits to India.
DS352	Measures affecting importation and sale of wines and spirits from the European Communities	20 November, 2006	EC requested consultations with India regarding duties applied by India and restrictions on retail sale applied by Indian state Tamil Nadu which affected trade of wines and spirits to India.
DS304	Anti-dumping measures on imports of certain products from EC	8 December, 2003	EC requested consultations with India concerning certain antidumping measures on imports of 27 products originating in the EC or its member states.
DS279	Import restrictions maintained under Export and Import Policy 2002-2007	23 December, 2002	EC requested consultations with India concerning import restrictions maintained by India under its Export and Import Policy 2002-2007 with respect to particular products of concern to EC.
DS150	Measures Affecting Customs Duties	30 October, 1998	EC requested consultations with India concerning a series of increase in customs duties allegedly implemented by India.

DS149	Import Restrictions	29 October, 1998	EC requested consultations with India concerning import restrictions maintained by India under its Export and Import Policy 1997- 2002 with respect to particular products of concern to EC.
DS120	Measures Affecting Export of Certain Commodities	16 March, 1998	EC requested consultations with India in respect of India's Exim Policy (1997-2002), which allegedly set up negative list for export of several commodities like raw hides and skins which were listed as products which required export licence.
DS96	Quantitative restrictions on imports of agricultural textile and industrial products	18 July, 1997	EC raised issues in respect to India's quantitative restrictions on imports of agricultural, textile and industrial products. EC also alleged violations of Articles 2.3 and 5 of SPS Agreement. It was mutually agreed on 6 May, 1998.
DS79	Patent Protection for Pharmaceutical and Agricultural Products	28 April, 1997	EC requested consultations with India in respect of alleged absence of patent protection in India for pharmaceutical and agricultural chemical products and absence of formal systems that permit filling of patent applications etc.

Source: Compiled from WTO (2016)

Table VI - highlights that there are five cases raised by India against the European Commission related to trade of agro and other related agro- products through the Dispute Settlement Body of WTO. Cases were from restrictions on trade of rice to anti-dumping regulations, etc. [22].

TABLE VI. COMPLAINTS RAISED BY INDIA AGAINST EUROPEAN COMMISSION ON SPS CONCERNS

Dispute No.	Dispute	Request for complaints received	Comments
DS385	Expiry reviews of anti-dumping and countervailing duties Imposed on imports of PET from India	4 December, 2008	India requested consultations with the EC that EC's basic anti-dumping regulation were inconsistent
DS246	Conditions for the granting of preferences to	5 March, 2002	India requested consultations with EC concerning the conditions under which

	developing countries		EC accorded tariff preferences for (i) combating drug production and trafficking (ii) for protection of labour rights and environment, creating undue difficulties for India's exports to the EC.
DS141	Anti- dumping duties on imports of cotton- type bed Linen from India	8 March, 2002	Same in respect to DS140.
DS140	Anti- dumping investigations regarding unbleached cotton fabrics from India	3 August, 1998	India requested consultations with EC in respect of alleged repeated recourse by the EC to anti- dumping investigations on unbleached cotton fabrics (UCF) from India.
DS134	Restrictions on certain import duties	27 May, 1998	India requested consultations with EC in respect of restrictions allegedly introduced by an EC Regulation establishing so called cumulative recovery system for determining certain import duties on rice with effective from 1 July, 1997. India contended that measures introduced through this regulation would restrict number of importers of rice from India.

Source: Compiled from WTO (2016)

As per the Trade and Investment Barriers Report (TIBR) 2015 some of the strategic partners of the European Union (India also being a member country) continues to maintain a variety of significant trade and investment barriers which have become difficult to tackle. In the current context of economic uncertainty there is a great risk that many emerging barriers will persist and be established [23].

There were- five Indian unjustified SPS measures which negatively affected EU exports of agriculture and fishery products into India. Since 2004, the EU has consistently raised many issues with India and other trading partners related to SPS concerns. Ongoing barriers on Indian SPS measures for agriculture and agro related products from the EU side are as follows:

1. Indian unjustified SPS import conditions related to dairy products

SPS Measure: (Public health reasons)

Creation Date: 8 Jan 2013

Products:

- a. HS (0401)- milk and cream, not concentrated not containing added sugar or other sweetening matter
- b. HS (0402)- milk and cream, concentrated or containing added sugar or other sweetening matter
- c. HS (0403)- buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruit, nuts or cocoa
- d. HS (0404)- whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included
- e. HS (0405)- butter and other fats and oils derived from milk; dairy spreads
- f. HS (0406)- cheese curd

Issue: India's import conditions for dairy products includes many measures which are trade restrictive and not as per the international standards of World Animal Health Organisation and Codex Alimentarius. For example- it requires certification of imported milk and that milk products should also be heat treated. It also does not allow import of raw milk or raw milk products. The EU raised this issue and highlighted that it applies the international measures from farm to fork which were in respect of Hazard Analysis and Critical Control Points (HACCP) principles covering the production chain and strict control on animal health, guaranteeing that products were safe. The EU suggested changes in India's WTO SPS legislations for new import conditions of milk and milk products. The SPS Agreement requires WTO members to base its SPS measures on international standards and when deviating from international standards, a risk analysis should be carried out.

2. Restrictions on imports of plants and plant products relating to lengthy procedures for establishing import requirements

SPS Measure: Risk analyses including Pest Risk Analysis (PRA)

Creation Date: 28 April 2011

Products affected:

- a. HS (08)- edible fruit and nuts; peel of citrus fruit and melons
- b. HS (09)- coffee, tea, mate and spices

- c. HS (06)- live trees and other plants; roots and the like; cut flowers and ornamental foliage
- d. HS (07)- edible vegetables and certain roots and tubers

Issue: EC highlighted that India had lengthy and many bureaucratic procedures for import of plants and plant products which acted as trade restrictive. India has also not established a list of regulated pests which were of concern to India as required by International Plant Protection Organisation (IPPC). Thus PRA created more barriers for the EU to trade with India. India has provided access to only limited plants and plant products.

3. Restrictions on imports of bovine semen SPS Measure: Animal health reasons

Creation Date: 28 April 2011
Products Affected:

- a. No product linked to this barrier

Issue: India had published a regime for 'health protocol for live bovine embryos and bovine semen. The EU pointed out that India had not considered many of the EU's comments in final version of health certificates and neglected scientific justifications of World Organisation for Animal Health (OIE). The EU pointed out that India's absence of control on certain diseases related to bovine resulted to import restrictions.

4. Restrictions on imports of plants and plant products relating to fumigation treatments

SPS Measure: Avian Influenza (AI)
Creation Date: 31 August 2004

Products Affected:

- a. HS (07)- edible vegetables, certain roots and tubers
- b. HS (0701)- potatoes (fresh or chilled)

Issue: India requires treatment with methyl bromide (MB) on many of its plant products prior to export, but according to the regulations of IPPC, MB should not be used. India also allows alternative treatments for its competent exporting countries on condition that these treatments are as efficient as MB. The EU does not allow treatments with MB. Even if treatment is part of import legislation, alternative options should be available for exporters. The EU raised that India should also grant same alternative treatment other than MB to EU and provide complete information of pests of plant products for treatment with MB.

5. India- Live birds and their products

SPS Measure: Avian Influenza (AI)
Creation Date: 13 May 2004

Products Affected:

- a. HS (0105)- live poultry, fowls of the species *Gallus domesticus*, ducks, geese, turkeys and guinea fowls
- b. HS (01)-live animals

Issue: India started an import ban in 2004 on animals and a range of animal products from the whole territory of a member state due to risks of Highly Pathogenic Avian Influenza (HPAI). In 2007, ban was extended to include low pathogenic Avian Influenza of H5 or H7 subtypes. These measures are revised on a six- month basis. The latest of these revision lead to liberation of products from ban such as heat treated poultry meat and processed and unprocessed pork meat. However, India still has a ban in place for live pigs and many products which should not be banned according to the standards of avian influenza of World Organisation for Animal Health. The EU raised this issue many times [24].

D. Recent Agricultural Trade Restrictions

Horticulture products are more prone to trade barriers created by sanitary and phyto- sanitary measures. Reduction in such barriers including subsidies and tariffs on agricultural commodities has wider global implications [25]. Even after opening up the Indian agricultural market for trade ever since the establishment of WTO took place, distortions continue to exist in India due to some actions of developed nations [26].

One of the important categories of India's agricultural exports, i.e. 'items of future potential' which included fruits and vegetables has undergone some recent complications due to SPS concerns raised by the developed countries. The most recent restriction is related to Alphonso mangoes and four vegetables namely eggplant (*Solanum melongena*), taro plant (*Colocasia* sp), bitter gourd (*Momordica* sp) and snake gourd (*Trichosanthes* sp). The EU had put a ban on the import of Alphonso mangoes and four vegetables from India from May 1, 2014. This decision came when the Standing Committee on Plant Health of the EU found 207 Indian consignments contaminated by pests such as fruit flies and other quarantine pests. India regarded this measure as a 'pre- mature' and 'unfair' act of the EU. Indian mango business is worth six million pounds per year in the United Kingdom and about 160 lakh mangoes are exported to the United Kingdom itself. The reason behind the ban was that

the introduction of pests through imports from India would create a threat to the European agriculture and production by cross- contamination to European crops. It could also threaten the country's salad crop "industry of tomato and cucumber," which was of GBP 321 million. The EU accounts for more than 50 percent of total exports of fruits and vegetables from India. With this ban mango exports to the EU decreased from \$8.9 million in 2013-14 to \$1.07 million in April-September 2014-15. Exports of mangoes from India in overall declined from \$307.38 million in April- November 2013 to \$291.43 million in April-November 2014. One of the impacts falling on Indian economy was that huge amount of mangoes in India would lead to reduction in mangoes prices and a loss to domestic farmers. There will be also a reduction in business, loss of revenues and the wastage of mangoes. The ban was supposed to last till December 2015 but after nine months of persistent persuasion by India, the EU lifted its ban on imports of Indian mangoes on January 20, 2015 only after an inspection team audited the Indian packing houses in September 2014. The European Union had earlier put the ban till December, 2015. It lifted the ban on only import of mangoes but still the ban on the four vegetables continued until the pest control measures were applied and satisfied by the EU food safety inspection team. Later, by the end 2016 the ban on these vegetables was removed [27, 28].

One more restriction aroused in 2010 when table grape exports from India to the EU countries collapsed due to rejections of consignments on the grounds of SPS measures. In 2009, the EU had come up with new regulations on pesticides where chemicals to be monitored were raised from 98 to 167. Indian exporters were unaware of this new rule and so they had to face rejection. Indian grapes exported to the EU were 37,000 tons in 2009 which declined to 8,326 tons in 2012 and 6,360 tons in 2011. This led to heavy losses to Indian farmers which shifted their grapes market in their own domestic market and towards West Asian Gulf countries [29].

Also, from 1998 to 2000, exports of Indian dry chilli to some of the EU countries like Germany, Italy, Spain and the United Kingdom were rejected due to presence of aflatoxin. Then in July 2007, the European Commission issued a health warning when high levels of dioxins were found in guar gum from India, which was a thickening agent used in many processed foods [30].

Table VII and VIII shows that India has revealed comparative advantage in lac, gums, resins, vegetable aps; cotton; cereals; vegetable planting materials, vegetable products; coffee, tea and spices; tobacco and fish during the period of 2011-2014 whereas the EU has revealed comparative advantage in almost all the products, but mainly in live trees, plants, bulbs, roots, cut flowers;

beverages, spirits and vinegar; cereals and live animals [31].

Table IX identifies that there are many products, which have more potential for trade between India and the EU, which was calculated with the help of export specialization index. The value greater than 1 indicates a high specialization in that particular product. Products such as rice, cotton; lac, gums, resins, vegetable aps and extracts; cereals have high trade potential between India and the EU [31].

TABLE VII. RCA OF INDIA

Product code	Product	2011	2012	2013	2014
01	Live animals	0.037	0.017	0.029	0.031
02	Meat and edible meat offal	1.379	1.682	2.122	0.015
03	Fish	0.200	2.148	2.658	2.835
04	Dairy products, eggs, honey, edible animal products	0.159	0.234	0.433	0.292
05	Products of animal origin, nes	1.301	0.834	0.476	0.643
06	Live trees, plants, bulbs, roots, cut flowers etc	0.204	0.235	0.200	0.194
07	Edible vegetables and certain roots and tubers	0.972	0.924	1.176	1.005
08	Edible fruit, nuts, peel of citrus fruit, melons	0.995	0.974	0.942	0.928
09	Coffee, tea, mate and spices	3.462	3.530	3.560	3.366
10	Cereals	2.744	4.547	5.200	5.008
11	Milling products, malt, starches, insulin, wheat gluten	0.449	0.753	0.914	0.951
12	Oil seed, oleagif fruits grain, seed, fruit, etc, nes	1.349	1.200	1.031	1.263
13	Lac, gums, resins, vegetable aps and extracts nes	17.141	32.29	18.317	15.738
14	Vegetable planting materials, vegetable products nes	3.761	5.306	4.426	3.699
15	Animal, vegetable fats and oils, cleavage products	0.566	0.561	0.548	0.550
16	Meat, fish and seafood preparations nes	0.226	0.112	0.134	0.172
17	Sugars and sugar confectionery	2.306	2.614	1.266	1.665
18	Cocoa and cocoa preparations	0.040	0.077	0.104	0.150
19	Cereal, flour, starch, milk preparations and products	3.613	0.428	0.418	0.426
20	Vegetable, fruit, nut, etc food preparations	0.375	0.422	0.417	0.485
21	Miscellaneous edible preparations	0.466	0.558	0.497	0.517

22	Beverages, spirits and vinegar	0.158	0.207	0.215	0.198
23	Residues, wastes of food industry, animal fodder	2.533	2.267	2.527	1.463
24	Tobacco and manufactured tobacco substitutes	1.906	1.407	1.409	1.350
52	Cotton	6.251	8.015	8.749	8.221

Source: Author's computations based on data available from ITC UN Comtrade (2015)

TABLE VIII. RCA OF EUROPEAN UNION 28

Product code	Product	2011	2012	2013	2014
01	Live animals	1.825	1.838	1.835	1.791
02	Meat and edible meat offal	1.445	1.477	1.678	1.335
03	Fish	0.699	0.690	0.678	0.680
04	Dairy products, eggs, honey, edible animal products nes	1.938	1.961	1.910	1.922
05	Products of animal origin, nes	1.177	1.186	1.148	1.106
06	Live trees, plants, bulbs, roots, cut flowers etc	3.044	3.180	3.092	3.092
07	Edible vegetables and certain roots and tubers	1.205	1.302	1.287	1.219
08	Edible fruit, nuts, peel of citrus fruit, melons	9.819	1.006	0.997	0.947
09	Coffee, tea, mate and spices	0.633	0.685	0.702	0.723
10	Cereals	0.694	0.682	0.751	0.730
11	Milling products, malt, starches, insulin, wheat gluten	1.273	1.299	1.324	1.367
12	Oil seed, oleagif fruits grain, seed, fruit, etc, nes	0.549	0.526	0.489	0.457
13	Lac, gums, resins, vegetable aps and extracts nes	0.928	0.650	0.882	0.974
14	Vegetable planting materials, vegetable products nes	0.395	0.569	0.457	0.457
15	Animal, vegetable fats and oils, cleavage products	0.728	0.783	0.874	0.837
16	Meat, fish and seafood preparations nes	1.079	1.066	1.078	1.110
17	Sugars and sugar confectionery	0.779	0.888	0.881	0.936
18	Cocoa and cocoa preparations	1.553	1.554	1.649	1.604
19	Cereal, flour, starch, milk preparations and products	1.799	1.835	1.807	1.853
20	Vegetable, fruit, nut, etc food preparations	1.422	1.447	1.431	1.451
21	Miscellaneous edible preparations	1.581	1.581	1.534	1.522
22	Beverages, spirits and vinegar	1.977	2.035	1.990	2.001

23	Residues, wastes of food industry, animal fodder	1.058	1.037	1.048	1.043
24	Tobacco and manufactured tobacco substitutes	1.572	1.493	1.431	1.458
52	Cotton	0.370	0.358	0.324	0.352

Source: Author's computations based on data available from ITC UN Comtrade (2015)

TABLE IX. EXPORT SPECIALIZATION INDEX BETWEEN INDIA AND EUROPEAN UNION

Product Code	Product	2011	2012	2013	2014
01	Live animals	0.026	0.011	0.019	0.021
02	Meat and edible meat offal	1.132	1.351	1.712	1.820
03	Fish	1.702	1.869	2.314	2.456
04	Dairy products, eggs, honey, edible animal products nes	0.105	0.151	0.278	0.192
05	Products of animal origin, nes	0.933	0.578	0.511	0.477
06	Live trees, plants, bulbs, roots, cut flowers etc	0.112	0.126	0.108	0.106
07	Edible vegetables and certain roots and tubers	0.745	0.648	0.864	0.732
08	Edible fruit, nuts, peel of citrus fruit, melons	0.689	0.667	0.618	0.630
09	Coffee, tea, mate and spices	2.688	2.574	2.623	2.507
10	Cereals	4.509	7.334	8.031	7.770
1006	Rice	28.610	47.613	50.494	48.863
11	Milling products, malt, starches, insulin, wheat gluten	0.512	0.812	0.941	1.060
12	Oil seed, oleagif fruits grain, seed, fruit, etc, nes	1.562	1.451	1.243	1.611
13	Lac, gums, resins, vegetable aps and extracts nes	19.655	51.934	24.078	15.570
14	Vegetable planting materials, vegetable products nes	3.341	3.216	2.812	2.356
15	Animal, vegetable fats and oils, cleavage products	0.634	0.597	0.519	0.537
16	Meat, fish and seafood preparations nes	0.164	0.081	0.096	0.122
17	Sugars and sugar confectionery	2.688	2.772	1.256	0.820
18	Cocoa and cocoa preparations	0.024	0.049	0.062	0.088
19	Cereal, flour, starch, milk preparations and products	0.297	0.315	0.308	0.320
20	Vegetable, fruit, nut, etc food preparations	0.131	0.139	0.138	0.158

21	Miscellaneous edible preparations	0.365	0.430	0.392	0.422
22	Beverages, spirits and vinegar	0.124	0.164	0.169	0.156
2204	Wines of fresh grapes	0.006	0.005	0.008	0.008
23	Residues, wastes of food industry, animal fodder	1.868	1.643	1.863	1.094
24	Tobacco and manufactured tobacco substitutes	0.785	1.000	1.050	1.002
52	Cotton	15.339	21.561	23.843	20.438

Source: Author's computations based on data available from ITC UN Comtrade (2015)

IV. IMPLICATIONS

The business environment between India and the EU should ensure product compliance with quality and sanitary and phytosanitary measures. In respect to India, proper implementation of the already running project named National Integrated Fruit Fly Surveillance through the Directorate of Plant Protection Quarantine & Storage to establish pest- free fruit flies areas for production and quality exports could bring more benefits. Trade rules should be made more flexible in nature to facilitate the participation of countries in the SPS measures. The effectiveness of agricultural trade depends much on the respective food authorities of the countries. The present need is to meet the SPS requirements at a global level by firstly getting approval from certified authorities. At the same time meeting additional requirements of a private standard should be made compulsory. There is a need to establish special pack- houses for export quality farm produce and maintaining internationally- acceptable standards of grading, cleaning and preservation techniques. Training of the farmers so that insects could be eliminated in the initial stage would be more appropriate. Post- harvest facility will assist with maintaining the safety of the produce. Countries should adopt a 'precautionary principle or a kind of 'safety first' approach, which could result in higher standards. Thus proper 'pre- export checks' in which a country checks the pesticides levels in the product before it is shipped could increase exports.

V. CONCLUSIONS

Results show that the trade intensity index of India with the European Union and of the European Union with India is less than 1, which indicates that bilateral trade is smaller than expected given the partner country's importance in world trade (as evident in table I). India's exports of agro products to the EU are found to be more (as pointed out in table II). Shrimps and frozen prawns; followed by cuttle fish and squids are exported most to the EU from India (as

depicted in table III). Among all the agro- products imported from the EU in India, whiskies are the most important one (as depicted in table IV). The numbers of complaints raised by the EU against India in the dispute settlement body for SPS measures are more compared to India's complaints against the EU (as presented in table V and table VI). The EU has also pointed out many categories of SPS measures adopted by India which restricted agro- exports of the EU to India. RCA index results reveal that the EU countries have revealed a comparative advantage in almost all the agro- products mainly in live trees and beverages and spirits whereas India has a comparative advantage in lac, gums, cotton, cereals (as illustrated in table VII and VIII). Results of the export specialization index show that many products have a higher export potential between India and the EU such as cotton; rice; lac, gums, resins and vegetables (as shown in table IX). This study accepts the hypothesis 1 that India-EU agro- trade is untapped. This was tested through a RCA index. The study rejects the hypothesis 2 that India's SPS measures are restricting the EU because through this particular research many restrictions were found from the EU side, also, which have hindered India's agro- trade. The study lastly accepts the hypothesis 3 that India and the EU both can grow through increasing trade. This was accepted after identifying international competitiveness present in different products between both the trading partners through export specialization index. The entire analysis points out that India has tremendous benefits if it adopted internationally accepted quality standards. Higher rates of tariffs over wines and spirits by India are still a major issue raised by the EU for its reduction. Thus, both the trading partners should maintain a positive trade relationship by promoting proactive trade measures through the reduction in non- tariff measures.

The results of this study explicitly conclude that standards have emerged as complex barriers today and impediments to agro and food exports. This can be reduced through the emphasis on proactive strategies in order to exploit potential benefits. With being proactive, both trading partners can gain access to financial and technical resources by upgrading standards and a significant level of the market. Research recommends that anticipating and applying standards within time and participating in the creation of standards by making commercial shifts in the markets, can give more returns.

ACKNOWLEDGMENT

The authors are highly thankful to the anonymous referees for providing useful comments and suggestions for improving the paper. This study was carried out as a part of research work at the Department of Humanities & Social Sciences (HSS), IIT Patna, India. Results and conclusions reached are those of the authors' and do not represent of any other. This work was supported by the

UGC Rajiv Gandhi National Fellowship New Delhi, India. Authors also acknowledge the support provided by anonymous for linguistic checking of the manuscript.

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