IMPACT OF WTO ON INDIAN AGRICULTURAL TRADE

(A Comparison of the Trade in Agricultural commodities in India in the Pre & Post WTO regime)

Thesis
Submitted to the University of North Bengal
For the Award of the Degree of
Doctor of Philosophy
In
Economics

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Abstract

Agricultural sector plays a very significant role in Indian trade. Around 17% of India's GDP comes from Agricultural sector and Indian agricultural commodity trade comprises around 12 % of its total export. Since Uruguay round agreement on agriculture completed in 1994 and World Agricultural Trade regulations has been framed under AOA of WTO since its inception in 1995 various transformations has been taken place in world's as well as Indian Agricultural trade. In our study titled "**IMPACT OF** WTO **ON INDIAN AGRICULTURAL TRADE"** we have tried to understand the implications of AOA & WTO rules on Indian agricultural trade. In doing so we have tried to understand several regulations under AOA for world agricultural sector for example removal of Trade barriers (both tariff & nontariff barriers), quantitative Restrictions, Licences & quotas on Import & Export, Liberalising or reforming markets by increased amount of Market access, Minimising domestic subsidies to agricultural production & export, Anti-Dumping measures, canalising of essential commodities & Food securities of nations like India , Protections of IPR in new Intellectual property regime, New clauses under AOA like **TBT** (Technical Barriers To Trade) , UN convention on Biological Diversity (**CBD**), **SPS** (Sanitary & Phyto-Sanitary measures or standards), **GI** (Geographical Indications) and new Patents law under TRIPS. Along with these new Ideas like **facilitation of E commerce & investment, new infrastructure for investment, Environmental issues & trade on climate related issues, SMEs, global value chains, Elimination of Domestic subsidies which distorts trade, Domestic Special Safeguard Mechanism (SSM), and Public holding of Food Stocks limit and finding permanent Solution on it.** We have discussed and made a comparative analysis of Indian Agricultural commodity trade where we have divided the period of trade in some of the Indian major traditional agricultural commodities into two different period i.e. the Pre & Post WTO period (from 1989-90 to 2016-17). The data has been set to understand the changes occurred in (1) **Growth** (both volume & market Share), (2) **Composition (**3) **Direction** (showing changes in export Diversities) and (4) **Competitiveness** In new Agricultural trade regime and we have found that all the above said parameters have changed in the Post WTO period as compare to Pre WTO period where some Agricultural commodities have shown positive indications, some have shown negative indications and some commodities have not changed their old positions. We wanted to recommend that t the government of India should encourage the production of those commodities in which we have comparative advantage in export like Spices, Fruits & vegetables, Rice, Meat, and several horticultural commodities and safe guard those commodities which have become vulnerable to newly competitive world agricultural trade regime.

In the course of our Study we have divided our thesis into seven different chapters in the first chapter we wanted to discuss the emergence, history, Framework and functions of WTO; in second and Third Chapters we have discussed the value & importance of World Trade, its changing character & implications of its rules on Developing countries including India under the new Trade regime of WTO, in Chapter four as we have already mentioned that we have dome a comparative study and analysis on some of the major traditional Indian agricultural commodity trade taking into consideration both the Pre & Post WTO era., In chapter five we have discussed the different contents of AOA like TRIPS (New Patent law), GI, SPS, TBT, impact of new Seeds act of TRIPS regime on Farmers Right & food

securities, UN Convention on Biological diversities etc, in sixth chapter we have tried to highlight the negotiations & Outcomes of 11th WTO summit at Buenos Aires and the Implications of it on agricultural sector of Developing Countries including India where we have showed that new issues like E. Commerce & investment, Environmental issues, etc have been brought in and old burning issues of the developing world negotiated or proposed for negotiation have been bypassed and in Last Chapter i.e. in Chapter Seven we have put forwarded the Summery & Conclusion of the whole study along with some very important Policy Implications or recommendations.

PREFACE

Agriculture remains the back bone of societies since ages and histories, and it is of no difference in case of India. Though it is declining, agricultural sector comprised around 50% of India's GDP in the early 1950's. Today around 17% of India's GDP (India's GDP is US $ 2.848 trillion) is from agricultural sector and 55% of total employment comes from agricultural sector. About 70% people directly or indirectly depends on it and about 43% of India's total land is covered by agricultural sector. India became self sufficient in Food grain production decades after independence. It is now producing around 280 million metric tons of food grains in the world and ranks first in producing many major agricultural food crops in the world. But after liberalization phase started with GATT (Uruguay Round Agreement) to WTO(1st Jan 1995) and AOA many thing has dramatically changed in agricultural sector of India, for example, Total yield or Output, Farm Pattern, Agricultural Infrastructure, Annual Compound Growth rate in Production & Export, Imports, Prices of major agricultural food and non food materials, Export Competitiveness, quantitative restrictions, tariff & non tariff barriers , export subsidy, domestic support, sanitary & Phyto sanitary measures, Geographical Indication, Trade related intellectual property rights etc. WTO which has replaced GATT (general agreement on trade & tariff 1947-1994) was established for negotiation & supervision for multilateral trade agreements among nations and is committed to Free & fair, Non Discriminating international trade, with removal of Quantitative Restrictions, non tariff barriers of trade among nations. The formation of WTO was the end result of the Uruguay round talks started in 8th & last ministerial conference of GATT in 1986. The key Issues for negotiations was, more liberalising & reforming of all international trade including Agricultural trade, formation of new IPR regime, Domestic protection, removal of QRs, reduction of export & import tax system , MFN clause etc.

India who is a founding member among 123 founding member nations of WTO, maintaining and obeying most of the clauses related to developing nations in WTO charters. Our study have looked into the norms and rules of WTO, how far India has followed those rules and what are the consequences has happened to India's agricultural trade along with other developing nations since WTO. India being an committed integral part of the global trade have realised from its previous experiences since after independence that only following inward looking, import substitution policy may hamper the growth of output & employment, encourage domestic price rise and lagging behind from the dynamism of free & liberalised international trade & inflow of investments. But the importance of export promotion & liberalising it In the Post WTO era has been a dramatic shift from the India's previous policies of trade and the share, Composition and direction of Indian agricultural trade character. The amount of share of agriculture in India's total export has gone down in the post WTO period as it has been replaced by manufacturing (engineering, resourced based, Petroleum products etc) and service sector, the composition of trading commodities is found to be changed as export share of traditional major agri-export commodities like Cotton, Tea, Coffee, Oil meals, Marine Products, have declined in comparison with Sugar, Spices, Fruits & Vegetables and many horticultural commodity export, which have been increased in total agricultural export share. Destination wise change of Indian major agricultural commodity export is also visible as many of the old destination countries have

been replaced by new destinations. This all have been discussed in the fourth chapter in our study.

The importance & influence of the new liberalised world trade regime in the Post WTO era is different, multilateral & overwhelming on countries (particularly on developing countries including India). The reduction & removals of tariff barriers & domestic subsidies promoted international trade much than before, which have led the developing countries including India to a highly competitive world platform of export. This has brought the challenge to raise production, export competitiveness, and market share which is both an opportunity and challenge for India. In order to fully maintain & implement WTO laws & provisions to increase export growth India had to reform its economy gradually in all sectors including Agriculture, which has created immense implications on agricultural sector including farmers & the people of the country. These have been discussed in fifth & sixth chapter of our study. We have divided our study in seven chapters, where,

Chapter one Contains the Introduction and significance of the research, Structure of the WTO, research Hypothesis, our objective of the study, Research Methodology and review done by us on existing literature of our study, chapter two describes the significance of World trading system along with the impact of WTO on Developing country perspective. The Chapter Three describes the impact of WTO and AOA regimes on Indian agriculture. The chapter four is the key chapter in our study which is dedicated to study and understand the year wise, growth, composition, direction, destination & export competitiveness of some of the major Indian Agricultural commodities during the Pre & Post WTO Regimes and make a comparative analysis in the changing pattern of trade between Pre & Post WTO eras. This Chapter also took into consideration the commodity wise trade and both convergence & divergence in Indian agricultural export. In the chapter five & six we have discussed impact different contents like TRIPS, Biodiversity, GI act, CBD act, SPS, Technical barriers to trade (TBT) agreement and AOA in the Post WTO regime and the implications of these on Indian agriculture and negotiations & Outcomes of 11th WTO summit at Buenos Aires and the Implications of it on agricultural sector of Developing Countries including India. In this chapter we have tried to explain the various new issues which have been highlighted in the 11th conference like E commerce & investment, Environmental issues to trade, women empowerment & MSME etc. In Chapter seven we have tried to highlight the summery of our study, conclusive understanding of the study and put forwarded recommendations & Suggestions for the betterment of India's agricultural trade. This study reveals that India was specializing in agricultural commodity export in the pre WTO period but it left it and started gaining its expertise in agricultural commodity export in the post WTO era. So we can consider that WTO has made mixed impact on Indian agricultural trade from the point of agricultural commodity export. This thing has surfaced many issues that may be taken for study and research.

AC K N O W L E D G E M E N T

With great sense of honour, and respect I express my sincere thanks & gratitude from the core of my heart to my honourable Supervisor **Dr. Anil Bhuimali, Vice Chancellor-Raiganj University, Raiganj, West Bengal.** Whose kind help & guidance has given me the opportunity to take the subject as my PhD study and under his kind supervision I have able to complete the research study within the bound time limit. I shall remain ever grateful and indebted to him for his entire help & encouragement to complete the study.

I am also highly thankful and indebted to my all respected **teachers** of the Department of Economics of University of North Bengal for encouraging & supporting me and providing me necessary helps to complete my study.

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Finally, I shall express my thanks to my mother & many other respected intellectual people whom I know for helping me various ways.

NBU **Debasish Chakraboty**

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Chapter One

Introduction

Agriculture remains the back bone of societies since ages and histories, and it is of no difference in case of India. India became self reliant in agricultural production and it had increased its agricultural export tremendously after the Green Revolution occurred in the later 1960s. This helped the Industrial sector to grow fast as Industrial sector of any country remains interlinked with agricultural sector of that country, that is why when agricultural sector develops Industrial sector also develops simultaneously at the same time. The green revolution also helped obtaining food security of the nation and helped India becoming self reliant. The agricultural sector comprised around **50%** of India's GDP in the early 1950's. Today around **17.32%** of India's GDP (India's GDP is US **$ 2.848** trillion),[1] **13.25%** of India's total export and **47%** of total employment comes from agricultural sector. About 70% people directly or indirectly depends on it and about **43%** of India's total land is covered by agricultural sector. India became self sufficient in Food grain production decades after independence. It is now producing around **280** million metric tons of food grains in the world and ranks first in many major agricultural food crops in the world. As per the WTO data in 2014-15 India's share of Global export was 2.10% and its import was 1.26%, that does not means the value of Import also lower than export but on the contrary the value the import was higher than export (The value of Import was US$ 1.82 trillion in 2012 where export was US$ 1.66 trillion dollar). The export share of India's agricultural sector has also increased. After liberalization phase started in the world with **WTO(** 1st Jan 1995) and **AOA** many thing has dramatically changed in agricultural sector of India, for example, **Total yield or Output, Farm Pattern, Agricultural Infrastructure, Annual Compound Growth rate in Production & Export, Imports, Prices of major agricultural food and non food materials, Export Competitiveness, Quantitative restrictions in import, Tariff & non Tariff barriers , Export subsidy, Domestic support, Sanitary & Phyto sanitary measures, Geographical Indication, Trade related intellectual property rights** etc. WTO which has replaced GATT (general agreement on trade & tariff 1947-1994) was established on the basis of multilateral trade agreements among nations, and is committed to Free trade, non discriminations in trade, Removal of Quantitative Restrictions, Non tariff barriers between nations and free & fair competitions in trade among nations. India who is a founding member among 162 member nations of WTO, maintaining and obeying most of the clauses related to Developing nations in WTO charters. Our study have looked into the norms and rules of WTO, how far India has followed those rules and what are the consequences has happened to India's agricultural trade since WTO and a comparison between the pre & post WTO era in trading of Indian agricultural commodities. And our Findings in this small study is that India has benefitted in many extent in agricultural trade in the post liberalisation or post WTO period and the trade indicators are positive in many extent but declining trend of India's agricultural export to total export and its inefficiency in expertise in international agri-trade , increasing income inequality and disparity among farmers and declining or lack of both public & private investment in agricultural development in the Post WTO period is an emerging cause of Concern. In our Study we have tried to understand various changes in India's agricultural sector that have occurred during the last two decades after liberalisation, including Changes in Indian IPR regime with TRIPS regime and farmers Rights, trading of some major commodities and Impact of WTO regime in the agricultural trading sectors of the developing countries in the post WTO regime.

The WTO is an institutional body to promote International Trade was formed on 1st January, 1995 with the objective of promoting global trade in a more liberalised way. The WTO came into existence after the GATT (General Agreement on Tariffs and Trade) which was formed on 1948 with 23 member countries with the objective of growth and development of all member countries. In place of ITO, GATT was established in 1947 by the western nations. Since it came into existence GATT emphasized for the expansion and promotion of global trade by reducing tariffs and other forms of protection imposed by member countries on trade. This continued effort of GATT finally increased it members from 23 countries to 123 countries. The GATT also provided framework for settlement of trade disputes. Continued reduction in trade barriers helped trade growth consistently outpaced production growth. *[1] Source: Wikipedia*

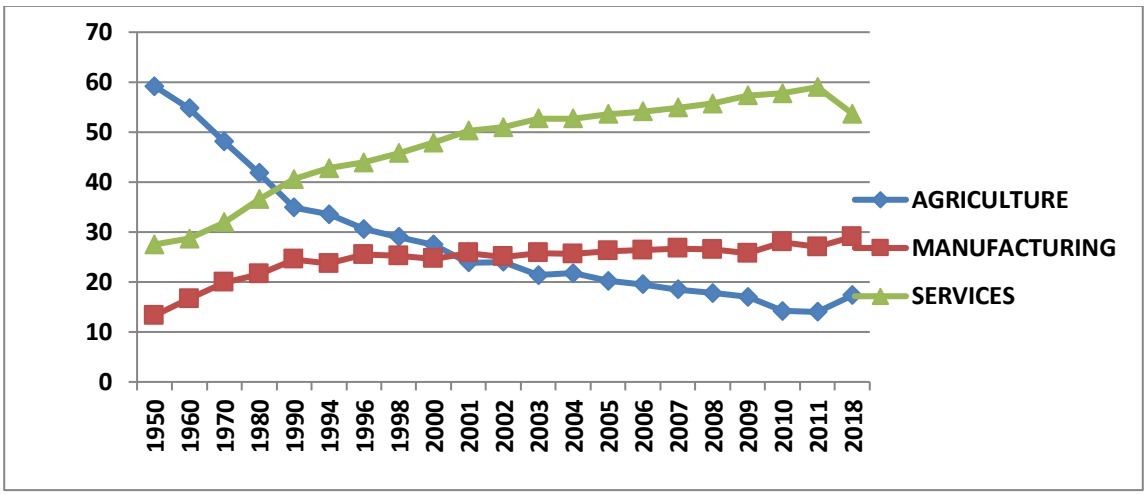
Though the functioning of GATT was quite satisfactory in encouraging countries to engage and liberalise trade but there existed several limitations of the GATT appeared in the early 80s. It was less effective in the settlement of conflicts and disputes between DCs and LDCS in tariff, nontariff barriers and market access. World trade became more and more complex and GATT failed to apply its principles into practice, and thereby led GATT members to have fresh round of trade negotiations. The eighth round of multilateral trade negotiations popularly known as **Uruguay Round**, covered new areas like agriculture, textile, TRIMS, TRIPS, services etc. The eighth and the most popular Uruguay Round commenced in 1986, which was to be concluded in 1990 but this could not be happened as the issues involved in it faced huge dissatisfaction among the participating countries. At the Uruguay Round, developing countries took on unprecedented obligations not only to reduce trade barriers, but to implement significant reforms on trade procedures, custom valuation and on many areas of regulation that established the basic business environment in domestic economy (example, technical, sanitary standards and intellectual property law). On December 20, 1991, the Director General of GATT and the Chairman of the trade negotiations committee, Arthur Dunkel, drafted a proposal which included most negotiating areas of International trade (including Agriculture, MFN, TRIPS, TRIMS, SPS, GI, CBD etc) and after almost a decade of discussion & negotiations the draft was finally accepted by 117 nations on 15th April, 1994 in Marrakesh, Morocco. Uruguay Round enclosed mandate to have negotiations in 15 areas, in part 1, negotiations on trade in goods to be concluded in 14 areas and in part 2 negotiations on trade in services. Thus this new round of negotiations also known as WTO agreement not only covers traditional GATT subjects but also new areas like Trade Related Intellectual Property Rights (TRIPS), Trade Related Investment Measures (TRIMS) and Trade in Services etc. In this way the GATT was converted to WTO on first January 1995 as a conclusion of the Uruguay Round agreement to give encouragement and promotion global trade. Several agreements had taken place in WTO summits. Some of them like Agreement on Agriculture (AOA) are mostly important. With the implementation of the provisions of the Agreement on Agriculture (AOA) by the members of WTO, the international trade opportunities are expected to change as trade barriers are reduced and free trade takes place. These changes would also ensure that competition among the countries in producing individual product or commodity will play a major role in the international trade. There was an institutional effort made by the GATT under Uruguay round to liberalise Agricultural trade by formalising rules under Agreement On Agriculture (AOA) which would work on reduction of trade distorting tariff & Nontariff Barriers imposed by countries on Agricultural trade. AOA emphasised on (i) **removal of QRs, (ii) Conversion of Non-Tariff Barriers to Tariff**

Barriers, and **reduction of Domestic Subsidies to agricultural export & Tariff** on import gradually over a certain period. As the Agricultural policies are now administered by the rules under the WTO, therefore understanding the long term implications of these changed policies on domestic agricultural trade are very important to the WTO member countries like India which exercises a good amount of State influences in agricultural sector like, maintaining MSP, giving Input Subsidies, maintaining QRs, restrictions & good amount of Tariff on movement of external imports and exports, ,good amount of Public stock holding of agricultural produce , Setting Buffer Stocks etc. The provision for removal of restrictions on agricultural import was mandated like 6 years time period was for developed nations (by year 2000) and 10 years for developing nations (by year 2004). Total agricultural export is around 11% of India's total export and it is the third largest producer of agricultural commodities in the world. Though declining agricultural growth rate along with export shows country's loss in agri-trade due to deteriorating terms of trade in the post WTO regime as compare to the Pre WTO Regime but the amount of total yield in agricultural production & export has increased many folds since Independence. In India the looking after of agricultural sector is done by mainly by the State Governments with the support & help of Central government. Though the growth rate in yield production in agricultural sector in India was very poor in the last decade then also India was a massive producer of Wheat, Rice, Fruits, Vegetables, Cotton and Sugarcane, leading Producer & Exporter of Meat & meat preparation, spices, Milk & milk products, Livestock's, Fruits & vegetables, Fisheries, Poultries and hold number one position in producing Pulses, Milk, Jute etc as per the recent study done by Economic Survey of India (GOI) 2015.

1.1: A brief Look on the Trends of India's Foreign Trade & WTO:

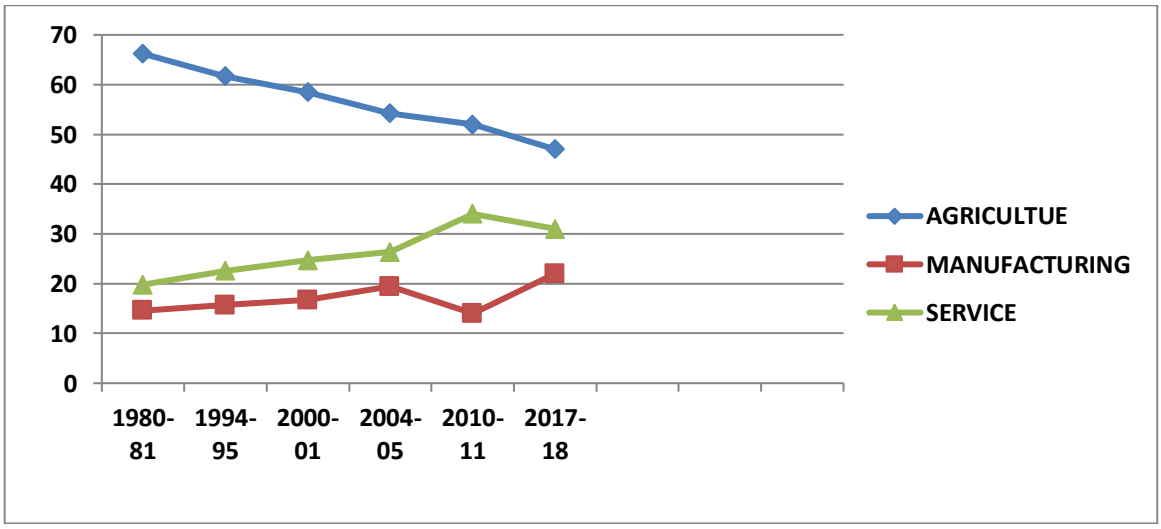
After the recent global recession the world trade is recovering slowly after 2012 with low growth rate of about 3.5% in the recent time. The economic crisis has also affected the volume of world trade as it has been growing very slowly since the crisis (as per the IMF data it was US$ 18.30 trillion in 2012-13). There exist several reasons behind the low growth rate of world trade other than recent economic crisis. These may include Trade wars between USA & China, Natural Calamities in East Asia (Indonesia, Japan), Oil price hike due to wars and instabilities in the Middle East and West Asian nations. It is noteworthy that the rate of economic Growth is higher in developing countries than the developed nations in most cases. India though is an integral part of Global economy is said to have faced less effect of global economic crisis because of its dependence on domestic demand mostly. The following figures show the trends of India's foreign trade in the Post WTO period and agricultural growth in production since independence.

Figure 1.1: Trends of Percentage share of Primary, Secondary and Tertiary Sector in Indian GDP



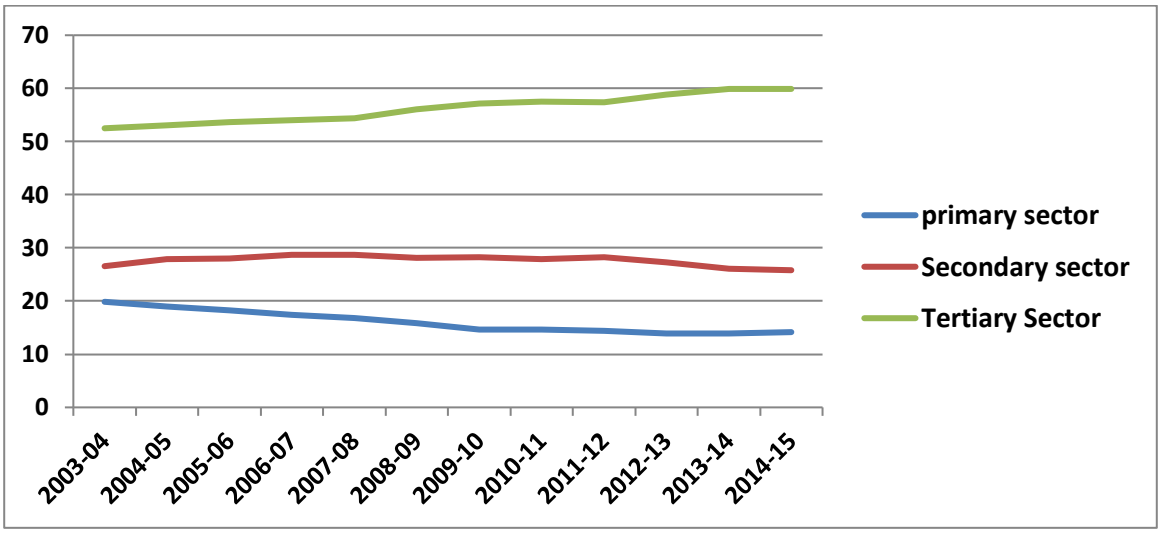
Source: RBI, Statistics on Indian Economy.

Table1.2: Trend of Percentage share Primary, Secondary & Tertiary sector in Employment in India



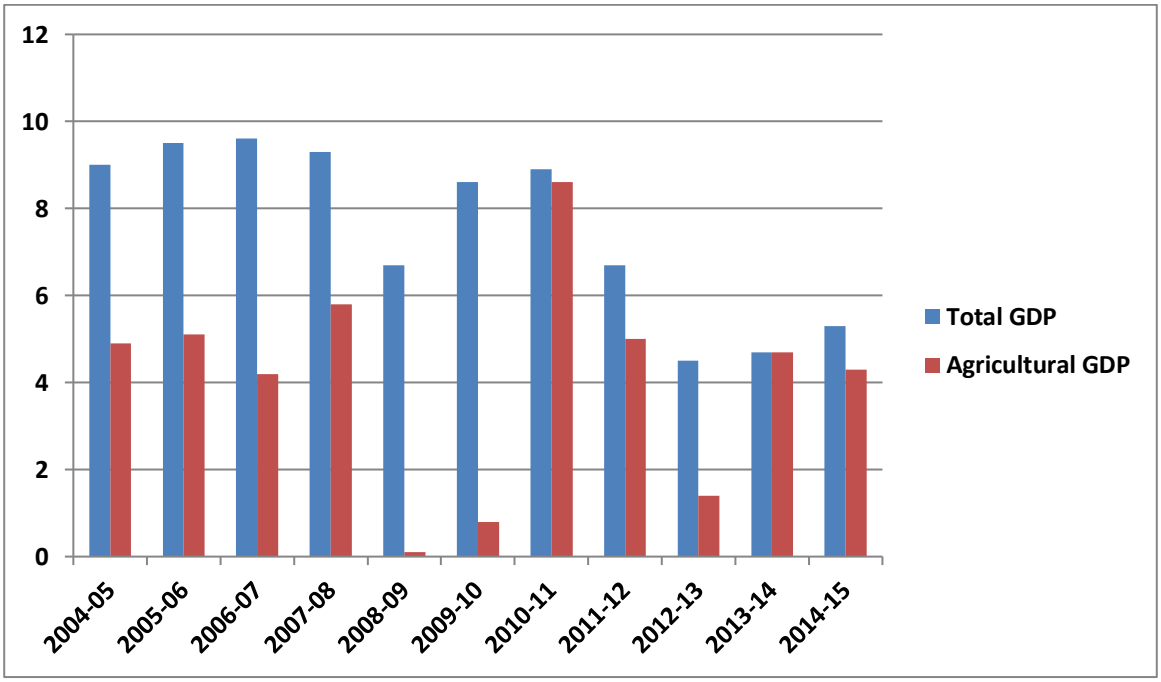
Source: RBI, Statistics on Indian Economy.

Figure1.3: Latest Trend of Share of Indian GDP at different Sectors at Constant 2004-05 prices.



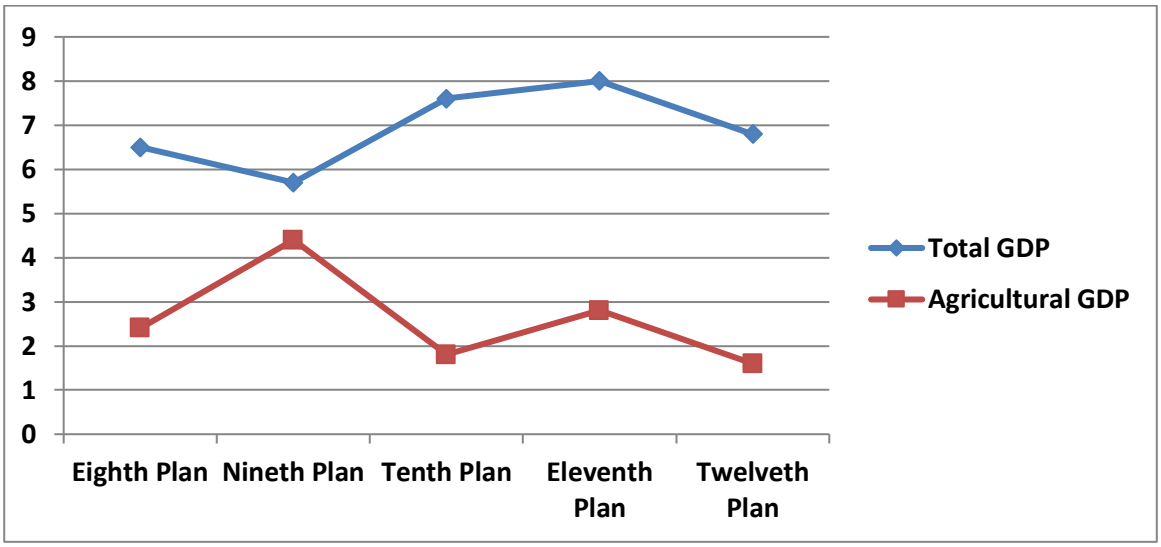
Source: CSO

Figure 1.4: Latest Trend of Indian Overall & Agricultural GDP Growth Rates at Constant prices of 2004-05



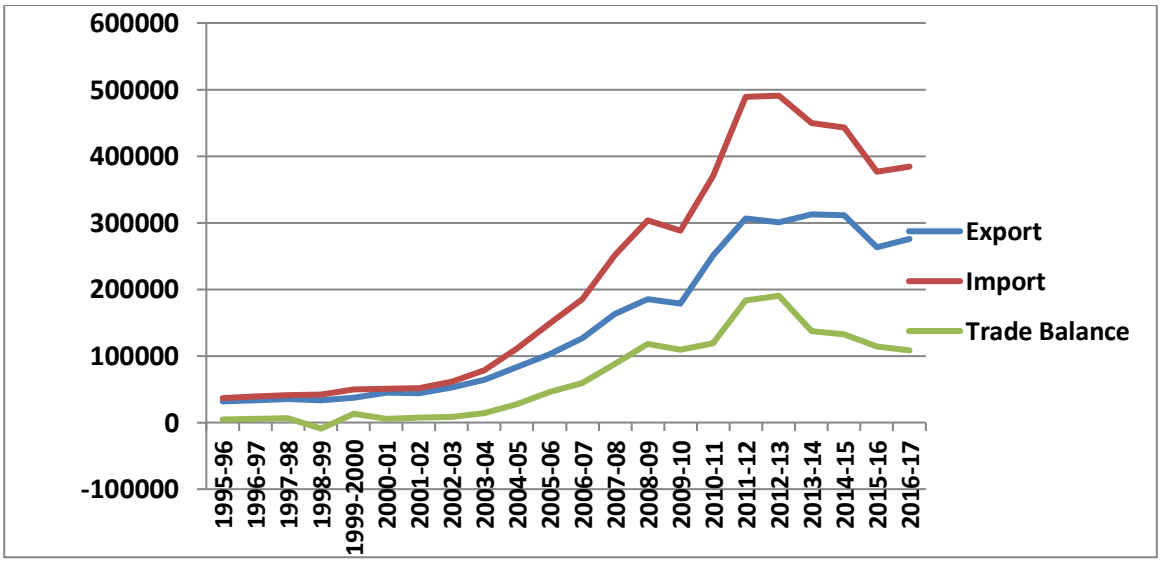
Source: Based on CSO Data

Figure 1.5: Trends of Agricultural growth Along with Total GDP growth rates in different latest Plan Period



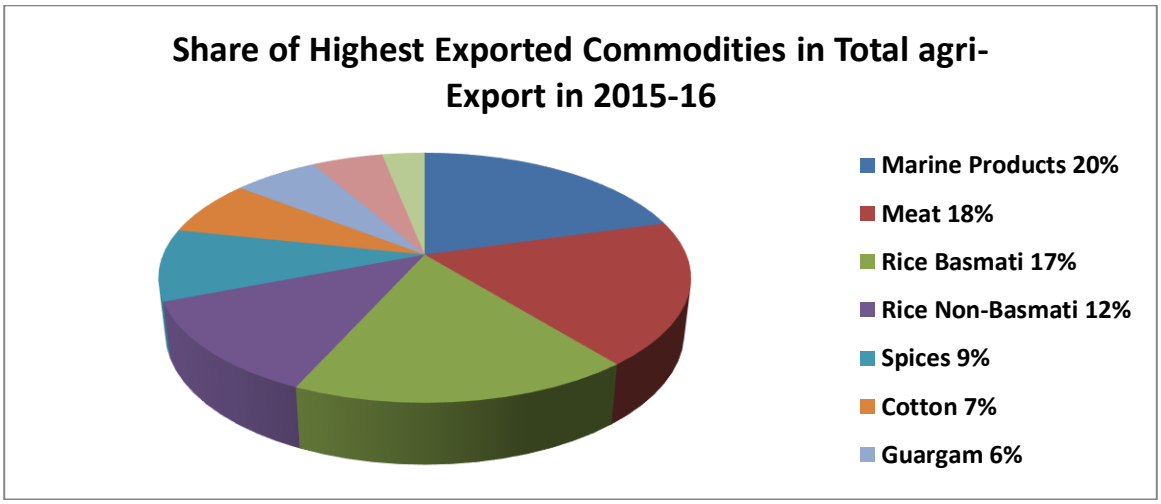
Source: Based on CSO Data.

Figure1.6: Trends of India's Foreign Trade (Export, Import & Trade balance) since 1950 (In US$ million)



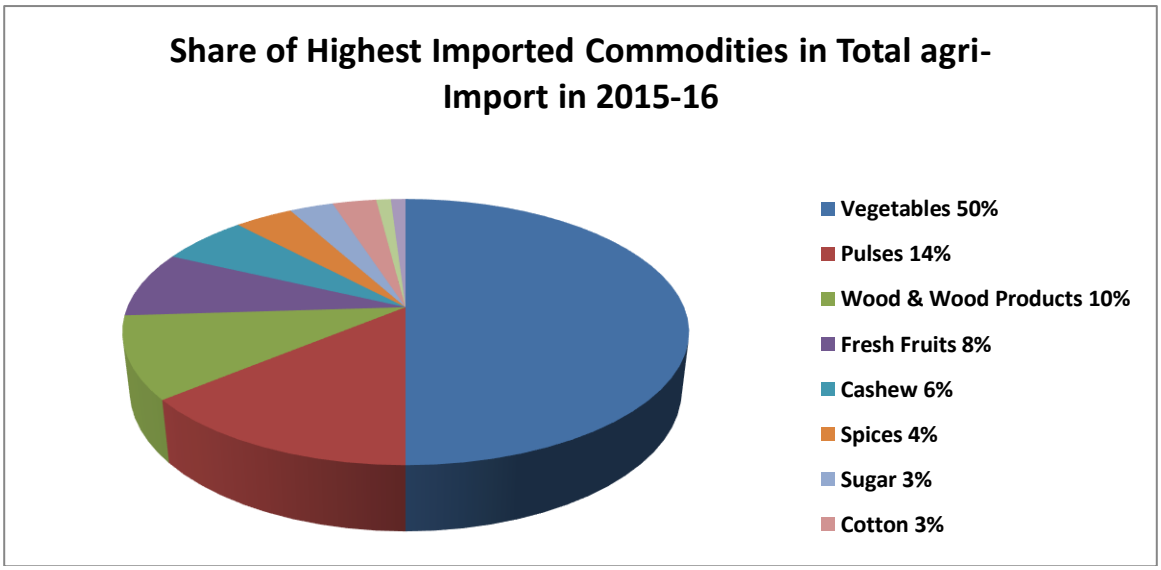
Source: RBI, Hand Book of Statistics on Indian Economy.

Figure 1.7: Share of Highest Exported Commodities in Total agri-Export in 2015-16



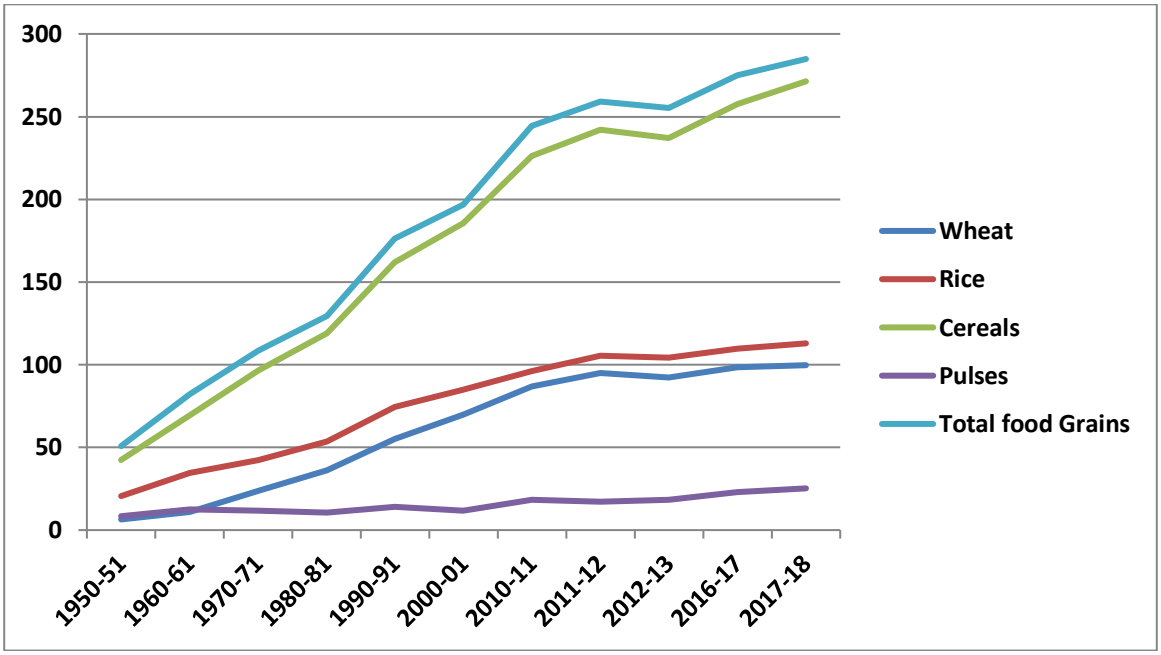
Source: CSO Based data.

Figure 1.8: Share of Highest Imported Commodities in Total agri-Export in 2015-16



Source: CSO Based data.

Figure1.9: Trends of India's major agricultural Commodity Production (in million tonnes) In the Pre & Post WTO era.



Source: RBI, Hand Book of Statistics on Indian Economy.

The above figures show how India's export/import and agricultural production growth have taken place in the Pre & Post WTO eras. The trade (export/import) have grown since 1995-96 with moderate rate and it took pace after 2005-06 then again after 2015 the export / import growth decreased noticeably. In case of production of some of the major Indian agricultural commodities the growth rate was like consolation in the Post WTO era as it was higher in the Pre WTO era.

1.2: The History, structure, organisation & Functions of World Trade Organization (WTO):

The formation of WTO was a major part of the long process had been continuing since the starting of the Uruguay round agreement in the 1980s. The WTO was meant to form a internationally based multilateral world trading system based on equity & equal justice of free & fair trade which would give assistance to marginalised or developing countries to participate and gain benefits from international trading system. The Breton Woods (1944 in new Hampshire, USA) conference gave birth to many international organisation to look after and help trade and countries to overcome from the economic destructions of the world war two like IMF (1945), World bank (international bank for reconstruction & Development in 1945) , ITO (international Trade Organisation in 1948) etc. These organisations along with their branches (IDA) has been giving loans to poor countries, helping in managing exchange rate volatility and helping international trade both directly & indirectly to spread and develop.

The ITO was replaced by GATT (General Agreement On Trade & Tariff) in 1947-48 as new multilateral organisation with 23 founding members and an objective to (a) To Promote, increase and boosts the World Trade, (b) Providing Dispute settlement Mechanism (DSM) in international trade arena (c) Give space to the member countries to sit together and discuss on the negotiation on Tariff system and (d) Maintaining rules & regulations internationally to maintain trade smoothly. The GATT was quite successful in maintaining and lowering tariff barriers to international trade. The GATT has a history of eight rounds of trade agreements in which the Uruguay Round in 1986 was most famous.
In this round the discussion on liberalisation and reform on many areas took place like Tariff & Non Tariff measures, IPRs, Agriculture, textiles, MFN, several service rules and dispute settlements measures took place. The ending of this round was completed with the foundation of WTO on 1st January 1995. The Uruguay Round agreement which was started in September 1986 in Punta Del Estate in Uruguay ended in April 1994 in Marrakesh Morocco. In the following table we can see different rounds of GATT in different time.

Table 1.1: Different Rounds of GATT (Year Wise)

Years	Different Rounds	Number of Countries Participated	Issues Discussed
1947	**Geneva, Switzerland**	**23**	**Tariff**
1949	**Annecy , France**	**13**	**Tariff**
1951	**Torquay, Britain**	**38**	**Tariff**
1956	**Geneva, Switzerland**	**26**	**Tariff**
1960-1961	**Dillon Round, Switzerland**	**26**	**Tariff**
1964-1967	**Kennedy**	**62**	**Tariff & Anti-Dumping Measures**
1973-1979	**Tokyo, Japan**	**102**	**Tariff & Non Tariff Measures**
1986-94	**Uruguay**	**128**	**Tariffs, Non-Tariff measures, IPRs, Textiles, Goods & services, agriculture, dispute settlement, WTO**.

Source: WTO data from Web.

The GATT was diluted and WTO forms on the basis that the GATT was dealing in trade of only goods but WTO is formed to not only deal with goods trade but also with Services, IPRs, different rules for agriculture (AOA contents).

1.3: The WTO:

The WTO is an intergovernmental international organisation formed on 1st January 1995 with 123 founding members (164 members now) after completion of Uruguay round agreements and dilution of GATT (head quartered at Geneva Switzerland) the WTO was established for maintaining a internationally justified free & fair trade and building a multilateral body of trade which is non discriminating and helpful to countries for peaceful and smooth trade among nations. WTO works on barrier less free trade. It holds ministerial Conferences and rounds to help solving issues between nations and conduct negotiations on trade among nations. It also helps solving trade disputes among nations so that countries can conduct smooth and fair trade without unnecessary conflicts. The WTO is working on the basis of Doha round agreement which had taken place on 2001 and is still active today but the formation of WTO was the end result of Uruguay round agreement (from1986-94).

The structure of the WTO is divided into seven division which are (**a) Ministerial Conference, (b) General councils, (c) Trade policy Review Body, (d) Dispute settlement Body, (e) Councils on Trade in Goods & Services, (f) Director general & Secretariats, (g) WTO Committee on Trade and Development and Committee on Trade and Environment.**

The **Ministerial conference** which held once in every two year is the apex decision making and lawmaking body or governing body of WTO represented by finance minister or governor of every 164 countries. This is of a democratic structure and any decision taken by this body is based on voting system.

The **General council** which is based on Geneva is a council with every country's representative of ambassador status works on maintaining and implementing the WTO rules properly and efficiently.

The **Trade Policy Review** agents under the WTO are also the representatives from all the countries who looks after the rules and trade policies and search for their effectiveness or loop holes and even this body looks after that the rules are implemented among nations properly or not.

The WTO has a **Dispute Settlement Body (DSM)** which is comprised of representatives from many countries and it has permanent appellate body looks after the trade disputes raised among nations and try to solve it according to the International law on trade.

The **Councils on Trade in Goods & Services** under WTO is a body represented by members from all countries which looks after trading of both goods & services and IPRs at the same time.

The **Director General** of WTO is elected by member states and the office of the DG is at Geneva. There are 700 **secretariats** at WTO who can't elect DG works as administrative officers there at WTO.

The **WTO Committee on Trade and Development (1965) and Committee on Trade and Environment (1971),** is a WTO body works for sustainable growth & development of countries and at the same time maintaining conserving environment for future sustainability.

Table 1.2: Following are the different ministerial conferences conducted by WTO

Locations	Years
Singapore	**1996**
Geneva, Switzerland	**1998**
Seattle, USA	**1999**
Doha, Qatar	**2001**
Cancun, Mexico	**2003**
Hong Kong	**2005**
Geneva, Switzerland	**2009**
Geneva, Switzerland	**2011**
Bali, Indonesia	**2013**
Nairobi, Kenya	**2015**
Buenos Aires, Argentina	**2017**

Source: WTO data from Web.

1.4: The WTO has the following functions (as per the Article III of WTO charter):

(1) The WTO looks after the matter that all member countries should obey sincerely the WTO norms independently with accountability and implement the WTO agreements properly.

(2)WTO also looks after any country's national trade policy and asks countries to maintain accountability and transparency of trade policies.

(3) The WTO give trainings to least develop countries and even it gives technical assistance to them frequently so that these countries can grow faster and sometimes it gives space to the developing countries and asks them to sit together and negotiate on trade related issues.

(4) WTO looks after the issue of unemployment throughout the world and helps countries to fight against the issue of Unemployment and in doing so it seeks help from the IBRD (World Bank) and IMF. It maintains good relations with these international organisations to help developing or poor countries for economic development.

(5) The WTO provides trade related Dispute settlement body (**DSM**) which is a legal body of WTO, to solve trade related dispute issues between member countries in a legal way.

(6) The WTO always works hard to maintain a lower tariff barrier between nations so that export /import could rise and reach to a level so that countries can produce goods and services up to its optimum capacity and in this way it can reach to the equilibrium level and in this way it can rise and maintain higher standard of living and a better society.

The scenario of global agricultural trading system is being changed from the view point of global Trends of export /import, Volume, Compositions and directions of agri-trade in the Post WTO regime, for example, though the share of vegetable oil, wheat, Rice etc have high shares in global share of agri-trade but the production, consumption & export pattern of agricultural commodities is changing every day after the WTO regime as the demand for traditional commodities like rice, wheat, tea, coffee, Oil meals, Marine Products have been replaced by high value agri-products like fruits & vegetables, Spices, Milk & Milk products, Meats, Fishes, Egg and many other horticultural products. These high value agri-products are helping rural areas to increase their income levels. New forms of markets creates new opportunities for goods and services to be traded for example the emergence of future trading market which is a new addition to the existing forms of market in the post WTO era is responsible for growth in the volume of commodity trade in agriculture and reduction in price uncertainty and market fluctuations. One of the main concerns in most of the member countries is Environmental issues related to growth of trade & GDP of nations. As the global trade is flourishing it is flourishing at the cost of environment. This argument is becoming popular among many members in WTO forum that is why the environmental issue for sustainable growth & development is essential before taking any other decision in WTO ministerial conferences. In the Post WTO period the world is witnessing massive changes in growth, distribution and development in the economies of the World. For example the last Economic crisis led the western world's economies to a distressing situation where their growth rate are getting reduced to a minimum level and the world share of trade also getting out from these developed nations (only 35% global trade share are now with the Developed nations) where developing nations has been very much successful in increasing their share in global trade by outstanding performance in growth. GDP of Countries like India, China have grown many times since WTO came into existence and in most cases the export growth is much higher than the overall GDP growth of these nations but in developed world other than USA most countries were not successful to grow as faster as the developing world particularly from the time of World Economic Crisis begin.

1.5: India's Probable Challenges and opportunities in the WTO Regime

The WTO (Including AOA & TRIPS) regime after GATT provides a international multilateral, rule based, free & fair and non discriminate world trading system with 164 member countries administers about 90% of the world trade. The WTO accepts Special & Differential (S&DT) treatment for developing countries as one of the main objectives of it to integrate developing countries (about two third of WTO members are from developing countries which are mostly suffers from lack of capital formation & Infrastructural constraints as compare to the DCs) dependant on trade for their economic development) to the world trading system. There are other provisions for developing countries lies in the WTO trade

negotiations for example the **non-reciprocity condition**, the benefits of getting extra time to full fill trade requirements of WTO, fundamental reforms in Industrial & agricultural sector, abolishing QRs and quotas used against developing countries reductions in Custom duties & bound limit of duties, etc, which helps developing countries to cope with the DCs and acquire benefit from trade in the new world order. In case of India as it is a faster developing country and a founding member of WTO so it would definitely gain benefits from new international order framed by WTO in expanding its export and trade volume of agricultural sector which will be helpful for India to achieve faster economic growth and development of Society. The MFN (most favored nation) & dispute settlement criteria under WTO may help India in expanding trade under WTO.

There are certain areas exists where India may have to face Challenges and these areas poses cause of concern related to economic and trade sovereignty under the WTO regime as it decides and frame rules of international trade secondly, new trade rules under AOA, TRIPS,TRIMs, TBT, SPS, and GI India will have to struggle to comply with these laws and compete in international trade and thirdly the developed nations which take most decisions and dominates WTO related rules, conventions and ministerial conferences (particularly countries like USA which is violating and dominating international trade rules for its own business interest from last century and still in trade war with China) are ready with their big MNCs to flood the domestic markets of developing nations including India. So it is a challenge for India to cope with these new issues of trade under neo liberal international trade principles and give safe guard to its employment and agriculture.

In the next chapters we shall try to understand these issues more vividly with data analysis and discussion.

1.6: Research Questions:

We have noticed that there exists Tremendous differences, in production, distribution, marketing, export, import, pricing, structural change and policy making, between the pre and post WTO Regime. That is why the essential Research question necessarily comes within our mindset that why this happens and what are the objective and visions of the policy makers in doing so. With the rising of big farmers with big size land holding, earning huge profit along with the investors in the forward trading market, giving more emphasis on agricultural cash crops production, giving birth to a highly volatile price regime, cutting down import taxes and lowering subsidies making us more interested in this subject to study and to do research on this.

According to the **World Bank reports,** the sluggish growth in agriculture along with its declining percentage in the GDP is associated with, [2]

(a) Lack of Infrastructural & institutional facilities and illiteracy, general socio-economic, backwardness, slow progress in implementing land reforms and inadequate or inefficient finance and marketing services.

(**b)**Adoption of modern agricultural practices and use of technology is inadequate, hampered by ignorance of such practices, high costs and impractically in the case of small land holding.

(c) The allocation of water is inefficient, unsustainable, and inequitable with the deteriorating irrigation infrastructure.
(d) Declining trends of public Investments in Indian agriculture and protections to the farmers.
(e) Declining TOT for LDCs and developing nations in the new trade regime.

In the course of our research work and study we shall deal with the following questions : Do the new agricultural policies under WTO has been able to give rise to Indian agricultural growth , Productivity, export, the export performance and competitiveness of major Indian agricultural commodities during pre and post –WTO regime? Expanding market along with helping India to eradicate poverty, Malnutrition, and generate employment etc? Secondly, which of the areas related to agriculture has been affected hardly after the implementation of recently amended WTO policies?

1.7: Objectives of the study:
Agricultural commodity trade plays an important role for country's overall growth & development. India has been traditionally an agriculture based nation and agricultural sector plays a vital role in its economy. But since the inception of the WTO under the economic liberalization phase there has been a tremendous change is visible in growth, Expansion, Volume, composition & Direction of agricultural commodity trade in India. Some economists think this was natural and positive in helping economy to develop while others think this was an intervention by international neoliberal wealthy nations to economy & independent trade sovereignty of India with neo imperialist ambitions. The following are the objectives of our study to understand,

1. The impact of WTO regime on Growth of Agricultural GDP & Export of major Indian agricultural trading Commodities and a comparison between the Pre & the Post WTO periods.
2. The impact of the WTO on foreign trade including agricultural trade and the role of the Government.
3. The impact of WTO on Composition & Direction of Major Indian agricultural Commodity trade and the difference of these in the Pre & Post WTO regimes.
4. The impact of WTO in agricultural export Diversification & changing destinations of agricultural trade and a comparison between the Pre & Post WTO regimes.
5. The effect of AOA (Agreement on Agriculture) on Indian agriculture and a comparison between the Pre & the Post WTO eras in this regard.
6. The effect of WTO regime on export competitiveness of major Indian agricultural commodities.
7. The impact of the new IPR regime under TRIPS of WTO on farmers rights, biodiversity and overall farm economy.
8. The probable remedial suggestions & recommendation measures to improve Agricultural commodity trade in India.

[2] *World Development Report by World Bank (2014, 18**, IBRD, IDA**)*

1.8: Research Hypothesis:

We can put forward the following research hypothesis for our Study.

- In the Post WTO regime India was able to increase its volume, growth, Export share and diversification of agricultural commodity trade in the world as compare to Pre WTO period.
- The AOA and TRIPS regimes under WTO have some detrimental effects related to farmer's rights, Biodiversity of India, Seeds rights, Geographical Indications etc.
- India's agricultural GDP has increased many times in Post WTO period but the growth and the percentage share of it to total GDP of India has gone down in the Post WTO period as compare to Pre WTO period.

1.9: Research Methodology:

Our study which is based on the secondary data, has been divided into two time period, i.e. Pre WTO period (From 1986-87 to 1995-96) and post WTO period (from 1996-97 to 2016-17). These data has been collected from various secondary data sources which includes www.rbi.gov.org.in , Handbook of Statistics on Indian Economy, Reserve Bank of India (RBI),government data from Ministry of Agriculture & Cooperation, NSSO reports, Agricultural census data, Beauro of Economics & Statistics, CMIE and other public reports, state government department of agriculture, internet website www.wto.org, Economic survey of India, (GOI), Directorate General of Commercial Intelligence and Statistics (DGCI&S), Kolkata, data like Ministry of agriculture, A.P.E.D.A., FAO trade & production year books, FAO Stat Agriculture Data Base, World Bank world development Indicators, Indian Journal of Agricultural marketing and Indian Journal of Agricultural Economics, Related data published on E.P.W.S., Ministry of commerce Government of India and various papers published on interested topics. Reference period of the study is taken from 1986-87 (pre WTO period) to 2016-17 (post WTO period). We have taken 1994-95 as the cut off date for pointing the pre and post WTO periods was the beginning of the WTO era from 1st January 1995, with the support of 123 founding members including India. This research study would discuss the comparative performance of trade of major Indian agricultural commodities during pre (1986-87 to 1995– 96) and post WTO (1995-96 to 2016 – 17) regime. It would analyze the export performance and competitiveness of major Indian agricultural commodities during pre and post –WTO regime.

Tools used in data analysis:

Compound Annual Growth rate (CAGR):

The **Compound Annual Growth rate (CAGR)** is a term for measuring geometric progression ratio used in many areas including measuring of growth of various type of data like agricultural export, investment etc in a specified time period.

In our Study we have Used **CAGR (Compound Annual Growth Rate)** to show how different exporting commodity's export growth is taking place.

The mean annual growth rate can be synonymously referred to as compound Annual Growth rate (CAGR) of growth of agricultural production or export of a specified number of years. To calculate this we first divide the last year's value of agricultural growth by initial years value of growth then raise the value to the power of 1 divided by total number of specified years and ultimately we subtract 1 from it, Which can be shown as,

$$\textbf{CAGR= (Ending Value/ Beginning Value)}^{(1/\text{numbers of Years})} \textbf{ -1}$$

Secondly,

We have used Simpson Index to show year wise diversification of Major Indian Agricultural trading Commodities. It is used after taking three yearly export data together in both Pre & Post WTO period.

$$\textbf{Simpson Index= } D=1-\left(\sum n\,(n-1)/N\,(N-1)\right)$$

Where,

D= Diversity,

N= the values of export of all agricultural commodities in a particular year.

N=the Value of export of a particular agricultural commodity in a particular year.

The value of D or Simpson Index varies between 0 and 1, where 0 implies no diversity and 1 implies infinite diversity of that particular agricultural commodity.

Other than these, averages, Percentage & ratio method has been used to show direction & composition of trade on yearly basis.

Thirdly,

We have used the **Nominal Protection Coefficient (NPC)** to determine whether the Agricultural commodities are importable or exportable. The NPC is a ratio of the price of a foreign good when it enters into any country and the final price of that good when it reaches to the consumers after all taxes are levied on it.

Where, $\textbf{NPC i} = \textbf{P i}^{d} / \textbf{P i}^{w}$

Where **NPC i** = Nominal protection coefficient of commodity i.

P_i^d = Domestic price of commodity i.

P_i^w = World reference price of commodity i, adjusted for transportation, handling and marketing expenses.

Here, **NPC < 1** indicates the commodity is exportable and **NPC > 1** indicates that the commodity is importable.

1.10: Limitation of the study:

There exits certain limitations of the Study. Our Study is entirely based on secondary data. The data is collected from www.rbi.gov.org.in and various online and offline publications, (both Govt. & Non Govt. sources). Because of non availability of various data the objective of the study was influenced by the limited data sources.

1.11: Review of Literature:

Empirical Studies: Some important studies done recently have shown that terms of trade in agricultural trade declines in many very poor countries (Least Developed Countries as mentioned by the UN) especially Sub-Saharan African countries. These heavily indebted marginalized countries fell in the group where few agricultural commodities comprise about 90% of their total export making them marginal player in global trade (Watkins and Fowler 2002; FAO 2004; UNCTAD 2004). One study recently done by FAO show the terms of trade has declined to about half of these developing nations. A different opinion regarding TOT is found in case of BRICS and ASEAN nations by policy makers.

One major finding in recent studies it has been revealed that since 1950 to 2015 it is found that real prices for agricultural exports of developing countries exports declined comparing to the relative prices of Imports of their manufactured goods by almost 70 percent (FAO 2014). The DCs mostly rely on exporting synthetic products and protectionism in domestic import of agricultural goods from LDCs. that is why the third world countries united drawing attention of the world in the WTO conference of CANCUN in 2003 on the pricing problems associated with the commodities. Though the chance is very less that the final outcome of the **DOHA** round will end with proper solution to the LDCs long standing grievances.

The 12 OECD countries controls about 65% of the world's total Agricultural trade which was reflected in the book 'Negotiating the Future of Agricultural Policies' by Bilal (2001). Though the U.S., EU, Canada, and Australia have proven production advantages in wheat and other cereals and other temperate zone commodities, India has benefitted from its good comparative advantage in many agri-commodities.

Market should be open rather than manipulated being the narrative and contention of the Developed world particularly the USA and EU, these countries always tried to create pressure on developing nations for maintaining open market norms but they themselves violated these norms time and time again by putting tariff barriers, QRs, Anti Dumping measures and other different types of protectionist measures on importing agricultural goods from developing nations. Here India's role is very crucial and different as India being in

a comparatively advantageous position (India's agricultural export has risen multiple times after the WTO to the Developed nations) and being a developing nation has always tabled argument against the DCs for the discriminations to LDCs by them and protectionist measures adopted by them. India's role has been positive and constructive in the post trade liberalization era for multilateral free and fair trade.

There has been substantial empirical literature on various aspects of this research paper. Where some of the researchers have expressed their opinion which is as follows,

Matthew Saunders and Rolf Mirus (2003): They argued in favour of free trade and against protectionism and they argued in favour of proposed changes to anti dumping agreements. And even they have argued in favour of Proposed Changes to the Agreement on Subsidies and Countervailing Measures.

Peter M. Rosset(2004) : According to him the three basic pillars of AOA are (I) Market access ii)Export subsidy iii) Domestic support. He showed a lot in the media about "trade wars" between the U.S. and Europe, about steel quotas and cotton subsidies, and about how dissatisfied poor countries are with global trade rules.

R S Deshpande, J Prachitha
(2005): These persons have put forwarded impacts of WTO policies on the Indian state of Karnataka, where according to their study the cell recommends that India's concern on food security, rural employment and need to protect the environment should not be neglected in a purely market-oriented 82 approach. They argued that it is necessary to adopt market-friendly approach without government support.

Ashok Gulati and A. Sharma (1994): Both of these two authors have explained the upcoming situation of Indian agriculture under the WTO regime. According to them Indian agriculture will not gain much in the open trade environment under the free trade regime of WTO.

Martin Khor(2004): He has studied and worked on the topic "**THE WTO AGRICULTURE AGREEMENT: FEATURES, EFFECTS, NEGOTIATIONS, AND WHAT IS AT STAKE"**. Here his paper starts with a brief summary of the main features of the commitments made by Members in the World Trade Organization's Agreement on Agriculture (AOA).

Samar Datta (2000). According to S. Dutta, India is self sufficient in competing with the world in rice export. And India needs not to worry about the competitive environment under the WTO regime other than price manipulation of the rival exporters of rice. India should stay at its zero import duty position on rice.

Rani, Pooja (2015): in this paper **"A Study of WTO and Agriculture Sector in India"** they have explained the global trade that how it is well connected. What they have found regarding WTO and India is that after engaging with WTO India has increased its domestic production and export of agricultural product and it has been helpful in increasing employment level of the country in agricultural sector. According to them Indian agricultural growth will take momentum in the coming future as investments are taking place in agricultural infrastructure in the country.

Deepika MG(2005): In her theses named **"CHANGING TRADE SCENARIO IN AGRICULTURE AND ITS IMPLICATIONS FOR THE INDIAN ECONOMY"** she wanted to express that tough trade libcralisation assumed a special significance in the context of economic reforms in the late eighties and early nineties in India, they were not directly made applicable to the agricultural sector due to its unique characteristics.

Hedayat Hosseinzadeh(2008): The main object of his research was to examine the economic effects of Globalization and the trade openness on Iran's agricultural sector. He reviewed the agricultural exports and imports policies in Iran during the period from 1980 to 2004. He surveyed the impact of economic liberalization and privatization policy on the performance of agricultural export and import during 1980-2004.He studied the future prospects of agricultural products, exports and imports.

K.B.Umesh, Akshara M., Shripad Bhat, Harish Kumar.K., Srinivasan, S.M.(Beijing 2009) : In 2009 these people have worked together for presenting paper in Economists Conference, Beijing, China, August 16-22, 2009 on the topic **"Performance Analysis of Production and Trade of Indian Silk under WTO Regime"** where they have showed that India is the second largest producer of silk and also the largest consumer of silk in the world having a strong tradition bound domestic market. In this paper, they estimated growth functions for India's aggregate production and trade parameters using annual data from 1984/85 to 2006/07.

Andre M. Nassar, Diego Ures (2009): In their IFPRI Discussion paper named **"Brazil: Shadow WTO Agricultural Domestic Support Notifications"** where they has argued that Brazil is presenting itself as being in a comfortable position with respect to domestic support in the Doha Round negotiations, and our analysis confirms this position. New rules are necessary to guarantee that policies oriented to create demand for biofuels will not jeopardize world agricultural markets. WTO rules, however, must be improved in order to capture the specific situations of biofuels, which are not the same as other agricultural commodities.

Veeramani C (2007): Mr. Veeramani in his paper titled "Sources of India's export growth in pre and post reform period" have discussed about the export performance and growth during the pre(1950-90) & post WTO period(1991-2005) and found more volatility or fluctuations but speedy performance in the Post WTO period.

M.Ranga & D. Sharma (2014): in their paper ***"WTO and Indian Agriculture"*** showed that if aspects there exists no real insecurity, related to WTO norms (like market access, domestic support , export subsidy, removal of tariff, provisions related to IPR, non tariff barriers etc) be dealt with good vigilance there exists no real threats or insecurity on agricultural trade.

Renuka Mahadevan(2003): In her paper named "PRODUCTIVITY GROWTH IN INDIAN AGRICULTURE:THE ROLE OF GLOBALIZATION AND ECONOMIC REFORM" she has explained that although India missed the opportunity to open up two decades ago, its attempts to do so now must be regarded as better late than never. Having realized that globalization is a necessary but not a sufficient condition for high growth production, India has undertaken economic reforms, both internal and external.

Bhowmik, Debesh(**2006**): In his paper titled "WTO and Agreement on Agriculture" Mr. Bhowmick expressed concerns about the consequences and implications of WTO and particularly AOA on Indian Farmers. He said these contents like Plant variety act of TRIPS Under WTO may reduce the rights of the Indian farmers and there remains agap between the rich and the poor countries in implementations of WTO norms and severe inequality in their impact on society.

Mithilesh Kumar (2006): In his work titled "**TEMPORAL CHANGES IN DAIRY INDUSTRY IN INDIA"** he has explained that the dairy sector occupies a dominant place in providing food, income, employment and foreign exchange to the Indian economy. The positive trend in export and negative trend in imports was observed due to the success full implementation of Operation Flood and set of Government policies regarding international trade.

Mahajan and Nanda (2011): They have a incense study regarding the impact WTO and Structural changes after liberalisation on India's agricultural trade. According to them in the time period from 1995-2006 India's export share growth has fluctuated from time to time with declining tendency except for some commodities like Spices, Sugar, and Cereals etc.

Kavitha, N. V. and **Reddy, N. Suma (2015):** Their paper named ***"A* Study on the Commodity Derivatives Market and Development in India - Towards Sustainability"** was based on the agricultural commodity trading in India. They have shown on their paper that how the Government of India has initiated reforms in the commodity market of agriculture so as to solve the issue of dependant farmer or people using old agricultural exchange mechanism of agricultural commodity trade.

Vijayakumar B.K.(2007): Mr. Vijayakumar worked on impact of WTO on the Indian state of Karnataka's cereal production and his research was named " **CHANGES IN CEREALS ECONOMY OF KARNATAKA PRE AND POST WTO ANALYSIS"** where he analysed that the global competitiveness of cereals (rice and maize) and their economics of production over the period of time in Karnataka. In his study, he has made an attempt to estimate NPC, DRC, direction of trade, integration between domestic and international prices and supply response of rice and maize. The findings of the study would help the planners and the policy makers to formulate appropriate agricultural development, export and stabilization policies for the state as a whole.

Sunny and Waheed (2010): They have conducted a detail analysis of Composition, Growth, Percentage share of Indian agricultural export to total export (from 1991-2010), and find that though India's total export has grown many fold in the Post WTO regime but the share of agri-Export to total export has declined in the Post WTO era as compare to Pre WTO regime.

B. Sheshagiri & G. G. Honkan (2011): This paper named "**Impact of W.T.O on Indian Agriculture : Performance and Prospects"** showed that the developed countries which have high tariff on agricultural import from countries India should bring down their tariff rate in order to improve agricultural commodity trade. Their study highly suggests that there is huge scope in increasing agricultural trade between developed and developing nations like

India even without resorting to paradigm shift to new improved technology or policy regarding that.

Nitin Vinod Dacha(2005): In his paper "**Prospects of the Uruguay Round Agreement on Agriculture and the Reality of its Impact on Indian Agricultural Trade"** he showed that Inconsistencies within the developed countries agenda concerning agricultural liberalization have stalled the progress of the process at least until the next trade round. It seems that developed countries only concede when it is convenient and have protected themselves exclusively at times through the use of such measures as the 'special safeguard' provision and the 'peace clause'.

Baura and Chakaborty (2004) – In their paper of Impact of WTO regime on Indian Agriculture, Barua & Chakraborty studied & analysed various aspects and contents of **WTO like SPS, TBT, GI , TRIPS etc** and concluded that India's export has revamped and increased in Post WTO period

Alex F. McCalla and John Nash (2007): In their edited book titled **"Reforming Agricultural Trade for Developing Countries"** they have expressed their view in the process of trade reform **in** liberalised trade regime of international agricultural trade under the WTO of Developing countries and expressed their concern about the implications of WTO regime on these countries.

S.K. Niranjan (2016) & D. Ranjith (2016) : In their work they both analysed the pattern of import and export since the beginning of WTO regime , where they found Indian imports of agricultural goods were cheaper as most of the exporting nations were giving huge subsidies to their domestic agricultural production & export. Both of them concluded that India's post WTO trading experience of agricultural commodities was not much satisfactory as compare to the pre WTO phase.

S. P. Shukla(2000): In his paper titled "**From GATT to WTO and Beyond**" he intended to show that to analyse the evolution of the international trading system from its inception as the GATT in 1947 to its latest incarnation in the form of WTO, comprising the complex array of agreements forming its substance and mandate. His study focuses on the adequacy and in adequacy of the system as it evolved and functioned in an environment of changing international economic and political reality.

Kiran and Mishra (2009): They have expressed their view in favour of the new IPR regime under TRIPs and said that India has immense chances in coming future to gain from the IPR regime and it has to go long way to reach China & USA in the field of intellectual property regime.

Madhusudan Ghosh (2017): In his paper titled "**WTO, Trade Liberalization and Indian Agriculture"** Mr. Madhusudan Ghosh showed Impact of trade liberalisation in the early 90's on Indian agricultural commodity export & Import and overall agricultural trade. He explained the changing pattern, diversification & composition of production growth, Export /

Import Growth and share of agricultural production & Export to total & agricultural GDP in the Pre & Post WTO period.

Priya Singh (2014): In her Thesis titled "**India and New Enlarged European Union Trade Relationship in the post reform Period"** she tried to explain the changes in the historical deep trade relationship between India & European Union as whole trade area and with Individual nations of EU. She also explained the impact of WTO and liberalisation policies on this trade relation and their future Implications.

Christopher L.Blackden (2014): In his dissertation paper named "**Transitional Policy articulations: India, Agriculture & the WTO**" Mr. **Christopher L.Blackden of** University of Kentucky have explained the impact of neo liberal policies of WTO and liberalisation, Globalisation on Indian agriculture and the political economics implications of these policies on Indian society and food security.

Sandip Prabhudas Solanki (2007): In his thesis titled "**Globalisation & its Impact on Indian Economy"** Mr. S.P. Solanki have explained what is globalisation means and he cited many definitions given by authors, economists, Scholars etc about Globalisation. Later on he explained how the new economic policies under WTO and reform period have affected India in many ways.

Training Programme on WTO and Its Implications on Indian Agriculture [Reading Material National Institute of Agricultural Extension Management (MANAGE)]: Several reading materials of this training program explained the different contents of WTO, how they work and the Implications of these policies on society both negatively and positively.

Dr.Nabeel A Mancheri,(2017): In the article titled "**Doha Round Dilemmas: What Stakes India holds in the WTO?"** he explained the reasons behind the successive failures of Doha round negotiation talks which he said the longest continuing negotiations of international trade.

Valeria Piñeiro and Martin Piñeiro (2017): In their Chapter of edited book titled "**The future of the global agri-food trade and the WTO" they have shown the unequal world trading (export/import) system where the most of the fruits of liberalised Agricultural trade is going in favour of the Developed countries who are engaged in trade distorting behaviours.**

Vijay Kumar (2014): In his thesis paper available on internet titled "**An Analytical Study of WTO on the Indian Agriculture Sector"** did a massive analytical job on major agricultural export commodities about the change in their growth of yield, diversification and export state wise during the Pre & post WTO period.

Tawheed Nabi & Dr. Jasdeep Kaur Dhami (2013): In their paper titled "**Analysis of India's Agricultural Export performance in the Pre & Post WTO regime"** they have analyzed export performance of India in the Pre & Post WTO regime and they have also showed the changing pattern of export share of Indian agricultural commodities in the pre & Post WTO era.

Saghir Ahmad Ansari* and Waseem Khan (2015): In their paper titled **"India's Agricultural Trade Potential in Post-WTO Period"** they have explained the scenario of Indian agricultural commodity trade in terms of direction, Composition and transitions of trade in the Post WTO period. They have Used Bella Balassa Index to explain India's revealed comparative advantages in agricultural trade in the Post WTO regime.

Prof. Rajan Sudesh Ratna,Dr. Sachin Kumar Sharma,Dr. Murali Kallummal & Mr. Anirban Biswas (2010): In their paper titled **" Agriculture under WTO Regime : Cross country analysis Of Selected Issues"** they have showed Impact of WTO & AOA regime on different countries including Japan, the US, India & Australia.

Vibha Mathur (2009): In her paper titled **"Sectoral Analysis of India's Foreign Trade**" Vibha Mathur has argued in favour of WTO and suggested that India should restructure its economy according to the WTO in order to compete in world trade to increase its Shares and market. She reaffirmed that the Initial returns may not be according to the expectations or Impressive but the long futuristic implications will definitely be beneficial for India.

Dr. Shree Bhagwat & Angad Singh Maravi (2016): In their Paper titled "**A Study of Impact of the WTO Regime on Indian Agricultural Commodities"** they have tried to explain the WTO, AOA and the export performance of Major Indian Agricultural Commodities in the Post WTO regime**.**

Dr. Shamsher Singh (2014): In his paper titled **"Analysis of Trade Before and After the WTO: "A Case Study of India"** Dr. Singh tried explaining using statistical tools the implications of WTO regime on overall economy of India. He explained both the Pre & Post WTO era in terms of change in trade performance in Agriculture & Industrial sectors.

Shabana Anjum and Arifa Khan (2017): In their paper titled "**Changing Pattern in India's Agricultural Exports under WTO"** they have argued that in the Pre WTO era there was an effort by India to gain specialisation in agricultural trade but no such attempt was visible in the Post WTO era. They have also pointed out that though India's share of global agri-Export have increased in the Post WTO period but it have not gained expertise in agri-commodity trade.

Alliance Sud (2017): The Paper on headings "The fourth industrial revolution will deepen the digital divide' on Position on the Eleventh WTO Ministerial Conference Buenos Aires, 10 – 13 December 2017 in Alliance Sud focussed on various proposals of Developed Nations put forwarded in 11th MC of WTO in 2017 in Buenos Aires, Argentina and explained the justification behind the resistance of these new issues by developing countries.

Horticultural Statistics at Glance (2017): The Horticultural Statistics data book (online) provided by Ministry of Agriculture & farmers Welfare (GOI) helped us by providing latest data, the changing pattern and sector wise trade diversification of horticultural commodity trade.

Ahmed Shaban Ali Saif Altaer (2010): In his paper titled "**The WTO and Developing Countries: The Missing Link of International Distributive Justice"** Mr. Ahmed Shaban Ali Saif

Altaer has critically evaluated the impact of WTO, TRIPS, TRIMS and other WTO contents on developing and developed world. He tried to explain giving practical examples of negative impact of Trips regime on India, Bangladesh, and China etc.

State of Indian Agriculture (2015-16): The **State of Indian Agriculture is a statistical E-book provided by the Govt. Of India, Ministry of Agriculture & Farmers Welfare, Department of Agriculture, Cooperation & Farmers Welfare, Directorate of Economics & Statistics, New Delhi** that helped us by providing significant latest data on Indian agriculture, Farmers situation, soil Condition and Food security related issues.

Hemasree L. (2014): In her thesis paper titled "**Performance Analysis of Indian Agricultural Trade"** Hemasree L. has shown change in direction, trend & Changing Destinations, Growth, Composition and share of import & Export of major Indian agricultural commodities in the world during pre & Post WTO regimes.

Puja Rani (2015): In her paper titled "**A Study of WTO and Agriculture Sector in India"** she has displayed the employment, productivity and export share of Indian agricultural sector during the Pre & Post WTO era and the number of troubles faced by the sector during that time and some recommendations to solve them.

Ranja Sengupta (2017): In her paper titled "**The road to Buenos Aires, December 2017: Agriculture**
remains key" she has explained how trade distorting measures by the Developed nation has been hampering international trade under WTO and the impact on Developing countries at the same time she has shown that the failure of the successive WTO summits since Bali round has been taking place and its inefficiencies in not reaching to any fruitful solutions on Doha round negotiations even in the 11th Ministerial conference of 2017.

1.12: Chapter Contents:

Our entire study is based on seven chapters, where

Chapter one Contains the Introduction and significance of the research, Structure of the WTO, research Hypothesis, our objective of the study, Research Methodology and review done by us on existing literature of our study.

The **chapter two** describes the significance of World trading system along with the impact of WTO on Developing country perspective.

Chapter Three describes the impact of WTO and AOA regimes on Indian agriculture where we have discussed India's stand on AOA rules, the implication of Doha Mandate, Implications of WTO framed international trade policies under AOA on India, Trend of Indian agricultural trade, Year wise Values and Percentage share with GDP of Major Indian Commodity Exports & Imports during the Pre & Post WTO periods, Direction & Composition of Indian agricultural trade under the WTO regime, The average value & Percentage Share of major Indian Agricultural Commodity Export & Import to total national Agricultural Export & Import of India, Trend of Agricultural Trade performance of India from the inception of WTO, Indian

Agricultural commodity Export (A Comparison between PRE & Post WTO era), Five yearly Compound Annual Growth rate (CAGR) of Indian Agricultural Import & Export commodities**,** Percentage Share of Indian Agricultural exports in World Agricultural Exports and value of Indian Agricultural Exports, Share of Few Agricultural Commodities in Percentage in India's Total Exports in Pre-WTO Period, Share of Few Agricultural Commodities in Percentage in India's Total Exports in Post-WTO Period, Compound Annual Growth Rate of value of export of few Agricultural trading Commodities in Pre and Post WTO era, NPC (Nominal Protection Coefficient) results of Indian major agricultural commodity export share estimated to compare before and after the WTO, Agricultural export, import of India from 1990-91 to 2012-13 (During Pre & Post WTO Era), and lastly Several Major destinations for the export of Indian agricultural Commodities during 2014-15 & Conclusion.

The **chapter four** is the key chapter in our study which is dedicated to study and understand the year wise, growth, composition, direction, destination & export competitiveness of some of the major Indian Agricultural commodities during the Pre & Post WTO Regimes and make a comparative analysis in the changing pattern of trade between Pre & Post WTO eras.

The Chapter Five deals with the Impact of TRIPS, Biodiversity, GI act, CBD act, SPS, Technical barriers to trade (TBT)agreement and AOA in the Post WTO regime and the implications of these on Indian agriculture.

The **Chapter Six is about** the negotiations & Outcomes of 11th WTO summit at Buenos Aires and the Implications of it on agricultural sector of Developing Countries including India. In this chapter we have tried to explain the various new issues which have been highlighted in the 11th conference like E commerce & investment, Environmental issues to trade, women empowerment & MSME etc.

The Chapter seven is the last chapter of our study where we tried to highlight the summery of our study, conclusive understanding of the study and put forwarded recommendations & Suggestions for the betterment of India's agricultural trade.

Chapter – Two

Importance of International Trade & the Implications of Uruguay Round Negotiations to Doha Round Agreements of WTO on Agricultural trade of Developing Nations including India (A critical Analysis)

- **Significance of World Trade**
- **The Changing Impacts of International Trade on Developing-**

  -Countries including India during the Pre & Post Liberalisation Period.
- **The trade liberalisation**
- **Impact of WTO regime in the Post Liberalisation phase of Indian's**

  -International Trade
- **The Impact of Uruguay Round Agreement on agricultural sector of Developing**

  Countries
- **Implications of DOHA Round Agreements of WTO on Agricultural Trade-**

  -of Developing Countries including India
- **An Overview of Trade Negotiations under WTO**
- **The Special & Differential Treatment agenda & the Doha Round**
- **The Outcomes of Doha Round Agreement & Negotiations**
- **Conclusion**

References

Chapter Two

Importance of International Trade & the Implications of Uruguay Round Negotiations to Doha Round Agreements of WTO on Agricultural trade of Developing Nations including India (A critical Analysis)

2.1: Significance of World Trade:

The history of International trade is hundreds of centuries old but since the industrial revolution took place, many economists and thinkers have put forwarded their view in favour of modern international trade as a basis of growth & development of economy & society. Chronologically if we see then the **Mercantilists** were first thinkers to do advocacy for international trade, their arguments were to increase the stockpiles of precious metals like gold & silver etc through trade and maximisation of export & minimisation of import to generate huge surplus in trade. After the Mercantilists classical economists came and they refuted the mercantilists argument of zero sum game in trade where some country gains by generating trade surplus while other loss, and they put forwarded Absolute Advantage (Adam Smith) and comparative cost advantage theories of trade (David Ricardo) where they have supported and advocated in favour of international trade by saying that as long as the differences of cost in production in producing a same commodity exists in different countries trade would take place and all countries can gain from trade (opportunity cost conditions by David Ricardo) and Adam smith 's theory of absolute cost advantage (which says that countries can gain from exporting it abundant and less cost product and through division of labour when it engages in trade). All these economists advocated free trade without any Government interventions. Many economists believe that trade not only benefits countries through growth & development but also it eliminates interstate rivalries through sectoral diversification of production, changing cultural aspects and thereby change in demand for commodities.

The international trade is an essential part of growth & development of a nation and the world as it not only creates opportunities of income source, wealth generation, socio economic development among nations but at the same time it helps creating connectivity, international harmony and cooperation among nations to develop culturally and spreads democratic political & cultural values and international stability & peace to build a better society for living. International trade provides opportunities to expand domestic production, explore regional resources and expertise on efficient use of country's own resources to take full advantages of nations comparative advantage over production of it and in this was the international prices of those commodities goes down. In these way countries with specialisation on goods & services creates linkages to take out and retain full benefits of international trade. Trade is an engine of growth is properly said by renowned economist as it helps nations to increase productivity through import of essential raw materials and technologies and export of goods & services. These helps innovation, specialisation and R& D in a country which generates employment & eradicates poverty for millions. As no country is sent percent self sufficient in meeting all its needs domestically that is why it is necessary for it to engage in foreign trade.

Grossly we say that Trade helps countries **(1) to share & distribute natural resources to grow & develop while taking benefits out of it exports, (2) To utilise a countries resources fully & efficiently, (3) To equalise international prices with domestic prices, (4) to specialise in productions, (5) Generates employment opportunities among nations, (6) to generate economies scale & division of labour, (7) to growth & development of economies through international harmony.**

The basis of International trade is difference in availability of natural resources & technological differences between nations. Classical Economists like **Adam smith and David Ricardo, G.Habarler** etc gave immense emphasis on international trade to create wealth & well being and economic development of nations and **Heckscher Ohlin** said trade can minimise the unequal distribution of wealth & resources among nations. Understanding the value of international trade to minimise unequal distribution of wealth & natural resources, poverty and socio economic conflicts the international organisations like, **World Bank, IMF, GATT & WTO** has emphasised on the expansions & promotions of free & fair international trade.

The openness of trade is subjected to country's own discretions, and any barriers to international trade may create hindrance to economic growth, prosperity of the nations and overall development process of any country. It is seen that most of the closed economies could not able take benefits from trade after the establishments of new international orders and remained backward in reaching heights of growth in production & export. In the Post WTO period most of the developing countries have understood the significance of international trade for growth & development and they engaged in the process of economic & trade liberalisation and some of them including China and many south Asian nations have benefitted immensely as they have a liberalised modern advanced & dynamic trade sector.

Many economists like **Olson Bardhan, Myrdal, Ragner Nurske, Raul prebisch & Hans Singer, Kindle Berger** etc have shown concerns about the Neo Imperialist nature of modern trade or new trading systems. They were concerned on Issues like (a) Deteriorating **Terms of Trade (TOT)** of developing nations with developed countries, (b) Capturing markets of semi industrialised developing nations by MNC houses of Developed nations, (C) Replacing local, regional traditionally produced low tech goods by industrially produced nontraditional technically advanced goods by developed nations of developing nations and there by destroying small scale & cottage industries and jobs of millions associated with these industries. Many renowned economists reject classical trade theories and believe that trade has created international inequalities among nations.

But many economists like Paul Krugman, Kruger etc gave emphasis on international trade by saying that trade definitely helps countries by providing those Increasing Returns to Scale of their production and it would be always beneficial for the poor, developing or least developed countries to engage into trade. Lastly we can say that countries should adopt trade policies according to their need and with proper precautions.

2.2: The Changing Impacts of International Trade on Developing Countries including India during the Pre & Post Liberalisation Period.

The International trade is important for developing, poor or least developed countries as they have a much requirement for markets for their regional products, they need advanced technology transfer for increasing production and innovations (Hakura 1989), they need employment opportunities with economic growth, they need massive industrialisations & capital formation in their countries for overall development of their economies. International Trade does provide all these. Though many economists think that international trade increases the economic dependency of the poor countries on the rich developed countries but most of the economists do think that and even it is found after so many research on international trade is done is that trade not only helps in GDP Growth, technology transfer and Employment opportunities but it helps to developing nations for overall economic & social development (Haberlar 1959).

The developing countries in the last two decades have come out with huge growth and changes in international trade with one third market share of the world trade and they have shifted their sole dependency from primary sector to industrial & service sector and became a crucial role player in the international arena. With about 37% of world goods trade, huge share in service sector trade and increasing share of exports to GDP the developing nations shows reforms and openness of their economies.

Table 2.1: World Trade to GDP ratios (DC, LDC & World)

Years	Developing Countries	Developed Countries	Least Developed Countries	World
1995-96	**61.7**	**38.3**	**46.7**	**43.2**
2000-2001	**69.9**	**44.5**	**53.1**	**50.4**
2005-2006	**75.3**	**49.4**	**63.8**	**56.3**
2011-12	**72.6**	**57.7**	**63.1**	**63.1**
2015-16	**75.4**	**64.1**	**67.3**	**66.7**

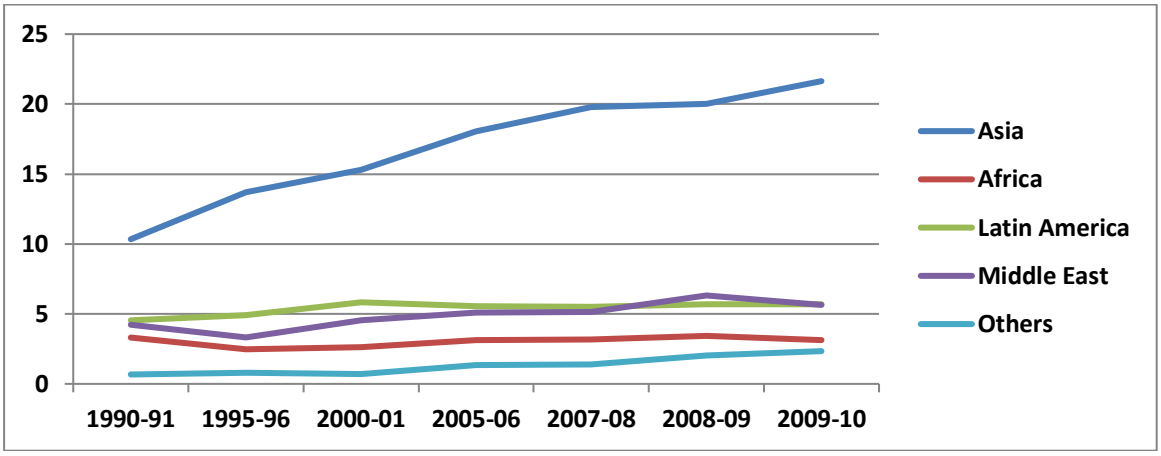
Source: International Trade Statistics, WTO.

World merchandise trade (**US$ 16.2 trillion in 2015**) share of developing countries have improved tremendously in the post WTO period which have increased from 29% in 1995 to approx. 42% in 2015-16, where the share of the developed countries have declined from 61% to 52% in the same period. The good results in growth & development of the developing countries particularly the China & India is the fruits of Trade and more liberalised trade. Liberalised trade has opened door of high advanced technologies to transfer from DCs to LDCs which have transformed the trade share and its character of the developing countries. Thus we can say that in order to shift from a developing country to developed country one nation need to have adopted trade. It is the trade which has immense capacity to transform the productive capacity and export competitiveness of a country.

2.3: The trade liberalisation: As the volume of international trade grows it requires more openness and liberalisation and that can help integration of the countries to grow together, help each other, technology transfer easily, opening and enlarging markets for each other, controlling international & domestic price fluctuations, and enjoying economies of scale through large scale industrialisation and realise higher level of employment and eradication of poverty particularly in the developing economies. Trade brings opportunities and competition both at the same time, most of the outward looking developing economies particularly the south Asian nations have performed very well in the last two decades in world trade, GDP Growth and over all developments as compare to their counterparts in Africa & Latin Americas as (According some researchers suggests that) they were inward looking with structural problems.[5] Trade makes countries more resilient and flexible to absorb any kind of economic shock due to price fluctuations of domestic short supply. After Second World War most of the countries of the World took protectionist inward looking and import substituting measures to protect their economies from external competitions and let it grow in its own way. But these policies were proving wrong in the late 70s as most of Developed nations were reaching far distance than the developing nations in growth & development so countries started realising that it was necessary to open up trade and as soon as they entered in to open trade, the results were coming to be different. Enormous opportunities become opened, economies grew much faster rate, Employ opportunities came in a new way, and governments were left with more money

in their hands to invest in social welfare & justice and there by social & political peace & stability become easier goal to reach. As per the World Bank report Countries like China, India, South Korea, Mexico etc have emerged to be most flourishing and successful developing countries to reap the fruits of growth and developments in the new WTO regime and they have done it must faster and with more and more opening up of their economies in the Post Liberalisation period. In the last decade it is seen that the developing countries have expanded their export share much faster than the DCs. The globalisation after the WTO has helped them to achieve rapid economic growth. The economic growth and export growth of the developing nations was almost two times bigger in 2015-16 than it was in 1995. The Asian countries (particularly huge growth is seen in South East and South Asian countries) have achieved remarkable growth in share of World export in the last two hand half decades (it was increased from 10 % in the early 90s to approx 23% in 2015-16) while African nations and Latin American nations remained at the same place (with fluctuation of 1% to 2%) in 2015 in the Post WTO period as it was in the Pre WTO Period.

Figure 2.1: The value of Share of the exports of developing countries in the World (in percent)



Source: WTO website

From the above figure it is visible that the Asian nations have emerged to be the leading exporters from the developing countries where other developing continents like Africa, Middle East and Latin America remained almost same as just before the WTO.

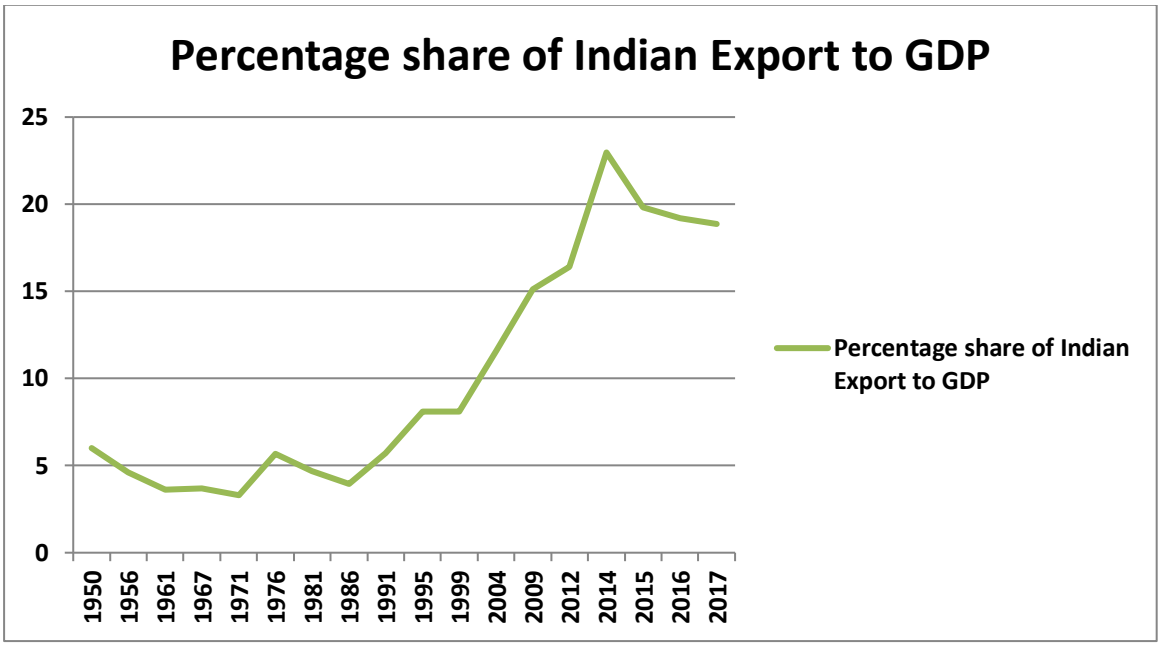
International trade has been promoted and emphasised by many international organisations like WTO, World bank, IMF etc and suggests nations to engage into free and fair multilateral trading system. Following the 2001 Brussels conventions of the UN the Doha (4th round Ministerial conference of WTO) round agreement of WTO had made provisions like Special and differential treatment for the developing nations and asks the developed nations to cut down subsidies in their agricultural productions, reduce tariff barriers, non tariff barriers (MFN in 2005 was a good initiative by WTO) eliminate quantitative restrictions and forgive loans for heavily indebted least developed countries to help developing countries to be benefitted from international trade. Though the minimum level of tariff barrier was less than 4% internationally but the tariff barrier remained high in case of agricultural products than others in the Post WTO regime. In spite of all these The DCs are seen mostly doing discouraging unequal treatment with developing nations like using technical barriers to trade (Standards, Nature friendly issues and SPS) , high complex non entry measures, high tariff & non Tariff measures, anti Dumping measures, surcharges etc for cheap national interests which directly hampers interests of the developing and Least developed nations and it also goes

against the international conventions and morals of the international trade. If all countries to gain from trade the developed nations should not create any hindrance for cheap national interest rather open their market for easy access for the developing nations and do concessional & special treatment to them while policy makers of the developing nations should take decision regarding liberalisation of trade with taking into consideration countries own national interest, employment and long term impact of new trade agreements on their domestic industries and economy as a whole. Economists like Roderick has explained in his paper on economic reform and trade that over openness and complete restrictions of trade are both may hamper trade intentions of Growth. He showed the examples of India, China and many south Asian nations example where he explained that these countries under strict institutional & administrative structures opened their economies and let the international market to enter gradually in to the country with outmost cautiousness and realised outstanding growth in the Post WTO era. So entering into liberalisation process of trade differs to country by country in terms of their structure, Economic conditions, Social & Political Situations so any country before opening up of their economies to liberalisation must look inward situations and plan a long term goal of reform with sincere consideration for social safety net and political stability.

2.4: Impact of WTO regime in the Post Liberalisation phase of Indian's International Trade:

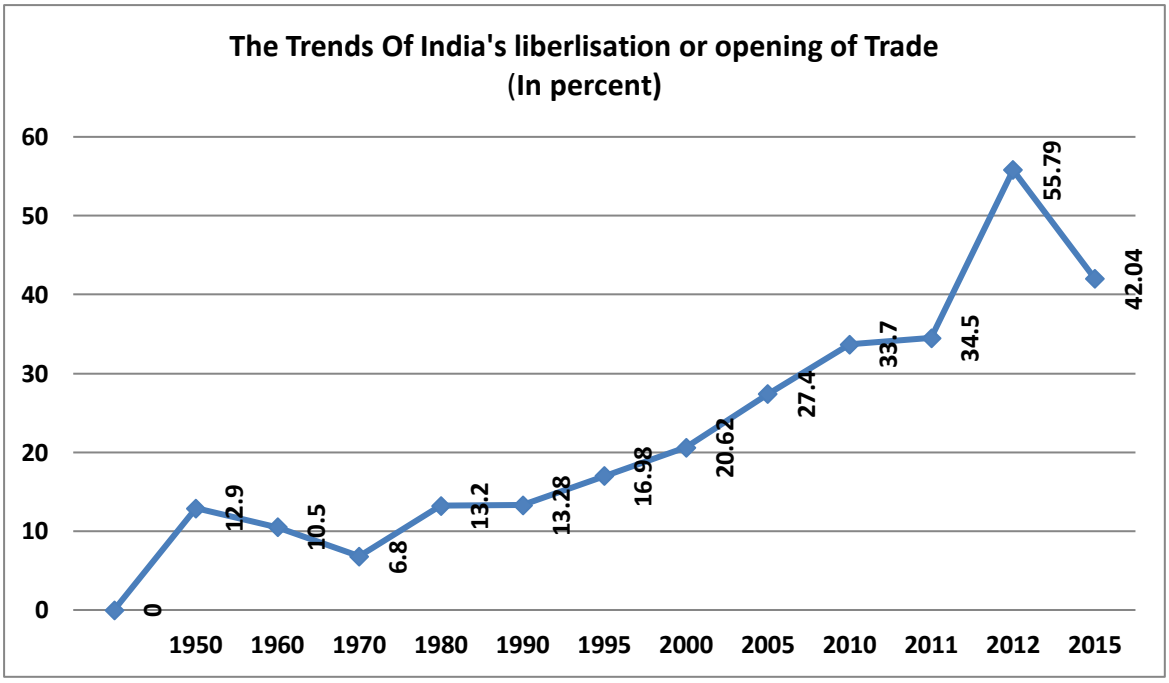
If we look back and see India's rich golden history of trade with the international communities from ancient time to modern time we will understand that India has been a supporter of free & fair international trade, where India won a world wide popularity & reputation for its export goods quality & richness. Before the starting of the transformation process of Indian foreign trade after independence India's rich and well versatile Industry & export capacity was almost destroyed by the British Rulers as during the British administration in India, they converted India a raw material and primary product supplier to Britain and to other European nations and importer of finished or manufactured industrialised goods from Britain. The ruined Indian Industrial sector was struggling after Independence and India was supplier of Primary product at that time but soon it realised that to be self reliant it has to take policies toward revolutionising its agriculture (green revolution in 1966) and set up of modern industries (second five year plan) for rapid economic development of the Country. For this, trade was necessary, essential & inevitable to the country and India remained a good participant in the International trade because it required technical knowhow and skills to be imported for setting up modern Industry, expand productive capacity and economies of scale in the Country. India's Composition of export changed over the years as the share of primary sector products declined in total export with increasing share of manufactured products, which shows India's transformation into industrialised nation from supplier of only agricultural products to the world. Initially after Independence India followed import substitution policy as a safeguard to domestic Industries and BOP problems but as soon as it started its economic liberalisation phase it changed its import substitution policy to open trade policy since 1991. India's export share of GDP has increased from approx 7% at the early 90's to about 17% at 2015-16. This transformation reflects India's emphasis on foreign trade through export promotions, opening economy for FDI, all source of import of capital goods & technical knowhow to the country along with rapid industrialisation, expanding demand of new & existing consumers and enjoying economies of scale (Moon 1999) as it enters into liberalised global trade. Liberalising and boosting trade and export not only increased country's GDP growth but also it increased employment opportunity in the country as more than 15 million people have got employment both directly & indirectly (as per the labour employment report) between 2000 & 2015.

Table2.2: Trend of Indian total Export Share of Indian GDP (In percentage)



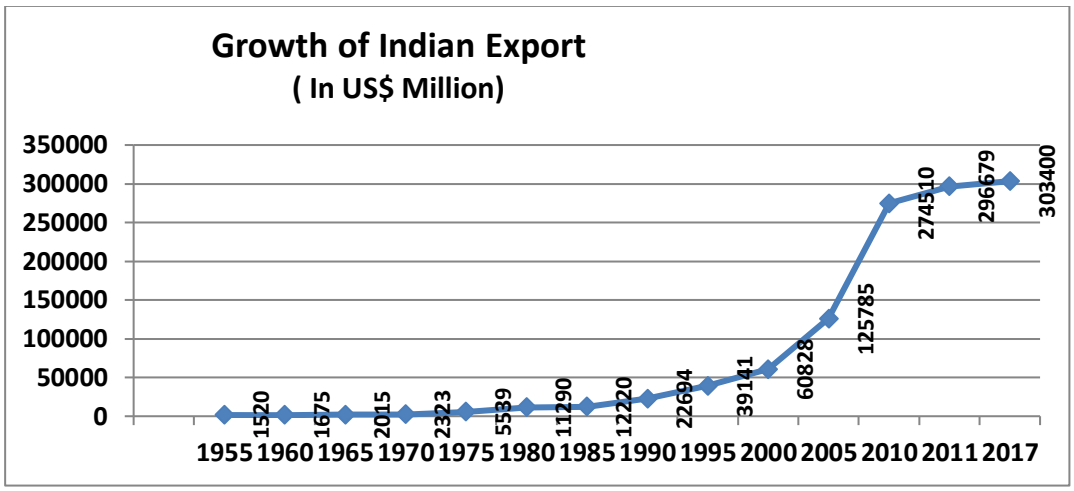
Source: RBI data on Indian Statistics & Economics

Figure2.3: the following Figures illustrates India's liberalisations of Trade and Increase of Export Volume since Independence



Source: TheGlobalEconomy.com

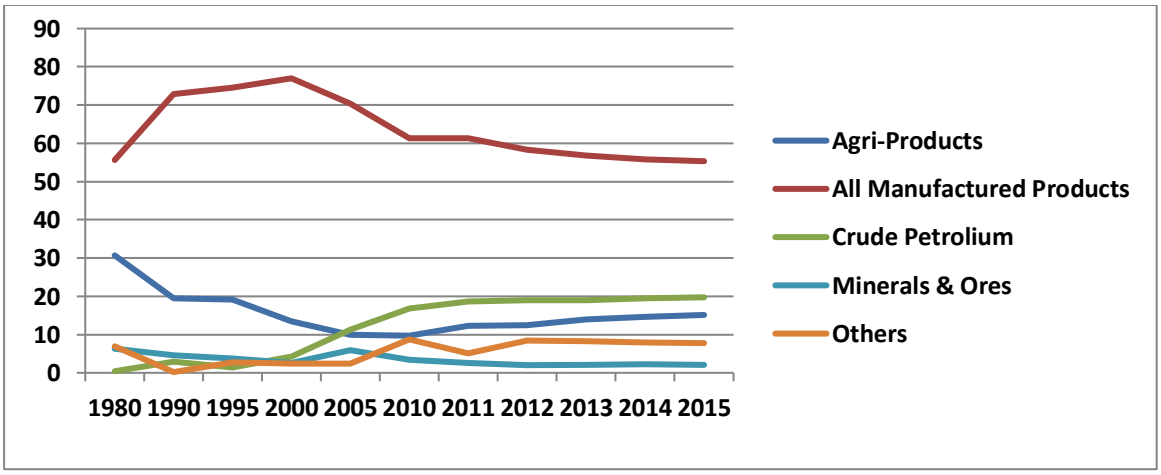
Figure 2.4: Growth of Indian Export during the Pre & Post WTO period (Estimated in US $ million)



Source: RBI, Statistics on Indian Economy & Wikipedia

The above figure shows how India's goods & services export have grown over the years after Independence particularly after the economic liberalisation period. As India is a large developing country, so not only export but its imports of foreign goods & services like , Consumer goods for domestic food & other requirements, capital goods for Industrialisation & infrastructure developments and financial services , IT , banking etc are also immensely important for growth & development of the Country. Since Independence India's balance of trade has mostly been in deficit as the requirements of Imports of Capital goods, defense equipments and consumer goods remained higher than its agri- based export which had fight immense competition word wide along with increasing domestic demand and protectionist measures of the DCs. But Indian Trade in services has been good since independence which shares about 3.6% of the world share of services but the share of goods are average after WTO period Export of goods was .5% before WTO now it is about 2% in 2015-16).

Figure 2.5: The year wise Change (In percentage) of Composition of Indian export during the Pre & Post WTO periods



Source: RBI, Statistics on Indian Economy

Since independence of India there is a substantial change is noticeable in the composition of Indian trade. The composition of Indian export is being shifted from agricultural & primary goods to modern engineering, IT based, and Electronic goods, Jems & Jewellery, Chemical Products and petroleum based products etc gradually but in case of Indian Imports Petroleum crude, and capital goods have been dominating it since independence and no noticeable diversification is found after the liberalisation phase also. These are the results of shifting or changing to a different phase of Indian Economy after 1980s which is called economic liberalisation phase. As per A. Virmani India started shifting to the second phase of new economic structure which is free market economy with massive structural adjustment programme from a institutionalised Indian version of socialist economic set up. This has been beneficial for Indian trade and economic growth as per Dr. Rangarajan but this happened with setting up new society with different value system called consumerism which was absent before it.

India's foreign trade before liberalisation had been inward looking, Import substituting and export promoting. But it was facing BOP problem along with low growth rate so in order to get rid off these issues it started liberalisation process slowly in the 80s then rapidly after 1991 and become founding member of WTO in 1995. India being member of Regional trading arrangements like SAFTA, ASEAN, SAARC, CECA, APTA, and Indo-Japan trade agreements etc, along with WTO membership has become integrated part with global economy and significant role player in the international trade. Since liberalisation and WTO Indian foreign trade has performed better and India has benefitted from as its economy has grown substantially with increase investments, in employment opportunities and solving BOP problem etc so it is seen that India's role in the last two decades has been very much positive & encouraging regarding following and implementing WTO rules so being an international authority and guardian to look after international trade WTO should play a strong role to establish and maintain free & fair multilateral world trade with implementation of DOHA (S&DT) mandate to developing countries.

2.5: The Impact of Uruguay Round Agreement on agricultural sector of Developing Countries [9]

The Commitments & promises of the Uruguay Round agreements made to the developing countries are seen to be not fulfilling and it has become a cause of concern to them. The ground in which the developing countries have grievances about the Post Uruguay Round is that,

(1) The Market Access : The Market Access of the Developed Countries is still remains an important issue for the Developing Countries, as they find that even after liberalisation of trade & agriculture they have not been benefitted to gain market access in Textile , Agriculture etc properly in the Developed countries. [6]

(2) The Domestic Subsidy Issue: In the Post liberalisation period of agriculture the developing countries are asked to liberalise their agricultural market and abide by the laws of new WTO regime by minimise the level of support to their domestic agricultural production, maintain international environmental & labour Standards where the developed countries are supporting & subsidising heavily their domestic agricultural production using Blue Box, Amber Box & Green Box subsidies.

(3) **Anti-Dumping Issue: The Developing countries are always subjected to risk of Anti dumping measures of their products to the Developed countries. They realised that after facing competition when they bring their domestic production to the international market the DCs uses this instrument to block their product to enter into the markets of them. Many Examples can be given when the EU & USA used antidumping measures against poorer nations.**

(4) **Environmental Standards: It is another issue of the Developing nations where they stuck and can't enter into the markets of DCs. As per the Uruguay Round all the countries have to follow & maintain the international Labour & environmental standards for production & export. This is one of the instruments used by the Developed nations to curtail the export of the developing nations to them.**

The developing & poor nations of the world are in a complete unequal position to compete with the technically efficient and well prepared Developed nations in agricultural trade. The developing countries do not have many instruments to safeguard domestic market from foreign competition of their agricultural sector other than the tariff measures and border measures. It is very important for them to develop & design new domestic fiscal policy measures to protect their agricultural sector and give safeguard to it.

2.6: Implications of DOHA Round Agreements of WTO on Agricultural Trade of Developing countries including India:

The Developing countries were not satisfied with the Seattle round negotiations and asking for another round of negotiation very soon to hear their voice and demand related to trade. As most of the developing countries are not homogeneous in character because not only some of them shares same demand like DCs as they sit together in G-20 nations but some of them are exporters of agricultural commodities and some are importer so opening their markets for goods from the Developed nations would let them fall in risk of market capturing by the supply of goods from the Developed countries. Though the Developing countries have the majority but they feel they have little say in placing their arguments related to their demand.

The Doha Round agreement and negotiations Under WTO took place in Doha, Qatar in 2001. The main agenda was to liberalise trade and give safe guards to domestic industries particularly the Agricultural sectors of the developing countries or LDCs on three areas, like **(1) Domestic Support, (2) Market Access and Export Subsidies.** We shall discuss the objective, success & failure of Doha round agreements and its overall implications on Developing Countries like India.

The Developing countries has to face huge subsidy support (both product specific and Non product specific green Box, Blue Box) from the Developed Countries in their agricultural good trade. Subsidies do lower the international prices of Agricultural products of Developing countries which makes them highly Competitive and in a comparatively advantageous situation than the developing countries. The amount of subsidies which lowers the international prices of commodities differs from country to country among developing countries depending upon the country is whether an exporter or Importer of that commodity. International agricultural trade protection related policy reforms depends on

domestic policy changes as an effect of change in world prices. As a result in change of protection the changed world price level can lead to gain or loss in world trade, but who will gain or loss from that can be understood properly from model based analysis which is essential to understand the relation between agricultural safeguards & Trade policy reform. When any kind of Import comes from a country where the level of protection is very high then the amount of tariff will become high on that commodities as compare to other commodity imports, when countries tend to reduce or eliminate such type of domestic protection or subsidies the consumers of the Developing country can be benefitted from it and the exporters also can minimise their losses as there will be less risk for them as the chance of falling of international prices will become very less. These are possible for the Developing countries as they have an only instrument called Tariff which can be used to retaliate any kind of international price fall due to domestic subsidies. A good amount of Developing countries opposed the already existing proposals of WTO regarding Agricultural trade reforms & liberalisation because they need to have economic & political incentives in doing so as they are quite aware about some practical instances of adverse effect of trade liberalisations , for example the Indian farmers along with many developing countries farmers became vulnerable of International price fluctuations and market segmentations due to heavy subsidies provided by the Developed Nations to their commodities which may lead to decrease in domestic production and employment. The Developed countries provides domestic support & subsidies to their commodities and farmers not only for increasing export or direct benefits for their exporters but also to take out all post reform gains from the liberalising Developing country's economy.

Table 2.2: Trends of average Bound Tariff and Applied Tariff in India in Agricultural Trading Commodities in the Post WTO regime.

Years	India's Bound Tariff on Agriculture	India's Applied Tariff rates
2005	115.2	38.2
2006	114.2	37.6
2008	114.2	34.4
2009	114.2	32.2
2010	113.1	31.8
2011	113.1	31.8
2012	113.1	31.4
2013	113.1	31.4
2014	112.2	30.8

Source: WTO World Trade Data (tariff Profile) 2006-2014.[7]

Table 2.3: The Trend of anti-dumping measures taken by the US, EU & India during the Pre & Post WTO era.

Year Wise Pre & Post Period	Anti-Dumping Measures by India	Anti –dumping Measures by the US	Anti-Dumping Measures by the EU
From 1992- 1997	55	213	205
1998	28	36	22
1999	64	47	65
2000	41	47	32

2001	**78**	**75**	**28**
2002	**81**	**35**	**20**
2003	**46**	**37**	**07**
2004	**21**	**26**	**30**
2005	**28**	**12**	**25**
2006	**35**	**08**	**35**
2007	**47**	**28**	**09**
2008	**55**	**16**	**19**
2009	**31**	**22**	**20**
2010	**41**	**26**	**28**

Source: The WTO [7]

2.7: An Overview of Trade Negotiations under WTO:

The Institutional reform of WTO was an important issue as many complaints were coming from Developing Countries and Political Representatives of many Developed countries that WTO should be more transparent and inclusive in nature to maintain the accountability of its commitments to the diverse membership. The demand from the Developing countries was decision making process of WTO should be more inclusive and the WTO should treat the Developing countries equally as it do it with the Developed countries for better participation of the former in its decision making process. The WTO realised this after the Seattle & Cancun Rounds of conferences and it responded quickly to it by opening many of its documents to the world and at the same time started workshops & training program for the representatives of the Developing countries so that they could understand the working procedure of WTO Properly and participate in it.

2.8: The Special & Differential Treatment agenda & the Doha Round:

The developing and poorer countries comprise around 43 % of agricultural export to the world market and most of them are fully dependant on agriculture as it is the key source to their GDP. In most of them around 60% work force are engaged in agricultural sector so agricultural trade liberalisation may lead to immense effect on socio economic structure of these countries. Millions of farmers are subjected at risk due to international price fluctuations as heavily subsidised commercial agricultural sector of the Industrialised developed nations can cease the competence of the commodities exported from developing countries. So in order to give safe guard to the farmers, Commodities from price fluctuations, giving market access to developed nations are necessary to accomplished to maintain free & fair multilateral world trading system of Uruguay round agreement. So the demand of the situation as well as from the developing countries needs to be met. In doing so the **WTO Doha Round Agreements took place in Doha, Qatar in 2001, where the provision of Special & Differential Treatment (S&DT)** [12] options was placed before the WTO for developing countries. In this provision the issue of market access has been dealt with and the market access has been provided to the developing nations and issue of domestic safe guard or support was also made along with issues of farmer security was also taken into account. The practical & visible implementation of these S&DT policies are the EU & the USA's (the African Growth and Opportunities Act of US & Everything But Arms Agreements of EU) measure to completely open up their markets for Agricultural products from 48 least developed countries of Africa, Asia & Latin America where good governance & Ban on Arms supply were the only conditions from USA and EU. In this S& DT policy

another policy is tabled for implementation named 'A round for Free" policy where the least developed countries are to b exempted from[11] lowering their tariff and completely open up their market and fulfil completely the WTO obligations secondly the tariff and other restrictions should be made easy and much more flexible with lots of tariff concessions for the these LDCs to reach out get access to the markets of the developed countries, other than these new international deal on trade will be of no use. The developing countries are to liberalise their markets in order to get these benefits but the issue of **food Security** concerns are taken into account that is why there will be special provision for LDCs for border regulations and protection of the farmers of their countries, reduction in trade barriers and there shall be sufficient amount of financial support from DCs and international organisations like world bank & IMF for them to comply with new world order of trade. **The S&DT provides good reductions in tariff barriers to developed country's markets , helps to maintain good amount of tariff level and border measures for their products, Domestic Support in many kinds , the smaller reductions of de minimis level and longer time period to protect and implement policies of Uruguay round agreements.**

The Special & Differential treatment and what type of S&DT to be undertaken by WTO is essential & much need & awaited policies to be discussed and implemented in Doha round agreement and along with the provision of new inclusion of Countries (including newly born & transitional countries) into the WTO as developing countries and the parameters of judging countries as developing, Under Developed, Least developed or Poor.

2.9: The Outcomes of Doha Round Agreement & Negotiations:

After the failure of Cancun ministerial conference , a new round of talk was necessary on Doha round agenda which not only includes agricultural sector but also service sector along with Trade related aspects of Intellectual property rights as many developing countries opposed the new IPR regime of WTO under TRIPS was unacceptable to them as many issues generated in its implementations related to Patents, GI, Farmer rights to Save & procure traditional seeds, TBT & SPS measures in it along with Special & Differential treatments for the developing countries to implement.[8] There is five possible outcomes of Doha Round negotiations would be like,

(1) There lies win-win situation for both developing & developed countries to engage into positive fruitful negotiations on trade and particularly on Agricultural trade where after the realisation of Cancun round the Developed countries will open up their markets to give access to the developing countries, provide space to the LDCs to give protection to their domestic agricultural sector & farmers rights, reconsider many issues related to TRIPS, Farmers Rights, SPS standards, Stronger Food Security etc. In return the developing countries have to open up their markets for the Developed countries, in this way the developed countries will get market access for their manufactured products and developing countries will get market for their primary product, for example the free movement of textiles product throughout all the countries after textiles act proves this.

(2) There should be a balanced and fair negotiations regarding lowering import tariffs between Developed & developing nations or between Importing and exporting nations. as the Uruguay round agreements lies on principle of liberalisation and lowering down the import tariff and non tariff barriers to a minimum level so countries should sit for negotiations on trade in agriculture & other sectors, though

the high level of fluctuations and volatility of international new price regime instigate countries to maintain proper safe guards or safety measures for their domestic productions and supports along with the Importing countries fear of these price changes internationally makes them compelled to look inward and concentrate in protectionism. So the first move should come from the already big market player developed nations to lower their tariff level along with cutting down or minimise the domestic subsidies and then negotiate with the developing countries on trade liberalisation and opening of their markets with the already acceptance of standardised domestic support of these developing countries to their agriculture. The current behaviours in this direction by the European union by becoming more flexible and compromising on agricultural Imports from developing nations raises the hope for probable success of this Doha Round negotiations on agriculture and future negotiations on many issues related to it.

(3) The third possible out come from Doha negotiations is that reform on many Agricultural commodity trade which were kept out of other commodities discussed under the Uruguay Round agreement. The lowering down or giving zero subsidy to many agricultural commodities were on the agenda of WTO in this round. For Example Export and import of Commodities like Oil seeds Barley and some cereals should be made free out of any export subsidy and commodities like Diary Products and sugar should be brought under trade negotiation table where many countries would oppose to this like **Australia, New Zealand** and **Brazil** who give large amount of export and production subsidies to these products and it is an integral part of their state policy but what matters here is that what the **G20, EU and the US** take stand on this. Some developing country members of WTO creates complications by taking stand differently and with the DCs as some of them individually gets preferential access to the markets of the Developed countries.

(4) Cutting down Quotas, reducing tariff barriers, reducing domestic subsidies to farmers or border prices, Potential trade diversions, Increased market access all these are well interconnected and there should be good balance & harmony using these instruments by the developing and the Developed countries. The market access, Export Subsidy & Domestic support all these are interlinked to each other and should be considered them as a single unit to make decisions on trade. The domestically formulated mechanism regarding support of subsidy to face international price fluctuations should be made in a way not to distort international trade laws and impact on imports.

Table 2.4: the benefits or gains achieved in Doha round Both Trade Gain & Gain from partial trade liberalisation and percentage loss in TOT.

Doha's Hidden Price Tag, Doha Benefits (US$ Billions)			Assessing the Gains from Doha, Welfare Gains from Partial Trade Liberalization, Two Models (billion of 2001 US dollars)
Countries	**World Bank Report**	**Terms of Trade Loss in Percentage**	**World bank Report on Doha Round on Agriculture**
Developed countries	**79.9**	**-0.12**	**18.1**
Developing Countries	**16.1**	**-0.74**	**-0.4**
Middle East & Africa	**-0.6**	**-1.32**	**_**
Sub Saharan Africa	**0.4**	**-0.83**	**-0.3**
Latin America	**7.9**	**-1.12**	**_**
India	**2.2**	**-1.62**	**0.2**
Brazil	**3.6**	**-0.18**	**1.1**
Mexico	**-0.9**	**-0.48**	**_**
Bangladesh	**-0.1**	**-0.58**	**0.0**

Source: Book: Anderson and Martin (2005), Agricultural trade reform and the Doha development agenda [(1),] Table12.14; scenario 7 & Polaski, Sandra (2006), Winners and losers [2]: Impact of the Doha round on developing countries, Carnegie Endowment, Table .4 & Figures 3.1, 3.3

India along with Brazil and many other Developing Countries accepted and appreciated much of the Doha negotiations and promised to work with the Developed nations on most of ground other than **OTDS (Overall Trade Distorting Domestic Support), Significant & effective trade distorting domestic support, and market access** to some sensitive products. As per India led developing countries argument, they will move on reforming Non Agricultural Market Access **(NAMA)** and open it for the developed world only after the EU and US move on reducing domestic support or subsidies to their agricultural products, as India has realised that with these moves there is no meaning left in negotiating and liberalising (through cutting down tariff rates on Imports) its domestic market of manufactured product & services for the Developed world.[4] The EU has move to reduce domestic support & agricultural subsidies to a certain extent and it wants reciprocal reduction of tariff and non tariff barriers on manufacturing sector and NAMA reform from India and other developing nations. India wanted in Doha round that all kind of Subsidies like Blue box, Green Box & Amber Box must be reduced or eliminated to certain minimum level and Overall Trade distorting Subsidies should also be reduced to minimum level in order to fulfil Uruguay Round Agreements in reality. India is working on Economic reform process since 1991 and many initiatives have been taken by India in this Ground

Like **the Service Sector reform in Insurance & telecom sector and Retail trade reform** along with reform in FDI but resistance from domestic political movements against reform & foreign enterprises to stop reform creates hurdles in liberalising the Economy. So India has to work very sensitively on these issues not only external issues but also internal issues as well. The implications of Uruguay round agreements on the agricultural support policies of the Developing Countries.[10]

Export Subsidies: The Developing countries are to Curtail export subsidies both external and internal as they mostly provide export subsidies in transport to their agricultural products which they need to reduce in order to implement Uruguay round negotiations.

Domestic Support Measures: The amount of domestic support given to agricultural sector by the developing countries is mostly unknown to WTO other than of only 20% of the developing countries among them very few are there with de minimis level of domestic support are known to WTO. The main demand from the developing countries about domestic support is that they should be freedom to maintain minimum level of support on product specific and non product specific subsidies for their agricultural sector, where there should be a minimum provision of 10% subsidies on agricultural commodities and there should be sharp curtailment in subsidies on the products exports from OECD countries. The amount of subsidies given to certain sensitive areas by the developed countries are like non negotiable and non flexible can lead to serious trade distortions that is why the area of this support by OECD countries to their domestic agricultural products is the key concern for developing countries.

Market Access: The Ongoing Doha round negotiations are concerned with the Bound tariffs which the developing countries uses mostly to give safeguard to their agricultural markets from external shocks of price fluctuations,. These may be done by slow reduction of bound tariff with giving protection to the basic food commodities (by treating them as exempted category) and special & differential treatment to developing countries or LDCs which is an integral part of the Process. Developing countries are given independence in border prices when the process of reduction in bound tariff will be on process and it is better for them to keep higher level of bound tariff than applied tariff level so that it can work as safeguard measure when the international import prices fluctuates.

The international price volatility is dangerous for liberalised open economies of the developing countries as they are much more vulnerable to market failure than the well organised efficient markets of the developed countries and along with this Poor trade infrastructure, the lack of financial and institutional infrastructure , Subsistence farmers and danger of domestic support by the developed countries which may lead to fall in international price of agricultural commodities. This is why they don't feel encouraged for implementation and negotiation on Doha round agreements. After the Doha round many economists who does not like higher bound tariff rates indicates that higher Bound rates are trade distorting and can create trade hindrance, so must be minimised or if possible should be eliminated for better performance in the global competitive trade. The special safe guard and support mechanism was developed in the Doha Round to give price support in the time of Price fluctuations or international trade shocks and this instrument also suggests low border tariffs on Goods & services. The Doha Round agreements emphasises Special & Differential treatment for the Developing Countries for managing export prices using low tariff rates and domestic support to the developing countries for free & fairer trade negotiations.

When the world prices becomes very low the Developing countries are free to use domestic trade safeguard measures (This tariff support to domestic economy ranges from 30% to 100 % for most of the commodities) in trade to save economy from cheap imports of Agricultural commodities

particularly in the time when international price is decreased maximum. In this situations the developing countries may add additional tariff on imports along with already imposed bound tariff to give safeguard to domestic agricultural sector. Tariff rationalisation can be done in many ways , If the developing countries are given freedom to chose the tariff rates then definitely the bound tariff level would be quite less which will help free & fair trade to take place and both the Developed & Developing countries will derive benefits from this. In the 1990s (after the WTO & AOA came into existence) and early 2000 though there is sharp continuous increase in agricultural export and trade volume but in the world but the developing countries could not able to reap gain from it because of large trade deficit is observable due increased imports of food stuffs from developed countries and they were not in the position to offset this situation by means of non-agricultural exports because of the large volume of trade deficits.

2.10: Conclusion:

If we notice the Doha Round of negotiations we will understand that there was an out most effort made to continue the legacy of the Uruguay Round of Trade agreements but the negotiators face difficulties to keep the talks and negotiations on board. After the Failed effort on Cancun in 2003 another effort was made on 2004 which showed some positive lights in this matter and this continued to the **Hong Kong** round in 2005 (most part of this negotiation was covered by agricultural issues) which was dissemination of the knowledge about the importance of Agricultural trade negotiations. For keeping the Doha Negotiations alive and discussion for fruitful free & fair trade the both the Developing & Developed countries should understand the differences regarding needs, benefits, Compulsions and obligations of each other. The developed countries should understand that renegotiation on agriculture needs market access of the developing countries along with reduction of export subsidies by them. Developing nations are quite interested with their different interest on agriculture from the DCs so in order to make fruitful outcomes from Doha Negotiations both the Developed and Developing Countries should work together in a more balanced, Sensitive & harmonised way to understand & implement Trade negotiation policies for better future of International trade and Economic Development.

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Chapter – Three

Impact of WTO and AOA on India's Agriculture

Introduction

- **The aspects of Agreement on Agriculture (AOA) under WTO**
- **Impact of the AOA under the WTO Regime on Indian Agricultural Commodities**
- **Various Trade Negotiations under WTO and India's role on them.**
- **The DOHA mandate on Agricultural Trade**
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Chapter Three

Impact of WTO and AOA on India's Agriculture

Introduction:

It is observed throughout the World that Agriculture plays a very important role in Trade, Country's GDP, welfare, Livelihood of people & Food security and overall development for the Developed and Developing nations particularly for countries like India. But as the developing nations are more dependent on agriculture for their economic Growth than developed nations therefore any volatility in Agricultural sector in the World has implications on the overall economies of these nations. It was expected before the WTO came into existence that the developing nations would be benefitted in the growth of agricultural Trade and GDP after signing in the multilateral organisation like **GATT/WTO** because most of them have comparative advantages in producing agricultural goods so, as the economies of the DC's open up for huge import from developing nations their overall economy would get a boost. But the Post WTO regime's reality was not according to the expectations. The reasons are (1) As directed Under **AOA (Agreement On Agriculture)** reduction of export subsidies in agriculture is advised so it is not the Subsidies which was wholly responsible for reductions of agricultural exports to the DCs from the developing nations but the **NTMs** (Non Tariff measures), various Anti dumping and market access barriers created by the DCs. As under the WTO regime the member countries are subject to huge competition in the international export market, where the DCs are equipped with full potential in the international agri-trade market with subsidies and barriers, most of the developing countries (including India) are in a difficult position, as the developing nations with overburdened population, less commercialised agricultural sector and weak Infrastructure are left with less opportunities but enormous challenges to face. In case of India it experienced a slowdown in the growth of agricultural export just after the WTO regime as the world agricultural commodity prices started falling in this period but it was not expected as India expected during the Uruguay round agreement under the GATT that it would have the comparative advantage in agri-export (as the domestic prices of agricultural commodities was less than the international prices) at that time and as the gain from trade depends upon the export competitiveness , India's export competitiveness was not according to the expectations in the post WTO regime as its domestic prices of agricultural commodities was struggling with the falling international prices as the world agricultural trade is getting distorted along with the **TOT (Terms of Trade**) because the Governments of developed nations are providing huge Subsidies and other agricultural support systems to their farmers and products to fight in the international market while the developing nations were lagging behind with less support and subsidies from the less resourced Governments, improper infrastructure & technical skills and finance therefore the term self-sufficiency in agriculture is still difficult to reach for many developing countries. These are some of the main reasons for unequal competition and market share in the world among the developed and developing nations.

3.1: The aspects of Agreement on Agriculture (AOA) under WTO

The Agreement on agriculture **(AOA)** which was formed in Uruguay round agreements in Marrakesh in Morocco in 1994 was effective from and with the inception of WTO in 1995 is a binding contract

for multilateral free and fair liberalised agricultural trade and is one of the big pillars of WTO. The AOA is standing on three major pillars named **Market access, Domestic support measures and Export subsidies**. The domestic subsidies provided by the countries distorts international trade that is why the framed rules to cut down agricultural Subsidies among all nations is a just and fair manner of trade (where developed nations would cut down subsidies by **36%** in **6** years and developing countries would cut down subsidies by **24%** in **10** years and no cut of subsidies for the least developed nations). The **AMS (Aggregate Support Measures)** provision under the AOA says that a country can give support to its agricultural productions and export on the basis that the AMS should not cross the **5%** limit for DCs and **10%** limit for the developing countries where if the minimum level is exceeded by any nation then the country has to cut down domestic supports to agriculture (**20**% for the DCs in **6** years & **13.3**% for the developing nations in **10** years). The volume and value of export subsidies should be cut down by the DCs by 36% and 24% within six years and by developing nations by 24% and 14% within 10 years.

3.2: Impact of the WTO Regime on Indian Agricultural Commodities

Most of the countries realized that institutional framework to regularise international trade like WTO was much needed when they were liberalizing their trade that is why the formation of the WTO was a significant milestone in the history of international trade.

Different wings of WTO In Part of Agricultural Trade

- **Agreement on Agriculture(AOA)**
- **Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)**
- **Agreement on Trade Related Investment Measures(TRIMS)**
- **Agreement on Textiles and Clothing(ATC)**
- **Agreement on the application of sanitary and Phytosanitary measures(SPS)**
- **Agreement on Technical Barriers to Trade**
- **Agreement on Geographical Indication Act.**
- **Agreement on UN Convention on Bio-Diversity (CBD).**

Out of these agreements **AOA** perhaps the most important international agreement under **WTO** regime.

Agreement on Agriculture: The AOA is based on,

- **Market access**
- **Domestic Support Mechanism**
- **Export Subsidies**

The WTO Agreement on Agriculture (AOA) which has been affected since January 1995 was a multilateral trade negotiation arrangement and one of a major part of the Uruguay Round Agreement in 1994 (The Uruguay Round had been carrying since 1986 to 1994). Several contents of AOA have been discussed, verified and rectified throughout trade negotiations under different ministerial conferences of WTO from Uruguay round agreement to formation of WTO and so on. The principle contentions of AOA was to bring down Domestic subsidies provided by the countries to their agricultural trade, Export and farmers, **Eliminations of Quantitative restrictions and reduction**

of various Tariff & Non Tariff Barriers over time of all member countries of WTO where it had given special extension of time period for the developing countries including India as these countries suffer from inadequate infrastructural & institutional base for immediate reform in agricultural trade.

As per the rules of AOA and WTO Developing countries like India has agreed to maintain maximum amount of domestic Subsidies under 10% on Total domestic Production and don't want to bring it to zero level, at the same time India has agreed to eliminate all kind of QRs, Import /export license system, removing various other barriers to trade like Tariff & quotas, Non-tariff barriers like anti-Dumping measures etc. India had practically implemented all these within the given time period of 10 years by the WTO for developing countries. After removal import restrictions on 131 items at the initial period India was ready to remove restrictions and import tariff on many all other Items and for that it proposed to the WTO for Negotiation for Market Access, Domestic Support along with food security and export Subsidy for all nations particularly for the developing ones.

The Uruguay Round agreement of GATT (1986-1994) ended with formation of WTO (1st January 1995) which was the only international institution to endorse, maintain & ensure free & fair multilateral global trade among all nations. We have already mentioned that the AOA which is the content of WTO emerged after the Uruguay round of agricultural trade negotiations based on three major pillars, these are,

Market Access: Market Access can be broadly classified into three characteristics. Like

(a) **Conversion of all non-tariff import restrictions into Tariffs.**
(b) **All agricultural tariffs are required to be bound.**
(c) **After binding the Tariff it is gradually reduced over a period of several years.**

Market access enables countries to liberalise and expand international trade. It means to what extent a country or a group of countries under economic union is ready to open its market for the foreign countries to access domestic market and consumers. It is an important and integral part of world trade commitment of WTO in order to regularise trade, removing tariff & nontariff barriers to help and develop international trade that how much a country is ready to open its own market to reach by the foreign exporters or global countries, in order to regularize the trade by reducing or removing tariff and non-tariff barriers between nations to facilitate smooth & fair trade. The Developed & Developing nations are agreed to reduce Non tariff & tariff barriers, quotas, quantitative restrictions in order to facilitate trade. India has also joined hand in this global program and it has reduced tariff and eliminated QRs, & license system of import & export other than maintaining a minimum level as per the WTO norms. The WTO has asked to reduce import tariff by 36% for DCs within 6 years and 24% for LDCs within 10 years respectively.

Domestic Support: The **Domestic support which** is differentiated by the WTO in three different categories (1**) green Box, (2) Blue Box, (3) Amber Box subsidies**, is different from domestic subsidy system of annual subsidy or financial help to the farmers, agricultural producers, trader, exporters etc by the government either in specific agricultural area or in agricultural marketing or infrastructural development etc

- **Amber box subsidies or Direct Support:** In case of Amber Box subsidies which are direct subsidies or product specific subsidies are highly **domestic production stimulating & trade distorting in nature** and prohibited by the WTO by saying that the Developed countries are to reduce these type of

subsidies within 6 years by at least 20% and the developing countries are asked to reduce 13% of AMS linked to direct subsidies within 10 years of time limit.

Green & Blue Box subsidies or Indirect Support: The indirect supports to domestic trade through Green & Blue Box Subsidies are not trade distorting mostly (though the Developed countries are found misusing of these subsidies) rather they are used in international trade to boost exports. The Green box subsidies are given by the Govt. on R & D on agriculture, Disease Control, Food Securities and building agricultural infrastructures to the Universities of agricultural development and many other Institutions, on the other hand Blue Box subsidies are given to the producer & farmers for limiting their production for environmental causes and agricultural development by the Government. India has a good track record of not violating domestic support regulations framed by WTO since the Uruguay round agreement as it only came to support its farmers on market price but not in product specific support.

- **Export Subsidies:** It has been found that **Export subsidies** by National's government are mostly **Trade distorting** , creating inequalities in competition of Export/import, reasons for farmers Distresses among developing countries and hindrance to sustainable development of free & fair multilateral trading system. So according to WTO it must be eliminated completely or should be reduced substantially to a very low amount. The amount also has been fixed by the WTO itself which is 36% for developed countries within 5 years and 24% for developing countries over 10 years based on the 1986-90 base period.

3.3: Various Trade Negotiations under WTO and India's role on them.

(a)The market Access: Market Access is one of the most crucial and obligatory proposal emerged in Uruguay round negotiation between member countries. The WTO proposed in this content that at least 3% access of domestic market is under binding treaty which is called **MCA (minimum compulsory access)** which will no way disturb domestic agricultural production, will not influence on the Governments of the countries to cut down domestic subsidies or farmers to stop sharing or preserving Seeds, rather it will help countries to conduct R & D on national agricultural sectors overall development. India being a committed country to international free & fair trade agreed to the MCA clause of WTO.

(b)Domestic Subsidy Reduction: The AOA norms suggest gradual reduction of domestic subsidies to the agricultural sector including farmers within 10 years of time bound for developing countries. But Indian agriculture not only suffers from domestic infrastructural & Institutional bottleneck but at the same time as its agricultural sector is not mainly commercialised in character rather mostly subsistence type that is why it is not very much encouraging for India to accept AOA norms which better fit with the agricultural structure which is commercialised in nature. That is why India has been negotiating on domestic farm support & subsidies to the farmers with the WTO.

(c) Boosting Domestic Agricultural Output: From the previous experiences of international fluctuations & volatility of price and its implications on domestic economy & people India has decided to increase its domestic production to a high limit and make itself ready for highly competitive price regime and less dependency on foreign supply of agricultural produces. For this India proposed domestic support clause to the Doha Round summit & maintaining De minimis level which was later approved by WTO.

(d)Revamping Indian Agricultural Exports: India wants to revamp its export in this liberalised trading environment and thereby boosting its economy. As after reduction of domestic subsidies the demand for agricultural produces like Rice, Spices, Pulses, Cotton etc from Developed countries like Japan, South Korea, USA, EU would rise from India as India has comparative advantage in producing these commoditisers at cheaper price domestically. That is why India has proposed for easy market access to these countries at the same time it has given assurance to maintain International safety and standard like SPS measures at home producing & delivering these commodities and more others.

(e)New Patent law under AOA and India: One of the main content of AOA is new IPR (intellectual property regime) called TRIPS which enables new Patent policy of patenting new inventions in agricultural, Biotechnological, and seeds sector and for that the Govt. of India has to reform all its existing rules related to these things. The new patent regimes ensure whole & sole control on seeds by the patent owner. But the Nature of Indian agricultural system is traditional & Government of India is the owner of R & D related thing on Biotech research since Independence and committed to deliver & transfer of new invention to the communities without any conditions but this new patent act by the WTO might endangered the above said provision that is why Govt. of India wanted negotiations with the WTO for farmers Rights on seed and food security related Issues.

(f) WTO has widened the right to Use Seeds: The seeds acts provisions under the TRIPS were frightening for Indian poor farmers and many other parts of the world's developing countries farmers, as it said there will be no provision for saving, exchanging and improving by anyone other than the patent owner of the variety of seed, but later on WTO assured countries that the farmers have all traditional rights on exchanging seeds and varieties of it as this clause was taken back by WTO for renegotiation on this for the sake of poorer communities of the world.

(g)Public Distributive measures & AOA : Many developing countries including India has opposed contents of AOA which suggests complete eliminations of subsidies but the WTO clarified its statements by saying that the social security issue of any individual country is completely its national priority and AOA & WTO will not intervene in these domestic arrangements and at the same time countries can give protections in social securities to its farmers, poorer communities and citizens through PDS (public distribution system for).

(h)The reduction of subsidies under WTO and India: India since Independence is maintain low domestic farm support but the clauses of WTO & AOA to cut down domestic subsidies on every aspects of agricultural sector have spread fear & anxiety among Indian farmers for loosing fertiliser & electric subsidies as most of the cultivators are subsistence type and indebted by birth so if the Government removes its hand completely from agricultural support they will no longer able to compete and continue agricultural process in this new global order. That is why agriculturists of India resisted this bill and asked the Government to refuse to the WTO to implement it In India as this will enable MNCs to control inputs prices and only rich farmers will survive in this regime.

3.4: The DOHA mandate on Agricultural Trade

In Doha (Qatar) the fourth and one of the most important ministerial conference of WTO was held from 9th November to 14th Nov. 2001 and the discussion on this round is active till date. The Doha round agreement was a good reform from the perspective of agricultural trade because unlike the

Uruguay round this round accepted the different position of the developing countries in agricultural trade by accepting the anti subsidy appeal for the developed nations from them, by reforming the Non Obligatory concession, allowing **Special & differential treatment (S & DT)** for poor and developing nations and by adopting declaration regarding the implementations of WTO policies in developing countries in Agriculture, Competitive market and other trade & investment related fields. This declaration emphasised on proper implementation of already declared agreements of WTO like **GI (Geographical Indications), TBT (Technical Barriers to Trade), TRIPS, TRIMS etc.**

3.5: Implications of WTO framed international Agricultural Trade Policies under AOA on India

The government of India initiated the economic reform process by adopting several measures from 1995 onwards after signing in WTO and accepting AOA rules. The main concern of the Govt. was liberalising economy to grow GDP and sectoral diversification, growth of export of Agricultural trading commodities and substituting Imports (using Tariff Barriers) and at the same time Food security & self sufficiency**.** The Indian agricultural sector is much diversified and self reliant as around 17% (2015-16) of India's total GDP generates from agricultural sector. India's total agricultural production was 280 million tonnes in 2015-16 as compare to 52 million tonnes in 1950-51. It is the result of Green revolution and constant supply of public Investment in developing agricultural infrastructure in the country. Then also with ever growing huge burden of population (1320 million in recent published data) and increasing demand for job & foodstuff both India needs a vibrant agricultural sector with high growth rate in Agricultural export share in world trade. Though India has a good potential in agricultural trade then also as Indian agricultural trade exhibits fluctuations which is more than any other trade. India needs to take care of it. Though enormous competition has emerged during the last decades among the countries of the world in agricultural trade, the WTO has tried to develop & provide several measures for fairly competitive environment for fair trade where there are fewer barriers & restrictions but more openness and accessibility toward other countries markets. Though there is violations of WTO framed regulations by many developed countries for their favor, there are still enormous possibilities for agricultural trade to develop. Agriculture was included under WTO through AOA negotiation in 1995. Today around **17%** of India's **GDP (**India's GDP is US $ 2.848 trillion) is from agricultural sector and **12%** of its **total export** earning which is substantial amount to have a huge impact on nation's economy if any change occurs in the world economy. 55% of total employment comes from agricultural sector. About 70% people directly or indirectly depends on it and about 43% of India's total land is covered by agricultural sector. India became self sufficient in Food grain production decades after independence. It is now producing around 280 million metric tons of food grains in the world and ranks first in many major agricultural food crops in the world. But after liberalization phase started in the world with **WTO(** 1st Jan 1995) and **AOA** many thing has dramatically changed in agricultural sector of India, for example, **Total yield or Output, Farm Pattern, Agricultural Infrastructure, Annual Compound Growth rate in Production & Export, Imports, Prices of major agricultural food and non food materials, Export Competitiveness, quantitative restrictions, tariff & non tariff barriers , export subsidy, domestic support, sanitary & Phyto sanitary measures, Geographical Indication, Trade related intellectual property rights** etc. WTO which has replaced GATT (general agreement on trade & tariff 1948-1994) was established for multilateral trade agreements among nations is committed to Free trade, Non discriminations in trade, Removal of Quantitative Restrictions, non tariff barriers between nations and free & fair competitions in trade among nations. During the 90's the Govt. of India removed Quantitative Restrictions in Imports and replaced it with new tariff system to embrace trade

liberalisation and in doing so the GOI started OGL (Open general Licence) system for trading of most of the Agri-commodities and reduced state stake for only few essential commodities (canalisation and distribution through state) like Rice , Wheat etc. One of the big logic for India's trade liberalisation policies and joining WTO was that after the reduction in subsidies by the developed nations the domestic prices of agricultural commodities in India will become less to international prices so the export demand for those will rise up.

If we summarise the agricultural trade policies in India since liberalisation, there has been several policies has been implemented since 1990s. For Instance trade policy 1992-97 (Import-Export policy declared on 31st March 1992) which had emphasised on Agri-trade liberalisation, then Import-Export policy 1997-2002 Came into existence which emphasised marketing ,expansion, commercialisation & Globalisation of Indian agricultural trade. To implement this policy the Govt. of India took many initiatives like removal of QRs (quantitative restrictions) on trade, reduction & elimination of certain controls & restrictions, tariffs & quotas on many imports etc. Then Export-Import policy 2004-2009 Came which gave outmost importance in Growth & development of Indian agriculture, this policy was leaning toward Inclusive & sustainable growth and development (Chand and Bajar 2012). Most of the major Indian agricultural export commodities like Rice, tea, Coffee, Wheat, soybean, Rape seed, Sugar, Cotton, Meat & poultry products, Ground nut etc have been made free completely in trade policy 2004-2009 to export. There remains no restrictions in importing & exporting these commodities other than for some special cases like, wheat, Maize, Egg etc for some time but ultimately after 2011 these restrictions also lifted by the Govt. of India.

The impact of trade liberalisation was different in pre & Post WTO era. The growth rate of Production of most of the Indian major agricultural Commodities decelerated in the Post WTO era other than some commodities like Cotton & Coarse Cereals as compare to Pre WTO era and at the same time the agricultural GDP growth rate also declined to **3.16**% in post WTO era as compare to **4.10**% in the Pre WTO era. One of the main causes of this was **lack of both private & public investments in Indian agricultural sector since 1990s**. The **TOT (terms of trade)** and changing relative price levels (international & domestic) also did not act according to the expectations. In spite of many initiatives taken by the Govt. of India in the field of liberalisation and reform of agricultural sector, it became quite incapable to attract or induce massive investment in the agricultural sector of India, which was quite expected & needed. The share of Indian agricultural sector to Indian GDP and Gross capital Formation also declined during the Post WTO period than the Pre WTO period as compare to other sector (Gulati 2009, Bhalla 2012). Some Studies done by researchers have revealed that other than the international and domestic price factor some very important non price factors are responsible for the deceleration of agricultural Growth during the Post WTO period. These can be concluded like (1) **Substantial amount of decrease in Public Investment in Agriculture (reduction in Subsidies in fertilisers, electricity, PDS, Irrigation, Soil Conservation, Rural infrastructure development, Agri-Credit expansion, Seed saving and support etc) (2) Inefficiency and Slowing down with slowing growth rate of Public investments in agricultural sector (3) small or fragmented farm size with incremental burden of population pressure, over dependence on reform & international demand for products went against commercialisation of agriculture at the Global level with this environmental problems hindered private investments (**Balakrishnan 2008, Bhallah 2007).

3.6: Trend of Agricultural Trade

In the Post WTO era it is noticed that AOA did not hamper much the agri-export because the AMS was already very less and below the WTO set level for India (Bhallah 1996 & Gulati 2000). India who is a founding member among 164 member nations of WTO, maintaining and obeying most of the clauses related to developing nations in WTO charters. Our study have looked into the norms and rules of WTO, how far India has followed those rules and what are the consequences has happened to India's agricultural trade since WTO and a comparison between the pre & post WTO era in trading of Indian agricultural commodities. And our Findings in this small study is that India has benefitted in many extent in agricultural trade the post liberalisation or post WTO period and trade indicators are positive in many extent. This thing has surfaced many issues that may be taken for study and research. This paper like many papers compares Indian agricultural export in the pre & post WTO era but at the same time it also took into consideration the commodity wise trade and both convergence & divergence in Indian agricultural export. India was specializing in agricultural commodity export in the pre WTO period but it left it and started gaining its expertise in agricultural commodity export in the post WTO era. So WTO has made mixed impact on Indian agricultural commodity export. Bharadwaj stated that liberalising and opening Indian economy and trade under the WTO regime would be beneficial for India as its growth of Production and export would rise but on the contrary Gill& Brar in 1996 said that India's agricultural export and production has been adversely affected by the WTO regime. To understand the Trend of Indian Agricultural Export It is necessary to understand the value of the Exports & Imports of agricultural trading commodities along with their share in percentage change in national and world agricultural productions & exports in the Pre & Post WTO era. Because this type of Data reveal the openness of an economy and the overall tendency of the agricultural commodities to be exported and agricultural policies adopted by a particular country. The world market share and share of GDP of a country's agricultural production indicates the role, power and market trust realised by a country in world agricultural export. It is easy to understand that a country's comparative advantage in trade and terms of trade regarding imports and exports can be determined by seeing the changes in the shares and values of agricultural export and production of that country both internationally and domestically. The impact of WTO on agricultural commodity trade can be understood by following the terms of trade. If the countries TOT is favorable then it will be able to import more as its exports are rising on the on the hand if it is unfavorable for the country then the country has to expense more export to bring a certain amount of Import.

This section evaluates the impact of trade liberalization on India's In the above table we can see the changes occurred in Year wise Values and Percentage share with GDP of Major Indian Commodity's Exports & Imports during the Pre & Post WTO periods. These changes were the result of Impact of trade liberalisation which India started in the early 90s. We can observe that in both the Export & Import increased in more or less steady manner during the pre & post liberalisation period but the share of Agri-export declined during the early phase of post WTO period (1998-99 to 2008-09) and after that it increased and in case of Imports its share to total national import has also declined during that period. So far what we have observed is that the fluctuations in imports & exports are more visible in the Post WTO era than the Pre WTO era.

Table3.1: Year wise Values and Percentage share with GDP of Major Indian Commodity Exports & Imports during the Pre & Post WTO periods. (Values in Crores)

Year wise Count	Indian agri-Commodity Exports			Indian Agri-Commodity Imports		
	Total Value of Agricultural Exports	Share of Agri-Export to total National Export (in Percentage)	Share of Agri-Export to national GDP (in percentage)	Total Value of Agricultural Imports	Share of Agri-Import to total National Import (in Percentage)	Share of Agri-Import to national GDP (in percentage)
1990-91	6012.77	18.48	3.89	1205.85	2.8	0.79
1991-92	7838.12	17.79	4.36	1478.24	3.08	0.83
1992-93	9040.31	16.85	4.46	2876.26	4.53	1.41
1993-94	12586.54	18.06	5.38	2327.34	3.17	0.98
1994-95	13222.75	15.98	4.91	5937.20	6.61	2.21
1995-96	20397.75	19.17	6.96	5890.12	4.79	2.02
1996-197	24161.28	20.34	6.83	6612.61	6.77	1.88
1997-98	24843.44	19.10	6.62	8784.20	5.71	2.35
1998-99	25510.65	18.24	5.94	14566.49	8.16	3.37
1999-2000	25313.65	15.92	5.57	16066.74	7.44	3.53
2000-2001	28657.36	14.22	6.21	12086.24	5.28	2.64
2001-2002	29728.60	14.23	5.97	16256.23	6.63	3.26
2002-2003	34653.93	13.57	7.13	17608.82	5.94	3.62
2003-2004	37266.53	12.71	6.85	21972.67	6.13	4.04
2004-2005	41602.64	11.07	7.35	22811.86	4.54	4.04
2005-2006	49216.95	10.77	7.73	21499.24	3.27	3.38
2006-2007	62411.41	10.91	8.64	29637.84	3.52	4.12
2007-2008	79039.73	12.04	9.44	29906.23	2.94	3.57

2008-2009	**85951.66**	**10.23**	**9.10**	**37183.02**	**2.70**	**3.95**
2009-2010	**89341.32**	**10.56**	**8.29**	**59528.03**	**4.36**	**5.51**
2010-2011	**117483.62**	**10.27**	**8.89**	**57334.33**	**3.40**	**4.35**
2011-2012	**187609.32**	**12.79**	**12.50**	**82809.16**	**3.54**	**5.53**
2012-2013	**232041.12**	**14.21**	**14.10**	**109610.67**	**4.10**	**6.65**
2013-2014	**268469.04**	**14.18**	**14.09**	**105149.02**	**3.86**	**5.53**

Source: RBI, Handbook of Statistics on Indian Economy

3.7: Direction of Indian Agricultural Trade in the WTO regime:

The Direction of agricultural trade implies that how much a country has been able to diversify its trade in commodity wise, country wise and volume wise. Whether the country's imports or exports has widened or shrink during post WTO period and diversification or concentration in export of agricultural commodities to countries are also important. As our study will proceed in the next chapter we have discussed about it and find that for most of the major Indian agricultural trading commodities export have been diversified in the Post WTO regime than that of the Pre WTO Regime.

3.8: The Impact of WTO on the Composition of India's Agricultural Trade:

The Composition of Agri-trade means the amount of Import & Export of agri-commodities and changes in their amount of their trade. It implies that if a commodity has higher Export growth, higher share in the market and low variability or long term stability in the market, then it has high impact for overall growth of export on the other hand the commodity will have less impact on overall export or import if the opposite happens to it. For country like India in the Post WTO era the term export promotion become quite popular in place of import substitution. Branding, Packaging, Promotions, providing Export subsidies & incentives, Financing, Lowering production & Export tariff and making agricultural trading infrastructure is used in the Post WTO period to increase and giving a boost to the export of agricultural and allied products. In the both pre & post WTO era India has been quite capable to substitute imports of agricultural goods, raw materials, intermediate goods and most agricultural goods and its export promotions in this period have resulted in huge earning of foreign currency through agricultural export, domestic specialisation in producing and growth in Agri-production and self reliance in agriculture. In the Post WTO too India has been capable to save foreign exchange to drain out from the country for importing agricultural products and at the same time it has been able to increase its earning of foreign currency by exporting agricultural commodities by export promotions and invested it in the development of domestic agriculture.

India has always followed a balanced way for the benefit of both producer & consumer in the agricultural sector and it is found that most of the major Indian agricultural export commodities are competitive in the international market as per the Nominal protection coefficient shows (Gulati 2007).

Table 3.2: The average values & Percentages Shares of the major Indian Agricultural Commodity Exports to total national Agricultural Exports of India. (Triennium Wise Average)

The Value of export of Major Indian Agri-Commodities during the Pre & Post WTO Era. (Values in crores)						Export Share (in %) of Major Agri-Commodities to total Agri-Expor during the Pre & Post WTO Era.				
Comm odities	1991-93	1997-99	2001-03	2006-08	2011-13	1991	1997-	2001-03	2006-08	2011-13
Food Grains	803.64	4759.91	5646.58	10676.2	33618.97	10.54	19.20	18.22	16.90	18.79
Ground Nuts	24.34	343.95	248.56	545.08	3803.95	0.31	1.39	0.81	0.85	2.11
Tea	1087.66	1726.08	1720.01	1907.51	3976.71	14.26	6.94	5.56	3.01	2.23
Spices	332.91	1414.78	1590.08	3149.99	12137.04	4.35	5.71	5.14	5	6.77
Rice	215.70	2671.31	1960.46	4939.16	7769.08	2.84	10.75	6.33	7.81	4.35
Meat	209.60	768.45	1346.71	3266.22	13596.63	2.76	3.08	4.33	5.18	7.60
Cashew	619.28	1437.63	1963.72	2361.88	3685.34	8.11	5.78	6.32	3.75	2.07
Fruits Veget ables	382.93	1014.26	1825.25	4036.42	8293.20	5.03	4.07	5.88	6.38	4.64
Pulses	60.08	261.82	498.98	2149.15	6852.05	0.78	1.04	1.60	3.41	3.82
Paper	00.00	00.00	1601.72	4537.14	8907.81	00.0	00.0	5.17	7.20	4.97
Marine Product	1381.86	4287.66	6397.88	7297.22	15658.98	18.10	17.25	20.62	11.57	8.76
Oil Meals	1030.54	2957.41	1931.67	6111.03	13042.24	13.52	11.92	6.24	9.67	7.27
Sugar	182.73	384.19	1309.58	3033.57	7591.44	2.40	1.52	4.23	4.80	4.25
Coffee	320.54	1616.87	1091.25	1808.56	4053.08	4.21	6.50	3.53	2.85	2.27
Wheat	55.48	233.39	1168.39	197.69	3850.10	0.74	0.95	3.76	0.32	2.16
Cotton	447.49	867.776	104.67	5670.61	18293.67	5.87	3.48	0.33	8.99	10.23
Basma ti Rice	579.93	1603.40	2018.74	3390.24	15146.85	7.59	6.47	5.52	5.36	8.47
Guarg um Meal	97.86	542.95	493.82	1110.18	13483.24	1.27	2.20	1.60	1.75	7.52
Tobacco	371.46	862.94	899.26	1648.17	4280.36	4.86	3.46	2.89	2.62	2.38
Others	270.24	1310.10	2113.05	4580.15	9835.71	3.53	5.28	6.81	7.23	5.48
Total Exports	7630.41	24836.45	31013.30	63132.6	179044.71	100	100	100	100	100

Source: RBI, Handbook of Statistics on Indian Economy (GOI)

The above table shows the average value & Percentage Share of major Indian Agricultural Commodity Export & Import to total national Agricultural Export & Import of India (Triennium Wise Average). Here we can see that the Composition of Indian Agricultural commodity export have changed in the Post WTO era as compare to the Pre WTO era. For Example the Export Competitiveness of major traditional Indian agricultural commodities like Rice, Tea, Coffee, Oil Meals, Marine products, etc was very high as their export share as percentage to total agricultural export was very high during the Pre WTO era but they have lost this share and are struggling to compete in the world market to retain their old position in the Post WTO era on the Other hand commodities like Spices, Sugar, Guar Gum meals, Meat, Cotton, Paper ,Pulses, Wheat, Basmati Rice have improved their position enormously in the export share during the Post WTO period where wheat, basmati rice & Pulses emerged to be the most significant export items followed by Cotton and Marine products.

It was expected that after the trade liberalisation Export of Indian agricultural commodities would improve than before but the picture was different in the Post WTO era as the average growth rate of agri-export declined from approx 23% in the Pre WTO era to approx 18% in the Post WTO era but this was faster than the average growth of agricultural GDP during this time and faster than the world average growth rate also which was 7.9% and 7.7% during the Pre & Post WTO era. During this entire period (1990-2014) the average growth of Indian agricultural export was higher than world agricultural export. The Average growth rate(nominal prices) of Indian Agri-Export was approx 19% as compare to approx 26% average growth in Import during the entire time (from1990-2014). During the Post reform period India witnessed a sluggish growth in agri-export at the same time the growth of Agri-import also showed a slowdown during this time. In most of the time the amount of import growth was higher than the export growth but amount of agricultural trade surplus remained there. The Indian agricultural average GDP growth was 11.8% during the Pre & Post WTO era (1990-2014) but the Indian agricultural average GDP growth was quite higher i.e. 15% in Pre WTO era as compare to only 11% in the Post WTO era.
The consistent higher proportional value of India's export & import to global export & import shows India's increasing integration to the world market (this ratio increased from about 4 in Pre WTO era to about 14 in Post WTO era). In the post liberalisation period both the export & import market (with domestic & international) became integrated as the price movement in both of these markets becomes linked in this time. This was the result of external trade flow in globalisation period. Some researchers like Gulati, Bajar showed that the inter linkages of domestic and international prices of agricultural trading commodities in India during the Post WTO period as the Increase in price of some commodities like Wheat, Cotton, Ground nut, Mustard, sugar rice etc have increased in the post WTO era from Pre WTO era which was quite consistent and kept parity with the international price. It is also observed by these researchers that the volatility of agricultural trading commodity prices in the international market was higher than domestic market in the post WTO period.

3.9: Trend of Agricultural Trade performance of India Since the early 90s.

Indian agricultural trade performance in the pre WTO period (if we take 10 years before the WTO) was quite satisfactory i.e. the volume of trade in agriculture was approximately 18% of the total export at that time. The agricultural commodity export in the post WTO period has been inconsistent as it has been fluctuating since 1995. It has never been stable since then. For example It was 19.14% in 1996 and rose up to its highest level i.e. nearly 21% of total export of the country in 1997. But from 1998 it has been fluctuating rather declining. For example it was around 10% of the total export in 2006 as it was declining continuously since 1998. After that a series of agricultural export fluctuation

has been occurring in Indian economy every consecutive year. For example it fluctuated and it was recorded around 13% in 2016-17 (latest). If we compare this value with the pre WTO record then it is quite dissatisfactory. It is much lower than the pre WTO estimation. Though the compound annual growth rate of post WTO period was higher than that of the pre WTO era, in the post WTO period, in 2015 the CAG of agricultural export was 12.35% as compare to 7.16% in 1996). Thus it is visible that an average annual growth in agricultural commodity export in the post WTO period is declining and much less than the Pre WTO period, which implies a negative impact of WTO on Indian agricultural commodity export. Though WTO and AOA was meant to establish to flourish and improve fair growth of trade. In the following we shall discuss and focus on some important tabular expression of data regarding Indian agri-trade during and prior the liberalisation phase, which will help us understanding the role of WTO policies and AOA on Indian agricultural export trade on selected and multiple commodities.

Table 3.3: Year Wise Total Exports (in US$ million & Quantity in MT), Growth of Agri-Exports of Indian Major Agricultural Commodities in the Pre & Post WTO era.

Year	India's Total Agricultural Exports	Quantity of Agricultural Export in Metric tonnes	Year Wise Growth of Values Rate of Total Agricultural Exports	The Percentage of Agricultural Exports To India's Total Exports
1987-88	586.16	10,61,153.44	--	22.78
1988-89	554.98	9,15,062.75	-5.31	20.06
1990-91	515	9,88,182.51	-7.20	18.49
1991-92	739.36	22,88,992.11	43.56	17.93
1992-93	666.37	14,70,638.41	-9.87	16.92
1993-94	897.27	20,01,497.74	34.65	18.11
1994-95	933.72	20,92,122.73	4.06	16.05
Average	615.243	1545378.53		18.62
CAGR	6.88%			
1995-96	2355.95	20,92,122.73	152.32	19.13
1996-97	2160.47	61,19,907.23	-8.29	20.50
1997-98	1940.12	39,80,849.06	-10.19	18.93
1998-99	2286.14	60,10,199.87	17.83	18.17
1999-00	1681.72	34,00,436.16	-26.43	15.68
2000-01	1996.54	47,33,808.13	18.72	13.5
2001-02	2144.85	75,04,857.93	7.43	13.5
2002-03	2803.94	1,15,33,053.00	30.72	12.8
2003-04	3134.66	1,19,16,945.49	11.79	11.8
2004-05	3775.13	1,19,60,591.93	20.43	10.1
2005-06	4218.01	1,03,94,825.88	11.73	9.9
2006-07	4693.05	1,05,29,404.61	11.26	10.3

2007-08	**7311.37**	**1,54,28,409.71**	**55.79**	**11.3**
2008-09	**7540.03**	**1,31,48,884.31**	**6.16**	**9.5**
2009-10	**7343.98**	**1,12,55,522.03**	**-2.60**	**10.0**
2010-11	**9307.86**	**1,15,67,531.24**	**26.74**	**9.9**
2011-12	**17321.15**	**1,98,10,171.89**	**86.09**	**17.19**
2012-13	**21,739.85**	**3,01,72,963.87**	**25.51**	**16.34**
2013-14	**22,706.53**	**3,00,01,581.50**	**4.45**	**15.34**
2014-15	**21,489.34**	**2,71,34,311.45**	**-5.36**	**13.50**
2015-16	**16,412.76**	**2,04,69,770.49**	**-23.62**	**14.02**
2016-17	**16,212.45**	**2,12,71,453.91**	**-1.22**	**15.20**
2017-18	**18,576.87**	**2,22,93,598.89**	**14.58**	**13.2**
Average	**8658.82**	**1,27,27,426.14**		**13..31**
CAGR	**9.39%**			

Source: APEDA, DGCIS.

Though the above table shows that Indian agricultural export has increased over the years from US $ 3590 million in the Pre WTO era to US $ 17335 million in the post WTO era, the amount of average share of agricultural export has gone down from 17.5% in the pre WTO era to 13.62% in the post WTO era [6]. In this time the CV (coefficient of Variation) has showed much variation, like it was 5.7 in the pre WTO period and become 25.20 in the post WTO era. This may be as a result of increase in export of non-agricultural commodities rather than agricultural commodities.

Table 3.4: Five yearly Compound Annual Growth rate (CAGR) of Indian Agricultural Import & Export commodities.

Period	**Agricultural Export (in %)**	**Agricultural Import (in %)**
1991-1995	**21.77**	**48.97**
1996-2000	**5.56**	**28.50**
2001-2005	**9.76**	**17.22**
2006-2010	**16.08**	**29.01**
2011-2015	**31.72**	**22.05**

Source*:* Ministry of Agriculture, Government of India.

The above table shows that agricultural export was adversely affected after the WTO during the early years after India's signing in WTO, but there after again Indian agricultural sector became competitive in the global market by raising the export level. In that time the import also declined sharply but it further started increasing since 2006-07.

Table 3.5: Percentage Share and value of Indian Agricultural exports to World Agricultural Exports (Value Expressed in US $ in Millions)

Year **Pre WTO**	**World**	**India**	**India's Share in World agricultural Exports**
1990	**414724**	**3506.01**	**0.81**
1991	**418237**	**3361.02**	**0.80**
1992	**447886**	**3676.00**	**0.83**

1993	**429336**	**4167.03**	**0.96**
1994	**500913**	**4399.01**	**0.89**
Average	**442218.82**	**3821.814**	**0.858**
CAGR(1990-1994)	**3.85**	**4.64**	**1.9**
Post WTO			
1995	**583201**	**6323**	**1.00**
1996	**592869**	**7041**	**1.17**
1997	**589231**	**6862**	**1.18**
1998	**560559**	**6236**	**1.10**
1999	**543821**	**5834**	**1.08**
2000	**552252**	**6400**	**1.16**
2001	**554132**	**6264**	**1.12**
2002	**582531**	**7024**	**1.20**
2003	**683335**	**7936**	**1.16**
2004	**788083**	**8589**	**1.08**
2005	**851846**	**10135**	**1.18**
2006	**943675**	**12354**	**1.30**
2007	**1127666**	**16019**	**1.42**
2008	**1348135**	**21250**	**1.57**
2009	**1181390**	**16383**	**1.38**
2010	**1366468**	**23105**	**1.69**
2011	**1659523**	**34322**	**2.06**
2012	**165672**	**42357.51**	**2.56**
2013	**1744834**	**43358.93**	**2.48**
2014	**1765406**	**39291.57**	**2.23**
2015	**1568337.01**	**34494.40**	**2.2**
Average	**1011620.76**	**17217.49**	**1.562**
CAGR(1995-2015)	**4.82**	**8.41**	**3.83**

Source: WTO, International Trade Statistics

The above table shows that India's average exports share in the world in the Post WTO period became as high as **(1.562%),** which was quite low (**0.858%) in** the pre WTO era. This means that there has been tremendous shift in share of Indian Agricultural export in the post WTO period. Other than this India's share of agri -export in 1995 was 1% which had improved to 1.69% in 2010, 2.06 % in 2011 and 2.2 in 2015. This sudden increase of share of Agricultural export globally brought India to leading exporters of agricultural commodities in the World. Though the share has gradually declined from 2.56% in 2012 to 2.20% in 2015 with negative growth in these consecutive years, India still holds a good position in agricultural export market.

Table 3.6: Share of Few Agricultural Commodities in Percentage in India's Total Exports in Pre-WTO Period

Commodities	1990-91	1991-92	1992-93	1993-94	1994-95	Average
Agriculture & Allied products	18.49	17.91	16.91	18.08	16.11	17.5
Tea	3.31	2.79	1.80	1.49	1.19	2.116
Oil meal	1.91	2.11	2.89	3.29	2.20	2.48
Fruits & vegetables	0.70	0.72	0.61	0.61	0.52	0.634
Tobacco	0.81	0.93	0.92	0.70	0.30	0.732
Marine products	2.89	3.30	3.22	3.71	4.28	3.48
Spices	0.72	0.80	0.70	0.81	0.71	0.748
Cashew	1.41	1.52	1.38	1.52	1.49	1.464
Coffee	0.80	0.82	0.71	0.79	1.31	0.886
Rice	1.39	1.69	1.79	1.82	1.52	1.642
Wheat	0.11	0.30	0.12	0.13	0.11	0.154

Source: RBI, Handbook of Statistics on Indian Economy

Table 3.7: Share of Few Agricultural Commodities in Percentage in India's Total Exports in Post-WTO Period

Commodities	1994-95	95-96	96-97	97-98	98-99	99-2000	2000-01	2001-02	2002-03	2003-04	2004-05
Agriculture & allied Products	19.12	20.49	18.96	18.18	15.67	13.48	13.48	12.79	11.78	10.09	9.88
Tea	1.12	1.19	1.39	1.59	1.10	1.01	0.81	069	0.60	0.49	0.38
Spices	2.19	2.90	2.59	1.39	1.01	1.02	1.09	0.62	1.09	0.79	1.09
Rice	4.19	2.59	2.62	4.39	1.88	1.41	1.49	2.18	1.39	1.79	1.32
Fruits & Vegetables	3.23	3.38	3.39	3.09	3.23	3.09	2.79	2.68	2.09	1.66	1.68
Marine Products	0.21	1.31	0.60	0.21	0.04	0.10	0.20	0.02	0.31	0.10	0.60
Wheat	0.32	0.62	0.0	0.0	0.0	0.20	0.60	0.70	0.80	0.41	0.10
Oil Meals	0.82	0.41	0.60	0.52	0.62	0.62	0.60	0.61	0.69	0.62	0.60
Tobacco	0.81	1.00	1.13	1.09	1.12	0.81	0.69	0.71	0.52	0.52	0.49
Cashew	1.10	1.11	1.14	1.10	1.51	0.89	0.91	0.79	0.61	0.73	0.61
Coffee	1.41	1.22	1.32	1.22	0.92	0.62	0.51	0.41	0.40	0.32	0.31

Cont....

Commodities	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Average
Agriculture	10.28	11.32	9.48	10.01	9.88	17.17	14.09	13.77	12.65	13.13	13.6

& Allied Products											**2**
Tea	**0.32**	**0.30**	**0.31**	**0.31**	**0.30**	**0.31**	**0.32**	**0.3**	**0.21**	**0.30**	**0.634**
Spices	**1.02**	**1.22**	**1.19**	**0.91**	**0.92**	**0.92**	**0.89**	**0.79**	**0.79**	**1.01**	**1.21**
Rice	**1.19**	**1.71**	**1.29**	**1.31**	**0.89**	**1.58**	**2.09**	**2.49**	**2.51**	**2.19**	**2.08**
Fruits & Vegetables	**1.42**	**1.11**	**0.81**	**1.19**	**1.04**	**0.39**	**0.62**	**0.72**	**0.72**	**0.79**	**1.86**
Marine Products	**1.09**	**1.29**	**0.33**	**1.09**	**1.11**	**1.09**	**1.20**	**1.58**	**1.79**	**1.71**	**0.76**
Wheat	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.10**	**0.61**	**0.50**	**0.0**	**0.32**	**0.2**
Oil Meals	**0.6**	**0.51**	**0.60**	**0.8**	**0.51**	**0.83**	**1.01**	**0.89**	**0.41**	**0.21**	**0.61**
Tobacco	**0.62**	**0.59**	**0.71**	**0.73**	**0.72**	**0.31**	**0.33**	**0.31**	**0.32**	**0.43**	**0.65**
Cashew	**0.41**	**0.31**	**0.30**	**0.32**	**0.21**	**0.29**	**0.22**	**0.31**	**0.31**	**0.32**	**0.63**
Coffee	**0.31**	**0.32**	**0.30**	**0.20**	**0.29**	**0.32**	**0.29**	**0.31**	**0.30**	**0.32**	**0.54**

Source: RBI, Handbook of Statistics on Indian Economy

The above tables demonstrate the average percentage share in export of selected agricultural commodities Pre & Post WTO era. These tables show that there is both positive and negative impact of WTO regime on different agricultural export commodities, for example there is positive impact of WTO on export of **Rice, Wheat, Spices, and Fruits & Vegetables but on the other hand there has been negative impact of WTO on some selected agricultural commodity export. For example The average percentage share of export of Tea, Coffee, Tobacco, Cashew, Oil meals, and Marine products has reduced from 2.12,0.88, 0.72, 1.46, 2.48,3.48% in the Pre WTO era to 0.63,0.54,0.65,0.63,0.61,0.76% in the post WTO period respectively**. We also see in these tables that the average share of agricultural exports in total exports has declined from 17.5% to 13.62% in the post WTO era. This may be as a result of increase in the share of non agricultural commodity share in India's total export.

Table3.8: Compound Annual Growth Rate (CAGR) of Import of some of the major Indian Agricultural Commodities in Pre and Post WTO Period

Commodities	**Pre-WTO Period 1986-95**	**Post-WTO Period 1996-2016**
	Value	**Value**
Meat	**13.30**	**20.21**
Cotton	**44.61**	**31.20**
Fruits &Vegetables	**4.11**	**13.39**
Oil meal	**13.81**	**8.22**
Rice	**10.7**	**8.61**
Tea	**-15.09**	**6.92**
Marine Products	**20.49**	**8.12**
Sugar	**1.33**	**17.09**
Tobacco	**13.5**	**12.19**

Cashew	**12.41**	**5.79**
Coffee	**24.29**	**5.61**
Spices	**10.59**	**16.39**

Source: Based on data from RBI, Handbook of statistics on Indian Economy

From the above table it is visible that Compound Growth Rates of Exports of major Indian Agricultural trading Commodities including Tea, Meat & meat products, Spices, Horticulture Crops including Fruits & vegetables and Sugar, has gone up, where of coffee, Oil meals, Marine products, Cotton & onion has gone down during this period. In case of compound growth rate of Import has gone up for Sugar, Wheat, Rapeseeds, mustard Oil, Soya bean Oil, Cotton, Jute, Ginger and Tobacco considerably.

3.8.1: CAGR, (Country wise Annual Compound Growth Rate) of India's Major Agricultural Commodity Exports in Pre and Post WTO Period

India's Major Agricultural Commodities	**Pre WTO Era (1989-90-1994-95)**	**Post WTO Era (1995-96 – 2009-10)**
	Value	**Value**
Tea	**-8.08**	**2.7**
Fruits &Vegetables	**20.42**	**8.01**
Oil meal	**9.37**	**5.59**
Cashew	**4.88**	**3.22**
Sugar and Molasses	**1.30**	**17.01**
Spices	**2.34**	**9.54**
Marine Product	**8.79**	**3.17**
Cotton	**44.51**	**30.92**
Rice	**-5.51**	**6.12**
Coffee	**4.75**	**0.38**
Tobacco	**-0.53**	**8.47**
Meat	**13.27**	**18.81**

Source: RBI, Handbook of statistics on Indian Economy

Table 3.9: In the following Table we have estimated (taking decadal averages of prices) the Nominal Protection Coefficients (NPC) results of Indian major agricultural commodities traded to compare NPC value change in the Post WTO period.

Agricultural Commodities	**Pre WTO Era (1986-1995)**	**(1996-2012)**
	Average	**Average**
Tea	**1.65**	**1.16**
Banana	**0.53**	**0.33**
Cashew nuts	**1.15**	**1.12**
Ground Nuts	**0.65**	**0.58**

Soya bean	**0.94**	**1.27**
Sesame Seeds	**0.86**	**0.68**
Rice	**1.18**	**1.06**
Potato	**0.93**	**0.43**
Sesame seeds oil	**0.77**	**0.43**
Wheat	**1.79**	**1.26**
Apple	**2.03**	**1.64**
Cotton	**0.79**	**0.78**
Tobacco	**0.32**	**0.42**
Jute	**1.79**	**1.14**
Rubber	**1.26**	**1.33**
Rapeseeds oil	**2.96**	**1.95**
Pepper	**1.06**	**1.04**
Cake of Rapeseeds	**1.27**	**0.96**
Onion	**0.86**	**0.78**
Soya bean oil	**1.33**	**2.50**
Linseeds oil	**2.14**	**1.63**
Ground Nuts oil	**2.17**	**1.42**
Sugar	**2.76**	**1.53**
Linseeds	**4.37**	**3.05**
Coffee	**1.46**	**2.07**
Cake of Coconuts	**3.85**	**2.54**

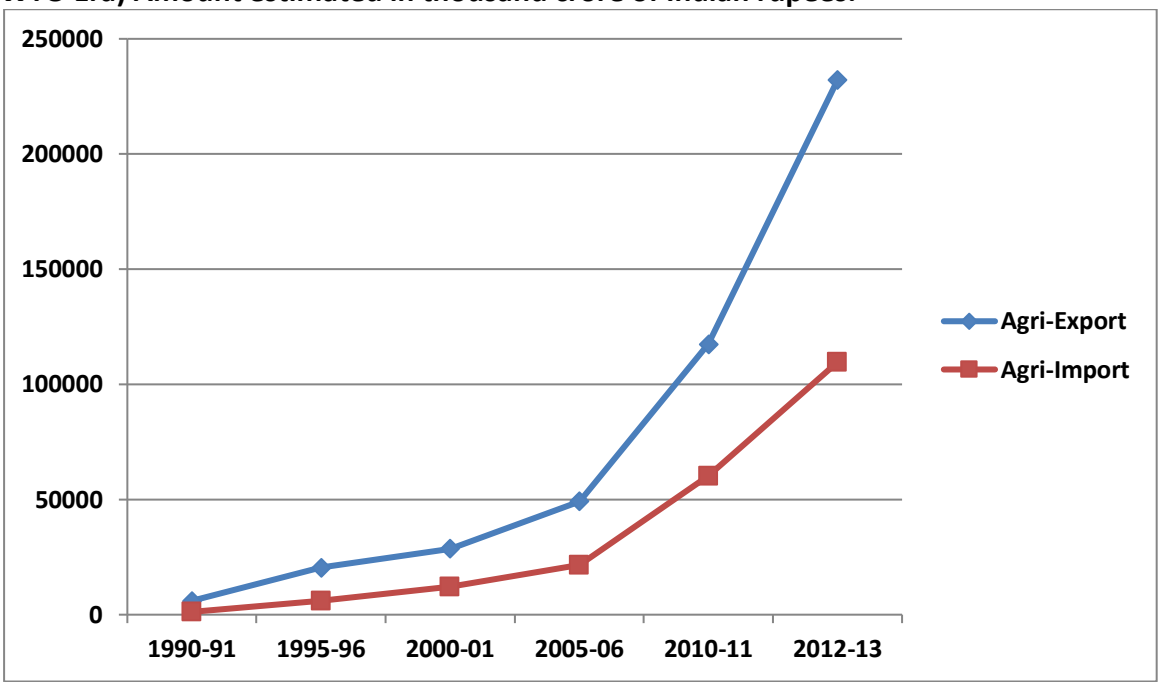
Source: FAO Data interpretation.

The NPC is a ratio shows the trading agri-commodity is exportable or Importable (NPC= $\mathbf{P_i^d / P_i^w}$)

$\mathbf{P_i^d}$ = Domestic price of commodity i. $\mathbf{P_i^w}$ = World reference price of commodity i, adjusted for transportation, handling and marketing expenses.

Here, **NPC < 1** indicates the commodity is exportable and **NPC > 1** indicates that the commodity is importable. Other than some notable cases like Ground Nut, Sesame Seeds, Onion, Potato, Banana, Cotton, tobacco and Soya bean most other agricultural trading commodities remained in higher than unity value in the Post WTO period. The value of NPCs of mostly all commodities has gone down in Post WTO period comparing to the Pre WTO era which can help boosting export growth of Indian agricultural commodities.

Table 3.1: Agricultural export, import of India from 1990-91 to 2012-13 (During Pre & Post WTO Era) Amount estimated in thousand crore of Indian rupees.



Source: Director General of Commercial Intelligence & Statistics, Ministry of Commerce, Government of India

The above table shows how Indian export has been increasing faster than the Import. In the whole period import was lowest as compare to export was in 2000-01. After 2010 India removed bans on few agricultural commodities export including Wheat, as a result of this export of agri-commodities surged and in 2011 to 120000 crore approx. In the next two years both import and export got doubled. The export reaches 232000 crore and the import became 110000 crore approx. In this time the CAGR of agricultural export and import in the post-WTO period shows that the Agri- export growth rate came down first from 21.78% (1991-95) to 5.5%(1996-2000) then again rose to 16.07% in 2006-10, and rose faster after that to 31.71% during the next five year. It reveals that agricultural trade liberalisation effected Indian agri-trade adversely in the first ten years of liberalisation and thereafter the agricultural sector become competitive globally and export growth took it pace.

Table 3.10: Several Major destinations for the export of Indian agricultural Commodities during 2014-15.

Importing Countries	Share in Percent	Importing countries	Share in Percent	Importing Countries	Share in Percent
USA	11.50	CHINA	2.51	PAKISTAN	1.30
VIETNAM	9.28	JAPAN	2.45	KUWAIT	1.26
IRAN	8.43	SOUTH KOREA	2.01	NEPAL	1.25
UAE	4.98	UK	1.84	GERMANY	1.20
SAUDI ARABIA	4.84	BELGIUM	1.78	ITALY	1.18
BANGLADESH	3.55	NETHERLANDS	1.72	RUSSIA	1.16
MALAYASIA	3.09	BENIN	1.42	YEMEN	1.10

INDONASIA	**2.70**	**EGYPT**	**1.40**	**OTHER COUNTRIES**	**24.12**
THAILAND	**2.55**	**FRANCE**	**1.38**		

Source: ITC data base, Switzerland.

3.10: Conclusions:

From the above discussion and after the analysis of the trend of Indian agricultural export in the pre and post WTO era we see that there has been huge fluctuations occurred in India's agricultural Export and Import in the Post WTO period as compare to the Pre WTO period. The share of agricultural export as compare to total export has gone down drastically in the early phase of trade liberalisation under WTO but as it accommodated itself with the international market competition later in the post 2000, the amount of share slightly improved. After 2012 we found that amount of Export volume has gone high up, and it got doubled as compare to early 2010 data. But the data shows a negative aspect in case of export share of agricultural commodities to countries total export in this period. The share of agri-export as compare to the total export of India has gone down in the post WTO period though the amount of volume of export has gone multiple times up as compare to the pre WTO period. As it was expected that after the AOA and WTO the amount of Export share of Agricultural commodity would go up and it will help improving country's agri-export, but on the contrary it has fallen during the post WTO period, however on the other hand India's share of agricultural commodity Export in the World has gone up to 1.56% in the Post WTO period as compare to 0.858% in the Pre WTO period. This implies that under WTO India's export share in agriculture has improved. In many research studies it is found that there (1) **exists divergence in Indian agricultural commodity exports, as in the pre WTO period it is found that India has made effort to specialize in agricultural commodity export in which it has comparative advantage but in the post WTO period no such attempt was made where we can see any specialisation of agricultural commodity export**. It implies that **the WTO has not laid India to gain expertise in the export of agricultural product where it has comparative advantage**. When we go into further analysis of impact of WTO on few selected agricultural trading commodities **(2)** we came to know that several commodities are there on which the impact of WTO regime has been positive, for example commodities like **Rice, Spices, Fruits & vegetables** have increased their share in export in the post WTO period, while commodities like **Tea, coffee, Tobacco, Cashew, Oil Meals, Marine products** has shown negative impact of WTO on them, as their export share has fallen down in the post WTO era**.,(3)** Despite that the Indian agricultural export has increased in absolute term in the post WTO period. **The average share of agricultural export in total export from India has fallen down from 17.5% in the Pre WTO period to 13.62% in the post WTO era**, which may be as a result of much increase in the share of non agricultural export in India's total export. (**4) Furthermore the value of NPCs of mostly all commodities has gone down in Post WTO period comparing to the Pre WTO era, which implies that exporting capacity or export competitiveness has increased in the Post WTO era**. India along with many countries of the world had started initiatives to liberalise and reform its Agricultural sector along with other sectors as a part of Structural adjustment program of GATT in the early 90s. In doing so it first removed QRs and brought tariff regime and then reduced the amount of both export & Import tariffs later on. Then it tried to liberalise its agricultural export through export reform & support and maintain the AOA norms under WTO regime but as its AMS to agriculture was already to the minimum optimum level that's why it didn't have to cut down its support to agriculture further. All these was done to make the domestic price level more competitive in the international trade to

increase agri-export and market share but the change in TOT & price regime didn't encourage and attract private & public investment much during that period leading to decelerated growth in both Agricultural production (GDP at constant prices) and export of major Agricultural commodities occurred in India in the Post WTO period. The Indian agricultural sector realised increased share of agri-export to the agri-GDP, increased Export & Import of agri-commodities, increased interconnectivity and integration with the world agricultural economy causing fluctuations in price level and increased surplus in agri-production in the Post WTO regime due to liberalising or opening of the economy. As more and more integration of Indian economy with the world is taking place the inter temporal fluctuations in prices of export commodities is becoming more visible as a result of which the Govt. of India frequently changes it export regulation policies which are still exist in India to protect the consumers from international price volatility of agricultural commodities. But in this integrated world economy it **may be recommended** that frequent change in import/export regulations may hinder the stability of domestic price level and interest of the domestic and international consumers so for consistency and stability in domestic and world market Govt. should formulate stable agricultural trade policies consistent with the WTO policies and commitments. Thus in conclusion we can say that WTO has a mixed impact on India's Agricultural commodity Export. In one side WTO impacted negatively where many selected agricultural commodities export share has been declined than pre WTO era and at the same time WTO didn't help to gain expertise in agricultural trade, on the other hand it has helped increasing export share of many other agricultural trading commodities and at the same time it has helped India to gain world agricultural export market share by improving India's position in the global agricultural export.

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Chapter – Four

Export of some of the major Indian agricultural commodities in the Pre & Post WTO Regime

Introduction

- **Objectives of the study in this Chapter**
- **Research Methodology**
- **Limitation of the Study**
- **Changes occurred after Liberalisation of Indian Agricultural trade (Including reduction & elimination of QRs and tariff rates on Imports – Exports) in the Post WTO regime.**
- **Tea**
- **Coffee**
- **Rice**
- **Tobacco**
- **Cashew**
- **Spices**
- **Oil meals**
- **Marine Products**
- **The Overall Impact of WTO on Indian Agricultural Commodity Trade**
- **Stringent difficulties before India's Export Trade**
- **Summery & Conclusion**

Reference

Chapter Four

Export of some of the major Indian agricultural commodities in the Pre & Post WTO Regime

Introduction

India with its large population of about 1.25 billion depends mostly on agriculture still today. About 58% of India's total population directly depends upon agriculture. India was among the early signatory of the WTO. The WTO is an institutional body which was formed on 1st January, 1995 with the objective of promoting global trade in a more liberalised way. The WTO came into existence after the GATT (General Agreement on Tariffs and Trade) which was formed in 1948 in place of ITO (international Trade organisation) by the Western Nations with 23 member countries and the objective of growth and development of all member countries. Since it came into existence GATT had been emphasising for the expansion and promotion of global trade by reducing tariffs and other forms of protection imposed by member countries on trade, this revamped the growth and volume of World trade substantially, which make the trade growth larger than the growth in World Production, along with this GATT helped member countries by providing framework for Trade related Disputes Settlements. This continued effort of GATT finally increased it members from 23 countries to 123 countries. But there were several limitations of the GATT which had become transparent in the early 80s. It was less effective in the settlement of conflicts and disputes between DCs and LDCS in tariff, nontariff barriers and market access. World trade became more and more complex and GATT failed to apply its principles into practice, and thereby led GATT members to have fresh round of trade negotiations. The eighth round of multilateral trade negotiations popularly known as Uruguay Round, which covered new areas like agriculture, textile, TRIMS, TRIPS, services etc. The eighth round or Uruguay Round of agreement commenced in 1986, which was to be concluded in 1990 but this could not be happened as the issues involved in it faced huge dissatisfaction among the participating countries. At the Uruguay Round, developing countries had expressed their commitments not only to reduce trade barriers, but to implement important liberalisation procedures on trade, reductions in trade restrictions & Tariff and Non-Tariff barriers and on many areas of regulation that established the basic business environment in domestic economy (for instance, TBT, SPS and IPR law). On December 20, 1991, the Director General of GATT and the Chairman of the trade negotiations committee, Arthur Dunkel, drafted a proposal which included most negotiating areas of International trade (including Agriculture, MFN, TRIPS, TRIMS, SPS, GI, CBD etc) and after almost a decade of discussion & negotiations the draft was finally accepted by 117 nations on 15th April, 1994 in Marrakesh, Morocco. This Round accepted to have negotiations in 15 areas, in part 1, negotiations on trade in goods to be concluded in 14 areas and in part 2 negotiations on trade in services. Thus this new round of negotiations also known as WTO agreement not only covers traditional GATT subjects but also new areas like Trade Related Aspects of Intellectual Property Rights (TRIPS), Trade Related Investment Measures (TRIMS) and Trade in Services etc. In this way the GATT was converted to WTO on first January 1995 as a conclusion of the Uruguay Round agreement to give encouragement and promotion global trade. Several agreements had taken place in WTO summits. Some of them like Agreement on Agriculture (AOA) are mostly important. With the implementation of the provisions of the Agreement on Agriculture (AOA) by the members of WTO, the international trade opportunities are expected to change as trade barriers are reduced and free trade takes place. These changes would also ensure that competition among the countries in producing individual product or commodity will play a major role in the international trade.

There was an institutional effort made by the GATT under Uruguay round to liberalise Agricultural trade by formalising rules under Agreement On Agriculture (AOA) which would work on reduction of trade distorting tariff & Nontariff Barriers imposed by countries on Agricultural trade. AOA emphasised on (i) **removal of QRs, (ii) Conversion of Non-Tariff Barriers to Tariff Barriers**, and **reduction of Domestic Subsidies to agricultural export & Tariff** on import gradually over a certain period. As the Agricultural policies are now administered by the rules under the WTO, therefore understanding the long term implications of these changed policies on domestic agricultural trade are very important to the WTO member countries like India which exercises a good amount of State influences in agricultural sector like, maintaining MSP, giving Input Subsidies, maintaining QRs, restrictions & good amount of Tariff on movement of external imports and exports, ,good amount of Public stock holding of agricultural produce , Setting Buffer Stocks etc. The provision for removal of restrictions on agricultural import was mandated like 6 years time period was for developed nations (by year 2000) and 10 years for developing nations (by year 2004). Total agricultural export is around 12% of India's total export and it is the third largest producer of agricultural commodities in the world. Though with declining agricultural growth rate along with export shows country's loss in agri-trade due to deteriorating terms of trade but today in financial year 2018 India has become the second largest producer of food grains in the world. India's gross value added by Agriculture, Fishing & Forestry combines about US $ 274.23 billion, which is amazing. India's total food grain production in financial year 2017-18 was 279.51 million tonnes. As per govt. data India is the 2nd largest producer of fruits in the world, largest producer, consumer and exporter of Spices and Spice products in the world and sixth largest food and grocery market in the world. India's tea & Coffee production reached record 240.68 million kgs and 395000 tonnes in 2017-18 financial years, where India's total agricultural export grows at CAGR of 16.5% from financial year 2010 to financial year 2018.

4.1: Objectives of the study in this Chapter

Our objective the study in this chapter **is to compare & discuss the Export Growth, Change in Composition , Direction or Changing Destinations of Indian Agricultural Export, & Diversification of trade of major Indian agricultural Trading Commodities in the Pre & Post WTO period.**

4.2: Research Methodology

Our study which is based on the secondary data, has been divided into two time period, i.e. Pre WTO period (From 1989-90 to 1994-95) and post WTO period (from 1995-96 to 2016-17). These data has been collected from various secondary data sources which includes www.rbi.gov.org.in ,government data from Ministry of Agriculture & Cooperation, NSSO reports, Agricultural census data, Beauro of Economics & Statistics, CMIE and other public reports, state government department of agriculture, internet website www.wto.org, Economic survey of India, (GOI) data like Ministry of agriculture, A.P.E.D.A., FAO trade & production year books, Indian Journal of Agricultural marketing and Indian Journal of Agricultural Economics, Related data published on E.P.W.S., Ministry of commerce Government of India and various papers published on interested topics. Reference period of the study is taken from 1989-90(pre WTO period) to 2016-17 (post WTO period). We have taken 1994-95 as the cutoff date for pointing the pre and post WTO periods was the beginning of the WTO era from 1st January 1995, with the support of 123 founding members including India. This research study would discuss the comparative performance of trade of major Indian agricultural commodities during pre (1989-90 to 1995– 96) and post WTO (1995-96 to 2016 –

17) regime. It would analyze the export performance and competitiveness of major Indian agricultural commodities during pre and post –WTO regime.

Where, **NPC i = P i ^{d} / P i ^{w}**

Where **NPC i** = Nominal protection coefficient of commodity i.

P $_{i}$ ^{d} = Domestic price of commodity i.

P $_{i}$ ^{w} = World reference price of commodity i, adjusted for transportation, handling and marketing expenses.

Here, **NPC < 1** indicates the commodity is exportable and **NPC > 1** indicates that the commodity is importable.

The compound growth rates were worked out as follows:

In our Study we have Used **CAGR (Compound Annual Growth Rate)** to show how different exporting commodity's export growth is taking place.

The mean annual growth rate can be synonymously referred to as compound Annual Growth rate (CAGR) of growth of agricultural production or export of a specified number of years. To calculate this we first divide the last year's value of agricultural growth by initial years value of growth then raise the value to the power of 1 divided by total number of specified years and ultimately we subtract 1 from it Which can be shown as,

CAGR= (Ending Value/ Beginning Value) $^{(1/\text{numbers of Years})}$ -1

Secondly,

We have used Simpson Index to show year wise diversification of Major Indian Agricultural trading Commodities. It is used taking three yearly export data together in both Pre & Post WTO period.

Simpson Index= D=1- (∑n (n-1)/N (N-1))

Where,

D= Diversity,

N= the values of export of all agricultural commodities in a particular year.

N=the Value of export of a particular agricultural commodity in a particular year.

The value of D or Simpson Index varies between 0 and 1, where 0 implies no diversity and 1 implies infinite diversity of that particular agricultural commodity.

Other than these, Percentage & ratio method has been used to show direction & composition of trade on yearly basis.

4.3: Limitation of the study

There exits certain limitations of the Study. Our Study is entirely based on secondary data. The data is collected from www.rbi.gov.org.in and various online and offline publications, (both Govt. & Non Govt. sources). Because of non availability of various data the objective of the study was influenced by the limited data sources.

4.4: Changes occurred after Liberalisation of Indian Agricultural trade (Including reduction & elimination of QRs and tariff rates on Imports – Exports) in the Post WTO regime.

Though the policy of import liberalization of Agricultural commodities started in the early 90s but it took faster move in the mid 90s after some major initiatives were taken at that time and liberalization policies were much intensified in the early 2000 since the Exim policy. For example decanalisation, moving of agricultural commodities from restricted periphery to more free trade area, staring of Exim policy in the early 2000, Export Promotion policy, access of more credit facilities for agricultural export, Duty exemption scheme, abolition of minimum export price, deregulation of import policies, tax exemption in agricultural export, relaxation of export quotas etc were made to accelerate the speed of export of Indian agricultural commodities. The govt. of India took initiative in export liberalization in agriculture, for example the establishing of export promoting zones, making schemes like ASIDE (Assistance to States for Infrastructure Development and Exports) and SLEPC, establishing Export promotional councils, removing restrictions on export of all cultivated varieties of seeds & pulses shows governments initiative in liberalizing export. The govt. of India showed its obligations to WTO by cutting down quantitative restrictions on most major agricultural commodity imports other than to those commodity imports which are hazardous to human health or environment. Following data shows how Indian market gradually became open to foreign imports of agricultural commodities.

Table: 4. 1: Percentage Change In Licensing of Indian Agricultural commodities

Year	Restricted	Prohibited	Canalised	Free
95-96	65	5	10	20
97-98	60	3	10	27
98-99	54	3	12	31
2000-2001	37	3	2	58
2002-2003	22	1	2	75
2004-05	16	1	2	-

Source: Ministry of Commerce, Govt. of India.

Table 4.2: Changes in Import Policy of major Indian agricultural commodities Import

Agricultural Commodities	Current Condition of Trading	Year of Delicencing or Decanalised
Pulses	Free	1980
Cotton	Free	1991
Rubber	Free	1991
Sugar	Free	1994
Palm Oil	Free	1994
Skimmed Milk & Butter	Free	1995

Edible Oil	**Free**	**1995**
Edible Oil Seeds & Castor bean Oil	**Free**	**1999**
Wheat	**Tariff rates levied STE (Import through FCI)**	**2000**
Rice	**Tariff rates levied STE (Import through FCI)**	**2000**
Milk	**Free**	**2000**
Tobacco	**Free**	**2000**
Tea	**Free**	**2001**
Coffee	**Free**	**2001**
Coconut	**Free**	**2001**
Cashew & Indian Silk	**Free**	**2001**
Soya bean & Ground Nut Oil	**Free**	**2002**

Source: Ministry of Commerce, Govt. of India.

Table 4.1 and 4.2 shows the status of Indian agricultural trade policy in the early 2000 and so on after removal of QRs and delicensing and decanalisation of many major agricultural commodities.

Table 4.3: The following Table shows the Rank of India in exporting Major agricultural commodities in the world and its current Status in Trading.

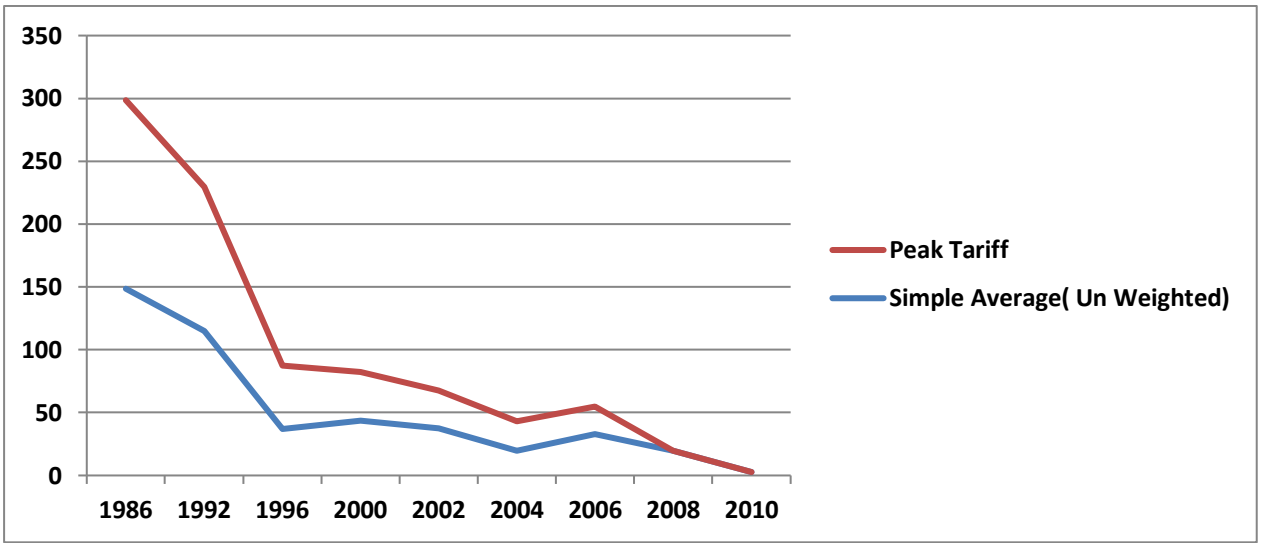
Commodities	India's latest situation in Trading	India's Rank In the World In Production.
Rice	**Some Restriction is still there other than Basmati rice.**	**2nd**
Wheat	**Restricted & subject to canalisation**	**2nd**
Coffee	**Some restrictions on Import But export is free.**	**3rd**
Tea	**Imports are restricted exports are free.**	**3rd**
Cashew	**Free**	**Important**
Sugar	**Free**	**2nd**
Edible Oil & Oil Seeds	**Free**	**Leading**
Onion	**Free**	**Leading**
Potato	**Free with a minimum restriction on Import.**	**Leading**
Spices	**Free except Ginger.**	**5th**
Rubber	**Exports free but Imports are canalised in some cases.**	**Leading**

Cotton	**Free**	**2nd**
Jute	**Free**	**1st**
Tobacco	**Free**	**Important**

Source: FAO statistics.

Table 4.3 shows the latest situations of Indian Agricultural trade policies and their rank in Agricultural Commodity trading after removal of quantitative restrictions of tariff and non tariff barriers. It also shows the current position of India in production of these commodities in the world level.

Figure: 4.1: Trends of Reduction of Tariff (in percentage) on Import of Indian Agricultural Commodities in the pre & post WTO periods explained graphically.



Source: Ministry of Finance, Government of India.

As per the WTO and AOA norms India gradually tapered the tariff rates. Some time India has drastically reduced (77% in1996, 70% in 2000, 74% in 2002) the tariff. Study by Gulati & others [**1**] show that India has not only reduced the tariff barriers but non tariff barriers were also reduced by converting it into tariff barrier first.

Table 4.4: Changes in the Composition of Market Share in Indian agricultural Commodity trade with Liberalisation of Export in the Pre and post WTO regime:

Agricultural Commodities	Year	Market share of India in world Export (Average)
Rice	**1986-1995**	**4.23**
Sugar	**1986-1995**	**1.17**
Ground Nuts	**1986-1995**	**3.49**
Rice	**1996-2016**	**17.26**
Sugar	**1996-2016**	**1.69**
Ground Nuts	**1996-2016**	**15.22**

Source: FAO statistics

In the above table the data itself reflects that market share of India in the world export has increased by multiple times after liberalization and WTO.

Table 4.5: Percentage Change in the composition of Market Share in Indian Agricultural Commodity trade with Liberalization of Import in the Pre & Post WTO regime:

Agricultural Commodities	Year (Pre WTO)	Market share of India in world Imports (Average)	Year(Post WTO)	Market share of India in world Imports (Average)
Sugar	1986-1995	3.814	1996-2016	2.281
Rapeseed Oil	1986-1995	0.651	1996-2016	8.832
Linseed Oil	1986-1995	0.492	1996-2016	0.431
Cotton	1986-1995	0.141	1996-2016	1.122
Rubber	1986-1995	0.951	1996-2016	0.401
Jute	1986-1995	5.742	1996-2016	17.123

Source: FAO statistics

In the above tables (table 4.4 & 4.5) shows how export and Import of major Indian agricultural commodities were in pre & post WTO era. Table 4.5 shows notable changes has happened in case of Rice and Ground nuts in share of Export of India in the world level. Where in Table 4.6 we see import share of India in the World has gone up in rapeseed Oil, Cotton and jute other commodities declined (Sugar, Linseed Oil, and Rubber etc) in import share in the world level. Impact of direct policy changes is visible in case of some major export items including Rice Sugar, Ground Nuts and Cotton, Edible Oils, Rubber and Jute in case of import items.

[1] *Ashok Gulati (2009): Farm sector performance and the reform agenda*

Table 4.6: Percentage Change in Share of Imports & Export (Decadal Average) of Indian Agricultural commodity Trade in the World Before and after the WTO: A Comparison

Agricultural Commodities	Export		Import	
	1986-1995	*1996-2011*	*1986-1995*	*1996-2011*
Rubber	0.01	0.02	0.97	0.46
Rice	4.24	9.14	1.52	0.20
Paper	6.57	6.97	0.46	1.04
Coffee	2.05	2.85	0.02	0.03
Onion	10.74	10.36	3.24	2.32
Sugar	1.18	1.09	3.80	2.64
Ginger	83.27	67.25	1.98	4.65
Ground Nuts	3.48	7.92	0.44	00.65
Apple	0.14	0.19	2.5	2.78
Tobacco	5.24	4.60	0.02	0.05
Sesame Seed	5.44	12.29	-	-

Cotton	**1.87**	**2.26**	**0.15**	**0.93**
Potato	**0.09**	**0.25**	**-**	**-**
Oil of Rapeseed	**0.40**	**0.43**	**0.65**	**8.52**
Tea	**19.47**	**13.96**	**0.13**	**0.20**
Wheat	**0.10**	**0.30**	**5.38**	**4.25**
Jute	**3.58**	**1.96**	**5.73**	**16.82**
Cashew nuts	**51.40**	**53.64**	**12.54**	**18.63**
Oil of Linseed	**0.33**	**0.36**	**0.49**	**0.39**

Source: FAO Statistics

In the above Table 4.6 we can see some notable changes are seen in the case of exports of rice, Paper, jute, Ginger, groundnuts, cake of rapeseed, sesame seed and cotton. In case of Rice, the growth of it rose in export in the post WTO period. The NPC (Nominal protection Coefficient) of these agricultural commodities (NPC= $\mathbf{P\,i^{d} / P\,i^{w}}$) did not move toward 1 in values in the Post WTO era which was expected to move in the Post WTO era as compare to Pre WTO era.

Table 4.7: Yearly average Growth Rates of Yield per Hectare of Major Agricultural Commodities.

Agricultural Commodities	**Pre Liberalisation Period**		**Liberalisation & Post liberalization Period**			
	1968-1985	**1986-1994**	**1995-2000**	**2001-2006**	**2007-2012**	**2013-2016**
Wheat	**3.3**	**3.6**	**2.8**	**0.7**	**-0.3**	**3.0**
Rice	**2.7**	**3.0**	**1.4**	**2.1**	**1.2**	**2.2**
Jowar	**2.9**	**3.2**	**1.3**	**0.2**	**2.1**	**3.1**
Bajra	**6.3**	**8.8**	**6.2**	**4.9**	**7.3**	**8.4**
Maize	**1.7**	**4.1**	**2.6**	**3.1**	**-0.2**	**6.5**
Coarse Cereals	**1.5**	**3.1**	**4.3**	**1.3**	**1.7**	**7.3**
Pulses	**-0.2**	**2.3**	**1.9**	**-0.3**	**0.6**	**2.7**
Oil Seeds	**0.8**	**4.8**	**3.3**	**0.4**	**3.5**	**5.4**
Cotton	**2.6**	**5.3**	**3.1**	**-6.3**	**19.4**	**3.9**
Sugarcane	**3.1**	**1.3**	**0.4**	**0.3**	**0.7**	**0.5**

Source: Ministry Of Agriculture, Govt. of India 2015-16.

From the above table we can see other than Wheat, rice and sugar growth rates of other major agricultural commodities has shown positive trends including jawar, Bajra, Maize, Coarse Cereals, Pulses, Oil Seeds, Cotton etc in the Post WTO period.

Table 4.8: Compound annual Growth Rates (CAGR) of Exports of major agricultural trading Commodities in India.

Major agricultural Commodities	Pre WTO	Post WTO	Major Change
	1986-1995	1996-2016	
Sugar	-0.5	22.4	Increased
Coffee	12.8	6.2	Decreased
Tea	9.2	6.3	Decreased
Rice	-7.2	8.4	Increased
Wheat	24.8	4.1	Decreased
Tobacco	7.5	13.2	Increased
Cashew	12.4	6.4	Decreased
Spices	11.7	16.4	Increased
Fish	18.1	8.4	Decreased
Fruits & Vegetables	6.6	18.4	Increased

Source: Ministry Of Agriculture, G.O.I.

In table 4.8 we can see the major Indian agricultural trading commodities like Tobacco, Spices, Sugar, Rice, Fruits & vegetables have shown much higher growth rates in Post WTO period and Tea, Coffee, Cashew nuts, Fish, Wheat have shown lower growth momentum in post WTO period as compared to Pre WTO period.

Table 4.9: Comparison of Pre & Post WTO period in Average Annual Growth Rates of Major Indian Agricultural Commodities in Yields per Hectare:

Agricultural Commodities	Pre Liberalisation Period 1981-1991	Early Liberalisation Period 1991-1997	Post 1998-2004	Liberalisation 2005-2011	Period 2012-2017
Wheat	3.6	2.8	0.7	-0.3	3.0
Rice	3.0	1.4	2.1	1.2	2.2
Jowar	3.2	1.3	0.2	2.1	3.1
Bajra	8.8	6.2	4.9	7.3	8.4
Maize	4.1	2.6	3.1	-0.2	6.5
Coarse Cereals	3.1	4.3	1.3	1.7	7.3
Pulses	2.3	1.9	-0.3	0.6	2.7
Oilseeds	4.8	3.3	0.4	3.5	5.4
Cotton	5.3	3.1	-6.2	19.4	3.9
Sugarcane	1.3	0.4	0.3	0.7	0.5
Crops & Livestock	3.3	3.3	2.6	2.5	3.8

Source: Ministry Of Agriculture, G.O.I.

In table 4.9 growth rates in (gross value of output) yield per hector of major Indian agricultural commodities has been forecasted with Comparison has been made between Pre & Post WTO eras. The major finding is 1. Growth of output in Crops & livestock's has been found much higher in Post WTO period as compare to Pre WTO period (example- Particularly 11th five year plan the growth rate was 3.8 % average per annum). 2. Food grains, Oil seeds, Fibers grew much faster than expectation in the post WTO period from Pre WTO period. But Growth of Forestry was much slower.

Table 4.10: Export Performance of Indian Major Agricultural Commodities in the Last Few Years (Quantity in Metric Tonnes)

Year Wise Export Performance Of Major Indian Agricultural Trading Commodities	Total Quantity	Money Value ((Rupees in Crores)
2010-11	1,15,67,563.11	42,437.45
2011-12	1,98,10,216.80	83,485.29
2012-13	3,01,72,968.00	1,18,254.78
2013-14	3,00,01,358.04	1,36,920.07
2014-15	2,71,32,966.78	1,31,333.48

General Findings: Import & Export growth rates Major Indian Agricultural Commodities (1995-2016)

High/Increasing Export & Import		Low/Declining Export & Import	
Agricultural Commodity Exports	Agricultural Commodity imports	Agricultural Commodity Exports	Agricultural Commodity Imports
Rice, Cashew, Tobacco, Groundnuts Soya bean, Potato, Spices Banana, , Cashew and Pepper,Cotton	Oil Meals, Wheat, Sugar, Edible oils, Jute, Ginger, Tobacco	Tea, coffee, Wheat, Marine Products, rapeseed, Cake of sesame, Cotton	Sugar, Fruits Rice, Rubber and Linseed oil

Source: Ministry of Commerce & Industry, G.O.I.

Table 4.10 shows that Export in agricultural commodities in India during the year 2010-11 to 2014-15.The agricultural commodities exports of India were increased to Rs 1, 36,920.07 crore in 2013-14 from Rs 42,437.45 crore in the year 2010-11.Which shows Export Growth rates of agricultural commodities were high in India after 2012-13. India has become a good food grain exporter today as compare to pre WTO period.

Table 4.11: A Comparison of Indian agricultural Export Performance in all Agricultural Commodities (Money Value is expressed in US Dollar in millions).

Year Wise Comparison Of Indian Agricultural Export.	Total Agricultural Export of all Agricultural trading Commodities
Pre WTO	
1980-81	**7885**
1984-85	**9645**
1987-88	**9883**
1990-91	**18145**
1992-93	**18537**
1994-95	**26331**
Post WTO	
1996-97	**33470**
1999-2000	**36822**
2002-2003	**52719**
2005-2006	**103091**
2008-2009	**185295**
2009-2010	**178751**
2012-2013	**2,30,141**

Source: Government of India, Economic Survey.

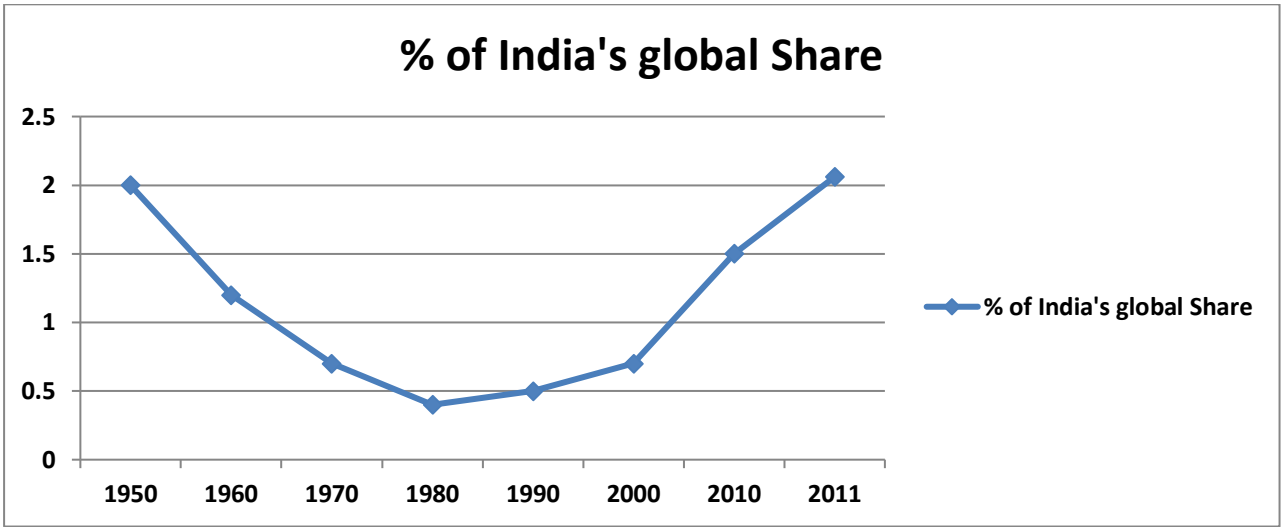
The above table explains that the annual growth of exports has increased to **9.5** % in the post-WTO period from on an average of **-2.8** per cent during pre-WTO period. The total Indian Export had increased to US $ 50163 million as compared to US $ 27242 million during pre WTO period. So from the above table it is clear that the impact of WTO on export of agricultural commodity is positive.

Table 4.12: Percentage of India's Share in agricultural export globally (Decadal average)

Year	1950	1960	1970	1980	1990	2000	2005	2009	2010	2011
% of India's Share	2.0	1.2	0.7	0.4	0.5	0.7	0.8	1.5	1.69	2.06

Source: Agricultural Data, Indian Five year plan book.

Figure 4.2: Percentage of India's Share in agricultural export globally (Decadal average) explained graphically.



The above graph shows Percentage of India's Share in agricultural export globally

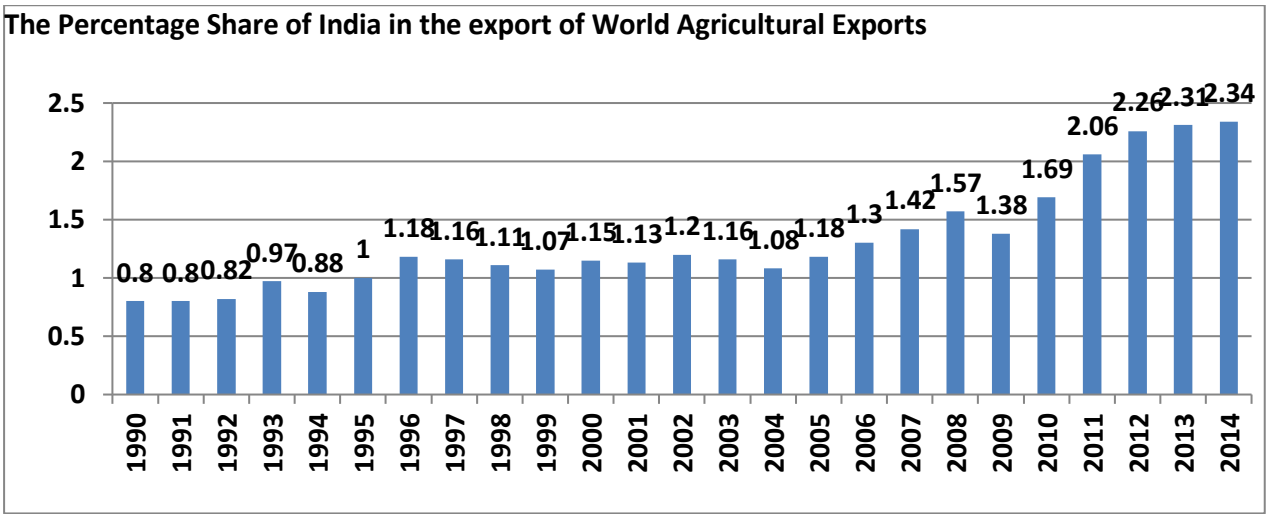
If we compare Pre & Post WTO era on percentage share of Indian Agricultural export on decadal basis we can see from the above table that though initially after independence India's share was 2% in the global export but gradually it declined and became less than 0.5% in the pre WTO period but it rose sharply in the Post WTO regime to 1.5 % in the 11th five years plan.

Table: 4.13: Latest Agricultural Export & Import of India of 2017 (in US$ million)

Agricultural Commodities	Value of Export 2017	Agricultural Commodities	Value of Import 2017
Rice	5461	Palm Oil	5122
Meat & Meat products	2994	Dried Leguminous Vegetables	2696
Cotton	923	Soya bean Oil	2135
Cashew & Coconuts	800	Sun-flower & Cotton Oil	1344
Fruits & Vegetables	767	Cashew nuts, Coconuts	1156

Source: WTO data (Stat.wto.org)

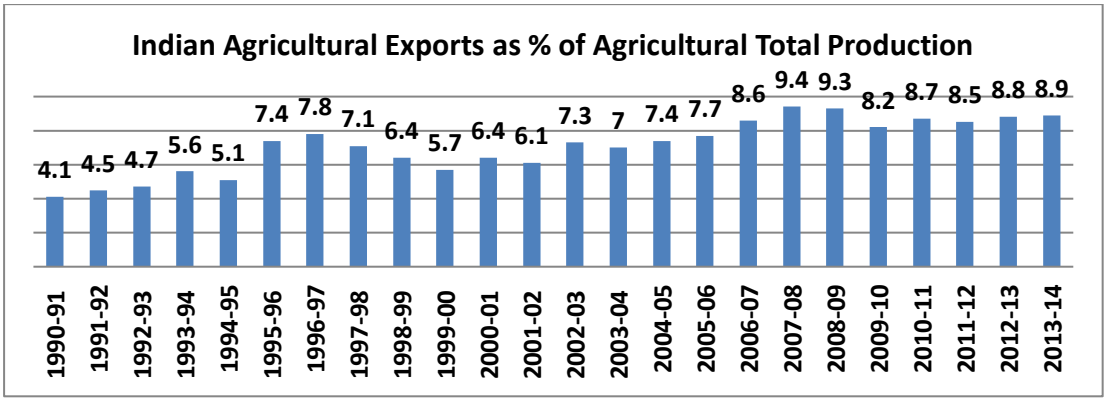
Figure: 4.3: The Percentage Share of India in the export of World Agricultural Exports



Source: RBI, Handbook of Statistics on Indian Economy

The percentage share of India in the world agricultural export is displayed for the duration of 22 years in the above table where we can notice that the percentage share of India's agricultural export has increased substantially in the Post WTO period particularly after 2007. It was highest in 2011-12 where India stands with the Major global exporters of agricultural commodities.

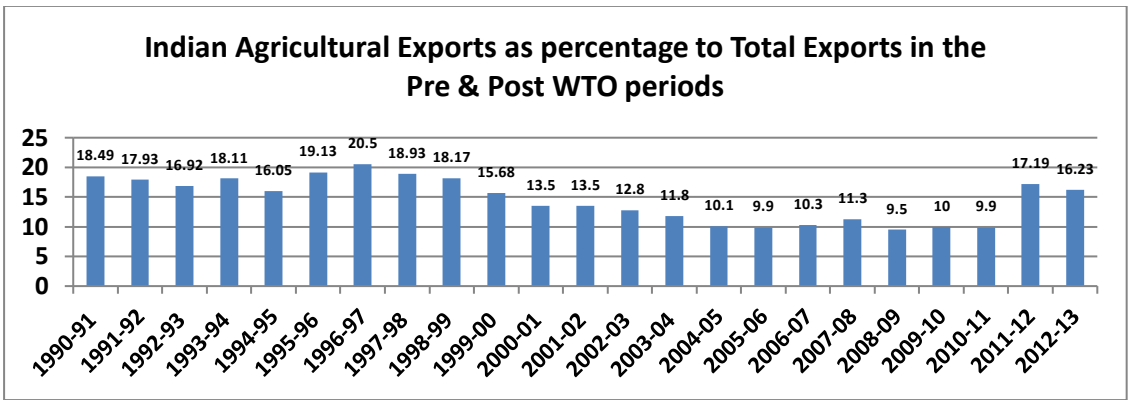
Figure: 4.4: Indian Agricultural export as percentage of Agricultural Total Production the Pre & Post WTO era



Source: RBI, Handbook of Statistics on Indian Economy

In the above table we can notice that the share of Indian agricultural export to total agricultural GDP in the Post WTO period was comparatively higher than that of the Pre WTO period. This is a clear signal that Indian agricultural production has been commercialised in a intense manner in the Post WTO period and its shift to the market orientation of character of it also noticeable in this period.

Figure: 4.5: Indian Agricultural Exports as percentage to Total Exports in the Pre & Post WTO periods



Source: RBI, Handbook of Statistics on Indian Economy

The share of Indian Agricultural commodity exports as a percentage to Total export was comparatively higher in the Pre WTO period but after the WTO the Share of this export was getting low in each coming year after 1995 in the post WTO period , it is because heavy increase in Indian service sector output export in the Indian Total export. But again after 2010 as the export in agriculture increased sharply the share of Agricultural export to total export started rising.

Table: 4.14: Year Wise Total Exports (in US$ million & Quantity in MT), Growth of Allied Products of Agri-Exports of Indian Major Agricultural Commodities in the Pre & Post WTO era.

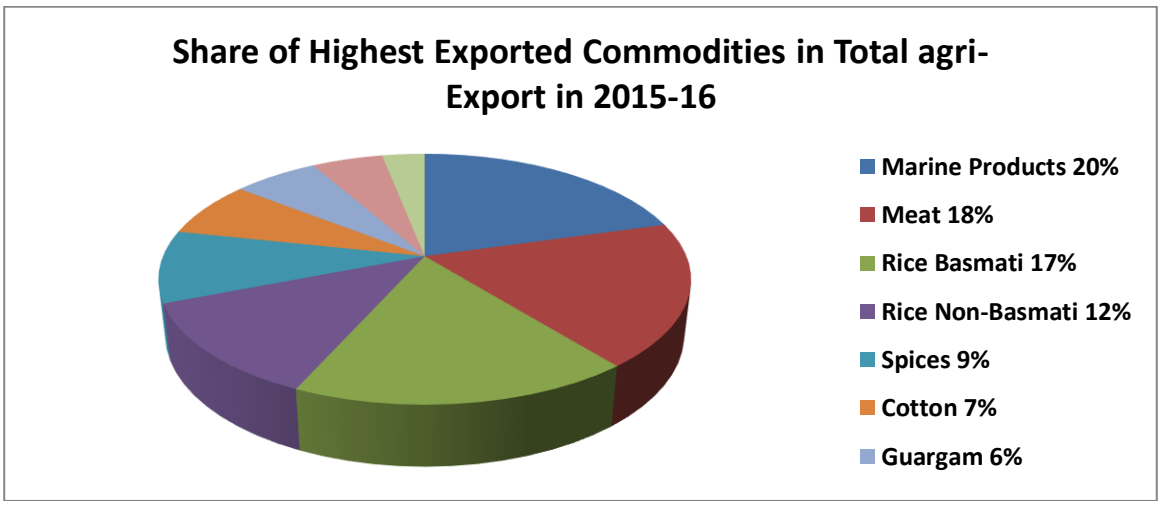
Year	India's Total Agricultural Exports	Quantity of Agricultural Export in Metric tonnes	Year Wise Growth of Values Rate of Total Agricultural Exports	The Percentage of Agricultural Exports To India's Total Exports
1987-88	586.16	10,61,153.44	--	22.78
1988-89	554.98	9,15,062.75	-5.31	20.06
1990-91	515	9,88,182.51	-7.20	18.49
1991-92	739.36	22,88,992.11	43.56	17.93
1992-93	666.37	14,70,638.41	-9.87	16.92
1993-94	897.27	20,01,497.74	34.65	18.11
1994-95	933.72	20,92,122.73	4.06	16.05
Average	615.243	1545378.53		18.62
CAGR	6.88%			
1995-96	2355.95	20,92,122.73	152.32	19.13
1996-97	2160.47	61,19,907.23	-8.29	20.50
1997-98	1940.12	39,80,849.06	-10.19	18.93
1998-99	2286.14	60,10,199.87	17.83	18.17

1999-00	1681.72	34,00,436.16	-26.43	15.68
2000-01	1996.54	47,33,808.13	18.72	13.5
2001-02	2144.85	75,04,857.93	7.43	13.5
2002-03	2803.94	1,15,33,053.00	30.72	12.8
2003-04	3134.66	1,19,16,945.49	11.79	11.8
2004-05	3775.13	1,19,60,591.93	20.43	10.1
2005-06	4218.01	1,03,94,825.88	11.73	9.9
2006-07	4693.05	1,05,29,404.61	11.26	10.3
2007-08	7311.37	1,54,28,409.71	55.79	11.3
2008-09	7540.03	1,31,48,884.31	6.16	9.5
2009-10	7343.98	1,12,55,522.03	-2.60	10.0
2010-11	9307.86	1,15,67,531.24	26.74	9.9
2011-12	17321.15	1,98,10,171.89	86.09	17.19
2012-13	21,739.85	3,01,72,963.87	25.51	16.34
2013-14	22,706.53	3,00,01,581.50	4.45	15.34
2014-15	21,489.34	2,71,34,311.45	-5.36	13.50
2015-16	16,412.76	2,04,69,770.49	-23.62	14.02
2016-17	16,212.45	2,12,71,453.91	-1.22	15.20
2017-18	18,576.87	2,22,93,598.89	14.58	13.2
Average	8658.82	1,27,27,426.14		13..31
CAGR	9.39%			

Source: APEDA, DGCIS.

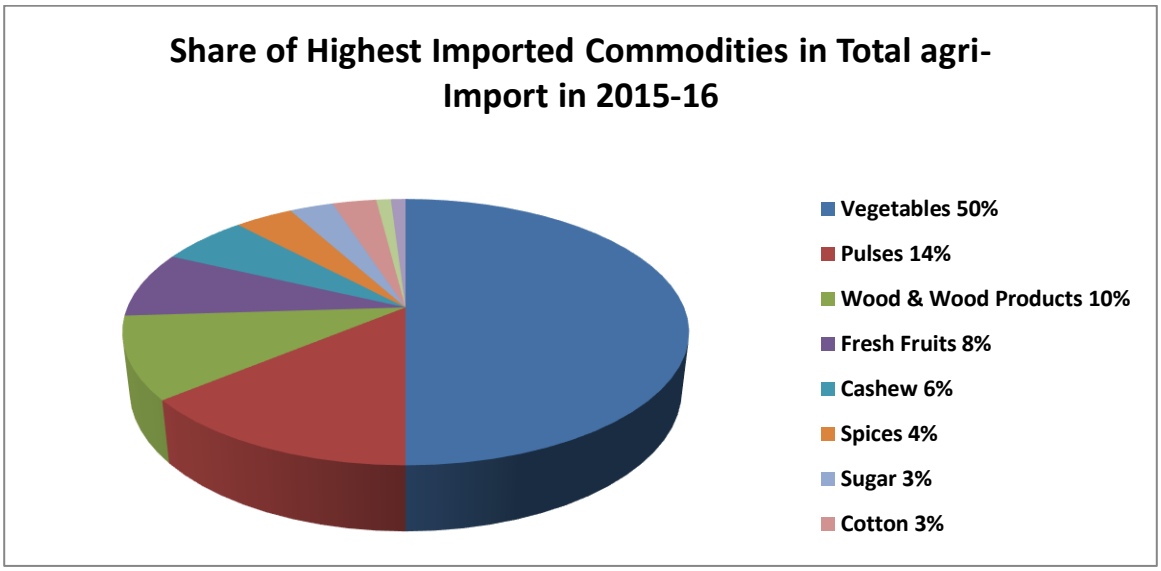
From the above table we can see that year wise growth in export value of agricultural commodities have increased substantially in the Post WTO period , particularly in recent times (from 2006-2011). This time the total agricultural export, percentage share of Agricultural export to India's total export and Growth of exports of Agricultural and Allied products have increased substantially.

Figure 4.15.1*:* Share of Highest Exported Commodities in Total agri-Export in 2015-16



Source: CSO Based data.

Figure 4.15.2: Share of Highest Imported Commodities in Total agri-Export in 2015-16



Source: CSO Based data.

Table: 4 16: Year Wise Percentage share of Indian Agricultural Exports in the Global level in the Pre & Post WTO era.

Year Wise	The percentage Share of Indian Agricultural exports in the World	Year Wise	The percentage Share of Indian Agricultural exports in the World
Pre-WTO		2007	1.42
1990	0.80	2008	1.57
1991	0.80	2009	1.38
1992	0.82	2010	1.69
1993	0.97	2011	2.06
1994	0.88	2012	2.26
CAGR (1990-1994)	1.92%	2013	2.28
Post-WTO		CAGR (1995-2013)	4.433%
1995	1.0		
1996	1.18		
1997	1.16		
1998	1.11		
1999	1.07		
2000	1.15		
2001	1.13		
2002	1.20		
2003	1.16		
2004	1.08		
2005	1.18		

2006	**1.30**		

Source: WTO Data.

The share of Indian agricultural Commodity Export in the world was comparatively low in the pre-WTO period (0.80%-0.88% in 1991-94). In post-WTO, But in the post WTO phase (from 1995- 2013) the percentage share of Indian agricultural commodity export have increased enormously (1% in 1995 to 2.26% in 2012 and 2.28 in 2013). Though the Indian Agricultural export in value term (US$ million) has gone down just after initial years of WTO, but in the recent time after the WTO the growth was positive in value term and percentage share also. After WTO and AOA this was the time when India was able to stand with the leading Nations of agricultural export in the World which helped India to gain market share in the world level also.

Table: 4.17: The Average Values (In US $ Million) of Major Indian Agricultural Commodity Exports (in the Pre & Post WTO period in every Triennium wise) to different countries with export diversification.

	1989-92	1993-95	1996-98	1999-2001	2002-04	2005-07	2008-10	2015-2017
Total Export of Major Indian Agricultural Commodities	**3,136.51**	**3,796.46**	**6915.94**	**5871.91**	**6714.75**	**10457.4**	**17900.4**	**27075.9**
Cashew	**247.95**	**329.97**	**370.45**	**468.41**	**391.05**	**564.55**	**596.21**	**778.78**
Sugar	**34.74**	**66.24**	**174.54**	**41.92**	**339.17**	**296.71**	**806.35**	**1645.78**
Fruits and Vegetables	**127.25**	**126.35**	**159.79**	**153.81**	**285.52**	**302.52**	**957.69**	**332.62**
Spices	**149.25**	**170.74**	**318.37**	**383.34**	**330.64**	**531.632**	**1249.20**	**2641.28**
Meat	**79.94**	**108.97**	**201.53**	**232.71**	**302.64**	**592.54**	**1141.41**	**3318.12**
Cotton	**224.05**	**105.22**	**241.7**	**38.46**	**74.84**	**699.92**	**1611.74**	**3001.45**
Tea	**546.20**	**328.54**	**382.35**	**447.25**	**352.74**	**411.94**	**570.11**	**740.55**
Oil Meal	**359.9**	**615.65**	**870.34**	**429.02**	**503.51**	**1008.23**	**1968.531**	**3469.65**
Rice	**273.31**	**377.01**	**1055.3**	**952.04**	**925.82**	**1488.79**	**2573.12**	**6186.30**
Marine Products	**510.95**	**847.31**	**1115.67**	**1204.92**	**1332.35**	**1599.05**	**1781.21**	**3093.33**

Tobacco	**134.94**	**130.61**	**211.5**	**201.22**	**206.45**	**317.42**	**716.01**	**912.5**
Coffee	**161.262**	**213.02**	**435.85**	**333.74**	**223.77**	**343.92**	**461.25**	**574.11**
Simpson Index	**0.8852**	**0.8707**	**0.8821**	**0.8701**	**0.8657**	**0.8906**	**0.9009**	**0.8713**

Source: RBI hand Book of Statistics on Indian Economy

The above table shows average value of Indian exports of Major Agricultural Commodities. Where we notice that the value of export in million dollars has increased many times in the Post WTO period but the overall growth of Agricultural export was higher in the pre WTO period as compare to the Post WTO period other than Meat, Spices and Fruits & vegetable export. Export of these particular commodities increased many fold as compare to other commodities.

The Simpson Index shows higher value (0.9009) in the Post WTO period as compare to Pre WTO period's value (0.8852) which implies higher diversification of Indian overall agricultural export to the World in the Post WTO period than the Pre WTO period.

Table: 4.18: Export Share (in percentage) of Major Indian Agricultural Commodities to total Export of agricultural commodities (in the Pre & Post WTO period)

Percentage Share of major Indian Agricultural Commodity Export	1989-92	1993-95	1996-98	1999-2001	2002-04	2003-07	2008-10
Fruits and Vegetables	**4.06**	**3.33**	**2.31**	**2.61**	**4.25**	**2.89**	**5.35**
Rice	**8.72**	**9.94**	**15.26**	**16.21**	**13.78**	**14.23**	**14.37**
Oil Meal	**11.48**	**16.22**	**12.58**	**7.30**	**7.49**	**9.64**	**10.99**
Tobacco	**4.31**	**3.45**	**3.05**	**3.42**	**3.07**	**3.03**	**3.99**
Marine Products	**16.28**	**22.3**	**16.13**	**20.52**	**19.84**	**15.29**	**9.95**
Meat	**2.55**	**2.89**	**2.91**	**3.96**	**4.50**	**5.66**	**6.37**
Cotton	**7.13**	**2.76**	**3.49**	**0.65**	**1.11**	**6.69**	**9.00**
Cashew	**7.89**	**8.68**	**5.35**	**7.97**	**5.82**	**5.39**	**3.33**
Tea	**17.41**	**8.66**	**5.52**	**7.61**	**5.25**	**3.93**	**3.18**
Spices	**4.76**	**4.50**	**4.60**	**6.52**	**4.92**	**5.08**	**6.97**
Coffee	**5.13**	**5.71**	**6.30**	**5.68**	**3.33**	**3.28**	**2.57**
Sugar	**1.11**	**1.74**	**2.52**	**0.71**	**5.05**	**2.83**	**4.50**

Source: RBI hand Book of Statistics on Indian Economy

The above table shows the average value of export share (in percent) of traditional Indian agricultural commodities has gone down mostly in the Post WTO period as compare to the Pre WTO period. But Commodities like Spices, Meat & Meat Products, Rice and Fruits & Fruits products have shown positive results and in achieving higher growth of export share in the Post WTO period.

Table: 4.19: CAGR, (Annual Compound Growth Rate) of India's Major Agricultural Commodity Exports in Pre and Post WTO Period

India's Major Agricultural Commodities	Pre WTO Era (1989-90-1994-95)	Post WTO Era (1995-96 – 2009-10)
	Value	Value
Tea	-8.08	2.7
Fruits &Vegetables	20.42	8.01
Oil meal	9.37	5.59
Cashew	4.88	3.22
Sugar	1.30	17.01
Spices	2.34	9.54
Marine Product	8.79	3.17
Cotton	44.51	30.92
Rice	-5.51	6.12
Coffee	4.75	0.38
Tobacco	-0.53	8.47
Meat	13.27	18.81

Source: RBI, Handbook of statistics on Indian Economy

The above table shows other than some Agricultural export commodities like Meat, Fruits & Fruits Products, and Spices the CAGR of all other traditional Indian agricultural Commodity's have gone down during the Post WTO period.

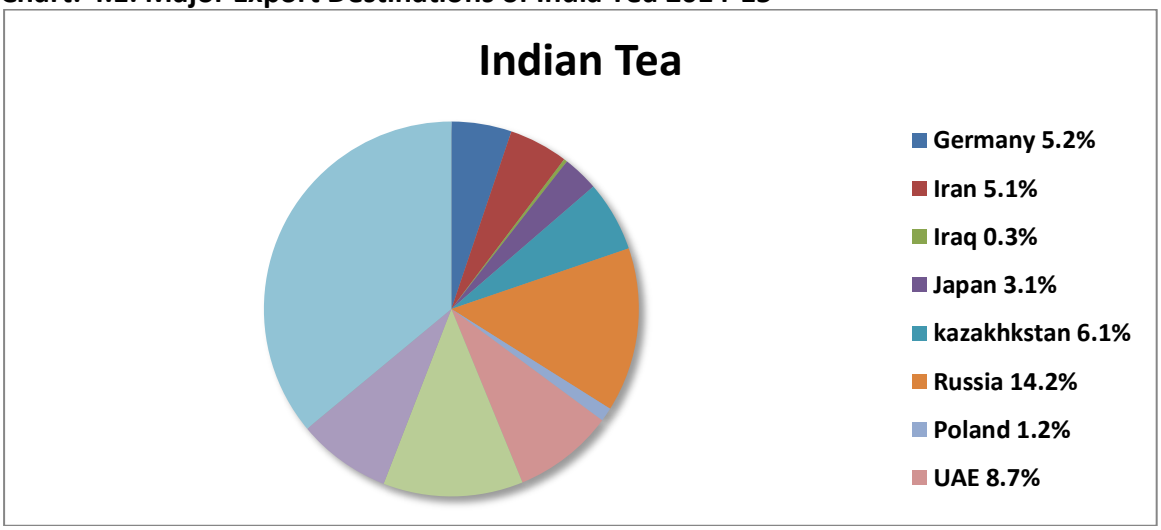
In the following we have discussed about the **Growth, Export competitiveness, Composition and direction** of few major Indian Agricultural Export commodities.

4.5: Tea:

Tea is among the top traditional plantation based industries in India which holds top position in export with other commodities and provides more than 2.5 million jobs to native people both directly and indirectly. This industry also helps earning huge foreign exchange, maintaining remote rural employment & soil conservation and Socio-economic development of the country. But Challenges are increasing every day in production and global export competition in this industry. Despite enormous challenges from China, Sri lanka & Kenya, India has able to maintain its position as a major global exporter of Tea with approximately 29% of world market share of Tea (436057 hectares of land engaged in tea plantation in India where major contributing states are Assam, WB, Tripura, NE, Tamilnadu, Kerala, Karnataka, Sikkim, HP). If we see the data India's total Tea production has increased from **569** mkgs in 1980-81 to **870.41** mkgs in 1998-99 and **1278.83** mkgs in 2017(India's Tea quality standard does not mostly match global quality standard of tea. In total tea production India produces around 85% CTC Tea and left is Orthodox leaf and green tea). Tea is among the world's leading beverages in 140 countries where India has able to reach only in 80 countries. India's traditional competitors in the world were Srilanka, China, Indonesia etc. But recently Bangladesh, Kenya, Uganda, Tanzania and Zimbabwe have emerged as India's Global competitors in tea export Industry. The global Tea export has increased from 859 Mkgs in 1980-81 to 1259 mkgs in 1998-99, where India's share was 210 mkgs in 1998-99. The recent Indian decadal world export share of Tea has declined drastically as the domestic consumption of tea has been rising since independence (31 % of the total production was kept for domestic consumption in

1950s where about 80% of the total Tea produced in India was reserved for domestic consumption in recent times). Major importing countries of Indian Tea are USA, Russia, UK, UAE, Saudi Arabia, Poland, Kazakhstan, Iran, Iraq, and Germany. India is facing competition from Sri lanka & Indonesia in exporting Orthodox Tea, from China in exporting Green Tea, from Kenya and other African nations in exporting C.T.C. Tea. In order to make Indian Tea Competitive in the global level so that Indian tea exporters could reap the fruits of Economic liberalisation after WTO, the Govt. of India has taken many initiatives, including, macro-Economic stabilization & Structural Adjustments programme, exchange rate adjustments with new economic policies. The WTO has provided **GI (geographical Indication) act and Intellectual property rights (IPR)**, so the govt. of India has taken many initiative steps to improve export of Tea, which include production, domestic consumption, and exports. Under these circumstances our objective of the study is to see the export achievement of Indian tea in the post WTO era (after comparing between Pre & Post WTO eras). In the post WTO era Indian Tea export has been varying in year to year. The country wise average value of exports, percentage share to the total tea exports for 1989-90 to 2009-10 periods is given below in the following pie chart. The Pie chart shows the major export destinations of Indian tea in 2007-08 to 2009-10 was UK, USA, U.A.E., Iran & Russia.

Chart: 4.1: Major Export Destinations of India Tea 2014-15



Source: RBI hand Book of Statistics on Indian Economy

In our study we have tried to show the CAGR, Simpson Index, Percentage share, Pre & Post WTO period in order to explain cross country export trends, Performance & export diversification and export growth of Tea. One thing is noticeable here is that, after the WTO though OECD countries still remains as the major Importers of Tea but Asian countries import shares have increased than before and India some time lag behind to satisfy the high quality customers of the western nations with low technological background. Annual Compound Growth Rate (CAGR), average value of exports, percentage share to the total tea exports from India for 1989-90 to 2009-10 periods is given below in the table by Country Wise, Which reflects that the major export destinations of Indian tea in recent time are Russia, U.A.E., U.K., U.S.A. and Iran. In **pre-WTO period (1990-92), the major Indian Tea importing countries were (1) Russia ($ 298 million) (2) UK ($ 56 million) (3) Iran ($ 38 million), (4)**

UAE (5) Germany (6) Poland. In post-WTO period (1998-99), the average value of tea exports was (1) Russia (US$ 138.57 million) (2) U.K. (US$ 46.1 million). In recent time (2010-11) the average value of tea exports from India is (1) Russia (US$ 82.9 million), (2) U.A.E. (US$ 72.9 million), (3) U.K. (US$ 64.73 million) and U.S.A. (US$ 46.2 million).

Table: 4.20: Percentage wise the Annual Compound Growth Rate (CAGR) of India's Tea Exports in Pre and Post WTO Period to different Countries.

Countries	Pre-WTO Era (From 1990 to 1995)	Post-WTO Era (From 1995-96 to 2009-10)
Germany	--0.89	1.14
U.A.E.	9.89	3.69
Russia	-16.84	-3.37
Iran	-15.72	16.62
Iraq	-4.09	14.04
Kazakhstan	6.7	8.94
Poland	8.16	-5.16
United Kingdom	-2.09	2.29
USA	9.06	8.24
Japan	-4.78	2.25
Others	-2.19	5.83
Total	-8.08	2.7

Source: RBI hand Book of Statistics on Indian Economy

The CAGR (compound annual growth rate) of Tea exports in pre-WTO period was 15 per cent that is higher than in post-WTO period which was only 5.8 per cent. The above Pie Chart shows the percentage share of tea exports in the pre WTO (1990-91) and post WTO period (2014-15).The average value of Tea exports 1991 was US$ 546 million, which fell to US$ 328 million in 1995. In post-WTO, the average value of tea exports was US$ 570 million in 2010. However, the average share has declined from 5.53 per cent in 1997 to 3.19 percent 2009-10. So it is clear that percentage share of Tea exports was higher in pre WTO period but average value of Tea export was higher in Post WTO period as compare to pre WTO period. From the above table it can be seen that Iran, Other countries, USA, and Kazakhstan evolved as the major export destinations of Indian Tea in the Post WTO era.

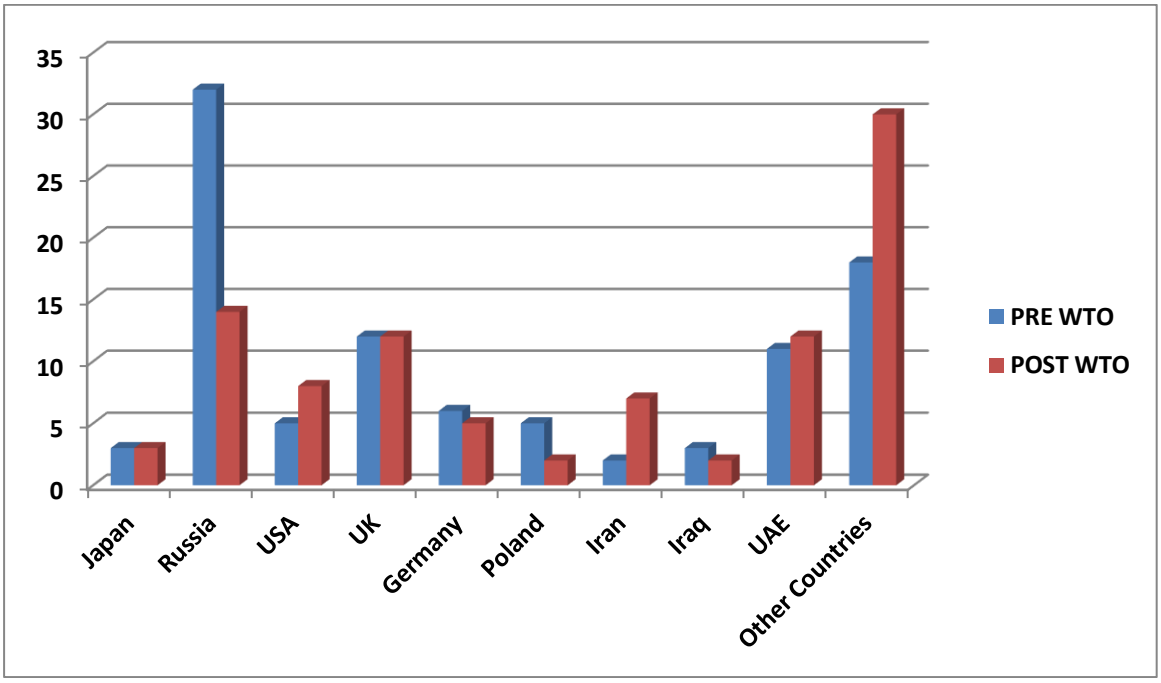
Table: 4.21: Export Share of Indian Tea to major importing Countries (in Percentage Share)

Countries	Share in Percentage		Difference
	Pre WTO Era (1986-1995)	Post WTO Era (1996-2016)	
Poland	5	2	Decreased
Kazakhstan	3	5	Increased
UAE	11	12	Increased
Iran	2	7	Increased
Iraq	3	2	Decreased
Germany	6	5	Increased
Japan	3	3	No change
Russia	32	14	Decreased
USA	5	8	Increased

United Kingdom	**12**	**12**	**No Change**
Other Countries	**18**	**30**	**Increased**

Source: RBI hand Book of Statistics on Indian Economy

Figure 4.6: The following Figure shows Country wise percentage share of export Change in the Pre & Post WTO period.

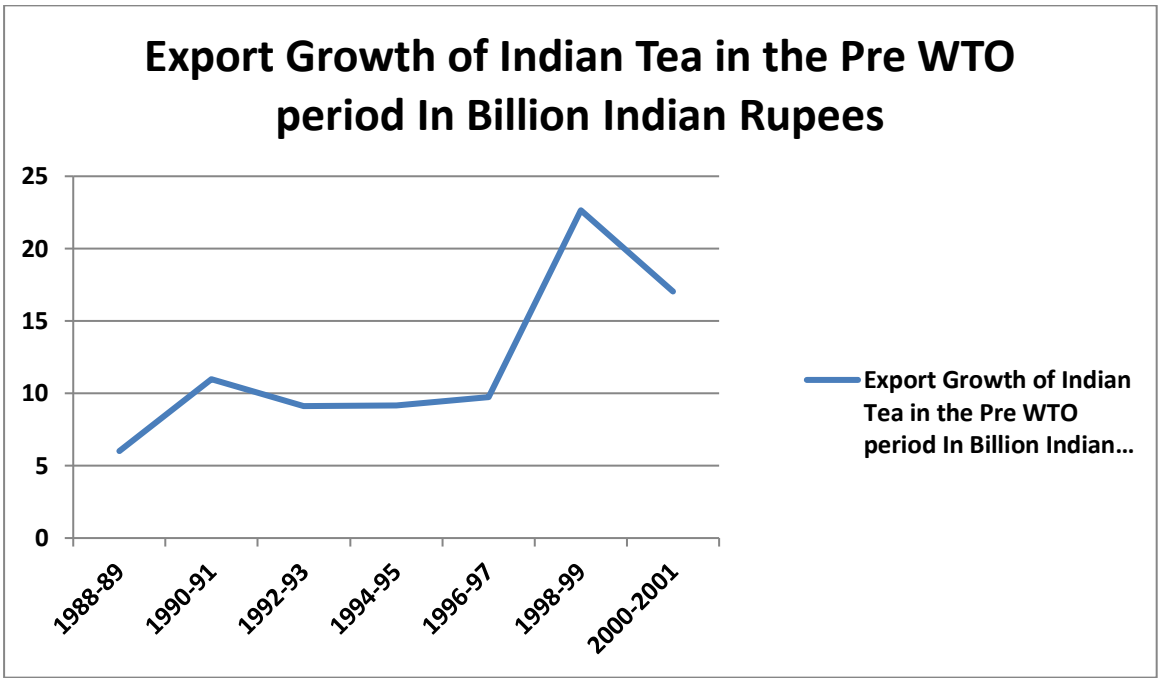


Source: RBI hand Book of Statistics on Indian Economy

From the above table it is being seen that the percentage share of some countries import of India's tea has declined in the post-WTO era, while some countries import of Indian grown Tea has increased, for example Indian Tea export to USA has risen from 1.4 % in the Pre WTO period to about 8% in 2012, where for UAE it has improved to about 12.8% from mere 3% in the same period. But in case of Russia the Bulk Tea export to Former USSR was as high as 54% in Pre WTO period has gone down to about 14.5% in Post WTO era, though it still the highest single country Tea export from India.

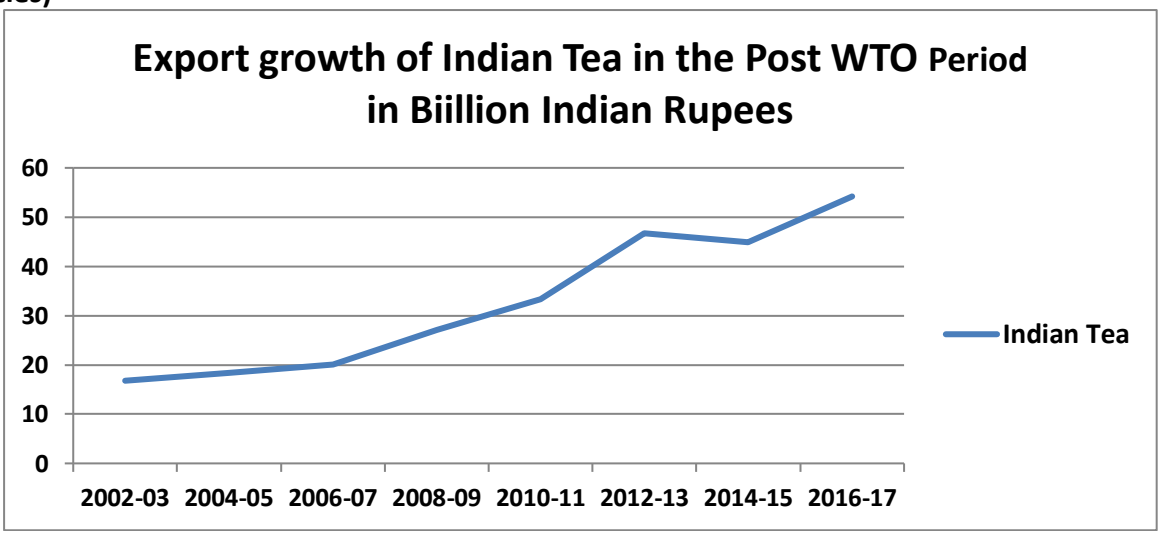
Two things has been taken into consideration to compare between the Pre & Post WTO era , first is the Compound annual growth Rate (CAGR) and the Second is measure of export diversification by using Simpson Index. In case of the CAGR the in Post WTO era the CAGR was higher than Pre WTO period and it was highest for many countries like, USA, UAE, and Iran etc. When we see Simpson index we notice that export diversifications were higher in Post WTO period (Simpson Index was .84 in the following table) as compare to pre WTO era (Where Simpson Index was 0.67. The value of the Simpson Index Varies from 0 to maximum 1, where value 0 implies no diversification and value 1 means maximum diversification.

Figure: 4.7: Growth of Export of Indian Tea in the Pre WTO Period (Estimated in Billion Indian currencies)



Source: RBI Hand Book of Statistics on Indian Economy.

Figure: 4.8: Growth of Export of Indian Tea in the Pre WTO Period (Estimated in Billion Indian currencies)



Source: RBI Hand Book of Statistics on Indian Economy.

Table: 4.22: Country wise Average Values (In US $ Million) of Indian Tea Exports in the Pre & Post WTO period)

	Pre-WTO Period		Post-WTO Period				
Countries	1990-92	1993-95	1996-98	1999-2001	2002-04	2005-07	2008-10

Poland	**15.89**	**25.44**	**21.12**	**15.59**	**14.12**	**14.88**	**9.54**
Japan	**12.26**	**9.14**	**11.26**	**12.64**	**11.41**	**12.00**	**15.71**
Iran	**37.56**	**13.46**	**4.41**	**9.58**	**4.19**	**6.87**	**44.24**
Iraq	**1.94**	**1.51**	**1.61**	**18.96**	**28.41**	**23.69**	**11.56**
U.S.A	**7.56**	**12.72**	**14.09**	**21.34**	**24.92**	**23.14**	**46.21**
Kazakhstan	**1.01**	**1.49**	**6.61**	**16.58**	**23.26**	**19.97**	**23.89**
Germany	**21.745**	**20.61**	**22.19**	**23.61**	**21.71**	**22.71**	**26.32**
Russia	**297.92**	**98.51**	**138.56**	**154.86**	**66.81**	**110.82**	**82.89**
U.A.E.	**16.01**	**28.19**	**42.32**	**48.88**	**52.66**	**50.71**	**72.91**
United Kingdom	**56.31**	**49.61**	**46.11**	**46.66**	**37.91**	**42.27**	**64.72**
Others	**79.04**	**69.21**	**73.51**	**78.42**	**67.32**	**72.87**	**172.09**
Total	**547.22**	**330.05**	**382.35**	**447.25**	**352.72**	**400.01**	**570.11**

Source: RBI Hand Book of Statistics on Indian Economy.

Year Wise (Triennium wise) Values of Simpson Diversity Index of Indian Tea Exports to Several major export Destinations based on above values.

Triennium	**1990-92**	**1993-95**	**1996-98**	**1999-2001**	**2002-04**	**2005-07**	**2008-10**
Simpson Diversity Index	**0.6661**	**0.824**	**0.801**	**0.82**	**0.87**	**0.852**	**0.842**

The value of Simpson Index in case of Indian export has emerged to be higher showing higher amount of diversity of Tea export in Post WTO period (**Simpson Diversity Index value being 0.842) in compare to Pre WTO period's value (0.6661)**

Table: 4.23: Country wise Export Share of Indian Tea Exports in the Pre & Post WTO period (in Percentage & triennium basis)

	Pre-WTO Period		**Post-WTO Period**				
Countries	**1990-92**	**1993-95**	**1996-98**	**1999-2001**	**2002-04**	**2005-07**	**2008-10**
U.S.A	**1.37**	**3.86**	**3.61**	**4.73**	**7.05**	**5.79**	**8.11**
Germany	**3.95**	**6.23**	**5.79**	**5.21**	**6.11**	**5.66**	**4.60**
Japan	**2.241**	**2.77**	**2.95**	**2.81**	**3.22**	**13.01**	**2.76**
Kazakhstan	**-**	**0.45**	**1.71**	**37.01**	**6.58**	**4.98**	**4.18**
Poland	**15.81**	**7.73**	**5.53**	**3.47**	**4.01**	**3.70**	**1.66**
Russia	**54.51**	**29.97**	**36.21**	**34.59**	**18.92**	**27.71**	**14.51**
U.A.E.	**2.91**	**8.57**	**11.09**	**10.91**	**14.94**	**12.68**	**12.77**
United Kingdom	**10.29**	**15.01**	**12.06**	**10.41**	**10.75**	**10.58**	**11.34**

Iran	**6.86**	**4.10**	**1.14**	**2.12**	**1.18**	**1.72**	**7.76**
Iraq	**0.34**	**-**	**0.43**	**4.25**	**8.06**	**5.91**	**2.28**
Others	**14.41**	**21.05**	**19.21**	**17.49**	**19.07**	**18.23**	**30.19**

Source: RBI Hand Book of Statistics on Indian Economy

The Direction of Indian Tea trade in the pre & Post WTO period shows that in the Pre WTO period USSR was the most important market for Indian Tea export. But in the post WTO era the export share to Russia from India gone down from 60% to only 14%. USA has retained and improved Tea imports from India. UK has improved in the Post WTO period and Germany ranked 4th in terms of Export of Tea. The new emerging destinations for Indian Tea are Iran, USA, UK, Germany and UAE with older ones like Russia and Poland. The transitional probability matrix indicates that UK, Iran, UAE, Saudi Arabia were able to retain their previous shares of Indian Tea where countries like Germany, Poland, Russia etc could not retain their pre WTO period's market share of importing Indian Tea. So Structural Change is visible in trading Indian Tea in the post WTO period. Export competitiveness of Indian tea in the Post WTO era reveals that the NPC value under exportable hypotheses of Indian Tea was 0.98 and NPC value of Indian Tea under Importable Hypotheses was 0.71 respectively(Where, $\mathbf{NPC\ i = P\ i^{d} / P\ i^{w}}$, Where **NPC i** = Nominal protection coefficient of commodity i. $\mathbf{P}_{i}^{d}$ = Domestic price of commodity i. $\mathbf{P}_{i}^{w}$ = World reference price of commodity i, adjusted for transportation, handling and marketing expenses. Here, **NPC < 1** indicates the commodity is exportable and **NPC > 1** indicates that the commodity is importable). This implies that Indian Tea exports is competitive and import substituting. According to few recent research studies done by Scholars show that the Indian tea exports are moderately concentrated and it is tended toward equitable proportions and the impact of WTO on Indian Tea trade showed that the rupee value of Tea export did not accelerate in the post WTO period and more or less remained same as pre WTO period. The major constraints in Export performance of Indian Tea in the Post WTO period as per the Corporations in the Tea industry were Unskilled Labour force, Lack of Capital & Credit supply to the Industry, high input cost (both fertilizers & Pesticides) , Lacking of international quality standard (Phytosanitary measures) and competition with Sri lanka, China, Kenya , Indonesia etc, Lack of measures in export promotions, existence of Nontariff Barriers, Fluctuations in domestic & International prices etc . The present situation of Indian Tea trade is satisfactory but not as it was in its Glorious period. To expand International market share of Indian Tea all the stakeholders, parties (Including Govt., National & multinational Corporations, Research Institutions) must come together and frame domestically and internationally viable & competitive policies (not at the cost of farmers or labourers) so that Indian Tea can regain its already lost international Export market share and compete in quality of Tea at the international level also.

4.6: Coffee:

The value of Coffee as a source of earning foreign exchange is immense for countries like India. It is considered as second biggest exporting commodity after petroleum. With about **2% share of global Coffee export** and around **4% of global Coffee production** India ranks **third** in coffee supply in Asia. Coffee is basically grown in south India(Karnataka grows about 73% of Coffee and Kerala state grows about 26% of total Coffee produced in India. Other than these 5% coffee is produced in nontraditional area like, AP & Orissa state and north eastern states of India). India exports about its 75 to 80 % of domestically produced coffee and consumes around 20% of it. The demand for Coffee in the world has increased tremendously as it has become a lifestyle drink. But India is facing

enormous challenge from other Coffee exporter countries like Brazil, Vietnam Cambodia and many African countries and losing its international market share. Even the domestic market demand also not increasing since many years as about 78% of total domestically produced Coffee is exported and only 22% is kept for domestic consumption for long years now. India produces around 3.02 lakh tonnes of Coffee in 2012 and consumes around 1 lakh tonnes of coffee domestically. India's variety of coffee includes Robusta (68%) and Arabica (32%). As a result of **big fall in global Coffee prices the competition became fierce** and India's coffee export have been effected by that as the Indian Coffee export in Pre WTO period (1992-1994) was around US $ 213 million and US $ 435 million in 1998 with Its export share was around 5.7% in this period has fall down to US $ 223 million in 2003-04. But after this fall the average export value of Indian coffee export started increasing again and reached up to US $ 461 million in 2009-10 but its Export share remained 2.57% globally. So in the post WTO period the average export share of Indian Coffee was much less than to Pre WTO period, though the average value increased in the Post WTO period. The CAGR (Compound Annual Growth Rate) of Coffee export was much higher in Pre WTO period than in the Post WTO period. In the following table we have discussed Percentage share, average value of exports, and Simpson index of coffee export from India for 1990 to 2009-10, which shows the major coffee importing Countries are Russia, Germany, Italy & Belgium. In the pre WTO period Russia (US$ 79 million) was among the top importers of Indian Coffee followed by Germany and Italy. In the Pre WTO period (1991-95) the average value of coffee export was highest to Germany, Russia, Italy and USA but in the Post WTO period it was Russia (US$ 94 million), Italy (US$ 57.4 million), Germany (US$ 57.25 million). Recently it is Italy which is the top importer (US $ 110 million) of Indian Coffee. Though the coffee export to Russia has gone down from 48% in the pre WTO period to about 11% in the Post WTO period still, Russia holds the second rank as coffee exporting destinations after Italy. Coffee export to Italy has gone up to 23.53% in the Post WTO period as compare to 12.65% in Pre WTO era. Some countries have shown mixed trend in coffee import like Germany and Belgium , where Spain has shown increasing trend in the Post WTO era (from 2.07% to 3.23%) in importing Indian coffee. The export diversification in the post WTO has increased as the Simpson diversification Index shows 0.73% in the post WTO period from 0.685% in the pre WTO period, which reflects Indian Coffee export, has been diversified better in the post WTO era. In this paper we have tried to analyse the effects of WTO regime on Indian Coffee export and growth rate of coffee export from India.

Table: 4. 24: Country wise Average Values (In US $ Million) of Indian Coffee Exports in the Pre & Post WTO period (Triennium Wise)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
Italy	12.09	30.61	57.433	45.74	36.32	41.04	108.571
United Kingdom	0.88	3.61	2.94	4.66	2.26	3.46	3.302
Belgium	0.76	2.22	11.13	16.94	14.311	15.68	22.94
U.S.A	9.04	19.86	48.01	23.81	6.38	15.09	10.11
The Netherlands	2.41	3.42	9.834	9.38	3.96	6.68	4.56
Germany	13.871	41.58	57.26	48.42	25.601	37.01	35.52
Switzerland	1.24	2.86	5.22	6.01	3.78	4.89	7.63
Latvia	1.19	1.24	1.21	6.02	1.18	3.59	4.51
Spain	0.98	1.84	9.41	15.74	9.16	12.44	14.92
Russia	78.26	35.12	93.83	59.66	53.01	56.32	48.31

Others	**41.84**	**70.72**	**139.56**	**97.36**	**67.79**	**82.57**	**200.89**
Total	**161.27**	**213.04**	**435.86**	**333.72**	**223.78**	**278.76**	**461.28**

Source: RBI Hand Book of Statistics on Indian Economy.

Year Wise (Triennium wise) Values of Simpson Diversity Index of Indian Coffee Exports to Several major export Destinations based on above values.

Triennium	**1990-92**	**1993-95**	**1996-98**	**1999-2001**	**2002-04**	**2005-07**	**2008-10**
Simpson Diversity Index	**0.6852**	**0.79**	**0.80**	**0.8341**	**0.81**	**0.78**	**0.7351**

The above table shows average value of Indian exports of Coffee to various nations form year 1990-92 to year 2008-10. According to the above table the major export destinations of Indian Coffee is Italy, Germany, Russia & Belgium (from time period 2008 to 2010). But it was different in the Pre WTO period as In the pre-WTO period (1989-1995), the average value of coffee exports in total coffee export was highest to Russia and then Germany, Italy and USA. But In the late post-WTO period (2007 to 2010), the major export destinations of Indian Coffee from India were maximum to Italy, followed by Russia, Germany and Belgium.

The Simpson Index shows higher value (0.7351) in the Post WTO period as compare to Pre WTO period's value (0.69) which implies higher diversification of Indian Coffee export to the World in the Post WTO period than the Pre WTO period. In the Post WTO period Belgium & Spain recorded highest CAGR of Indian coffee export to total coffee export to the world.

Table: 4.25: Country wise Export Share of Indian Coffee Exports in the Pre & Post WTO period (in Percentage)

Countries	**Pre-WTO Period**		**Post-WTO Period**				
	1990-92	**1993-95**	**1996-98**	**1999-01**	**2002-04**	**2005-07**	**2008-10**
Italy	**7.51**	**14.35**	**12.66**	**13.71**	**16.22**	**14.71**	**23.54**
Latvia	**-**	**0.581**	**0.261**	**1.81**	**0.523**	**1.28**	**0.98**
Belgium	**0.471**	**0.01**	**2.452**	**5.071**	**6.392**	**5.62**	**24.98**
Russia	**48.50**	**16.48**	**20.68**	**17.86**	**23.67**	**20.21**	**10.401**
Germany	**8.58**	**19.51**	**12.60**	**14.50**	**11.438**	**13.28**	**7.71**
United Kingdom	**0.54**	**1.679**	**0.642**	**1.40**	**1.01**	**1.23**	**0.72**
U.S.A	**5.61**	**9.301**	**10.58**	**7.12**	**2.83**	**5.41**	**2.19**
Netherlands	**2.41**	**1.61**	**2.16**	**2.802**	**1.771**	**2.40**	**0.991**
Switzerland	**0.761**	**1.341**	**1.14**	**1.79**	**1.685**	**1.751**	**1.66**
Spain	**0.59**	**0.86**	**2.08**	**4.72**	**4.08**	**4.45**	**3.232**
Others	**25.89**	**33.21**	**30.74**	**29.16**	**30.38**	**29.63**	**43.54**

Source: RBI Hand Book of Statistics on Indian Economy.

The country wise average percentage share of coffee in total coffee exports was highest for (1) Italy then, (2) Russia and (3) Germany in recent time. Few Countries Coffee Import from India has

Increased in this period for example Italy and Spain but, it has been declined for some Countries in the post WTO period as compare to Pre WTO period, for Example Russia where some countries has shown more or less steady path, for example Germany, Belgium etc.

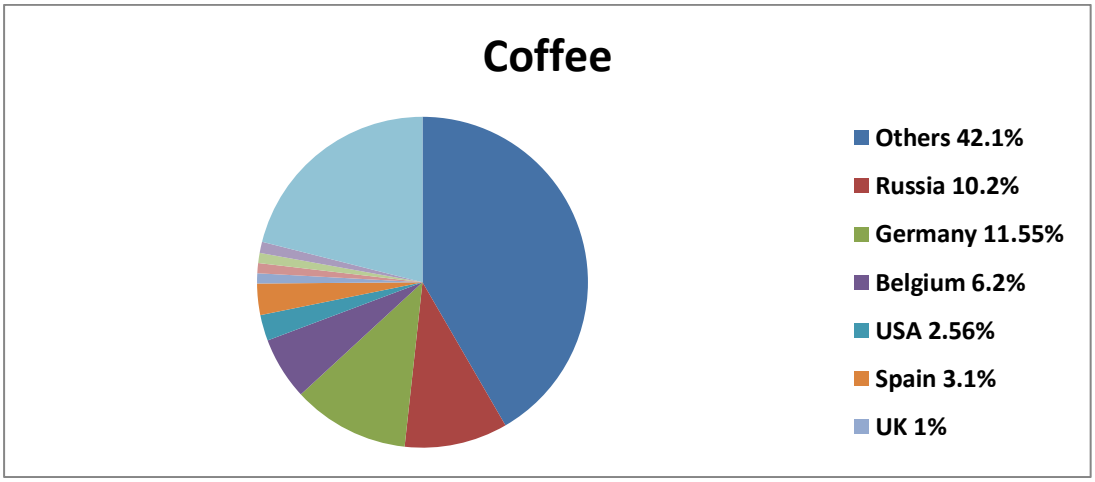
Table: 4.26: Percentage wise CAGR, (Country wise Annual Compound Growth Rate) of India's Coffee Exports in Pre and Post WTO Period

Countries	Pre-WTO Era (from1990 to1994-95)	Post-WTO Era (1995-96 to 2009-10)
Netherlands	6.01	-4.99
Russia	-12.5	-4.33
Spain	11.07	3.12
Switzerland	14.95	2.56
Germany	20.08	-3.13
Italy	16.75	4.34
USA	14.02	-9.86
Latvia	0.69	9.17
United kingdom	26.52	0.77
Belgium	19.56	4.94
Others	9.14	2.46
Total CAGR	4.75	0.38

Source: RBI, Handbook of Statistics on Indian Economy

In the Pre WTO period the CAGR (Compound Annual Growth Rate) of Coffee was highly concentrated to few particular countries. In the Post WTO period Belgium & Spain recorded highest CAGR of Indian coffee export to total coffee export to the world.

Chart: 4.2 Major Export Destinations of India Coffee 2014-15



Source: WTO Data

In the pre WTO period the export of Coffee was 10.859 billion rupees from 2.616 billion rupees in 1988-90.In the post WTO period the export of coffee increased to 17.280 billion in 1998-99 and rose to 49.1251billion rupees. But again it fell to 20.321 billion rupees in 2009-10. After 2010 it increased again in 2012-13. The export of Coffee is regulated by the Coffee Board of India which controls coffee trade by imposition of periodic quantitative restriction and Coffee has never been taken under quota licensing. There are two auction markets for coffee trade in India. Two markets are separated in order to maintain the domestic price of Coffee less than the International price.

After studying both the Pre & Post WTO period, we can say that there are some countries which were unstable under the Pre WTO era as Indian Coffee export destinations and there are some countries which became unstable in the Post WTO era. The probability of retention was high for other countries in both the Pre & Post WTO periods. The probability of retention was very unstable for Switzerland in the pre WTO period. The Probability of retention was less for USA in the post WTO period which was high in the Pre WTO period and Italy & USA were the net gainer of Coffee trade as importers in the post WTO period. One of the big reasons behind this was the policy of no quota licensing in import or export of coffee in India. Though there is difference between the actual & estimated export market share, yet the market share of Germany, Spain, Switzerland, & Italy have increased in the post WTO period but market share have decreased for countries like Russia, USA, Belgium & other countries.

Table: 4.27: Export Share of Indian Coffee to major importing Countries (in Percentage Share)

Countries	Percentage Share		Difference
	Pre WTO Era (1986-1995)	Post WTO Era (1996-2016)	
Russia	21	12	Decreased
Belgium	4	6	Increased
Germany	14	10	Decreased
USA	8	2	Decreased
Spain	3	3	No change
United Kingdom	1	1	No Change
Switzerland	1	1	No Change
Italy	14	23	Increased
Latvia	1	1	No Change
Other Countries	31	40	Increased

Source: RBI hand Book of Statistics on Indian Economy

In the pre WTO period, the market share of Coffee was maximum in case of other countries (31%), then Russia (21%), Germany and Italy (14% each), USA (8%), Belgium (4%), Spain (3%), Netherlands (2%), Latvia, Switzerland, UK(1% each) to the total imports of agricultural commodity basket. But in the Post WTO period the market share of Coffee in to total coffee export was highest in case of other countries (40%) followed by Russia (12%), Germany (10%), Belgium (6%), Spain (3%), USA (2%), Latvia, Netherlands, Switzerland and UK(1% each) contributing 1per cent each to the total imports of agricultural commodity basket.

Figure 4.9: The following Figure shows Country wise export Change of Indian Coffee in the Pre & Post WTO period (Percentage Wise)

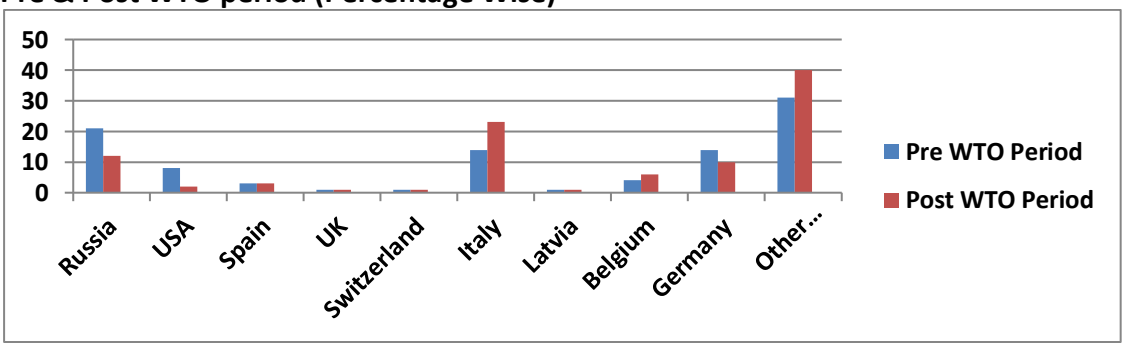
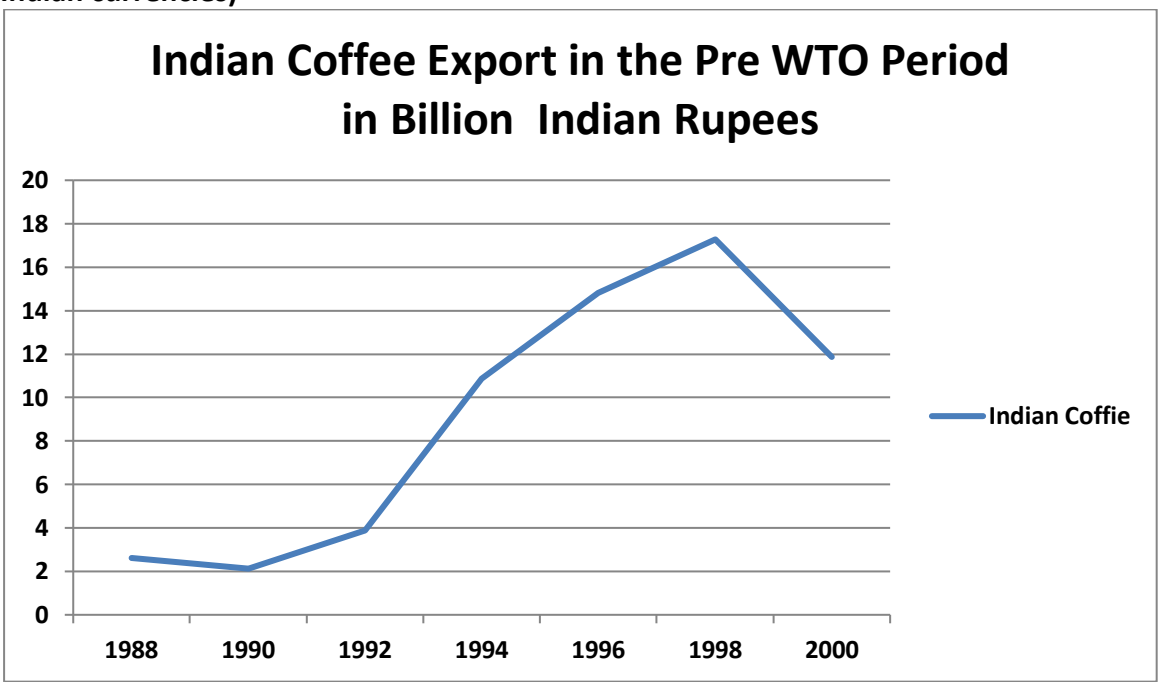
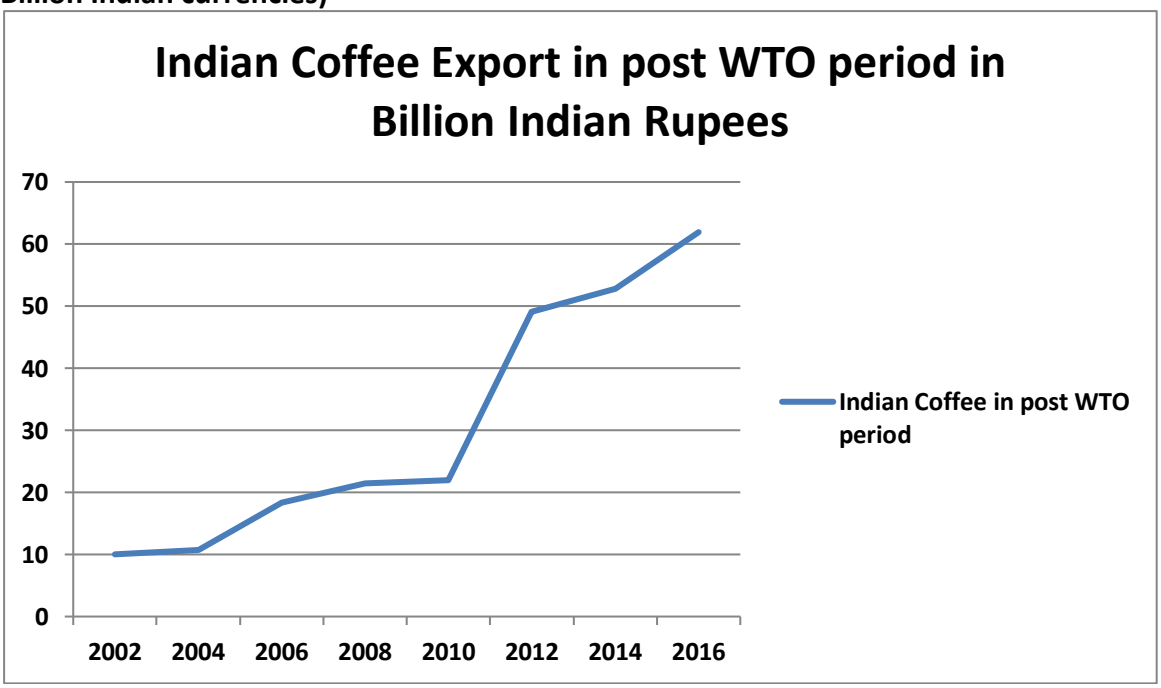


Figure: 4.10: Growth of Export of Indian Coffee in the Pre WTO Period (Estimated in Billion Indian currencies)



Source: RBI Hand Book of Statistics on Indian Economy.

Figure: 4.11: Growth of Export of Indian Coffee in the Post WTO Period (Estimated in Billion Indian currencies)



Source: RBI Hand Book of Statistics on Indian Economy.

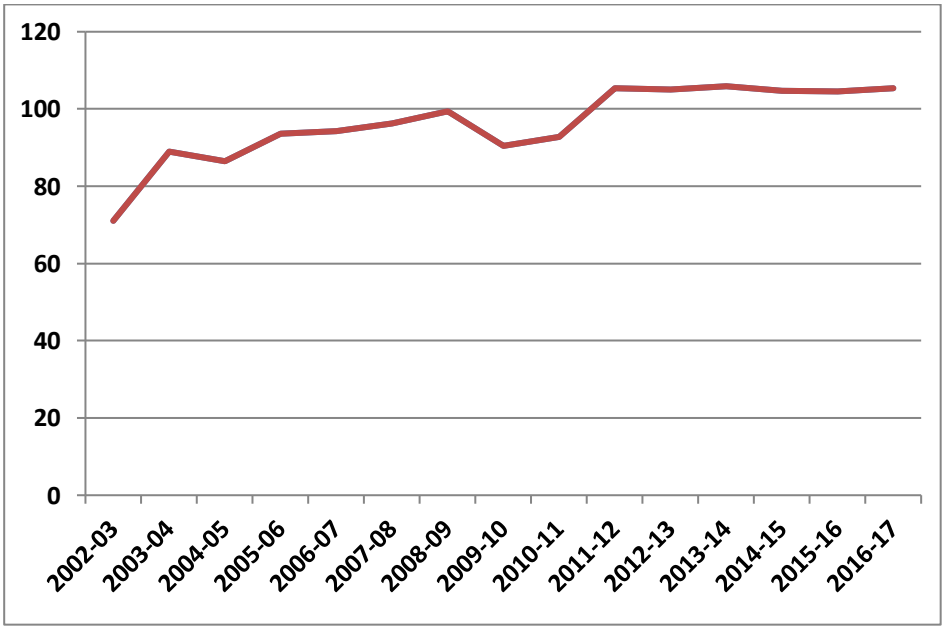
The Indian coffee export during pre-WTO period rose from 2.616 billion (1988-1995) rupees to 10.859 billion rupees (1988-1995) and it became highest Rs. 17.279 billion in 1998. Initial period of Post WTO period the Coffee export was flat during 1997-99. But the coffee export Jumped and became Rs 49.125 billion in 2012-13. After that then again it increased during 2014-16.

The rate of growth of Indian coffee export in the post WTO era was lower than the Pre WTO period as per our study reveals. This did not match the expectation that after globalization and opening trade would positively influence Coffee export and it would expand with much faster growth rate. India since the inception of the WTO is asking for new opening and relief for agricultural export for the developing countries to the WTO. The WTO implications on Indian Coffee are long standing. As per the ICO data India shares 4.5% of world coffee production and Europe imports about 70% of total Indian coffee export. But in the year 2008-09 Indian coffee export faced global recessionary effect. As result of this the coffee export declined about 21% than the previous year. In recent time the Indian Coffee export reached to US$ 958 million. Domestic demand has increased tremendously and it is larger than export demand. India is the third largest coffee producer in Asia and main importers of Indian coffee are Italy (highest) then Germany, Russia etc. As per the coffee exporters of India, next coming years after 2018 will not be very friendly to the coffee export. Actually they are not very much hopeful to the Global demand of coffee export.

4.7: Rice

Rice is one of the most important agricultural trading commodities for export earnings. India's biggest competitors of rice exports are **China, Vietnam & Thailand**. India is the **biggest exporter of rice in the world as per 2016- 17** world commodity trade data. Thailand ranks 2nd in rice export in the world. India's rice export includes Basmati & non Basmati rice where Basmati rice share main portion of export because of its good Aroma, superfine grains and different utility in food preparation. About 65% of total Basmati rice produced in India is exported and the value of Basmati export has increased over the time. Though the non Basmati rice is also share a good amount of export earning which was in between from 25% to 50% since 1995 to 2016.

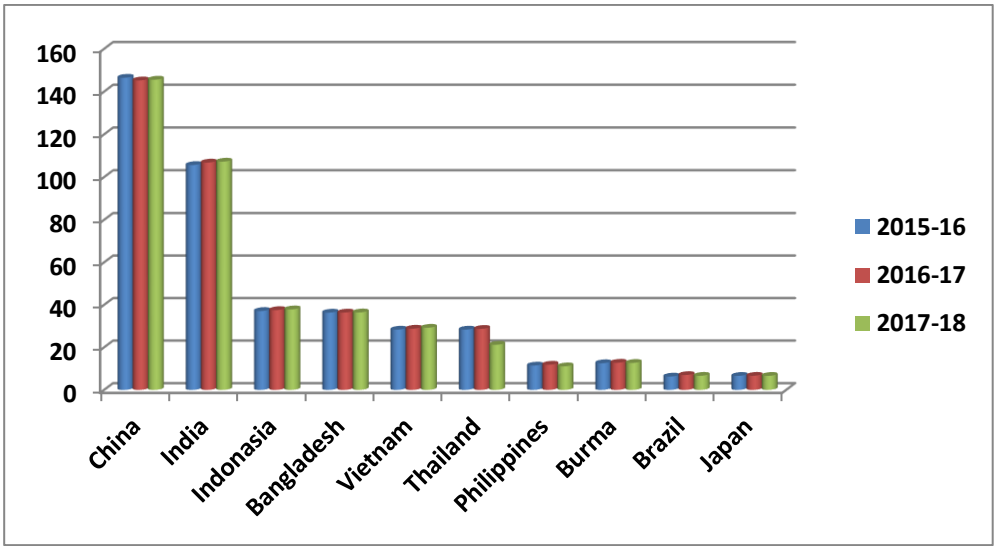
Figure 4.12: Indian Rice Production (in million tonnes) year wise.



Source: D&ES (Directorate of economics & Statistics) data.

The export earnings from rice have shown different pictures in different times, for example in the pre WTO period the export earnings from rice increased continuously (from 1990 to 1995 it has increased from US$ 274 million to US$ 377 million).But in post WTO period it has declined first (the average value of rice export was US$ 1055.43 million to US$ 952.03 million in triennium 1998-2001) then it further declined to US$ 925.83 million in the next triennium 2001-2004. But ultimately the Rice export increased in tremendously in the next triennium of 2007-2010 to about US$ 2573.1 million. This increase along with per hectare yield increase (from 1985 kg per hectare in 2005 to 2315 kg per hectare in 2012) shows Govt. initiatives in multiple crop development programmes. The production of Rice has touched high level in the late Post WTO period to about 103 million tonnes in 2012 and 107 million tonnes in 2017-18.

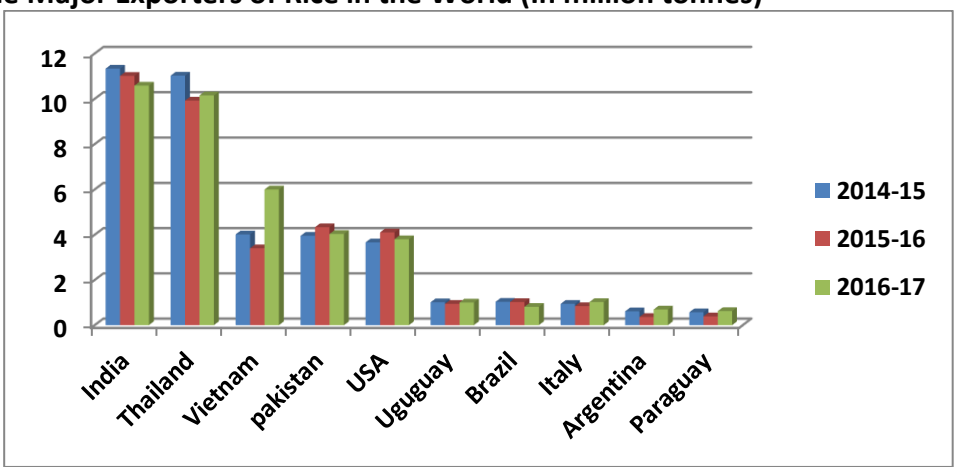
Figure 4.13: Global Rice Production of Rice in Million Tonnes



Source: Department of agriculture (US)

The above chart shows that China is the Leading producer of Rice in the recent Triennium (2015-2017) followed by India, Indonesia & Bangladesh.

Figure 4.14: The Major Exporters of Rice in the World (In million tonnes)



Source: commodity Trade (Comtrade) data.

The above Chart shows that in the last triennium (from 2014-15 to 2016-17) India was the largest exporter of Rice in the world followed by Thailand, Vietnam and Pakistan.

Table: 4.28: Latest trends of India's Export of rice from 2010-11 to 2017-18 (calculated in Million tonnes)

Year	Basmati	Non-basmati
2010-11	2.37	0.10
2011-12	3.18	4.00
2012-13	3.50	6.64
2013-14	3.76	7.00
2014-15	3.70	8.23
2015-16	4.04	6.37
2016-17	4.10	6.81

Source: Department of commerce GOI

During 2010 to 2017 India exported good amount of both Basmati & non Basmati rice to the world. But the Amount of rice import to India was insignificant during this time.

In the post WTO period the average share of rice export increased initially in 1998 to 15.26% then it declined to 14.37% in 2007-09. The CAGR value was 8.5% in the Post WTO period as compare to 10.5% in the Pre WTO period. But the value of rice export was much higher in the Post WTO period.

Table: 4.29: Country wise Average Values (In US $ Million) of Indian Rice Exports in the Pre & Post WTO period)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
Saudi Arabia	96.92	183.24	229.21	313.86	252.34	283.09	663.16
United kingdom	23.86	29.11	36.62	49.04	66.46	57.73	72.50
U.S.A	13.08	13.92	51.69	17.18	37.84	27.50	49.76
Bangladesh	0.270	9.44	140.82	228.19	110.16	169.17	290.92
Yemen	0.170	0.03	9.73	10.16	17.66	13.92	53.21
France	1.532	3.930	6.40	9.10	6.78	7.930	2.07
Kuwait	12.64	30.06	38.66	36.24	38.16	37.21	164.98
U.A.E.	18.41	37.16	45.18	32.06	32.72	32.39	556.51
Singapore	1.934	2.24	3.71	6.830	12.70	9.76	13.670
South Africa	0.01	0.470	71.72	60.11	81.71	70.91	33.79
Others	104.61	67.41	421.81	189.29	465.01	327.14	672.52
Total	273.29	377.01	1055.43	952.04	1388.74	1170.40	2573.11

Source: RBI, Handbook of Statistics on Indian Economy.

Year Wise (Triennium wise) Values of Simpson Diversity Index of Indian Rice Exports to Several major export Destinations based on above values.

Triennium	1989-92	1993-95	1996-98	1999-2001	2002-04	2005-07	2008-10
Simpson Diversity Index	0.7135	0.71	0.77	0.7830	0.7892	0.7732	0.8001

Source: Researcher's Own calculations based on given Values

In the above table the **country** wise average value of exports, percentage share to the total rice exports and Simpson index of rice export for1990 to 2010 is shown for India. We notice that the major export destinations of Indian rice were Saudi Arabia, U.A.E., Bangladesh and Kuwait in recent times. In the pre WTO era (1990-1995) the average value of rice export was highest to Saudi Arabia, Russia, Italy, USA & UK and in Post WTO era the average value of rice export was highest to Saudi Arabia, followed by UAE, Bangladesh & Kuwait. Both Kuwait & UAE has come up to be new export destinations of Indian rice in Post WTO era.

The Simpson Index shows higher value for Indian Rice export (0.8001) in the Post WTO period as compare to Pre WTO period's value (0.71) which implies higher diversification of Indian Rice export to the World in the Post WTO period than the Pre WTO period. In the Post WTO period the CAGR of Indian Rice export were maximum to Singapore then to Yemen, UAE, and Kuwait. Belgium & Spain recorded highest CAGR of Indian coffee export to total coffee export to the world.

Table: 4. 30: Country wise Export Share of Indian Rice Exports in the Pre & Post WTO period (in Percentage)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
Saudi Arabia	35.21	48.61	21.70	32.95	18.15	24.17	25.76
U.S.A	4.782	3.69	4.891	1.803	2.722	2.353	1.933
Bangladesh	0.970	2.50	13.33	23.95	7.94	14.44	11.29
France	0.561	1.041	0.601	0.950	0.481	0.671	0.801
Kuwait	4.601	79.69	3.660	3.801	2.740	3.172	6.42
Yemen	61.01	0.080	0.920	1.061	1.272	1.180	2.060
Singapore	0.70	0.590	0.350	0.710	0.910	0.831	0.532
South Africa	00	0.120	6.80	6.302	5.87	6.05	1.313
U.A.E.	6.702	9.851	4.272	3.363	2.351	2.764	21.61
United kingdom	8.72	7.70	3.470	5.151	4.79	4.93	2.812
Others	38.26	17.36	21.795	19.86	33.47	27.89	26.14

Source: RBI, Handbook of Statistics on Indian Economy.

The above table is showing the percentage share of Indian Rice exports to different countries. In the Pre WTO period the percentage share was highest to Saudi Arabia then Kuwait, Bangladesh etc but in Post WTO era though Saudi Arabia maintains its highest share in Indian Rice export but it maintains it with diminishing character as compare to pre WTO era. Countries like UK, USA and Bangladesh etc have not shown same amount of share every time rather they have maintained sometimes high and sometimes low share in importing Indian Rice where, Kuwait, UAE has shown high increasing tendency in importing Indian rice.

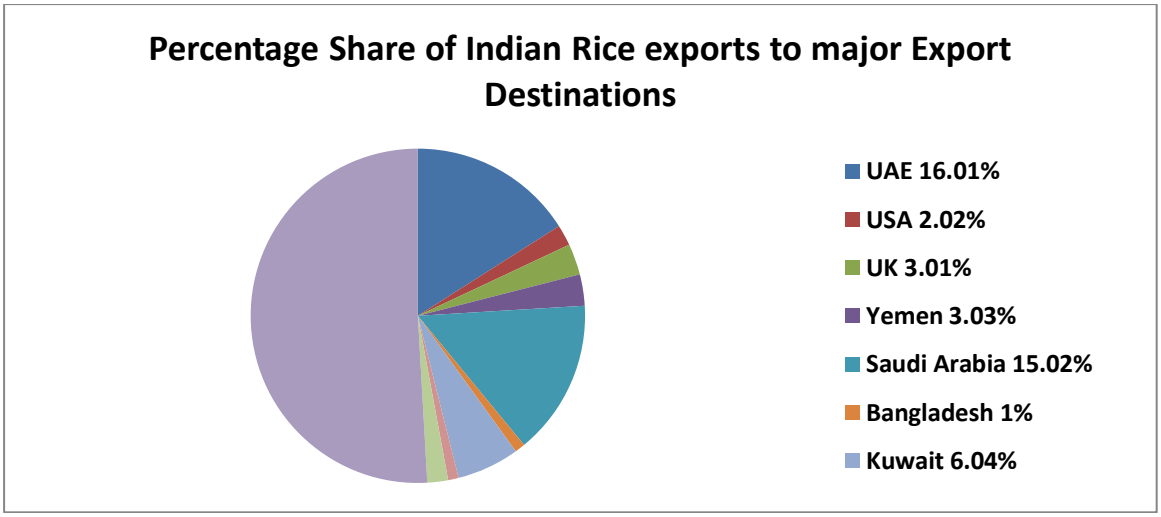
Table: 31: Percentage wise CAGR, (Country wise Annual Compound Growth Rate) of India's Rice Exports in Pre & Post WTO period

Countries	Pre-WTO Period (1990-95)	Post-WTO Period (1996-2010)
Bangladesh	80.83	4.96
France	17.03	-7.25
Kuwait	15.53	10.16
Saudi Arabia	11.2	7.34
Singapore	2.51	9.08
South Africa	89.97	-4.89
U.A.E.	12.42	18.22
United Kingdom	3.37	4.66
U.S.A	1.04	-0.25
Yemen	-25.11	11.99
Others	-7.06	3.16
Total	5.51	6.12

Source: RBI, Handbook of Statistics on Indian Economy.

In the Post WTO period The CAGR of Indian Rice export were highest to UAE, followed by Yemen, Singapore, and Kuwait, Belgium & Spain in the post WTO period. India's rice production has increased at CAGR of 1.43% from 2003 to 2017.

Chart: 4.3: Major Export Destinations of India Rice 2014-15



Source: RBI, Handbook of Statistics on Indian Economy

The above Pie chart shows the major export destinations for Indian Rice was Other Countries (highest), then UAE, Saudi Arabia Kuwait etc.

Table: 4.32: Export Share of Indian Rice to major importing Countries (in Percentage Share)

Countries	Share in Percentage		Difference
	Pre WTO Era (1986-1995)	Post WTO Era (1996-2016)	
Saudi Arabia	30	15	Decreased
France	1	0	Decreased
USA	3	2	Decreased
Bangladesh	15	1	Decreased
United Kingdom	5	3	Decreased
Kuwait	4	6	Increased
Yemen	1	3	Increased
Singapore	1	1	No Change
UAE	4	16	Increased
Other Countries	30	51	Increased

Source: RBI, Handbook of Statistics on Indian Economy

Figure 4.15: The following Figure shows Country wise export Change of Indian Rice in the Pre & Post WTO period (Percentage wise)

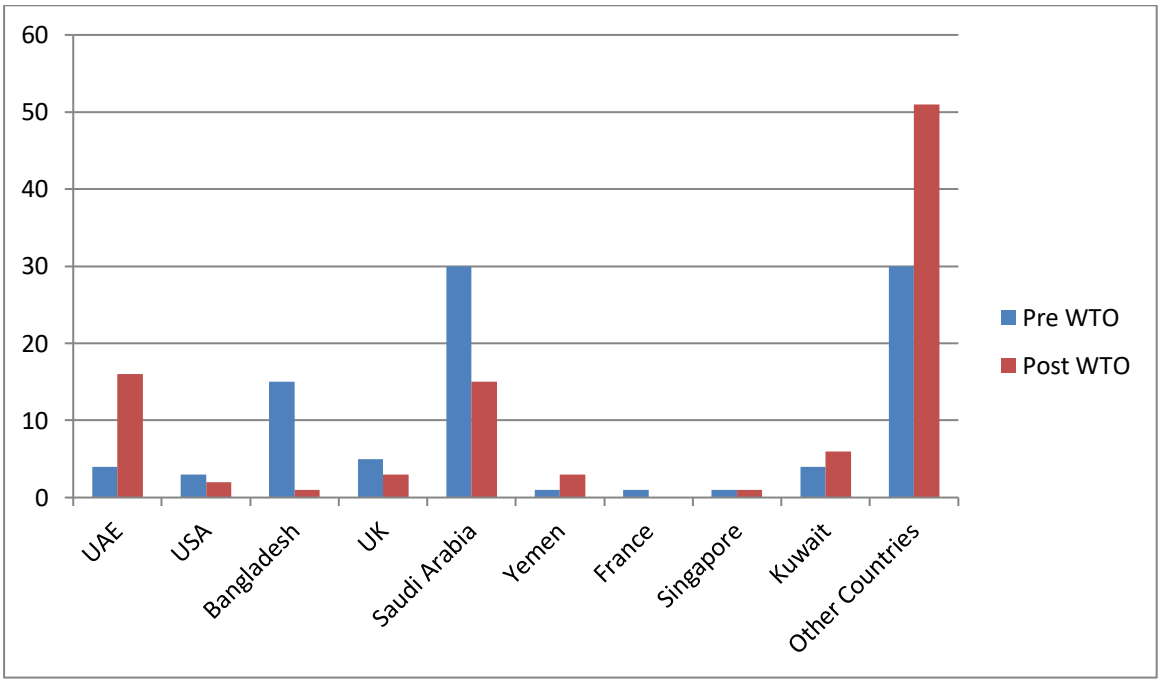
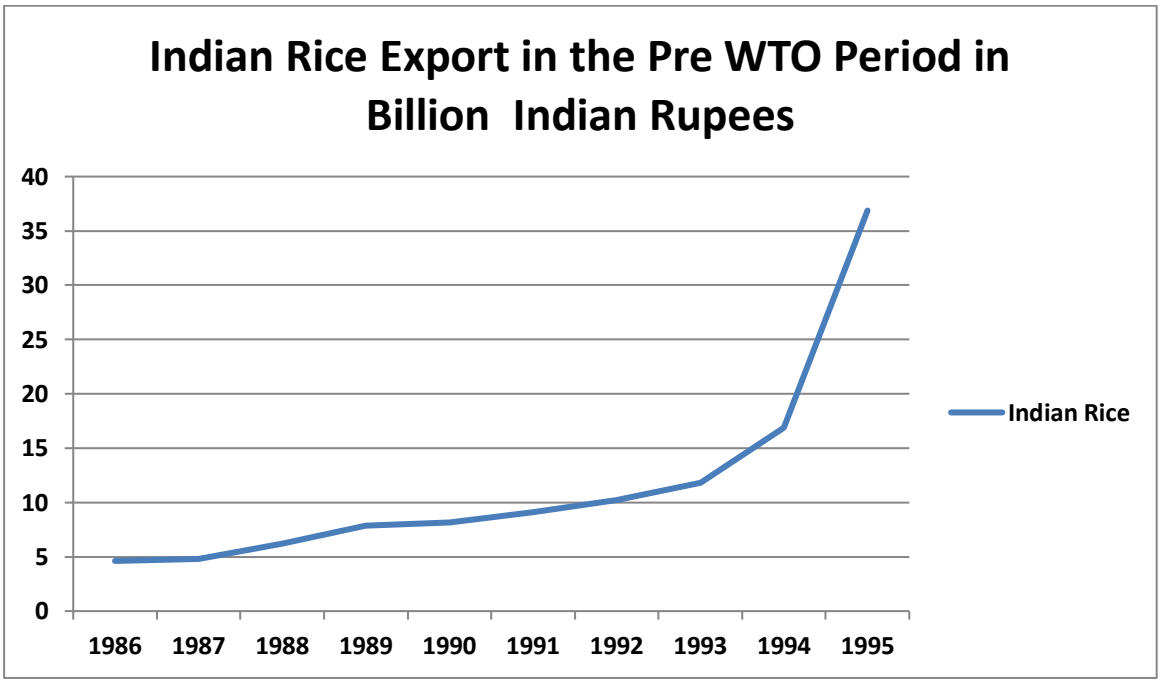
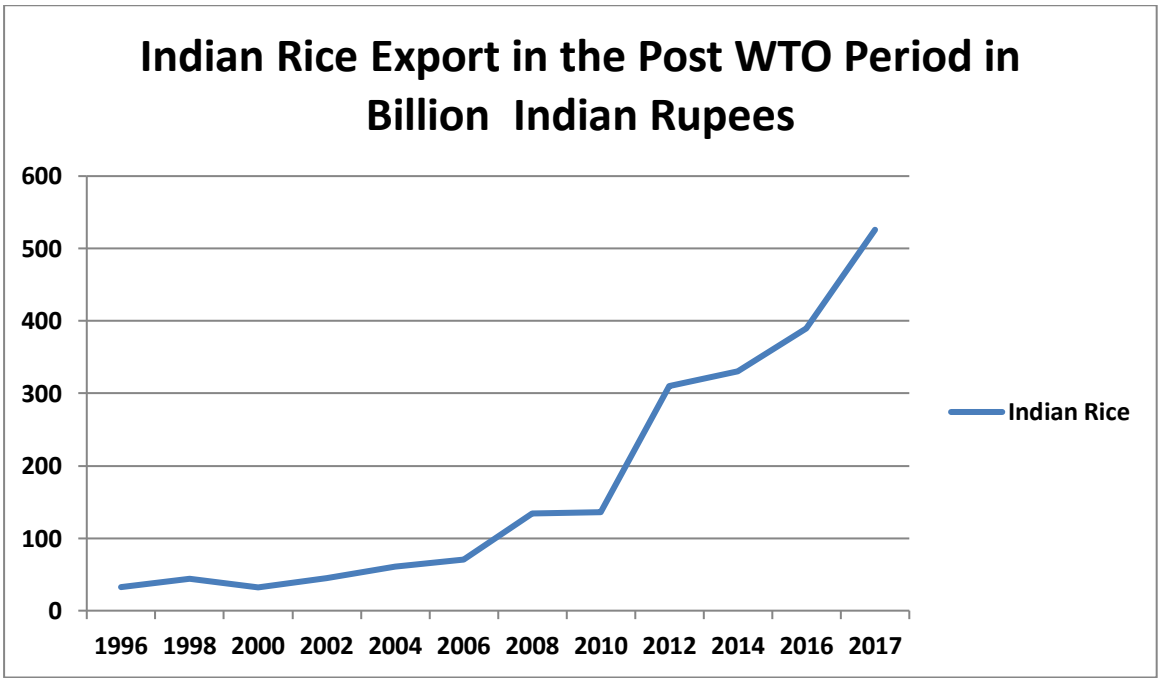


Figure: 4.16: Indian Rice Export in the Pre WTO Period in (Billion Indian Rupees)



Source: RBI, Hand Book of Statistics on Indian Economy.

Figure: 4.17: Indian Rice Export in the Post WTO Period in (Billion Indian Rupees)



Source: RBI, Hand Book of Statistics on Indian Economy.

Until mid 90s Indian rice export & import were restricted through quantitative restrictions. Export of basmati varieties were freed in 1994 but import restrictions were not removed completely it was controlled by State Trading Enterprise and Import of many varieties of Rice needs agriculture Permit Certificate & Phyto Sanitary Certificates.

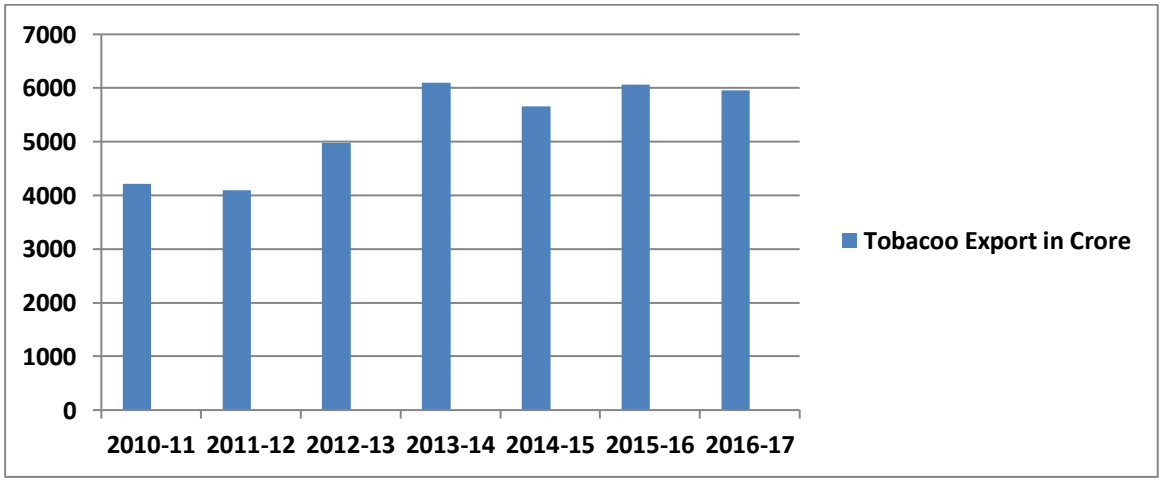
Indian Rice export during pre WTO period was almost flat (1989-1995) but from 1998 to 2002 the rice export growth took its peak (it was 68.8 billion Indian rupees). But since 2003 to 2010 again the Indian rice export was flat. But suddenly the rice export jumped to 339 billion rupees in 2012 from mere 67 billion rupees in 2004. The other countries in the above tables have been most loyal importers of Indian rice followed by Saudi Arabia, UAE, Kuwait and Yemen.

4.8: Tobacco

Tobacco is one of the **main traditional** agricultural export commodities. India is one of the **Leading** Tobacco producer & exporter of the world. India holds approximately **5% of the global share of** tobacco trade of around US $ 12 billion. It earns about Rs 6000 crore annually by exporting Tobacco & Tobacco products. India produces different varieties of Tobacco & Tobacco products and exports to around 100 countries globally. India produces FCV type of Tobacco and its total exports contains about 60% of this type. The total foreign exchange earnings from FCV type of tobacco is 3500 crore of Indian rupees. This is especially exportable tobacco because; around 70% of the total production of this type is exported globally. For India there exists tremendous opportunity for Tobacco trade as it has vast variety of tobacco and well establish domestic market.

In the above table , we can see that the average value of tobacco exports in the Pre WTO era was US$ 134.93 million with 4.3% share of global export(from 1989 to 1992), then it fall to US$ 130.6 million in 1995 with 3.44% global export. In the post-WTO, the average value of tobacco exports became US$ 211.6 million (from 1995 to 1998) then US$ 201.23 million (from 1999 to 2001), then US$ 206.46 million in 2004 and ultimately US$ 716 million in 2010. In the same time the average export percentage share of Tobacco was globally 3.05% (1995-96) then it declined and increased thereafter to 3.99% in 2010. Therefore it can be said that the average percentage share of export of Tobacco in the Post WTO era was less than that of the pre-WTO period but the average value of export was higher in Post WTO era as compare to pre WTO period.

Figure 4.18: Recent Picture of Tobacco Export of India (values expressed in terms of RS crore)



Source: Ministry of Commerce & Industry, G.O.I.

The compound annual growth rate in terms of value of exports in pre-WTO period was 13.78 per cent that is higher than in post-WTO period, which was only 12.1 per cent.

Table: 4.33: Country wise Average value of Tobacco Exports from India *(*In US$ million)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
U.S.A	2.230	1.670	3.872	11.80	15.52	13.66	27.26
Russia	32.72	33.61	38.66	33.53	22.330	27.92	39.16
Germany	6.51	6.103	16.01	15.10	18.332	16.71	33.44
Netherlands	2.78	4.434	2.870	7.00	8.91	7.952	31.86
Yemen	5.731	0.931	2.230	4.831	5.061	4.953	12.102
Saudi Arabia	12.672	9.604	7.44	8.632	7.273	7.953	15.91
Singapore	1.701	1.673	5.871	6.203	8.703	7.452	13.912
Belgium	15.59	7.502	16.26	19.01	22.801	20.91	126.69
U.A.E.	2.801	5.632	8.202	12.91	19.09	16.01	51.62
United Kingdom	22.82	20.79	34.07	20.72	10.08	15.39	19.28
Others	29.38	38.774	76.01	61.59	68.37	64.982	344.78
Total	134.925	130.723	211.494	201.326	206.47	203.86	716.014

Note*:* Average Value in Triennium
Source: RBI, Hand Book of Statistics on Indian Economy.

Year Wise (Triennium wise) Values of Simpson Diversity Index of Indian Tobacco Exports to Several major export Destinations based on above values.

Triennium	1990-92	1993-95	1996-98	1999-2001	2002-04	2005-07	2008-10
Simpson Diversity Index	0.8438	0.8112	0.80	0.84	0.84	0.7921	0.7222

The above table show country wise average export of Indian tobacco in the Pre & Post WTO era, where we notice that from 2007 to 2010 Indian major destination of Tobacco export was Belgium, UAE, Russia & Germany. In the pre WTO era (from 1990 to 1995) the major Export destinations was Russia (highest), UK, Saudi Arabia and Belgium. In the Post WTO era (from 1995 to 2016) the major destinations of Indian Tobacco export was Belgium, UAE, Russia, Germany and Netherlands.

The Simpson Index shows lower value for Indian Tobacco export (0.7222) in the Post WTO period as compare to Pre WTO period's value (0.8438) which implies low export diversification of Indian Tobacco export to the World in the Post WTO period than the Pre WTO period.

Table: 4.34: Country wise Average Share of Tobacco Exports from India (percentage wise)

Countries	Pre-WTO Period		Post-WTO Period				
	1990 -92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
U.S.A	1.652	1.271	1.821	5.863	7.520	6.701	3.802
Yemen	4.240	0.710	1.050	2.402	2.451	2.424	1.682
Singapore	1.251	1.272	2.773	3.082	4.210	3.653	1.940
Netherlands	2.052	3.390	1.351	3.470	4.310	3.892	4.451
Russia	24.24	25.71	18.26	16.65	10.80	13.69	35.48
Saudi Arabia	9.393	7.36	3.502	4.281	3.522	3.890	2.221
Belgium	11.55	5.741	7.67	9.45	11.03	10.24	17.68
U.A.E.	2.070	4.313	3.870	6.411	9.26	7.842	7.212
United Kingdom	16.90	15.91	16.11	10.31	4.873	7.550	2.693
Germany	4.801	4.672	7.57	7.51	8.81	8.21	4.662
Others	21.77	29.69	35.91	30.62	33.12	31.88	48.16

Source: RBI, Hand Book of Statistics on Indian Economy.

The percentage share of Tobacco to total tobacco exports has been in mixed trends in the last three decades. In the Post WTO period the average export share has gone down for Russia by huge amount. But for countries like UAE, Belgium the export share percentage has gone up in the Post WTO era. Some countries like UK & Germany have shown mixed trends in Tobacco export.

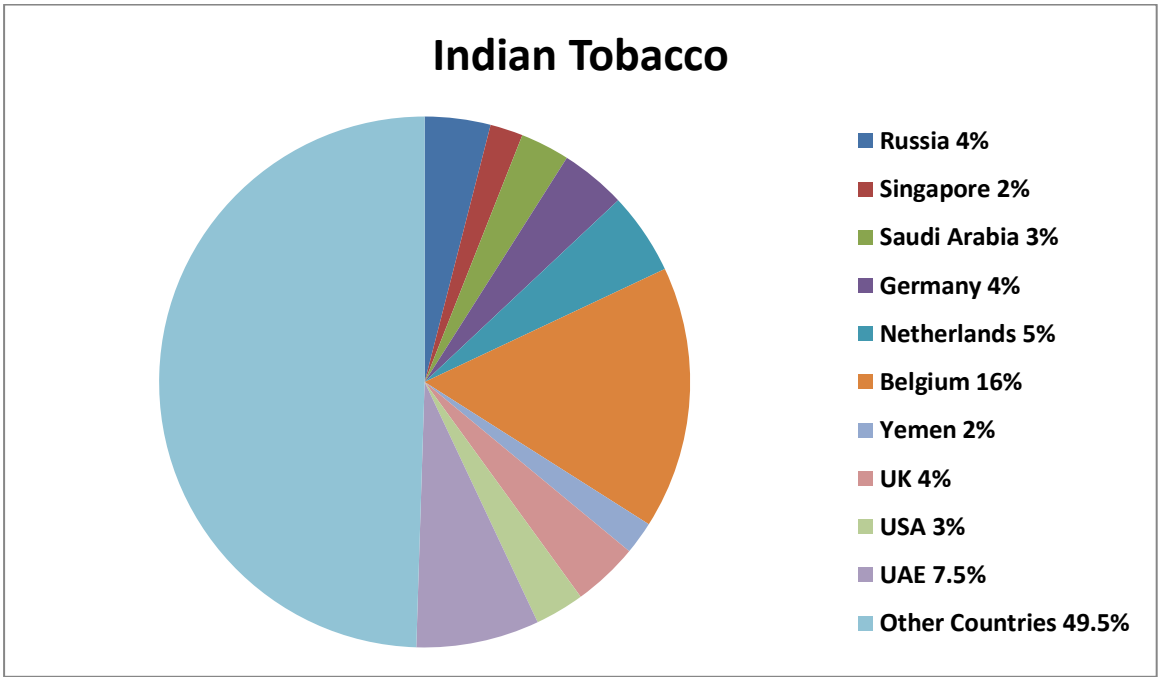
Table: 4.35: The Compound Annual Growth Rates of India's Tobacco Exports in the Pre and Post WTO Era.

Country	Pre-WTO Period (1990-91 to 1994-95)	Post-WTO Period (1995-96 to 2009-10)
U.A.E.	12.35	13.05
Saudi Arabia	-4.52	5.2
Yemen	-26.14	11.93
Netherlands	8.08	17.41
Russia	0.45	0.09
Germany	-1.08	4.99
Belgium	-11.48	14.67
United Kingdom	-1.54	3.72
U.S.A	-4.71	13.9
Singapore	-0.3	9.82
Others	4.73	10.6
Total	-0.53	8.47

Source: RBI, Handbook of Statistics on Indian Economy.

Netherlands was recorded highest in CAGR of Tobacco Exports in the post WTO era, followed by Belgium & USA. The CAGR was recorded higher for the Indian major tobacco export destinations in Post WTO period (8.47%) than in pre WTO period (-0.53%).

Chart: 4.4: Percentage wise Export share of Indian Tobacco to different major importing countries in 2014-15.



Source: WTO Data

The above Pie chart shows that the Other Countries has been the biggest importers of Indian tobacco followed by Belgium, UAE, Netherlands, and Germany etc.

Table: 4.36: Export Share of Indian Tobacco to major importing Countries (in Percentage Share)

Countries	Share in Percentage		Difference
	Pre WTO Era (1986-1995)	Post WTO Era (1996-2016)	
Russia	17	6	Decreased
Germany	7	5	Decreased
Saudi Arabia	5	3	Decreased
Netherlands	3	4	Increased
United Kingdom	11	3	Decreased
USA	5	4	Decreased
Yemen	2	2	No Change
UAE	6	7	Increased
Belgium	9	16	Increased
Singapore	3	2	Decreased
Other Countries	32	48	Increased

Source: WTO Data

The export growth of tobacco of Other Countries, Russia, UK and Belgium in the pre WTO era was high but in the Post WTO era the export growth was high for Other countries, followed by Belgium, UAE and Russia. In case of Russia the difference was negative where in case of the other countries was positive and very much encouraging.

Figure 4.19: The following Figure shows Country wise export Change of Indian Tobacco in the Pre & Post WTO period

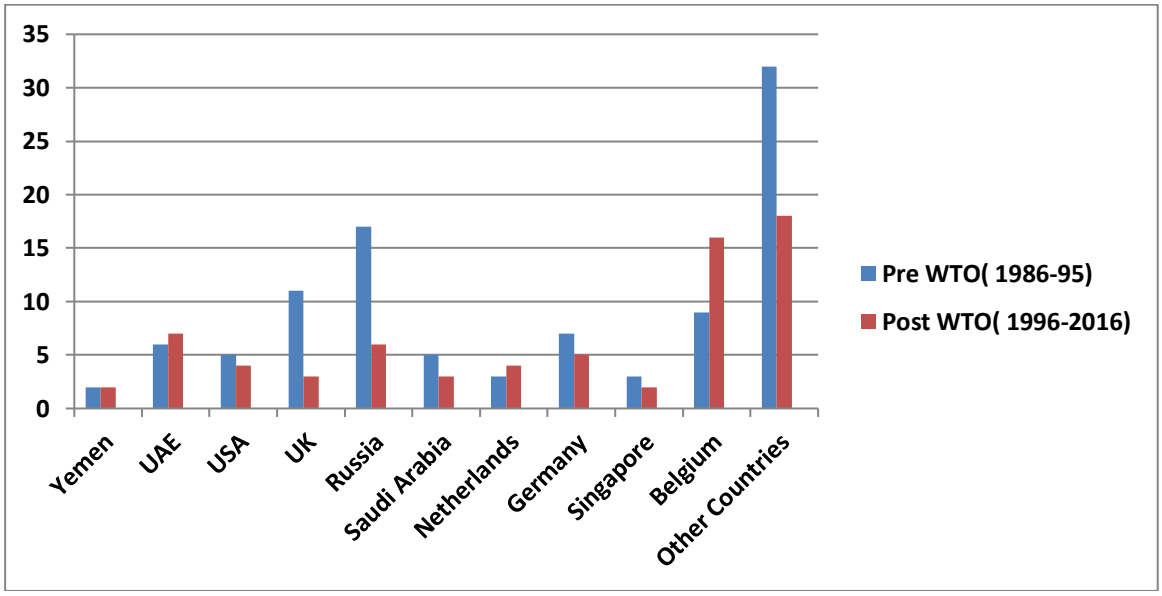
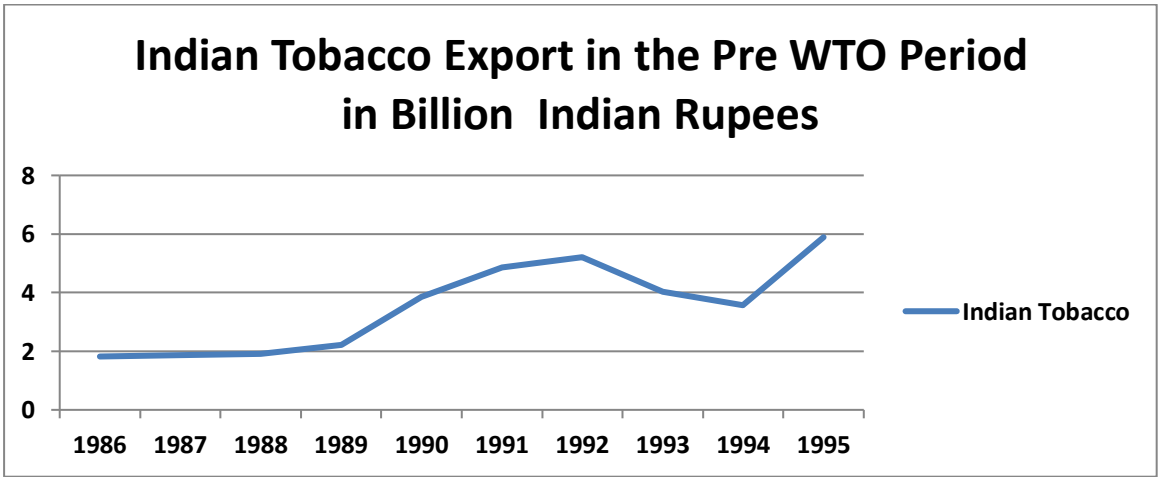
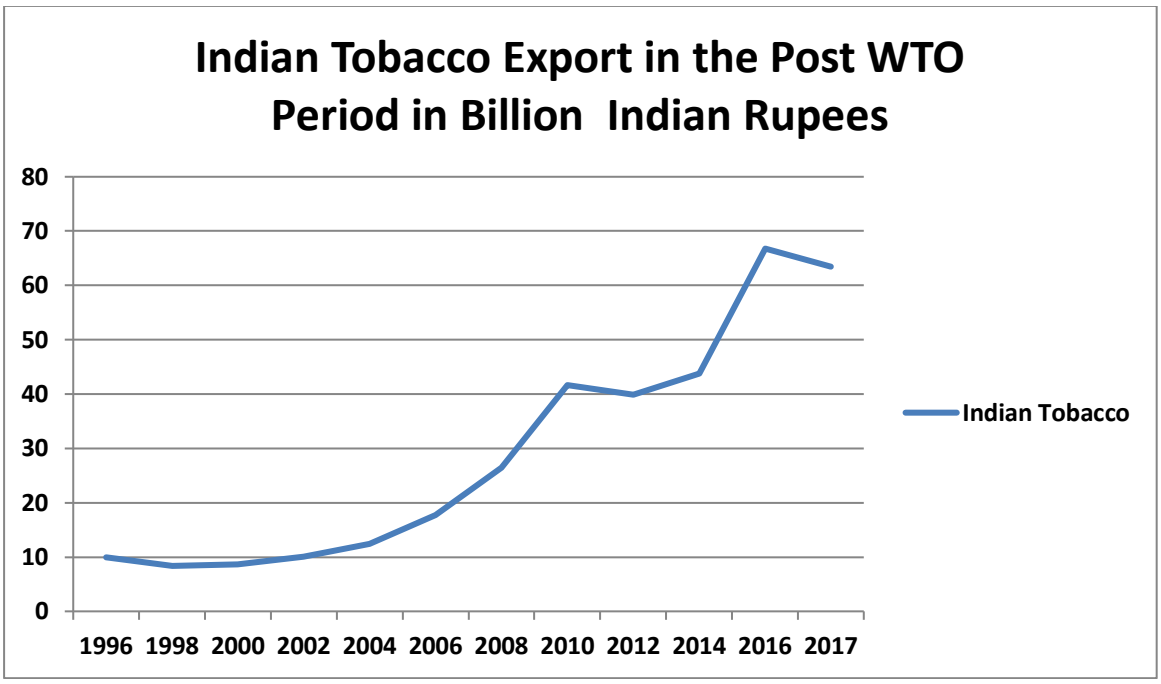


Figure: 4.20: Growth of Export of Indian Tobacco in the Pre WTO Period (Estimated in Billion Indian currencies



Source: RBI, Hand Book of Statistics on Indian Economy.

Figure 4.21: Growth of Export of Indian Tobacco in the Post WTO Period (Estimated in Billion Indian currencies



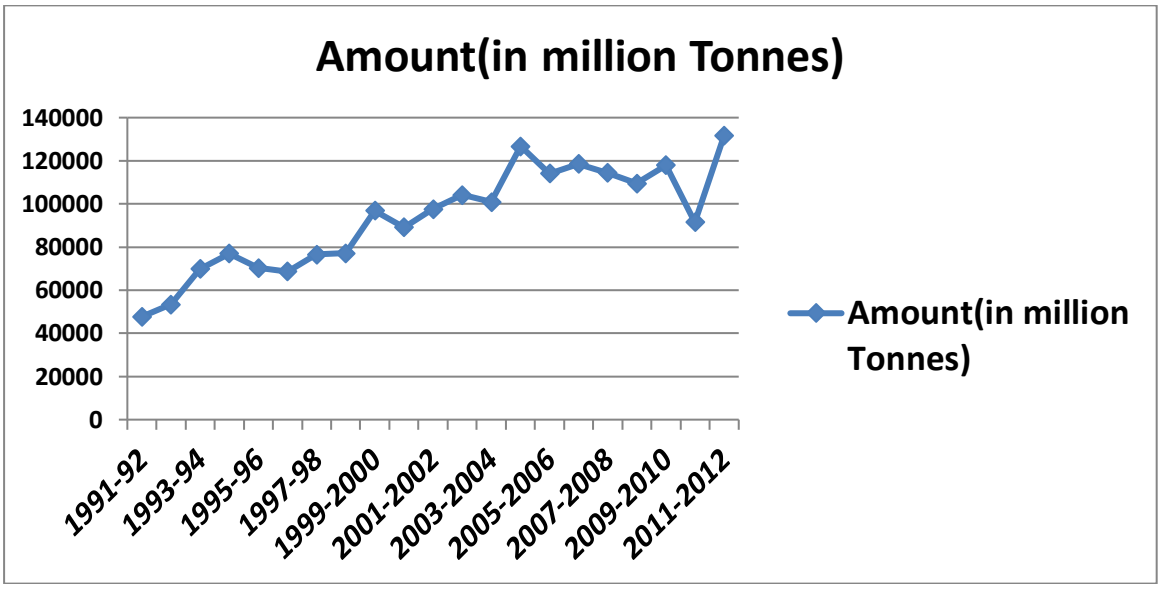
Source: RBI, Hand Book of Statistics on Indian Economy.

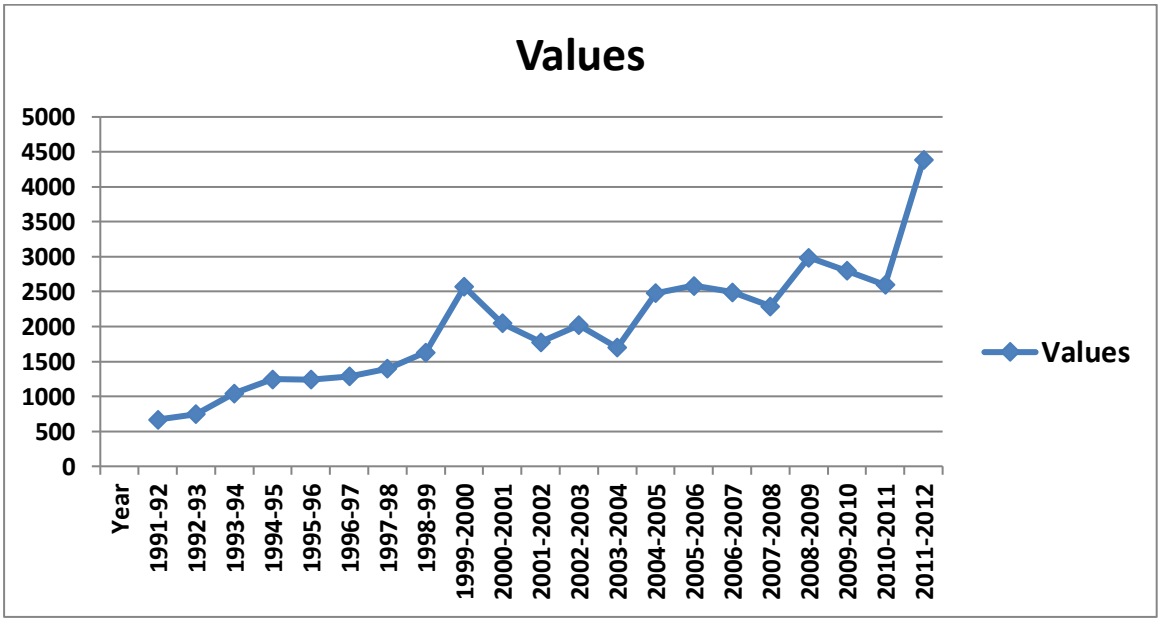
The above tables show that the Tobacco export in the Pre WTO era was nearly 6 billion Indian rupees (1995-96) and in Post WTO era (2016-17) it was around 60 billion Indian rupees. Tobacco is an important traditional agricultural trading commodity produced in India with around Rs 20000 crore domestic markets. India ranks 3rd position (800 million kgs) in the world in producing and exporting Tobacco after Brazil and USA.

4.9: Cashew

Cashew is among the most important traditional agricultural trading commodities of India. India is the largest producer and 3rd largest customer of raw Cashew Nuts in the world. India also ranks first in area wise comparison of cashew production in the world. South India is the largest producer part of India. The Karnataka state's Cashew production growth rate is 4.13% per year. During year 1992 to 2003 the major importers of Indian Cashew were USA, Netherlands. These countries were stable throughout in retaining export share of Indian Cashew. From 2004 to 2012 the USA, UK and Netherlands again shared the major part of Indian cashew export. The above table shows that the average value of Cashew export from 1990-92 was US$ 247.98 million, from 1993 -95 it increased to US$ 329.98 million. In post WTO era i.e. in 1995-98 triennium the Cashew export increased to US$ 468.33 million which was remained flat in the period 1999-2001 within US$ 400 million. Again in triennium 2008-2010 the export of Cashew jumped to US$ 596.16 million. So if we compare the Pre & the Post WTO phase in Cashew Export in value term(US$) we will notice that there has been tremendous increase in cashew Export but if we see the Global share of Indian in Cashew export (expressed in percentage) we will notice that the Indian share in exporting Cashew globally has been lower in Post WTO era as compare to the Pre WTO phase(the average Percentage share of India was 7.9% in triennium 1990-92, 8.69 in triennium 1993-95 but it became 5.35% in triennium 1996-98, and ultimately 3.3% in triennium 2008-10).

Figure 4.21.1: Data showing Export growth along with CAGR (Compound annual growth rate) of Indian Cashew (from 1991-2012) values in crore.





Source: RBI, Hand Book of Statistics on Indian Economy.

Table: 4.37: Country wise Average value of Indian Cashew Exports from India (In US$ million)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
Saudi Arabia	0.672	1.81	3.931	6.970	7.20	7.082	18.66

U.S.A	**46.46**	**132.04**	**125.84**	**215.09**	**197.12**	**206.11**	**190.61**
U.A.E.	**4.970**	**8.071**	**11.71**	**17.69**	**17.16**	**17.42**	**85.02**
Canada	**1.631**	**3.770**	**2.071**	**6.230**	**6.032**	**6.130**	**3.270**
United Kingdom	**4.931**	**20.92**	**20.59**	**35.28**	**23.14**	**29.21**	**20.36**
Netherlands	**49.74**	**65.18**	**80.88**	**88.01**	**49.81**	**68.8**	**64.09**
France	**0.270**	**1.731**	**5.972**	**11.231**	**10.89**	**11.08**	**18.92**
Israel	**0.70**	**4.272**	**5.730**	**6.602**	**3.932**	**5.271**	**4.172**
Italy	**0.571**	**0.430**	**2.673**	**5.331**	**4.20**	**4.772**	**4.230**
Japan	**22.19**	**25.36**	**28.22**	**27.39**	**18.62**	**23.02**	**29.41**
Others	**115.84**	**66.431**	**82.89**	**48.51**	**52.54**	**50.570**	**157.42**
Total	**247.98**	**329.98**	**370.48**	**468.334**	**390.644**	**429.455**	**596.162**

Source: RBI, Hand Book of Statistics on Indian Economy.

Year Wise (Triennium wise) Values of Simpson Diversity Index of Indian Cashew Exports to Several major export Destinations based on above values.

Triennium	**1990-92**	**1993-95**	**1996-98**	**1999-2001**	**2002-04**	**2005-07**	**2008-10**
Simpson Diversity Index	**0.7004**	**0.7513**	**0.78**	**0.7301**	**0.70**	**0.76**	**0.7918**

The above table indicates that the major export destinations of Indian cashew in recent times have been (2007-2012) U.S.A., U.A.E., Netherlands, UK and Japan. In the pre WTO era (in triennium 1990-92 & 1993 -95) the average value of Cashew export were (1) highest to USA then (2) Netherlands,(3) Japan, (4) UK and(5) UAE(value in terms of US$ million). In the post WTO era (in trienniums 1996-98, 1999-2001, 2007-10) the average value of Cashew export were highest again to USA followed by UAE, Netherlands, Japan, and UK. It can be noticed that in both the Pre & Post WTO phases most of the Countries Including USA (which always remained highest in export share) retained their average share of Cashew export value as the major destinations of Indian cashew export.

The Simpson Index shows higher value for Indian Cashew export (0.7918) in triennium 2007-10 in the Post WTO period as compare to Pre WTO period's value (0.7004) which implies higher diversification of Indian Cashew export to the World in the Post WTO period than the Pre WTO period.

Table: 4.38: Country wise Average Share of Cashew Exports from India (Average value of share expressed in per cent)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
U.S.A	18.75	40.02	33.95	45.91	50.38	47.95	31.97
Israel	0.280	1.290	1.55	1.402	1.01	1.23	0.693
Canada	0.652	1.141	0.54	1.331	1.55	1.421	0.540
France	0.101	0.520	1.62	2.390	2.77	2.570	3.18
U.K.	1.982	6.341	5.55	7.53	5.910	6.78	3.410
Italy	0.24	0.131	0.723	1.13	1.08	1.102	0.704
Japan	8.94	7.69	7.61	5.83	47.48	5.36	4.92
Netherlands	20.04	19.74	21.83	18.77	12.72	16.01	10.74
Saudi Arabia	0.272	0.541	1.07	1.49	1.86	1.65	3.14
U.A.E.	2.01	2.440	3.14	3.76	4.38	4.04	14.25
Others	46.70	20.09	22.36	10.34	13.44	11.77	26.41

Source: RBI, Hand Book of Statistics on Indian Economy

The average percentage share of Indian Cashew export in total cashew exports in the Post WTO era was maximum for U.S.A. (33.95% in triennium 1996-98 & 31.97 per cent in 2008-10) then for Netherlands (21.83% in triennium 1996-98 & 10.74% in triennium 2008-10) and UAE (14.25% in triennium 2008-10) which became second highest destinations of Indian cashew export in the Post WTO era after USA then Japan and UK.

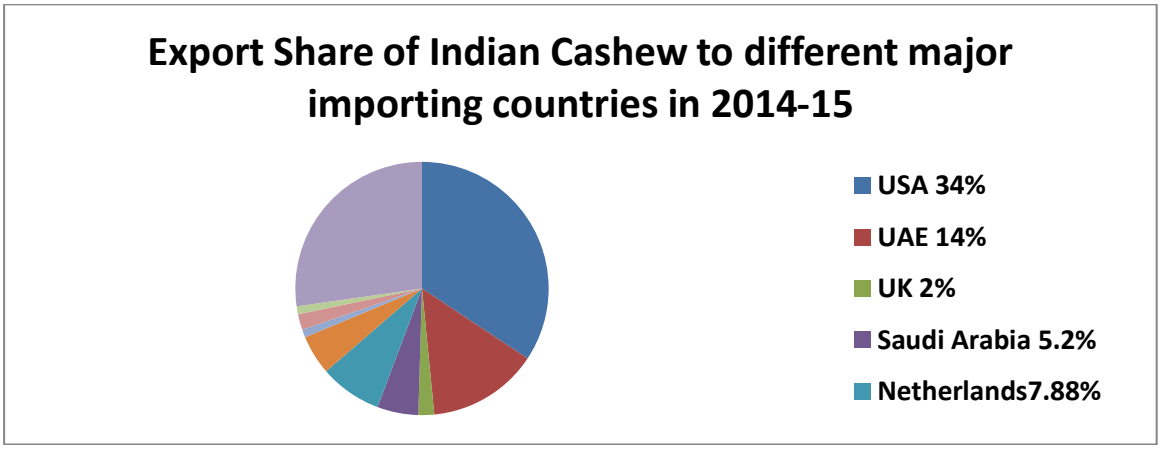
Table: 4.39: The Compound Annual Growth Rate of Indian Cashew Exports in the Pre and Post WTO Era.

Countries	Pre-WTO Period (1990-95)	Post-WTO Period (1996-10)
United Kingdom	27.24	-0.07
Japan	2.25	0.28
Canada	15	3.1
France	36.28	7.99
Israel	35.17	-2.1
Italy	-4.59	3.12
U.S.A	19.02	2.81
Netherlands	4.61	-1.54
Saudi Arabia	18.01	10.94
U.A.E.	8.41	14.13
Others	-8.85	4.37
Total	4.88	3.22

Source: RBI, Handbook of Statistics on Indian Economy.

In the Pre WTO period the major destinations of Indian Cashew export played a major role as a result of which the CAGR (compound annual growth rate) value of exports in pre-WTO period was higher (4.88 %) than the value of CAGR in the Post WTO period (3.22%). The Saudi Arabia, UAE, France and Italy shares highest CAGR Value in the Post WTO period.

Chart: 4.5: Percentage wise Export share of Indian Cashew to different major importing countries in 2014



The above Pie chart showing major export destinations of India's Cashew export where USA was the highest importer of Indian Cashew followed by UAE, The Netherlands, and Japan etc.

Table: 4.40: Export Share of Indian Cashew exports to major importing Countries (in Percentage Share)

Countries	Share in Percentage		Difference
	Pre WTO Era (1986-1995)	Post WTO Era (1996-2016)	
Canada	1	1	No change
United Kingdom	6	4	Decreased
USA	43	35	Decreased
Netherlands	18	11	Decreased
France	2	3	Increased
Italy	1	1	No Change
Israel	1	1	No Change
Saudi Arabia	1	3	Increased
UAE	4	12	Increased
Japan	6	5	Decreased
Other Countries	17	24	Increased

Source: **RBI, Handbook of Statistics on Indian Economy.**

Figure 4.22: The following Figure shows Country wise export Change of Indian Cashew exports in the Pre & Post WTO period

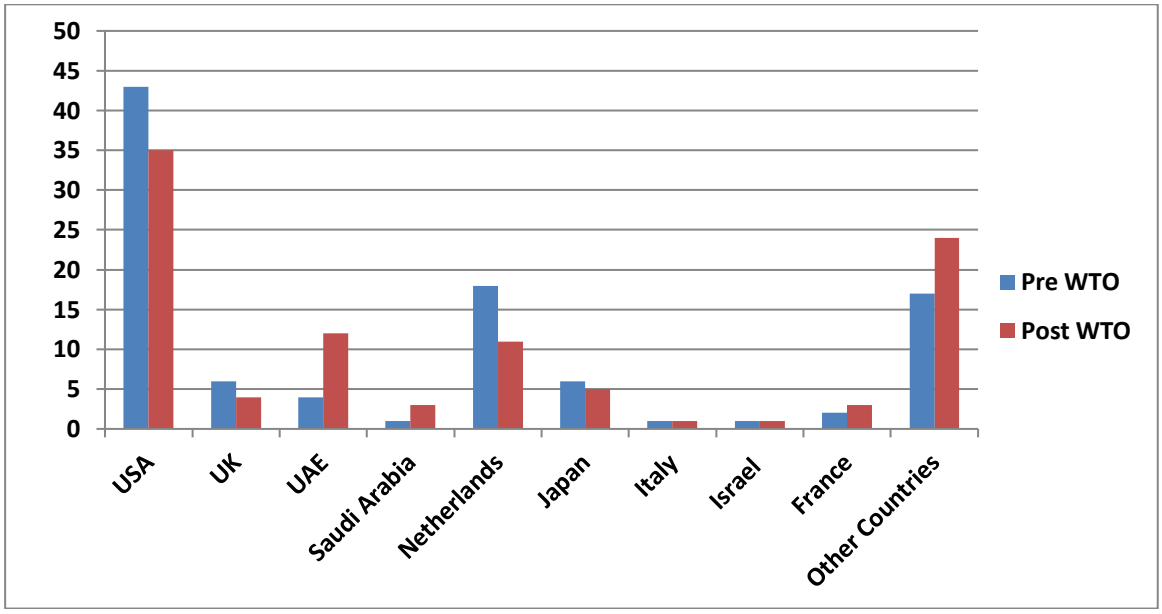
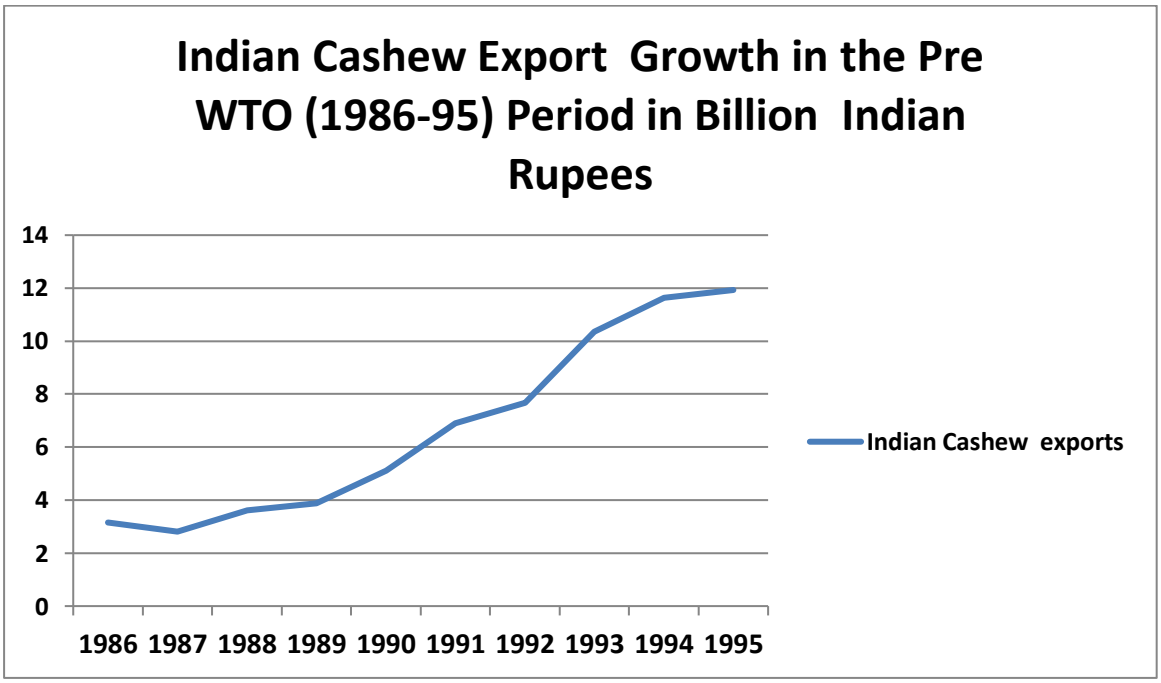
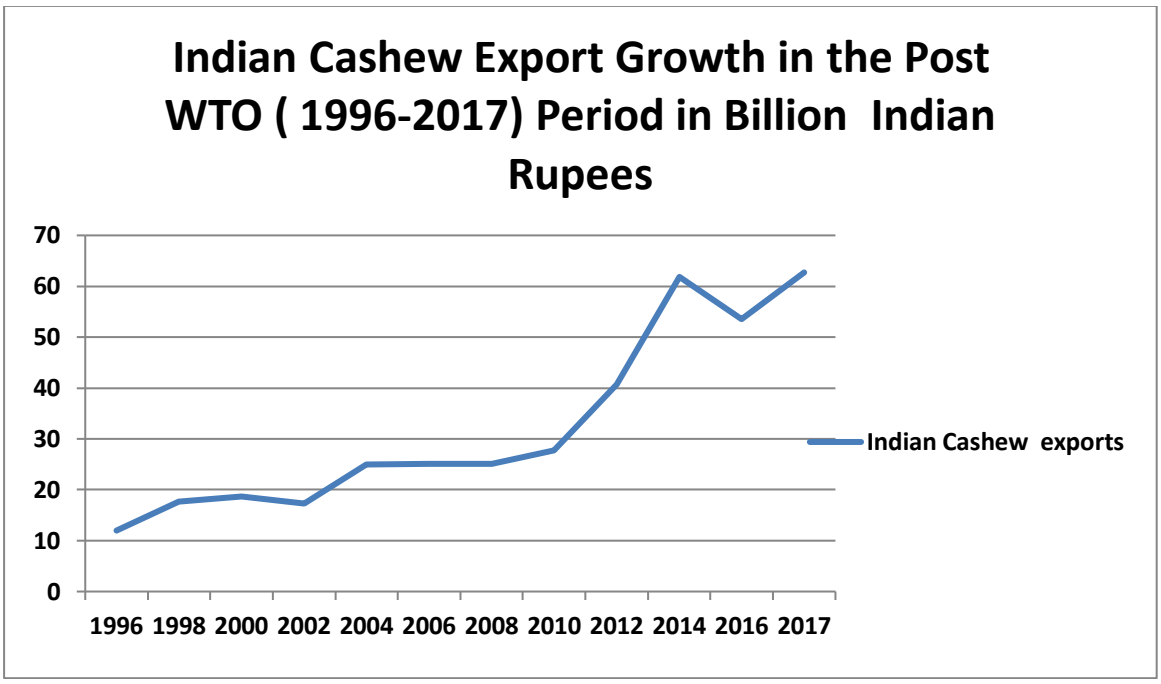


Figure 4.23: Growth of Export of Indian Cashew including Cashew Nut Shell Liquid exports in the Pre WTO Period (Estimated in Billion Indian currencies)



Source: RBI, Hand Book of Statistics on Indian Economy.

Figure 4.24: Growth of Export of Indian Cashew including Cashew Nut Shell Liquid exports in the Post WTO Period (Estimated in Billion Indian currencies)



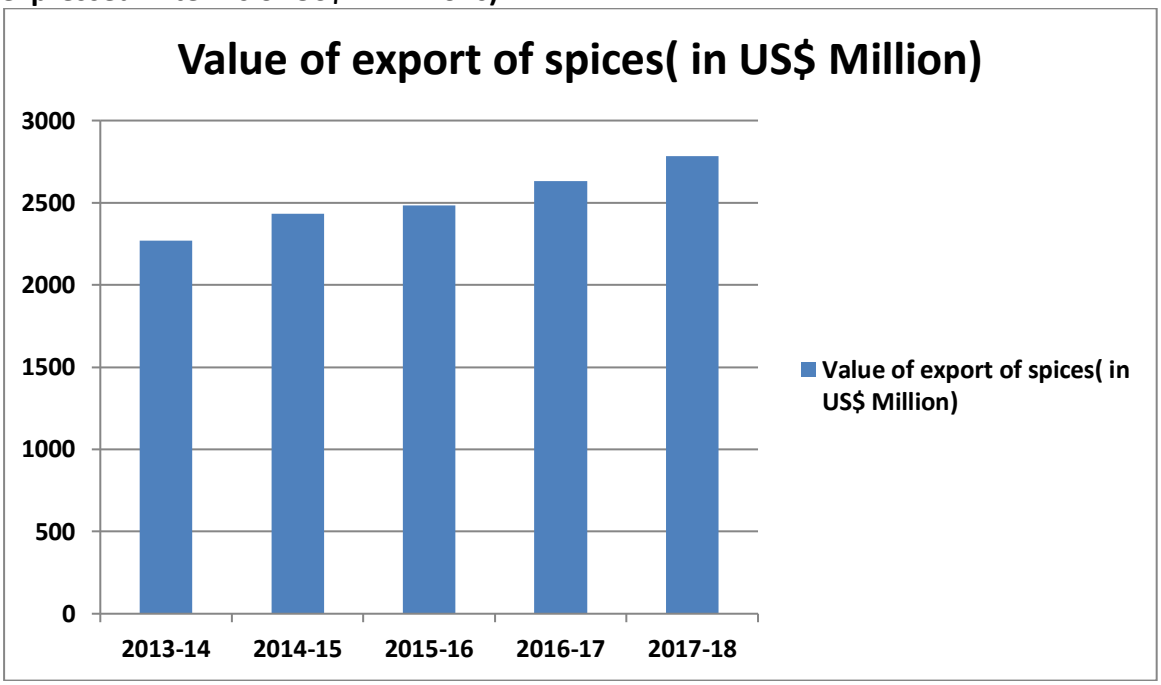
Source: RBI, Hand Book of Statistics on Indian Economy.

The above tables show Export growth of Cashew in the Pre & Post WTO phase. In the pre WTO era Cashew including cashew nut shell liquid export increased from Rs. 3.15 billion (1986) to Rs. 11.93 billion (1995). In the Post WTO era the Indian Cashew export growth has increased from RS.11.98 (1996) Billion to Rs. 62.72 billion (2017). Where in that period the import of cashew nut to India was around for RS 60 billion. In this period (1986-2016) USA has been the most loyal customer(though it has lost market share to UAE and UK) of Indian Cashew along with UK whose import share from Indian has increased in the Post WTO era where France & Japan could not retain their market share like in the Pre WTO era.

4.10: Spices

Spices have been one of the most important traditional agricultural export Commodities in India. It has long standing histories of trade with the world. India holds outstanding position in the spice trade at the global level. If we look at the trade of spices we will notice that the compound annual growth rate of spices trade both in the Pre & the Post WTO era were positive and encouraging for India. Since the Pre WTO era USA, Canada has been most loyal customer of Indian pepper and Bangladesh & UAE were the most stable customer of Indian Chilli. In the post WTO phase Malaysia & Sri Lanka has emerged to be a good Customer of Indian Chilli. The Other Countries has been the most loyal customer of Indian Cumin in the both Pre & Post WTO era. India being the largest producer, consumer & Exporter of spices, produces about 50 varieties of spices in total of about 100 different spices produced in the world that includes **Pepper, Cardamom(S & L), Chilli, Ginger, Turmeric, Coriander, Cumin, Celery, fennel, Fenugreek, Other Seeds, Garlic, Nutmeg & Mace, Curry powder & Paste, Mint products, Spice oils & Oleoresins.**

Figure 4.25: Latest export trends of Indian spices in the Post WTO regime (values expressed in terms of US$ in millions)



Source: Spices Board of India, Ministry of Commerce & Industry, GOI.

Indian spice export in the Pre WTO era was US$ 149.26 million in 1990-92 triennium and US$ 171.053 million in 1993-95 triennium. In the Post WTO era the Spice & Spice product export was US$ 318.36 million in 1996-98 triennium, US$ 330.66 million in triennium 1999-2001, while it became US$ 1249.20 million in triennium 2008-2010 and lastly it jumped to US$ 2632.385 million in triennium 2015-18.The average value of Export market share of Indian spices were higher in the Post WTO era and the percentage share of export were also comparatively higher in the Post WTO period particularly in the latest trends says so.

Table: 4.41: Country wise Average value of Indian Spices Exports from India (In US$ million)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
Sri Lanka	5.06	5.02	7.50	9.92	16.96	13.44	45.46
U.S.A	23.74	50.92	92.171	110.92	74.24	92.57	232.84
Germany	6.76	6.91	12.12	15.48	13.81	14.64	47.78
Japan	6.28	8.82	15.36	20.46	20.46	20.46	47.39
Saudi Arabia	5.48	4.60	6.48	9.01	10.31	9.66	32.65
Singapore	3.96	6.472	13.92	14.09	8.62	11.36	42.79

Spain	**1.34**	**1.41**	**7.11**	**7.71**	**6.74**	**7.23**	**12.81**
Bangladesh	**10.68**	**4.073**	**5.94**	**10.22**	**11.46**	**10.84**	**41.39**
United Kingdom	**6.72**	**10.68**	**19.132**	**25.06**	**23.72**	**24.41**	**66.96**
U.A.E.	**6.34**	**10.26**	**16.41**	**18.66**	**16.31**	**17.47**	**68.31**
Others	**72.931**	**61.64**	**122.232**	**141.732**	**127.934**	**134.84**	**610.832**
Total	**149.291**	**171.053**	**318.37**	**383.33**	**330.67**	**357**	**1249.212**

Source: RBI, Hand Book of Statistics on Indian Economy.

Year Wise (Triennium wise) Values of Simpson Diversity Index of Indian Spices Exports to Several major export Destinations based on above values.

Triennium	**1990-92**	**1993-95**	**1996-98**	**1999-2001**	**2002-04**	**2005-07**	**2008-10**
Simpson Diversity Index	**0.7249**	**0.7602**	**0.7532**	**0.77**	**0.7810**	**0.75**	**0.6958**

In the above table country wise average value of exports of Indian Spices are shown from 1990-2010, where it can be noticed that the major export destinations of Indian spices were U.S.A., U.A.E., U.K. Germany and Japan. In the Pre WTO (1990-95) era the major importer of Indian Spices was USA (highest) then UK, UAE and Japan. After the WTO during triennium 1996-98 the major export destinations of Indian Spices was, USA, UK, and UAE. But in the triennium 2008-10 the main export share was retained by USA (US$ 232.84 million & highest), followed by UAE, UK, Germany and Japan.

So, it is clear that in the Post WTO era as well as the Pre WTO era USA has been the largest export destination of Indian Spices export.

In the Post WTO the Simpson Index shows higher value for Indian Spices export (0..696%) in recent triennium 2008-10 in the Post WTO period as compare to Pre WTO period's value (0.725%) which implies lower diversification of Indian Spices export to the World in the period than the Pre WTO period (Though in triennium 2001-2004 the value of Simpson index was 0.78% which was higher than pre WTO era).

Table: 4.42: Country wise Average Share of Indian Spices Exports from India (Average value of share expressed in per cent)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
Spain	0.882	0.83	2.24	2.01	2.04	2.01	1.03
Saudi Arabia	3.65	2.70	2.04	2.33	3.12	2.69	2.62
Japan	4.21	5.16	4.82	5.35	6.18	5.74	3.79
Singapore	2.66	3.77	4.37	3.68	2.59	3.19	3.42
Sri Lanka	3.40	2.91	2.35	2.58	5.12	3.77	3.62
Bangladesh	7.15	2.39	1.86	2.67	3.45	3.04	3.30
U.S.A	15.88	29.82	28.96	28.89	22.45	25.89	18.64
Germany	4.54	4.03	3.81	4.02	4.18	4.08	3.83
Others	48.86	36.091	38.39	36.970	38.681	37.70	48.891

Source: RBI, Hand Book of Statistics on Indian Economy.

The average percentage share in total spices exports was maximum for U.S.A. followed by U.A.E , U.K. and Germany in recent triennium 2007-08 to 2009-10 , though USA has been showing declining trend in export share of Spices in the Post WTO era as compared to pre-WTO period. But like UAE many countries have shown increasing trend and many countries have shown mixed trends (like Japan & Singapore) of export share in Indian Spices in the Post WTO era as compare to the Pre WTO period.

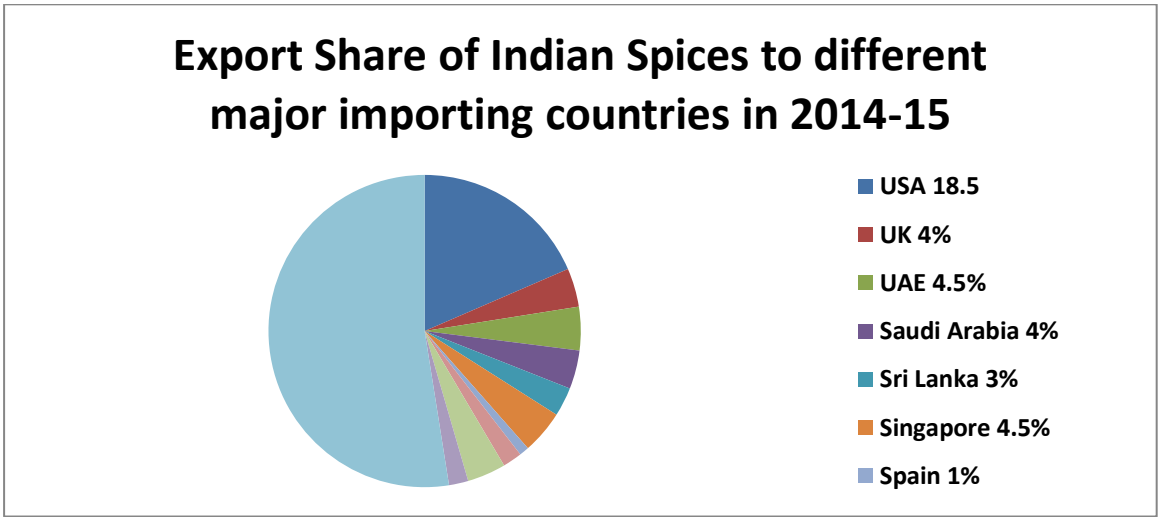
Table: 4.43: The Compound Annual Growth Rates of Indian Cashew Exports in the Pre and Post WTO Era.

Country	Pre-WTO Period (1990-91 to 1994-95)	Post-WTO Period (1995-96 to 2009-10)
Spain	.85	4
Sri Lanka	-.13	12.76
Germany	-0.37	9.58
United kingdom	8.03	8.71
Saudi Arabia	-2.88	11.38
Singapore	8.83	7.77
U.S.A	13.56	6.37
U.A.E.	8.35	9.97
Bangladesh	-14.85	13.82
Japan	5.82	7.8
Others	-2.76	11.32
Total	2.34	9.54

Source: RBI, Handbook of Statistics on Indian Economy.

The CAGR (compound annual growth rate) in the Post WTO (9.5%) era was higher than that of the Pre WTO period in pre-WTO period (2.34%).The major Indian export destinations in the pre-WTO period have found to be with high CAGR compared to post-WTO period. In the Post WTO period the CAGR of spices exports from India was highest to Sri Lanka (12.76 %), Bangladesh, Saudi Arabia, Singapore, Other countries, UAE and Germany then followed by Singapore, USA etc.

Chart: 4.6: Percentage wise Export shares of Indian Spices to different major importing countries in 2014-15



Source: Computed on the basis of data from RBI, Handbook of Statistics on Indian Economy

From the above Pie chart we can see that in 2014 the major export share of Spices were highest to USA, UAE, Saudi Arabia, Singapore, UK, Germany and Japan.

Table: 4.44: Export Share of Indian Spices exports to major importing Countries (in Percentage Share)

Countries	Share in Percentage		Difference
	Pre WTO Era (1986-1995)	Post WTO Era (1996-2016)	
Spain	2	1	Decreased
Germany	4	4	No Change
USA	27	18	Decreased
United Kingdom	7	5	Decreased
Saudi Arabia	1	3	Increased
Sri Lanka	3	4	Increased
Bangladesh	3	3	No Change
Japan	5	3	Decreased
Singapore	3	3	No Change
UAE	5	5	No Change
Other Countries	38	51	Increased

Source: RBI, Handbook of Statistics on Indian Economy.

Figure 4.26: The following Figure shows Country wise export Change of Indian Spices exports in the Pre & Post WTO period

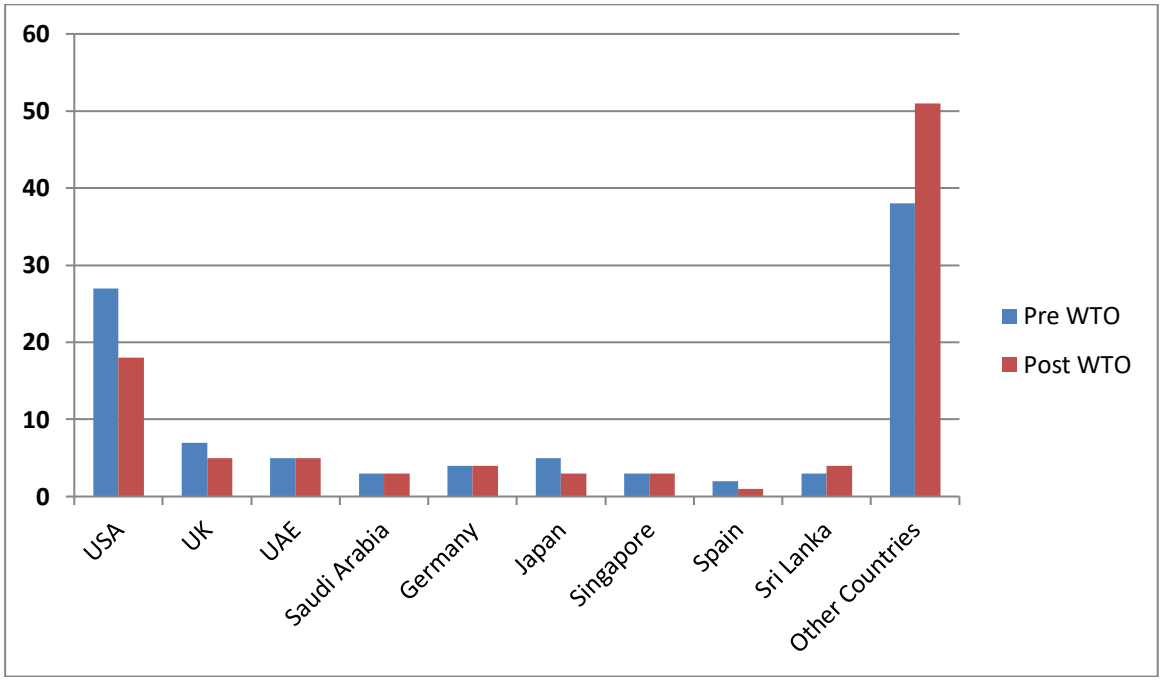
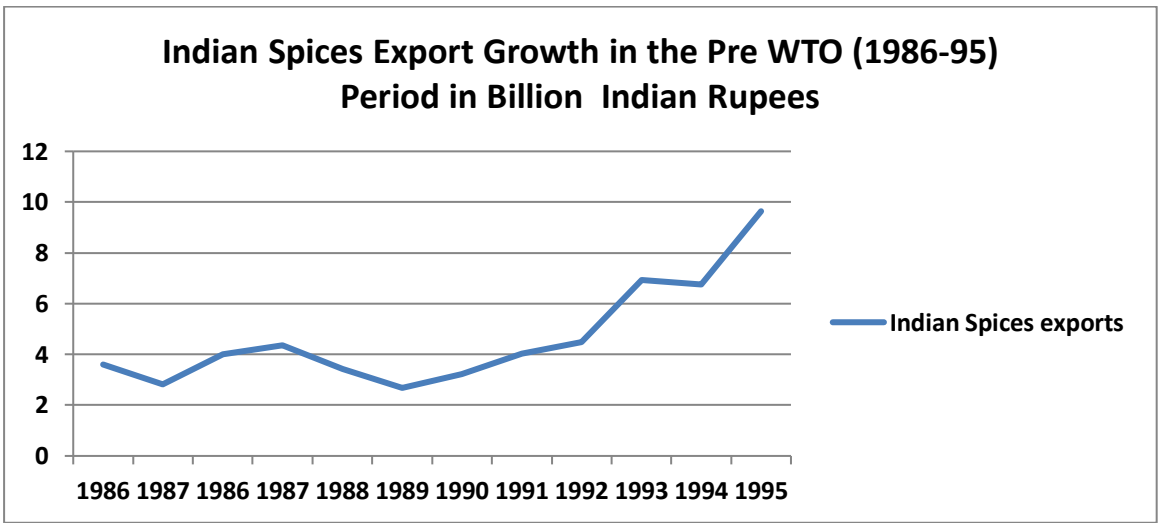
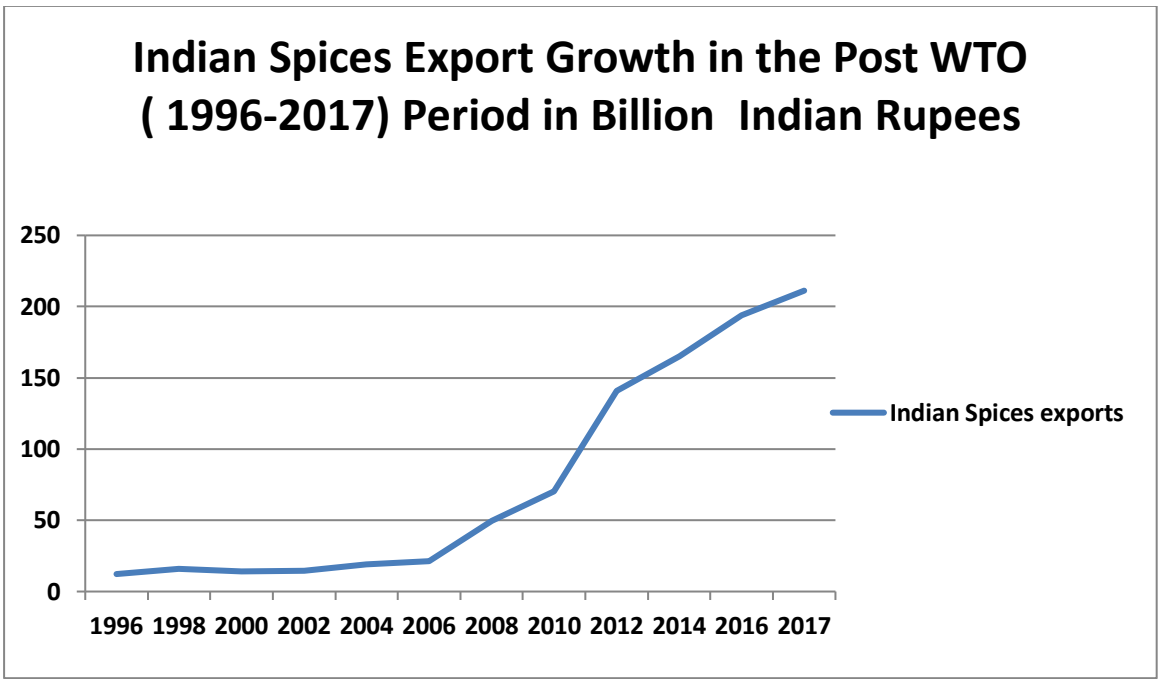


Figure 4.27: Growth of Export of Indian Spices the Pre WTO Period (Estimated in Billion Indian currencies)



Source: RBI, Hand Book of Statistics on Indian Economy.

Figure 4.28: Growth of Export of Indian Spices exports in the Post WTO Period (Estimated in Billion Indian currencies)



Source: RBI, Hand Book of Statistics on Indian Economy.

The rate of growth of Indian Spice export was higher in post WTO era as compare to the Pre WTO period. The growth of Indian Spices increased from approximately Rs. 4 billion in 1986 to Rs. 17.674 billion in 2003, jumped to approx. RS.150 billion in 2012 and lastly Rs. 211.17 billion in 2017. In the post WTO era the other countries has been the biggest customer of Indian Spices followed by USA, UK, Japan, Germany, Bangladesh, Saudi Arabia, Singapore, Sri Lanka, and Spain. As per the latest data UK has been the most loyal and stable customer of Indian Spices. Spice is influenced by 0.141 and 0.268 growth rate during pre and post-WTO

4.11: Oil Meals

Oil meals are one of the most important essential agricultural export Commodities produced in India. If we look at the above table we shall notice that the Oil meals trade export performance in the post WTO phase has declined than that of the Pre WTO period. The Indian oil meals export has increased from US$ 359.8 million in triennium 1989-92 to US$ 615.66 million in triennium 1993-95 in the Pre WTO era. Again The oil Meals export declined from US$ 870.73 million in triennium 1996-98 to US$ 503.8 million in triennium 2001-2004 , and increased again US$ 1968.53 million in triennium 2007-2010. The average percentage value of export share of Indian Oil Meals was 11.47 in 1989-92, 16.21 in 1993-95, and 12.58 in 1996-98, to 10.99 in 2007-10 in the pre & Post WTO eras. So it is evident that though the average value of export of Indian Oil Meals was higher in the Post WTO period but the average value of percentage share of export was less in Post WTO period as compare to the Pre WTO period. If we look at the CAGR (Compound annual Growth Rate) in terms of percentage value we shall notice that the CAGR of Indian Oil Meals was higher in the Pre WTO period as compare to the Post WTO period.

Table: 4.45: Country wise Average value of Indian Oil Meals Exports from India (In US$ million)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-2001	2002-04	2005-07	2008-10
Singapore	14.64	129.39	153.29	50.21	46.74	48.46	38.42
Thailand	13.78	61.32	57.11	31.18	45.61	38.37	153.59
Vietnam	1.01	1.08	21.64	30.22	49.62	39.94	495.21
Japan	3.12	11.61	43.44	39.14	26.48	32.79	246.51
Indonesia	0.08	0.20	122.29	57.02	80.79	68.94	169.62
Russia	102.92	16.92	8.01	6.16	0.174	3.18	0.330
South Korea	5.76	35.29	96.291	48.36	50.80	49.59	165.72
Pakistan	4.61	14.78	20.68	20.88	12.66	16.76	92.81
Sri Lanka	2.26	8.54	11.79	9.46	17.56	13.53	43.04
Bangladesh	0.23	0.33	0.772	10.21	46.01	28.10	133.51
Others	201.570	276.401	341.95	126.201	127.00	126.61	429.76
Total	359.8	615.67	870.33	429.03	503.5	466.27	1968.53

Source: RBI, Hand Book of Statistics on Indian Economy.

Year Wise (Triennium wise) Values of Simpson Diversity Index of Indian Oil Meals Exports to Several major export Destinations based on above values.

Triennium	1990-92	1993-95	1996-98	1999-2001	2002-04	2005-07	2008-10
Simpson Diversity Index	0.5766	0.73	0.7788	0.8510	0.86	0.8674	0.8455

We conduct country wise Comparative analysis of Share of Export (in %), Value of Export with export diversification (using Simpson Index) in Pre & Post WTO period (from 1990-2010) in the above table. As per table Vietnam, Japan, Korea, Thailand & Indonesia were the major export destinations of Indian Oil Meals in the recent triennium 2008-2010. The table shows in triennium 1990-92 the major importers of Indian Oil meals were Russia, Singapore & Thailand, in triennium 1993-95 it was Singapore, Thailand and South Korea in Pre WTO era. In Post WTO era the major export destinations of Indian Oil meals were Singapore (highest), Indonesia, and South Korea in

triennium 1996-98. The recent triennium of 2008-10 shows the new latest export destinations of Indian oil meals export are Vietnam (highest value US$ 495.21million), then followed by Japan, Indonesia, South Korea and Thailand. So it is evident that Vietnam has become the new emerging export destination of Indian Oil Meals Post WTO period.

In the Post WTO the Simpson Index shows higher value for Indian Oil meals export (0.8455) in recent triennium 2007-10 in the Post WTO period as compare to Pre WTO period's value (0.5766) which implies high diversification of Indian Oil Meals export to the World.

Table: 4.46: Country wise Average Share of Indian Oil Meals Exports from India (Average value of share expressed in per cent)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-2001	2002-04	2005-07	2008 -10
Japan	0.85	1.87	4.93	9.13	5.26	7.04	12.51
Singapore	4.07	21.00	17.59	11.71	9.27	10.38	1.95
Pakistan	1.26	2.40	2.38	4.87	2.52	3.60	4.72
Vietnam	0.16	0.18	2.79	7.05	9.86	8.57	25.16
Bangladesh	0.01	0.01	0.89	2.38	9.11	6.01	6.77
Thailand	3.81	9.95	6.55	7.260	9.04	8.22	7.79
Indonesia	0.20	0.04	14.01	13.28	16.04	14.77	8.60
Russia	28.59	2.75	0.92	1.44	0.330	0.670	0.03
South Korea	1.61	5.72	11.05	11.26	10.07	10.62	8.42
Sri Lanka	0.64	1.37	1.34	2.19	3.49	2.90	2.17
Others	56.00	44.891	37.85	29.40	25.26	27.14	21.81

Source: RBI, Hand Book of Statistics on Indian Economy.

If we look at the Percentage Share of average Export, we shall notice that (table) the percentage share of total Oil meal export was highest for Vietnam (25.16%) in triennium 2008-10 from 2.79% in triennium 1996-98. The average percentage share of Indian Oil meals export to total export after Vietnam was for Japan (12.51%), Indonesia (8.60%), and South Korea (8.42%) in triennium 2008-10. Many countries import share of Indian Oil meals has gone down during the post WTO period for example Indonesia whose export share was 14.01% in triennium 1996-98 has gone down to only 8.60% in triennium 2008-10 in the post WTO era. Other countries like Japan, Singapore etc have shown mixed trend during the Pre & Post WTO era in importing Indian oil meals.

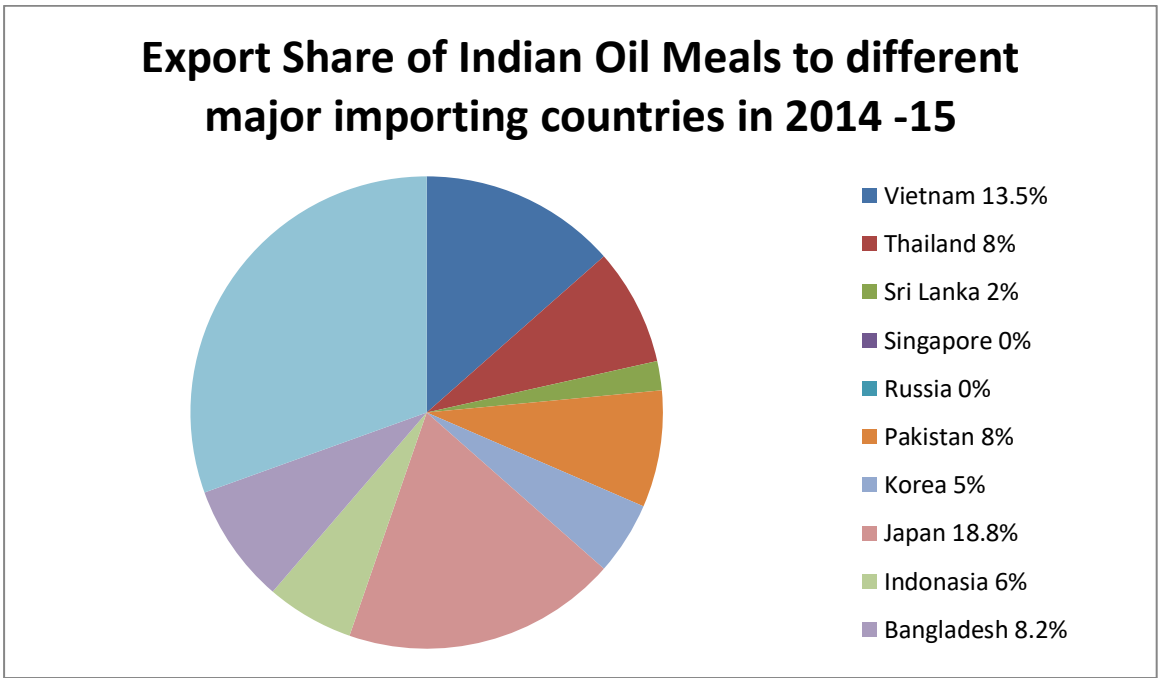
Table: 4.47: The Compound Annual Growth Rates of Indian Oil Meals Exports in the Pre and Post WTO Era.

Countries	Pre-WTO Period (1989-95)	Post-WTO Period (1996 to 10)
Sri Lanka	24.8	9.02
Vietnam	1.12	23.21
Bangladesh	6.2	41.02
Russia	-25.99	-19.15
Japan	24.48	12.27
Pakistan	21.43	10.53
Singapore	43.79	-8.81
Indonesia	16.5	2.21
Thailand	28.25	6.82
South Korea	35.27	3.69
Others	5.4	1.54
Total	9.37	5.59

Source: RBI, Handbook of Statistics on Indian Economy.

The CAGR (Compound Annual Growth Rate) of Indian Oil Meals export in the Post WTO era was highest to Bangladesh and Vietnam then to Japan and Pakistan. The CAGR of Indian Oil Meals export in the Pre WTO era was higher than that of the Post WTO era.

Chart: 4.7: Percentage wise Export share of Indian Oil Meals to different major importing countries in 2014-15



Source: WTO Data

The above pie chart shows the average export share of Indian Oil Meals to different major export destinations in 2014. Here we notice that the highest export share was for Vietnam followed by Japan, Thailand, Bangladesh, Pakistan, Indonesia and South Korea.

Table: 4.48: Export Share of Indian Oil Meals exports to major importing Countries (in Percentage Share)

Countries	Share in Percentage		Difference
	Pre WTO Era (1986-1995)	Post WTO Era (1996-2016)	
Singapore	3	3	No Change
Pakistan	3	5	Increased
Korea	9	8	Decreased
Russia	2	0	Decreased
Thailand	8	7	Decreased
Sri Lanka	2	2	No Change
Singapore	14	2	Decreased
Indonesia	13	9	Decreased
Vietnam	5	21	Increased
Japan	5	14	Increased
Bangladesh	3	7	Increased
Other Countries	36	25	Decreased

Source: RBI, Handbook of Statistics on Indian Economy.

Figure 4.29: The following Figure shows Country wise export Change of Indian Oil Meals exports in the Pre & Post WTO period

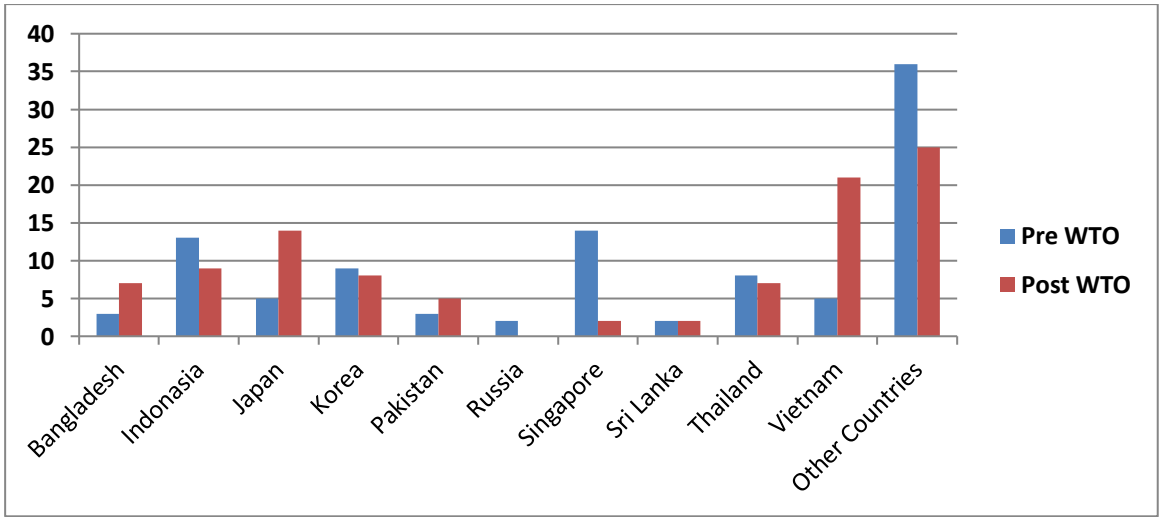
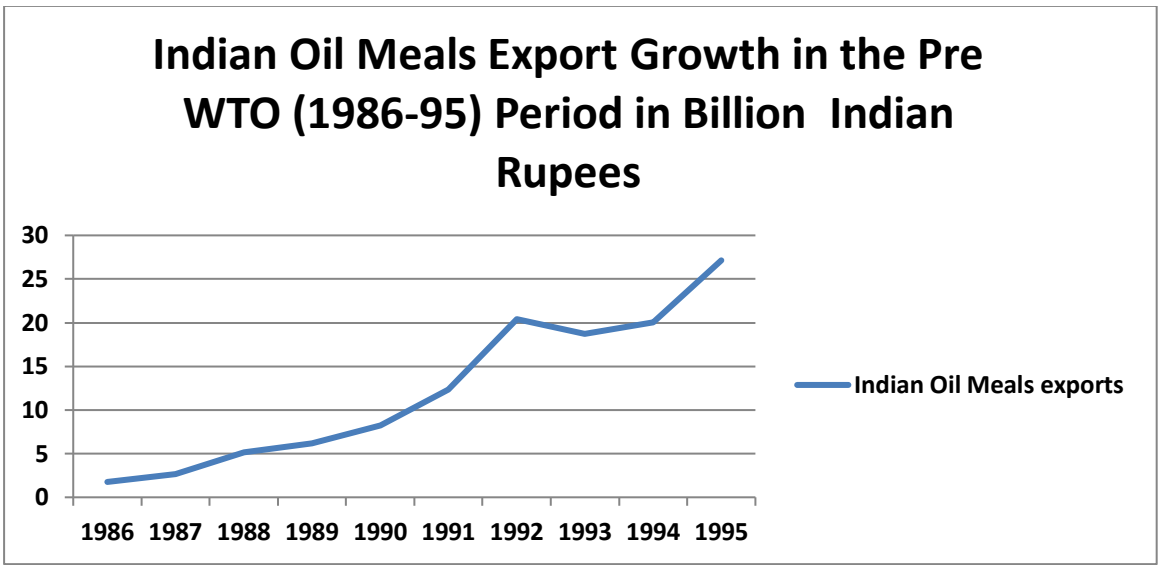
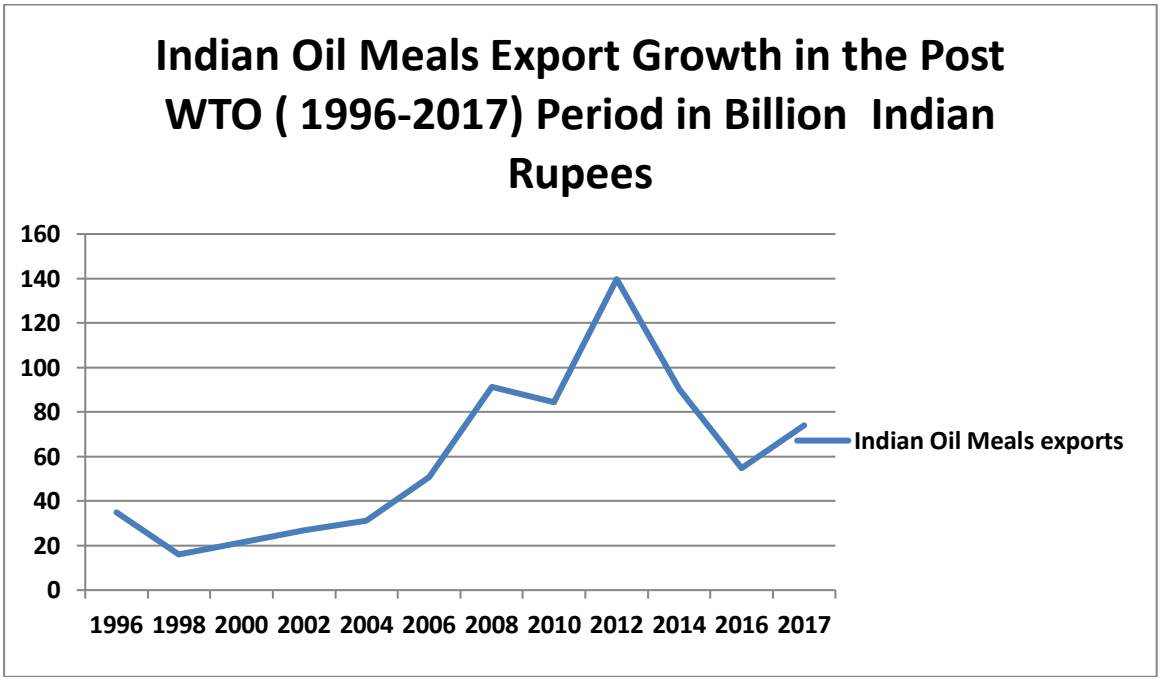


Figure 4.30: Growth of Export of Indian Oil Meals the Pre WTO Period (Estimated in Billion Indian currencies)



Source: RBI, Hand Book of Statistics on Indian Economy.

Figure 4.31: Growth of Export of Indian Oil Meals in the Post WTO Period (Estimated in Billion Indian currencies)



Source: RBI, Hand Book of Statistics on Indian Economy.

The Indian Oil meal Export growth increased from Rs. approximately 3.5 billion in 1986-87 to about Rs. 27 billion in 1995-96 and then it jumped and reached to approx. Rs. **139 billion in 2011-12**. Then it fell down to about approx. Rs**. 70 billion in 2016-17.**The latest export share of Indian Oil Meals was highest to Vietnam(25%), followed by Japan (14%), Indonesia (9%), South Korea (8%), Thailand (8%), Bangladesh (8%), Pakistan(55),Singapore (5%), Sri Lanka (2%) and France. The direction of of Export of Indian Oil Meals in recent times shows Vietnam and other countries are the most stable and loyal

importer of Oil Meals from India. But for countries like Bangladesh, Thailand, Pakistan, Indonesia, South Korea, Japan & Pakistan Indian could not able to retain the previous market share of export of Oil meals like it did in the previous time. These countries were not very stable markets in terms of Oil Meal Export. As per the latest data from SEA(Solvent Extractor Association of India) export earnings from Oil meals has increased in 2017-18 period by 48% (Rs.4758 crore as compare to earlier year's Rs. 3219 crore). This phenomenal growth is the result of high export earnings growth have taken place for Rice bran Oil, Rapeseeds oil, Castor seed oil (by 209, 77, and 39 percent respectively) India. As per the SEA data the Export of certain oil Meals (Rape seed, Rice Bran, Castor seed and Ground nuts) export have jumped to increased upto 90% in 2017-18 as compare to 2016-17 (Which was Rs. 1850 crore by exporting 1837720 tonnes to earlier year's RS. 950 crore against 965011 tonnes, and FOB of Soya been reached to US$. 487 against previous years US$ 386 per tonne).

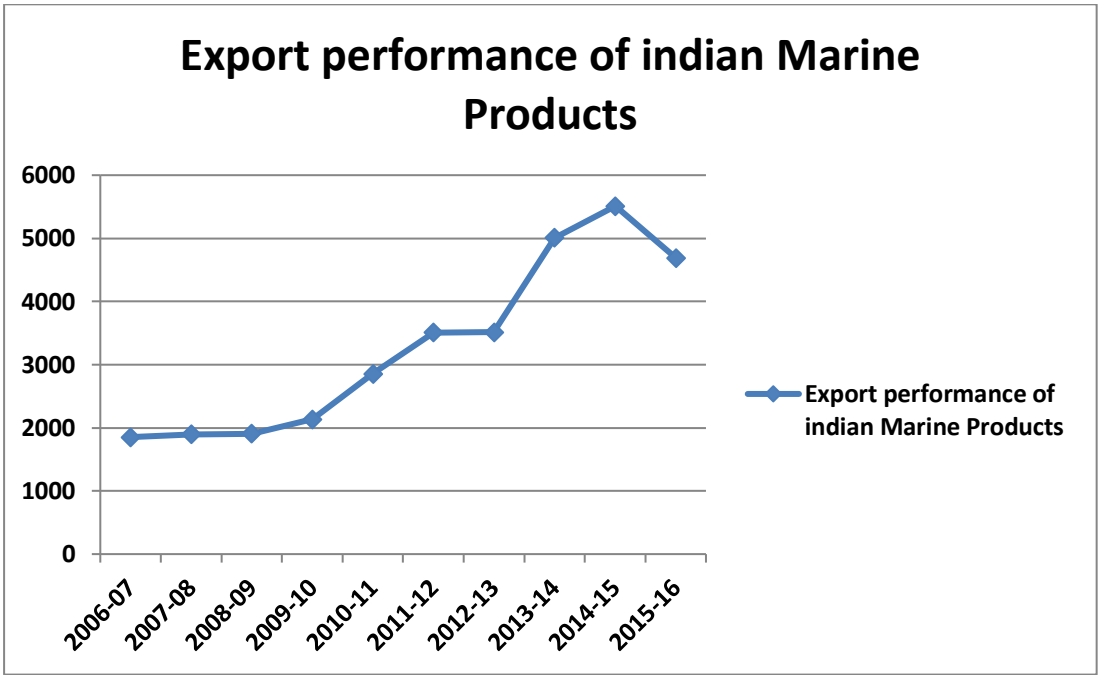
4.12: Marine Products

The Marine products are one of the crucial traditional commodities produced in India. India ranks second position after China in producing Marine products. India's global share in Marine products is around 4.2% and it exports Marine products to around 90 countries in the world. Marine Products contributes around **1% to Indian GDP, 4.5% to total agricultural production and gives employment to about 30 lakhs people in India**. India has immense potential in producing and exporting Marine products as it has 8118 km long coastline which is one of the largest in the World. States like West Bengal, Andhra Pradesh, Tamil Nadu, Kerala, Orissa, and Maharashtra are the major state that produces about 90% of India's marine products. Indian Marine Products Include **Shrimps, Cuttlefish, Frozen Fish, Squid & Dried items**.

The trade or export of Marine products has performed better in Post WTO regime. In 2011 India exported 813091 tonnes of fish & fish products which is about US$ 2 billion worth marine products with 10% export growth rate which was highest in recent times. This has happened due to introduction of facilities and modern equipments like merchandized fishing vessels, synthetic gear materials etc, and development of infrastructure of export, preservation, Processing, and storage of Marine products. The average value of export of marine products in Triennium 1990-92 is US$ 510 million; in 1993-95 it is US$ 847.3 million in the pre WTO era. The volume of export increased to US$ 1115.66 million in triennium 1996-98, US$ 1204 million in triennium 1999-2001, US$ 1332.36 million in triennium 2001-2004, to US$ 1781.2 million in triennium 2008-10.

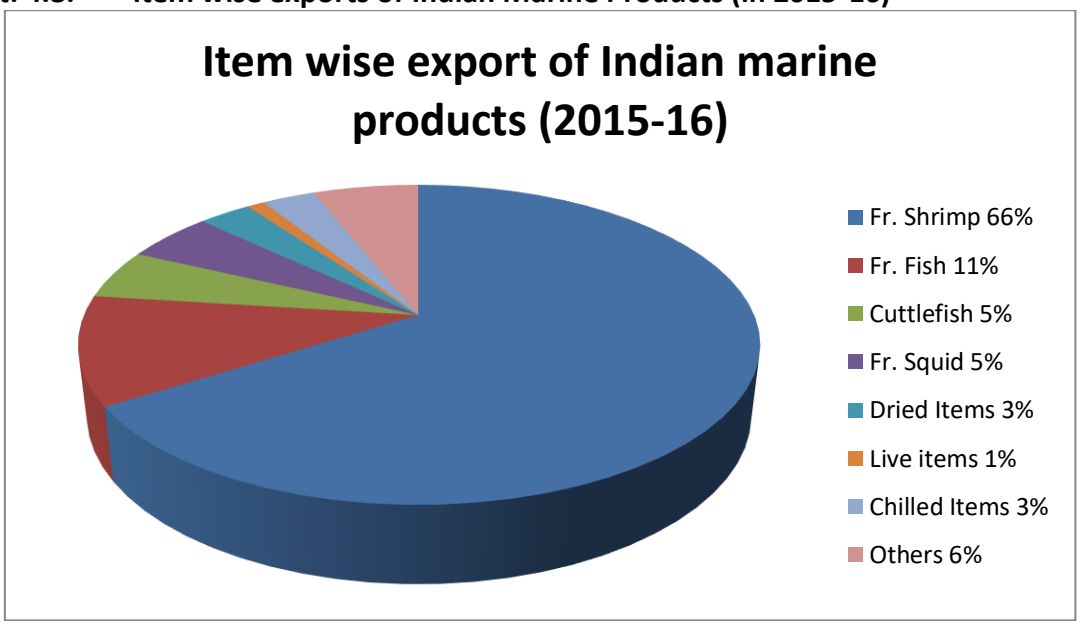
The average export percentage share of the marine products in the world was 16.29 in triennium1990-92 , 22.3 in 1993-95 in the pre WTO era and it was 16.13 in triennium 1996-98 and it declined to 9.95 in 2008-10 triennium. So it can be said that though the average value of export of Indian marine products were high in the Post WTO period but the average percentage share of Indian marine products were comparatively less in the Post WTO era as compare to the Pre WTO period. The CAGR of export of marine products from India was higher in Pre WTO era (8.79%) than the Post WTO era (3.17%).

Figure 4.32: Export performance of Indian Marine products in recent times (value expressed in US$ million)



Source: the marine Products export Development Authority of India

Chart: 4.8: Item wise exports of Indian Marine Products (in 2015-16)



Source: the marine Products export Development Authority of India

Table: 4.49: Country wise Average value of Indian Marine Products Exports from India (In US$ million)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996-98	1999-01	2002-04	2005-07	2008-10
U.A.E.	9.12	61.78	112.96	72.82	37.26	55.04	61.86
United Kingdom	37.61	42.09	42.58	46.81	62.28	54.54	76.61
China	4.6	12.21	67.56	85.01	97.26	91.12	169.32
Thailand	2.18	13.86	16.82	25.51	34.24	29.88	52.21
Taiwan	0.18	4.40	13.94	17.66	29.31	23.49	29.28
Japan	250.0	374.29	484.42	496.41	302.61	399.51	246.82
Italy	24.34	34.132	34.00	24.39	32.26	28.34	75.92
U.S.A	57.49	103.38	115.51	189.36	357.29	273.32	211.72
Spain	33.89	40.74	33.04	39.029	68.62	53.82	137.76
Hong Kong	11.96	28.72	29.01	19.08	23.01	21.02	97.91
Others	84.271	131.772	165.82	188.930	288.171	238.553	621.76
Total	510.971	847.32	1115.66	1204.93	1332.371	1268.653	1781.17

Source: RBI, Hand Book of Statistics on Indian Economy.

Year Wise (Triennium wise) Values of Simpson Diversity Index of Indian Marine Products Exports to Several major export Destinations based on above values.

Triennium	1990-92	1993-95	1996-98	1999-2001	2002-04	2005-07	2008-10
Simpson Diversity Index	0.7093	0.75	0.7587	0.77	0.8213	0.82	0.8212

We conduct country wise Comparative analysis of Share of Export (in %), Value of Export with export diversification (using Simpson Index) in Pre & Post WTO period (from 1990-2010) in the above table. As per the above table the major export destinations of Indian marine products was Japan, U.S.A., China, Spain and Hong Kong in the recent triennium 2008-10. The average value of exports of Indian marine products in T.E. 1990-92 was highest to Japan followed by U.S.A., U.K. and Spain, in triennium 1993-95 it was maximum to Japan, U.S.A., U.A.E. and U.K., in the triennium 1995-98 it was maximum

to Japan followed by U.S.A., U.A.E. and China, In recent triennium 2008-09 to 2009-10, it was maximum to Japan, then to U.S.A., Spain, China and Hong Kong. Thus it is evident that both in the pre & Post WTO Japan retained its position as the highest importer of Indian Marine product.
The Simpson Index shows higher value for Indian Cashew export (0.82%) in triennium 2008-10 in the Post WTO period as compare to Pre WTO period's value (0.71%) which implies higher diversification of Indian Cashew export to the World in the Post WTO period than the Pre WTO period.

Table: 4.50: Country wise Average Share of Indian Marine Products Exports from India (Average value of share expressed in per cent)

Countries	Pre-WTO Period		Post-WTO Period				
	1990-92	1993-95	1996 -98	1999-01	2002-04	2005-07	2008-10
Italy	4.77	4.04	3.05	2.1	2.43	2.24	4.27
China	0	0.01	6.01	7.06	7.31	7.19	9.52
U.A.E.	1.77	7.30	10.11	6.03	2.78	4.32	3.41
Thailand	0.43	1.62	1.50	2.10	2.55	2.34	2.91
Hong Kong	2.33	3.38	2.58	1.59	1.73	1.66	5.50
Japan	48.91	44.16	43.41	41.18	22.69	31.39	13.79
U.S.A	11.26	12.18	10.34	15.70	26.79	21.49	11.87
United Kingdom	7.36	4.95	3.82	3.89	4.70	4.30	4.29
Spain	6.64	4.81	2.97	3.22	5.14	4.23	7.72
Taiwan	0.04	0.53	1.24	1.47	2.20	1.86	1.65
Others	16.39	15.49	14.87	15.66	21.621	18.802	34.89

Source: RBI, Hand Book of Statistics on Indian Economy.

It has been observed that a significant amount of reduction in percentage share of Indian marine product taken place in case of Japan in the post WTO era (It has reduced from 43.41% in 1996-98 to 13.8% in triennium 2008-10) as compare to the Pre WTO era. In the recent triennium 2008-10 the average percentage share of Indian Marine products was highest to Japan, followed by USA, China, and Spain. For some countries the average percentage value of export share has increased in the Post WTO era like China, for some countries it has shown a mixed trend like USA and Spain.

Table: 4.51: The Compound Annual Growth Rates of Indian Marine Product Exports in the Pre and Post WTO Era.

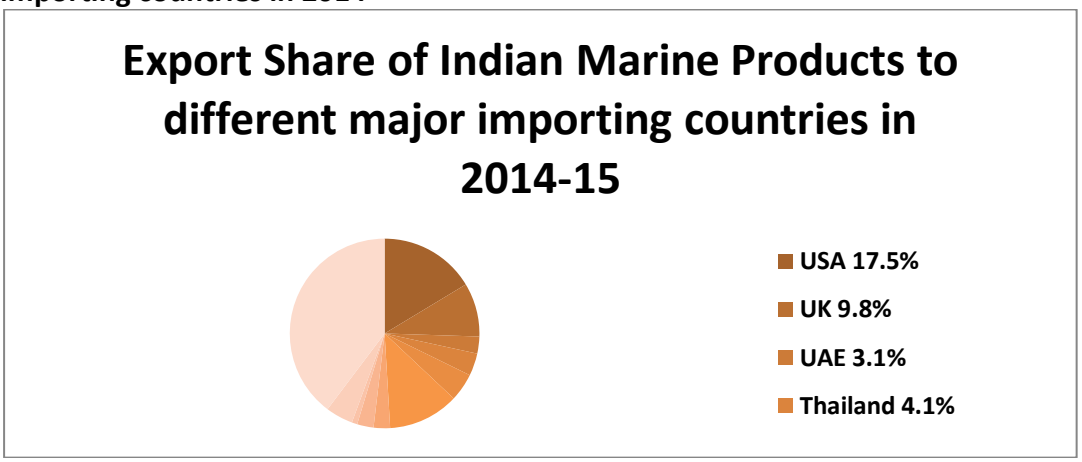
Country	Pre-WTO Period (1990-91 to 1994-95)	Post-WTO Period (1995-96 to 2009-10)
China	17.92	6.32
Taiwan	70.36	8.07
Hong Kong	15.72	8.45
Italy	5.8	5.5
Japan	6.96	-4.4
Spain	3.12	9.99
Thailand	36.11	7.84
U.A.E.	37.55	-3.93
U.K.	1.89	3.99
U.S.A	10.27	6.32
Others	8.14	9.21

Total	8.79	3.17

Source: RBI, Handbook of Statistics on Indian Economy.

In the Post WTO period the CAGR (Compound annual growth rate) of Indian Marine product export was less (3.17) than the Pre WTO period (8.79%). It is because the major Indian Marine product export destinations registered higher CAGR as compare to Pre WTO era. In the Post WTO period Spain, Hong Kong, Taiwan Thailand and China registered higher CAGR.

Chart 4.9: Percentage wise Export share of Indian Marine Products to different major importing countries in 2014



Source: RBI, Handbook of Statistics on Indian Economy

The above pie chart shows the average export share of Indian Marine Products to different major export destinations in 2014. Here we notice that the highest export share was for USA, followed by Japan, UK, PRC, Spain, and Thailand.

Table: 4.52: Export Share of Indian Marine Products exports to major importing Countries (in Percentage Share)

Countries	Share in Percentage		Difference
	Pre WTO Era (1986-1995)	Post WTO Era (1996-2016)	
Thailand	2	3	Increased
Italy	3	4	Increased
United Kingdom	4	4	No Change
Spain	4	7	Increased
UAE	6	3	Decreased
P.R.C.	6	8	Increased
Taiwan	1	2	Increased
Hong Kong	2	4	Increased
USA	18	16	Decreased
Japan	36	14	Decreased
Other Countries	18	35	Increased

Source: RBI, Handbook of Statistics on Indian Economy

Figure 4.33: The following Figure shows Country wise export Change of Indian Marine Products in the Pre & Post WTO period

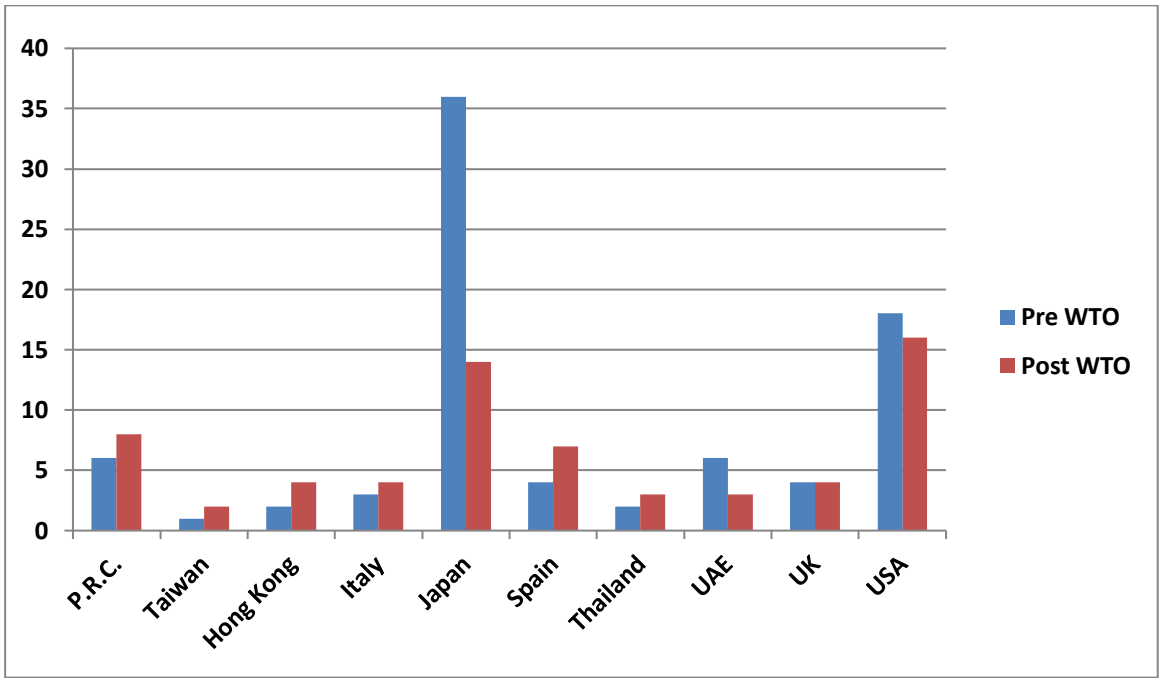
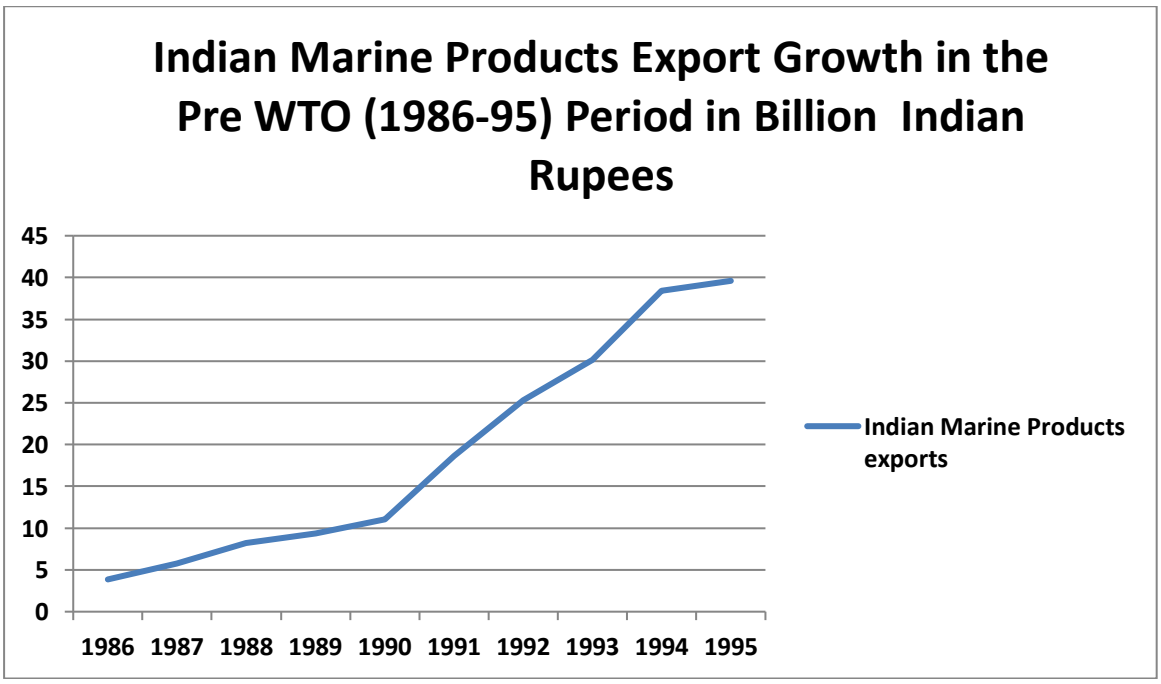
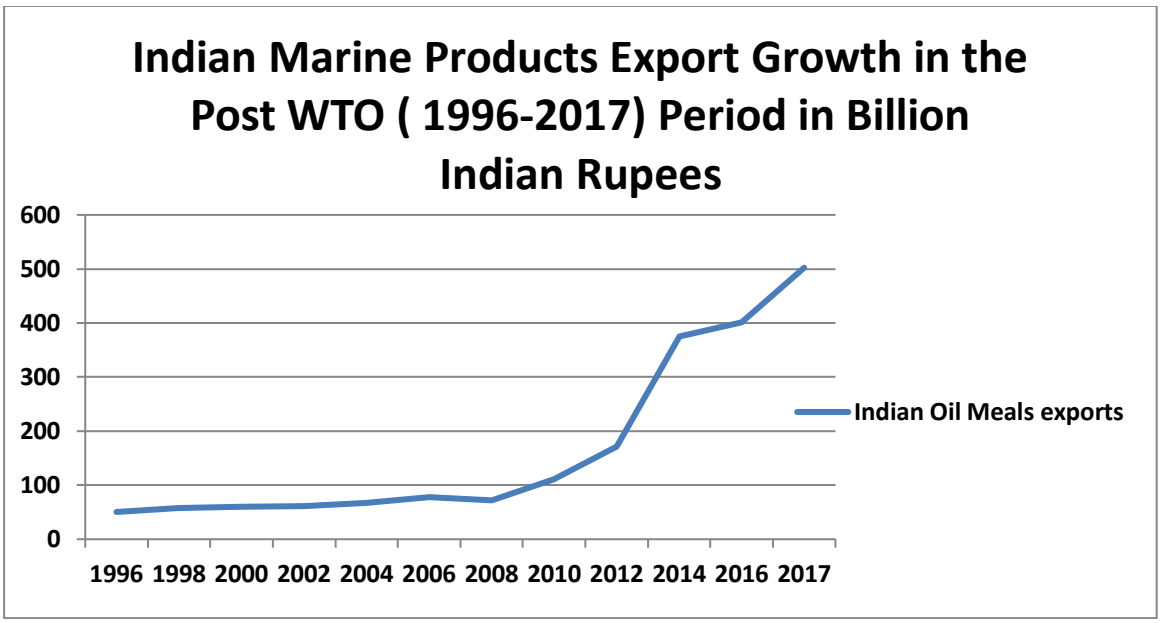


Figure 4.34: Growth of Export of Indian Marine Products the Pre WTO Period (Estimated in Billion Indian currencies)



Source: RBI, Hand Book of Statistics on Indian Economy.

Figure: 4.35: Growth of Export of Indian Marine Products in the Post WTO Period (Estimated in Billion Indian currencies



Source: RBI, Hand Book of Statistics on Indian Economy

The Indian Marine Product Export growth increased from Rs. approximately 4 billion in 1986-87 to about Rs.59 billion in 2001, then it was approximately RS. 75 billion in triennium 2007-10, then it reached to approx. Rs. 139 billion in 2011-12 and ultimately approx. Rs 500 billion in 2017. As per the recent data by Marine Products development authority of India the declining markets of Indian marine exports are EU (26%), Spain ,UK, Italy, USA (23%), Japan(16%) and the emerging markets for Indian marine products are Vietnam, Belgium, Canada, Germany, Hong Kong and China (14%). The major Challenges of Indian Marine product export in the Post WTO era is imposition of anti dumping duty by the USA (2004), Phyto sanitary measures imposed by Japan and EU on Indian marine products, Dependency of India on USA and Japan as single market and on single exporting commodity (Shrimp) created saturation of market demand and limitation of Export, rising petroleum cost also created hindrance in exporting of marine products by inducing input cost for export to rise.

4.13: The Overall Impact of WTO on Indian Agricultural Commodity Trade:

The overall impact of WTO on Indian Agricultural Trade is somehow positive, in the sense that the share of Indian agricultural export has increased tremendously (about 2.06% in 2011 and it has become one of the biggest exporter among the few leading exporting countries) in the post WTO period for example Meat & meat products, Spices, Tobacco, Fruits & Fruits Products, and several horticulture products, where some commodities registered higher growth rate of export in the Post WTO period than the Pre WTO one, some other commodities are there which have registered comparatively less growth rate in export in the Post WTO period than the Pre WTO period for example .

The year 1997- 2001 shows a clear fall in the growth rate of export of agricultural commodities, sometimes the growth rate registered very poor marking; sometimes even negative growth rate was

registered. There are some conditions which are responsible for this reason. For example in the year 1997 witnessed a sheer depression in the East Asian countries. Besides agriculture there was also felt slow down of agricultural trade worldwide. The reason of this was Restrictions on world agricultural export, tariff & Non- Tariff Barriers on some of the major agricultural export like Rice, Wheat etc.

Some of the decisions of the Developed countries took toll on the agricultural trade of the Developing Countries which was giving huge subsidies to their agricultural exporting commodities. But During 2001 to 2004 the Indian agri-export fluctuated lot for example Indian agri-export showed improvement in the year 2001-02 but due to economic crisis of Japan, South East and East Asian nations like Indonesia, Malaysia, Thailand and Bangladesh. Then again in 2006-09 the agri-export showed some trends of recovery but due global recession during 2008-10 and huge decline in agricultural commodity demand particularly in US and EU, the Indian agricultural trade faced huge fall in export and it affected domestic agricultural production also. With some positive indication i.e. growth in export of some of the major agricultural commodities like **sugar, cotton, Spices, Meat , Oil Seeds and fruits & Vegetables the Indian agricultural export registered 12.39% growth** which is higher in a small amount than the previous year's growth which was 10%. This was because at this time share of growth of manufacturing in GDP was much higher than Agriculture.

The character of Indian agricultural export has gone through considerable change in the post WTO period as compare to the Pre WTO period where some product has shown Growth in export rate, some has mixed trend where some showed sheer decline. The major export destinations of Indian agro-produces are Bangladesh, Thailand, Japan, Malaysia, Singapore, UAE, Indonesia, EU, Saudi Arabia & the US. In the Post WTO era the average value of the total export might have increased but the percentage share decline as compare to the Pre WTO period. During the four consecutive years Indian 2010, 11, 12, 13 Indian agricultural exports experienced much Diversification which was proven to be beneficial for the agri-export. In the Post WTO era the major agricultural commodities which have shown **high comparative advantage** and export growth was**, Rice, Meat, Jute, Spices, Sugar, Cotton , Fruits & vegetables** while those have not include **Tea, Coffee, ,marine products, Tobacco etc.** The products which have shown higher amount of **Export Diversification** in the Post WTO era particularly in 2010,11, 12, 13 was **Cashew, Rice, Spices, Processed foods, Tobacco & fish & fish products.**

The promise made by the WTO & AOA is seems to be non matching with the aftermath reality of the Post WTO period as the AOA regime apprehended that liberalisation of Agricultural trade would increase the demand of agricultural commodities of the developing countries and there by the price of those commodities would rise in the Post WTO era but the opposite thing has happened the price of most of the major agricultural trading commodities of India has fall down during the post WTO period which have given a blow to the domestic exporters. This was one among big reasons for falling of export during the Post WTO period. The reason behind this was huge domestic support and export subsidies provided by the developed countries to their agricultural sector. And as a result of this price fall the agricultural importing countries have profited a lot where exporters like India have faced sheer loss during this period. The major causes of the fall of export growth during the Post WTO era as compare to the Pre WTO era was (1) Breaking the promises by the Developed countries to reduce domestic subsidies (Blue box, Green Box, Amber Box) which led the International price of major agricultural commodities to fall. (2) The WTO has some where failed to protect developing nations from fall in their export due to price fall and influencing developed countries to reduce trade distorting subsidies, (3) Other than the AOA issues India also suffers from lack of agricultural development domestically. Apart from institutional and infrastructural backwardness and

underdeveloped market mechanism lack of modern scientific management, mishandling, not accustomed in using of new technologies in agriculture, poor infrastructure which damages to the crops, low productivity and poor value addition of the raw & processed products, lack of diversity in agro produces, lack in quality standard to meet international level and lack of R & D & use of modern Biotechnology are among the major reason for fall in export in the post WTO regime when surge in food products took place throughout the world but India fails to meet the newly emerged world order and advanced market expectations.

4.14: Stringent difficulties before India's Export Trade:

A number of reasons are responsible for India's declining performance in the trade of Agricultural export. This is discussed in the following Points

- AOA was suppose to back the Developing nations in the free trade competition with commitment to reduce tariff & Non Tariff barriers, Cut down domestic support in form of Subsidy , facilitated greater market access.
- India & Most of the developing nations lack of proper infrastructure to meet the norms like SPS & TBT measures.
- India & Most developing nations lack investment in Biotechnological R &D and implementation.
- India & Most developing nations lack Scientific & coherent management system for handling raw produce.
- India and most developing nations fail to strike balance between new free trade norms and domestic policy which denies sustainable growth.
- The high price of raw materials in case of fruits & vegetables affects the food processing industry. Lack of variety & kind and at larger quantity & constant supply i.e. industrial production of raw material do not at all places occur to India.

- India lags behind in producing quality raw material as compare to the developed countries, as result, the processing units also are not able to be utilized to the full capacity. The developed nations put tough challenge in front of India in respect of high quality production of raw materials.
- India lags behind in making management and marketing strategy which can ensure a stable export market for processed foods.
- Poor infrastructure in terms of lack of power and water supplies to the Industries, poor connectivity, dearth of large vehicles or goods carriers, insufficient post harvest management program, short of cold storage facilities, poor quality packaging procedure, not using Bio-degradable materials which don't go in accordance with the demand of the importing countries- is one of the major reason for the poor performance of India in export trading.
- Last but not the least countries of North America, Asia, & Europe have raised various trade barriers which act as a stumbling block in the way of India's export trade of agricultural products.

4.15: Summery & Conclusion

A comparative study of India's export and import trade in agricultural products and produces in Post & Pre WTO era sheds light on some of the important findings. The export & import of some produces and products have increased where as some have decreased and some have shown stability. In Post WTO era, other than some commodities like Cashew nut, wheat etc principle commodities have shown improvement in export growth rate. And in case of Import other than

some commodities like edible oil & Cashew nuts many other commodities indicate positive growth rate. In so far as percentage share of contribution in export in the post WTO era is concerned, though the export of **sugar, juices, Processed foods, Tobacco, Spices, Fruits & vegetables and Rice has increased, most other commodities** have decreased where as Meat, raw cotton etc have remained same in the contribution to the percentage share as Pre WTO era.
Now in so far percentage share index in import is concerned other than the commodities like edible oil, Bulk Consumption of good have increased which contributed to the increase percentage share. **In the export of Tea,** in Post WTO period countries like US, UAE, Kazakhstan, Iran have increased, Poland , Russia, Germany have decreased and UK & Japan maintained the same as in the pre WTO era. **In case of Coffee** Italy and Belgium have increased and Germany, USA, Russia, Netherland have decreased where as UK, Switzerland Latvia maintained importing as before. **As Indian marine products** are concerned, In countries like Thailand, Indonesia, Malaysia, Spain, Italy, China, Taiwan export has increased : UK remained same as before: USA, Japan and UAE has decreased in import. **In the field of oil meals** Vietnam, Japan, Bangladesh, Pakistan have increased import from India: Sri Lanka have shown stability where as South Korea, Russia, Thailand, Singapore and Indonesia have decreased. **As export of India's rice** is concerned, rice export in Belgium, Italy, Yemen, UAE, and Kuwait has increased: In Singapore Share percentage remained as before where as In France, South Africa, Bangladesh, Saudi Arabia, USA, UK has decreased. **In Case of Spices** Sri Lanka has increased importing Spice from India: USA, Spain, UK, Japan has imported Spice in comparatively of less value and Saudi Arab , Germany, UAE, Singapore , Bangladesh imported in the same amount before.
In the Post WTO era India has increased export of Tobacco in Netherlands, UAE and Belgium: where as India's export has decreased in countries like UK, USA, Singapore, Germany and Saudi Arabia. The other countries have been the most reliable and stable as a Group in both the Pre & Post WTO period to import Indian tobacco.
India has witnessed a clear shift in the mode of production & consumption of the agricultural product in their post WTO period. **A new trend in consuming high valued agricultural commodities rather than traditional commodities that struck the World in the Post WTO era didn't leave India Unaffected. Therefore trade in high valued products like fruits & fruit Juice, Eggs, Fishery Items, Marine Products, Meat & Meat Products, Milk & dairy Products, Vegetables replaced the Export of Wheat, Rice, Gram, Pulse, Sugar, Tea, Tobacco, Coffee etc.** After 2001 this trend has sped up. By increasing quality and food safety measures India has huge potentiality for the agricultural trade in the domestic market with huge demand and at the same time strike a tough competition as a global player in the international arena.

Recommendations:
During WTO period India has achieved increased world market share for some Agricultural commodity export but failed to achieve export market share and growth in export for many other commodities. This may be because of (a) Poor policy strategy and Mismanaged implementation at places, (b) Breaking of WTO commitment in case of domestic subsidy and using of Non-tariff barriers (SPS & TBT) and Anti-dumping measures by OECD countries to developing nations like India.
India has been late runner in highly competitive and rapidly changing global scenario of trade, and consumer demand along with lack of Infrastructural & Institutional facilities. India has been maintaining all WTO policies with outmost commitment to free & fair multilateral trade and for that it has liberalized its Agricultural sector along with other sectors of its Economy, eliminated all export/import license system and quantitative restrictions (QR), maintaining de- minimis

level, reduces domestic subsidies, its applied tariff rate is much lower than its already low Bound tariff rates, it has open up market access in most of the major sectors for foreign investors like Telecom, Insurance, Civil aviation, Retail market along with many other areas of domestic Infrastructure so it is a passive conformist of WTO policies.

In the following we have put forwarded some recommendations in this respect.

(1) Promoting Public-private partnership to the effect of inviting more investment in the **infrastructural development** to achieve an integrated system covering the entire procedure involving processed food beginning with production to processing to packaging to marketing . More Integrated domestic market leads to more effective global competition.

(2) Post WTO agriculture features **Bio-technological trend** which requires mass educations and training at the grassroots level so that crop growers are aware of the latest techniques and the benefits.

(3) The Governments both at **state and at the centre** should develop **harmonized policy** to back the regional exporters to promote agricultural export surplus. There should be provision of funds to the small regional exporters to encourage more export.

(4) Effective policy for better implementation of SPS and TBT measures, ensuring effective functioning of **Codex standards** to guarantee food safety for both domestic and global market: Compulsory education of **SPS f**or the farmers and food processing factory owners is necessary.

(5) Government should venture into forging policy to bring about new trend of contrast and corporate farming and association of farmers should be motivated to Grow crops with the view to marketing both at regional and global level. Their procedure includes creation of and driving to **SHGs for farming**, nurturing crops, production of seeds etc.

(6) Following the shifting trend in the Post WTO period in the consumption of Food Govt. should make policies toward production of more high value produces than traditional commodities.

(7) **Diversifying crop production** and experimenting with Production of more cash crops regarded as high value crop through Horticulture, Floriculture etc and also livestock rearing, Fishery, herbal and medicinal plants can open up new opportunities.

(8) Development of **basic infrastructure** of agriculture has been shaped into agri-trade industry after WTO is imperative. Development of road way & connectivity, transportation heavy goods carrier, supply of water & electricity are must.

(9) **Effective market strategy** should be prepare to boost up India's trade both import & export withy age old trading partners like CIS countries, African Nations, USA, EU and south Asian countries.

(10) **Biotechnological R & D** in the field of agriculture can bring about revolution in agri-trade because it propagates low cost and high yielding productivity. So effective policy should be taken to inspire Public-private partnership in establishing more research institute. India's rank is third in Asia pacific so far as patent filing is concerned and India is one among the top most five countries that under takes R & D in agriculture. There should be maximum and strategic utilization of low cost physical force, Intellectual & Biological resources to the effect of cost effective production.

(11) Government should take step toward **crop insurance** starting from the production to the last step of export. The banks of the country should come forward in this regard. The ministry

of agriculture with APEDA and EXIM Bank should make provision for easy credit for Agriculture to promote export.

(12) For technical help & guidelines Farm Export Promotion Cell should be opened to Provide Aid to the Farmers & Exporters in every Agricultural Export promoting Zones. This kind of Service should be provided in every state.

Another challenge for India is to strike a balance between Neo-Liberal trade policy and farmer's rights and labour law. The concept that the commodity exporting countries has no influence to impart on export prospect should be reviewed. **Export trade is monopolized by certain MNCs** and medium & small enterprises that form small part of the whole supply chain have little or no influence on exportable commodities in trade. We can raise example of Tea & coffee for instance where if the small growers or **Tea leaf pluckers be integrated with the global value chain** and minimize other inefficiencies including transaction cost then all farm sector would be benefitted in this new world trade regime. The Government of India needs to play proactively positive role in raising the **small & mediocre enterprises by institutional support** like promotional campaign, **Branding, labelling, advertising, Innovative marketing** etc. This will encourage new investment at domestic level and a more strategic integrated trade relation between domestic and global supply chain of same commodity will be achieved. To do away with the MNC's monopoly in both buying and selling, India can forge such policies to create a globally integrated domestic market to invite FDI in multiband retail sectors and cutting down tariff rates by improving irrelative bargaining position so that Investment may come from all sides including domestic, foreign and in form of joint venture. Along with reducing export subsidies India should assure international quality standard and safety measures of its Agricultural exports, it should be more vocal in raising voice against violation of trade norms by Developed nations on WTO forum and confirm for strategic implementations of WTO policies which is not only meant for fair international trade but has inclusive character for the safety & security of domestic agricultural sector and its inputs.

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Chapter – Five

Implications of New IPR regime under TRIPS, Biodiversity Act, GI act, CBD act, SPS, Technical barriers to trade (TBT) agreement Under AOA on Indian Agriculture in the Post WTO regime.

Introduction

- **Objective of the Study**
- **TRIPS**
- **Different wings of TRIPS**
- **Various important international agreements affecting Multilateral**

  -Trade & Biological Diversity in Pre & Post TRIPS regimes.
- **Trips & Indian agriculture**
- **Intellectual Property Rights in India before & After TRIPS**
- **Patent & Indian Agriculture**
- **Geographical Indication & Indian agriculture**
- **Trade mark and Indian agriculture**
- **Traditional Knowledge of Indian Farmers & Protection of Plant Varieties and Farmer's Rights Act 2001**
- **The reverse effect of the TRIPS regime on Indian agriculture and Biodiversity**
- **Impact of TRIPS on Indian Seed Industry**
- **The TRIPS regime in India**
- **Use of Technology in Basmati Rice & Basmati patent**

- **Misuse of Patent rights**
- **Adverse Impact of Seed & Patent Act of India on Indian farmers**
- **Indian agriculture in the Post Trips regime**
- **SPS & Non –Tariff challenge for Indian agricultural sector**
- **India's Response to Agreement on TBT**
- **Effects of CBD VS TRIPS conflicts on Indian Agriculture:**
- **Summery & Conclusion**

Reference

Chapter Five

Impact of TRIPS, Biodiversity, GI act, CBD act, SPS, Technical barriers to trade (TBT)agreement and AOA in the Post WTO regime and the implications of these on Indian agriculture.

Introduction:
The IPRs (Intellectual property Rights) means the legal protection to the ownership rights of the person against any kind of illegal imitations or copying of invention, discovery of the product or process, in which he is engaged. There are several kinds of IPRs like, **Industrial Design, Copyright, Trademarks, Patents of Products, G.I., R&D, and Innovation & Trade secrets**. The key objectives of IPR protections are to,

(1) To sell new Product & Services, technologies, research & Development worldwide we need new investments in knowledge & innovations and for that one should have exclusive rights & intellectual protection ensured by the state.
(2) To spread & promote these new ideas, Knowledge throughout the world the exclusive right holders of innovations should be protected to place their products in the markets. IPRs should be strong not weak because it not only protects innovators but it helps spread & disseminate knowledge with business trough out the world.

5.1: Objective of this Study:

(1) Our main objective of the Study is to find out the impact of post TRIPS & WTO regime on Indian Agriculture, in the sectors of Farmers Rights, Patents & IPRs, Geographical Indications, Trade marks & Copyrights, Research & Development, Plant Varieties etc.
(2) Secondly the Role & Response of India to new emerging global order under in the Post TRIPS regime.

5.2: TRIPS:
The TRIPS (Trade Related Intellectual Property Rights was constituted Annexure 1C of the Marrakesh Agreement), agreement, was signed under the WTO agreement to enhance and maximise economic growth through fair trade & investment worldwide through IPR protection. TRIPs which requires worldwide patent protection for any kind of invention was highly opposed by the developing countries until 1989 but later on under WTO all the signatory nations were bound to abide by the rules of TRIPS. Every country under WTO are required to amend laws in their countries to fulfil TRIPS's Universal requirements of IPRS which, covers issues like,

(1) In order to improve trade how one country should apply the basic principles of international trading system & intellectual property agreements in their own countries by giving proper protection to IPRs.

(2) How the WTO should make an international dispute settlement body to settle any kind of any dispute between trading members.

(3) How to implement special transitional arrangements during the period when the new system is being introduced.

The TRIPS is regarded as the key international trade treaty which governs IPRS, was formulated during the Uruguay round agreement in 1994. The USA with its dissatisfaction in the Paris Convention wanted to bring IPR issue to the GATT forum and was able to do it when the opponent from the developing nations (India, Brazil etc.) agreed finally to do it. The TRIPS agreement is obliged to protect the member country's innovator's Patents and Copyright and it even looks after the administrative system to comply with the protection of IPRs as per the norms framed by TRIPS.

5.3: Different Wings of TRIPS
There exist several contents of TRIPS that can be classified as,
(1) Patent, (2) Copy Rights & Trade Marks, (3) Geographical Indications, (4) Industrial Designs.

Patent: The patent is a kind of sole privilege of individual right over a certain period of time in individual research & development, scientific innovation and Invention or discovery provided by the government. It protects the individual innovators from copying, imitating or selling their products, process or design by others. Patents are no longer available after a certain period of time to the innovators and the rights over the product, innovation or process becomes available to the general mass, but as **it is the strongest form of control over intellectual property rights**, that is why it limits the reuse or research of that already patented products or processes. That is why in case agriculture the farmers are bare fitted from reuse or refurbishment of patented seeds.

Copy Rights & Trade Marks: Copy Rights are the sole rights of the producers or innovators in manufacturing or selling the product. If any other person violates this by imitating selling the same product then it is the state's responsibility to take legal action against him because in the WTO the TRIPS regime clearly affirmed the member countries to comply with the Berne Convention (India is a signatory of Berne convention) which says respect & Protection of copy rights is every member state's important responsibility. The member countries are also obliged to abide by the norms which say to protect trademarks or service marks.

Geographical Indications: Geographical Indications acts is an important content of TRIPS regime and it is of huge importance to the producers, farmers, manufacturer throughout the world (particularly to the developing countries) because this provision under TRIPS regime and WTO protects and send products to the market which are identifiable by their Geographic origin and are different from other parts of the world. This GI also helps in protecting, conserving the regional, natural resources and local native traditional cultural heritages.

Industrial Designs: The member countries of WTO under TRIPS regime are asked to protect Original Industrial Designs created by the Innovators or designers from imitations (though the preservation of aesthetic considerations is left on the hands of state).

Arguments in favour of TRIPS:
The **WIPO (the world intellectual property organisations)** and Paris Convention on IPR made effective laws for Intellectual property rights but they suffered from lack of authority to enforce it then the TRIPS came under GATT discussion & under WTO it came with complete authority which encourage member countries to maintain minimum standard of quality protection for intellectual

property rights beside dispute settlement body. And TRIPS formulates guidelines, and remedies for each member countries.

The importance of TRIPS,

(1) The TRIPS is Important because it protects and respects intellectual property rights of the innovators, creators, Designers, Scientists, Technologists, and researchers and there by encourage them to invent or reinvent and create.
(2) It regulates the world's Intellectual property rights system and makes it more disciplined, standardised and principle based.
(3) TRIPS help in regulate businesses by helping in dispute settlement between various states in respect of Trade related aspects of Intellectual Property rights. It is more helpful to the least developed and developing countries.
(4) It helps it maintain smooth relations between many international organisations (like WTO, IDA etc) which regulate trade.
(5) TRIPS helps in maintain sole protection to the innovators (both Domestic & foreign) over their Intellectual property rights in a most equitable & fair manner from any kind infringement or theft without any delay.
(6) It looks after the member country's Govt.s so that they must comply with the rules & regulations and helps those solving disputes in trade in an integrated manner.
(7) The TRIPS regime respects the MFN clause of the WTO.
(8) The TRIPs regime framed clear laws on Plant Breeders & Farmers where it asked the state to protect the varieties of plants by both patent law and Sui generis system. It was important in order to encourage new plant breeders & farmers & their rights, preserving or conserving different traditional plant varieties & Seed Varieties and encourages investors (both private & public sector) in the development of agriculture.

5.4: Various important international agreements affecting Multilateral Trade & Biological Diversity in Pre & Post TRIPS regimes.

1. **UN convention on Biological Diversity (CBD) in 1992.**
2. **Technical Barriers to Trade Agreement (TBT) in 1994.**
3. **Formation of the World Trade Organisation (WTO) & Agreements on Agriculture (AOA) in 1995.**
4. **Agreement on applications of sanitary & Phytosanitary measures (SPS) in 1994.**
5. **Formation of Geographical Indication Act (G.I.) in 1999.**
6. **Cartagena Protocol on Bio safety, UN convention on Biological Diversity 2000.**
7. **International Treaty of Plant genetic resources, FAO 2001.**
8. **Protection of Plant Varieties & Farmers rights Act 2001 (PPVFR 2001)**
9. **Patent Act 2002.**
10. **Seeds act 2004.**
11. **Patent Act 2005 (111 amendment)**

5.5: TRIPS & Indian Agriculture:

In different contents of TRIPS the Patent and GI have higher implications on agricultural sector as compare to other wings of TRIPS like Trademarks & copy rights and any other anti competitive practices. The provisions under TRIPS like Article 27. Article 27.3 (b) allows the Governments to include or exclude many types of research or inventions from patenting plant varieties or biological processes. Though the above clause exits under TRIPs then also it states that the member country's Govt.s must protect patents on biological micro organisms and biological processes by applying patent, Sui generis or both. This is however a contradictory by itself. TRIPS have direct and long lasting implication on the Biotechnological sectors of agricultural sector particularly for the developing countries like India.

5.6: Intellectual Property Rights in India before & After TRIPS

In India the first Intellectual property rights act (called Act of protection & Inventions) was made in 1856 based on Patent Law of Britain in 1952 which provided certain privileges to patent holders and new innovators at that time. The next law came on 1872 named Patents & Design protection Act 1972 on Cotton Textiles, Garments, Muslins & silks etc. Then in 1911 the new patents & design act came into existence which was amended later after independence. A copy right Act was passed in 1914 which was enacted later in 1959. The copy right act was based on British copy right Act 1956. The Indian Copy right Act was amended in 1983,1984,1992,1994 in order to cope with the new inventions in it he field of Information technology. After independence in 1947 a new patent bill was introduced before the Indian parliament in 1967 and was enacted in 1972. After that in year 1999 new act regarding, Indian Copy rights & Trademarks (after reforming the already existing Trade & merchandise act 1958) was made in India which was both WTO & TRIPS compliant for the protection of service marks, performers rights and rights of the broadcasters. After that the renown Geographical Indications of goods Act was introduced in 1999 (the important characteristics was registration of geographical indications of goods in particular classes, prohibition of registration of particular geographical indications, compulsory advertisement of all accepted geographical indications and making provisions for taking legal action either by an authorized user.)
In the Post TRIPS regime we can see Indian agriculture went through many substantial changes and reforms as TRIPS required certain IPR protection. Major reforms in Administration and in Social, Legal and Institutions were required to implement TRIPS agreement. After successful implementation of all TRIPS requirements in India it can help promoting innovations, investments FDI, Transfer of Technology there by preserving genetic & natural resources and environment. However the fore coming economic benefits in the Post TRIPS regime are much greater than its cost as it can transform a technologically backward country to a knowledge based exporter of technologies & services country.

The Indian Patent History after Independence
1972: The patents act came into effect from 20th April 1972.
1999: The patent act came into force from 01-01-1995 and amended in 1999.
2002: The new patent act amendment in 2002.
2005: Again the patent has been amended and came into effect from 1st January 2005.

Implications of different Wings of TRIPS regime on Indian Agriculture:

5.7: Patent & Indian Agriculture:

After the TRIPS regime came into effect the Indian agricultural research & development in biotechnological and plant variety sector boosted as the filing of patents for much kind of researches in agricultural sector have hiked many times than before. As per the WTO latest report the patent filing by Indian researchers has increased three to four times after 2010. The number of filing of patents by the foreign researchers has increased tremendously in India in the Post TRIPs regime. As per the CSIR (Council of Scientific & Industrial Research) the number of filing of patents have increased many in the last five years (in 2008 the number of Indian patent filing was 500 and foreign filing was 400). From the below table we can see that many time increase of patent filing took place in India (the total applications for patents filed in 2006-07 were 28940 which increased to 36218 in 2007-08 which was 22%). The total number of Patent Granting by the Indian State has also increased many times since the Inception of the TRIPS regime. The president of India finally signed the Indian Patent amendment bill on 8th January 1999 which was passed by the both houses of the Parliament and made it law. Since then any one can apply for product patent in the areas of Pharmaceuticals, Food & Chemicals etc. And they can apply (for foreign applicant it was necessary that they should be bearing a valid licence from their own country which was a signatory of the Paris convention) for licence in for exclusive marketing rights for the same product. For TRIPS obligations the Indian Patent act was amended two times one was in 2002 and then in 2005. **Before 2002's amendment the patent was given on Drugs & Pharmaceuticals and Food processing for 5 years and for other patents it s was given for 14 years but from 2002's patent amendment the period for patent was increased to 20 years**. Other Changes in patent amendment bill 2002 was reform & **omission of Compulsory licence system** and license of right. The section 5 (this section had made Drugs, Chemical processes & food under the excluded category ended after 10 years for India) under the TRIPS this act was deleted by patent act 2005. To be patented one needs to have a new invention in product or processes which may applied later on industrial sectors as per the patent act 2005. As per the patent act 2005 for new patent one Indian national or foreign national should apply for it to the Controller General of Patents, Designs, Trademarks and Geographical Indications and the application will be thoroughly checked by the Patent Office of TRIPS, CBD and IPR Protection in India. There was 22% of yearly increase in the total number of applications for patents (the total number of application for patent have increased from 28940 in 2006-07 to 35218 in 2007-08. In 2007 the total number of Indian application for patent was around 17% of the total applications and the Maharashtra state has highest number of application as compare to the other states.

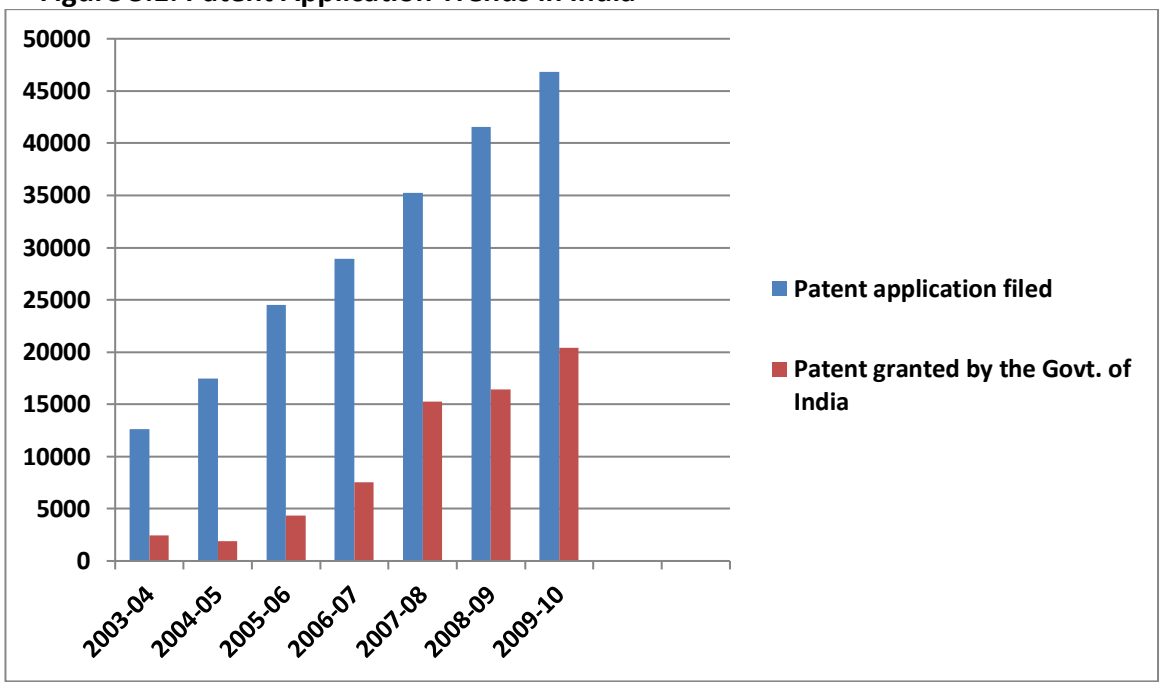
After removing the clause existed in patent act 1970 which restricted medicines to be patented the Patent Act 2005 brought Drugs & Medicines other than traditional medicines under product patent Act. Unless a new invention is done on product or substances or new discoveries made to enhance the efficacy of the old drugs or substances mere discovering without new or enhanced effect may not given patent as per the new Patent law. This has created hindrance in the field of Indian traditional medicines where Indian manufacturers are facing problem in getting patents the US Govt. is started giving patents the big MNCs of US on traditional Indian Medicines and their uses.

Table 5.1: Comparison of Indian Patent Act, 1970 with TRIPS

Indian Patent Act 1970	TRIPS
The products are excluded from being patented in Food & Drugs industry only processes can be Patented. (different methods of agriculture, any Process of medicinal, surgical or any treatment of Human being, animals or plants which may cure them, or enhance their economic value or their product value are excluded from being patented)	All types of products and processes discovered in all fields of research & development are subje to be patented. (only excludes those products which may affect public order, morally or really damage life or Environment. Along with this Diagnostic, therapeutical and surgical methods and plants ar animals Produced by essential biological processes.)
There can be given no patents on any kinds living form.	There can be given patents on Non biological processes In the production of plants & animal products, and Microbiological processes on creating microorganisms but protections are provided here by patents system of sui generis or by both.
Patents may be given on the processes of Chemical & Drugs for five to seven years and on other items for 14 years.	The time duration given for of patents is 20years for all Items.
There was the provision of Licence Right and Compulsory Licensing in the patent act 1970.	In the TRIPS regime the Compulsory Licensing law has been made restricted and license of Right has been repealed completely.
The role of the State was supreme on taking decision from the point of view of public interest and there by checks & balances on abuse of patent violation.	Restricted state's flexibility in taking decision for any abuse.

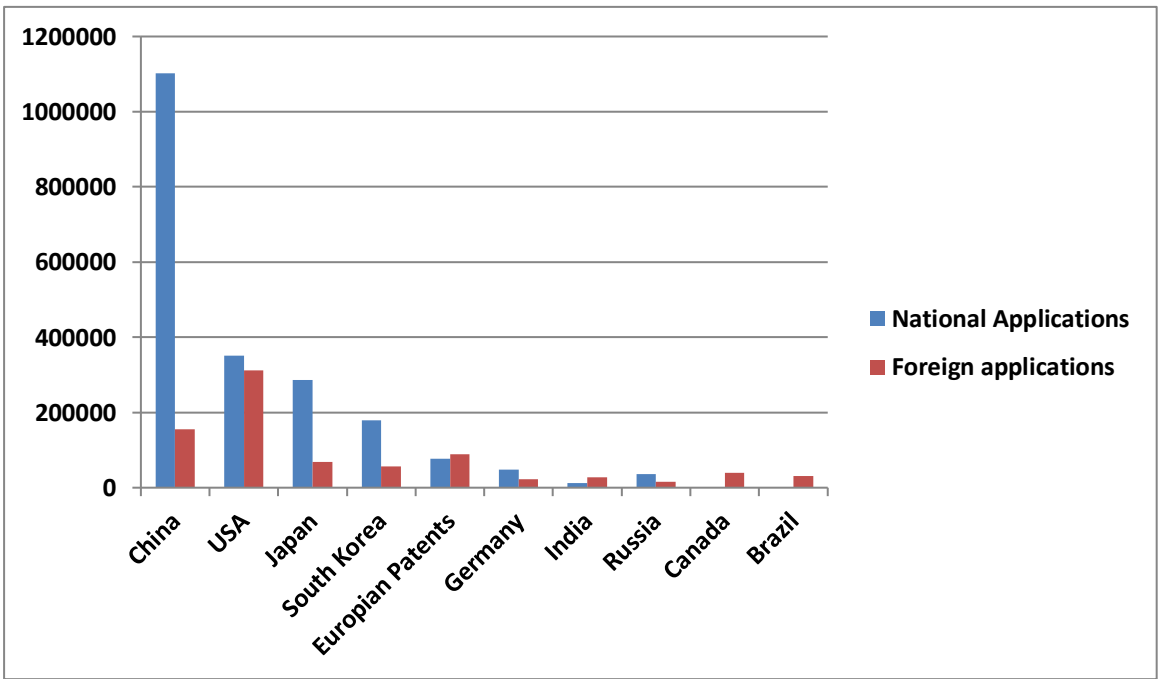
Due to increased awareness among Indian Citizens about Patent, the number of total applications has increased tremendously in recent years.

Figure 5.1: Patent Application Trends in India



Source: WIPO data base.

Figure 5.2: Total number of Patent applications of the top ten Countries of the World in 2015



Source: WIPO data base.

5.8: Geographical Indication (G.I.) and Indian Agriculture:

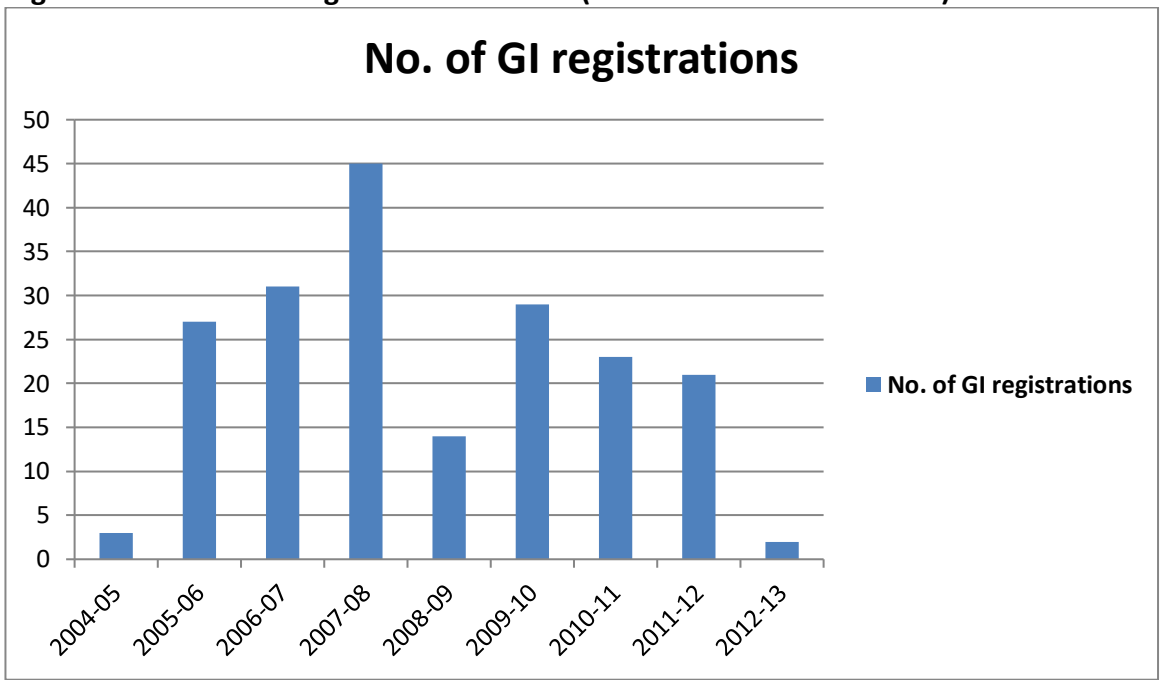
The term Geographical Indication (which came as an Act in India in 1999) expresses any commodity's quality and Origin and provides protection both nationally and globally. The GI is important in preserving and protecting India's rich natural resources and cultural heritage. Any Indian traditional agricultural product (including traditional arts, crafts and food products) of native origin is differs in quality internationally, and can be identified with Indian origin and culture. In India the GI (registration & Protection) act passed **97 items** identified as from Indian origin (agricultural, natural and manufactured goods, handicrafts, textiles and foodstuffs). In India the UP Govt. for example has passed a bill on GI called no one outside the City Luckhnow can sell Chikankary. To understand GI we can imagine Champagne in France, Tea for Darjeeling etc. We can give another Example of GI act implementation in India. In Indian State of Kerala a special variety of Rice named Pokkali is originated and cultivated specially in the districts of Ernakulam, Alappuzha, and Trissur. Cultivation of this variety of Rice is associated with Kerala's whether and salinity of Land (as this land of Kerala are close to Sea level). For this special variety nature the Pokkali rice is demanded both locally and internationally. In order to protect its native character traits and to prevent infringement in producing and selling this rice in any other part of India and abroad the Kerala Govt. Passed a bill and registered all districts name including farmers name in GI application registry.

The need for GI was started earlier but it came into force after the WTO summit in Seattle in Dec 1999, where emphasis were given on multilateral trading system based on paragraph 29 and Article 23.4 of TRIPS, in view to raise benefit level of the poor nations and future sustainability. The GI essentially deals with the need and sustainability of the Indigenous poor farmers of traditional crops and communities of the world which is based on respecting & rewarding the traditions and traditional community based decision making approach. ***The GI is kind of value based social & economic approach which includes society, culture, human efforts, environments and land to express the need for conservation of community based regional cultures & traditions of society and that is not transferable from one to another person. That is why the value of GI is so essentially important in TRIPS as a marketing tool. The GI promotes goods based on particular geographic area attributable to their source of origin and culture of that particular region.***

Here we can site an example where GI and patent act contradicted each other under the TRIPS regime. For example we can bring the Basmati rice controversy. An US based company named Rice Tec. Inc. Applied for patent on Basmati Rice (This particular variety of rice is famous in India & Pakistan for it taste & beautiful Aroma) as a trademark name American type Basmati rice for an invention called Basmati Rice lines & Grains. This was an attempt to produce Basmati rice in foreign countries outside India. The Rice Tec. Company of the US claimed that the Basmati is a generic name but India & Pakistan claimed that Basmati Rice is a GI. The claim of the Rice Tec. Was mostly matching the new TRIPS laws but as the Basmati was very much renowned for its regional attributes and can't be separated from its origin and regional value system & culture so ultimately these reasons were sufficient for Basmati Rice to become GI. Along with this another challenge to India was the Rice Tec. Company did not violate the article 22.3 and also did not mislead the people by wrongly interpreting the source or origin of Basmati at it called its Patent name as American type of Basmati. There is strong demand in EU and USA for Basmati Rice for its fine quality and after the WTO the new TRIPS law (article 23) GI was effective only on Spirits & wine, so there is tremendous opportunity for big companies to do business over it. The USPTO released patents on three different hybrid subtypes of Indian Basmati rice which were different from it. Though this was a win for India as it challenged it with strong arguments but this was also a challenge thrown by the big MNC's toward s developing countries like India & Pakistan. This Basmati controversy was an eye opener to India & Pakistan as at

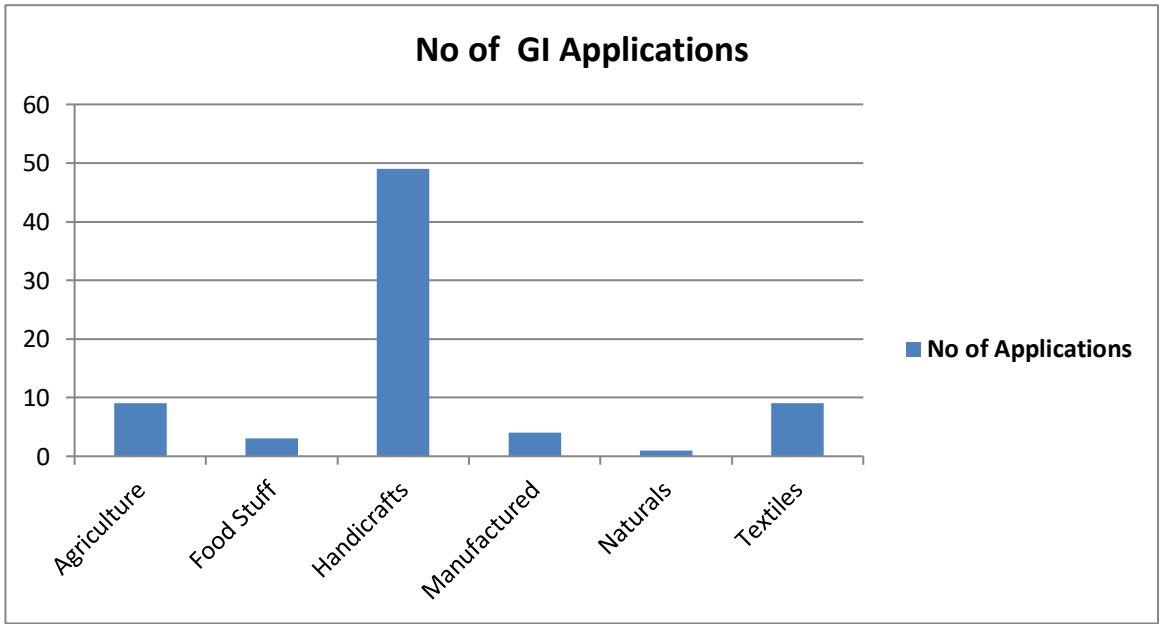
the beginning level the patent office did not find any wrong in giving patent to Rice Tec. and later on new generic brand name called Texmati and Jasmati came and flooded the market as a subtype of Basmati rice, that's why India enacted the GI in 1999 (registration & protection act) and brought many goods under it on the hope that this will protect the Indian GI.

Figure 5.3: Year wise Registered GI in India (From 2003-04 to 20013-14)



Source: http://ipindia.gov.in/cgpdtm/AnnualReport_English_2012-13.

Figure 5.4: Product wise GI registrations in India in the year 2013-14.

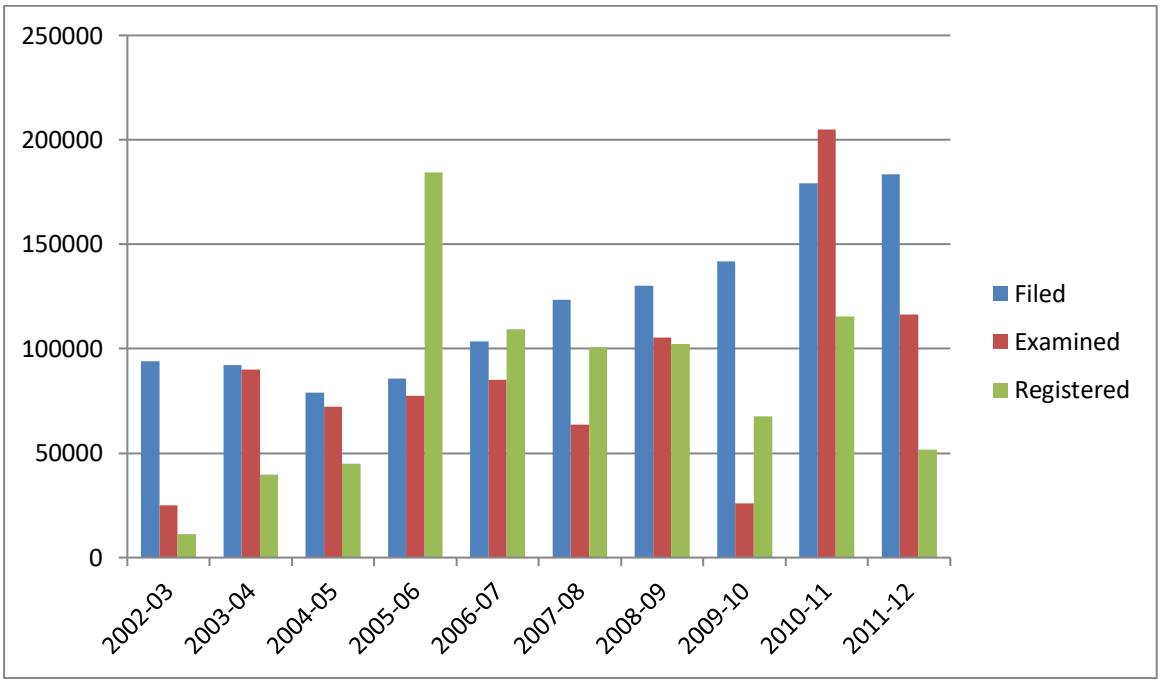


Source: http://ipindia.gov.in/cgpdtm/AnnualReport_English_2013-14

5.9: Trade mark and Indian agriculture

Trade Marks of commodities is an important part of IPR and are truly an economic instrument in any Country. Trademarks have huge implications on any country's political and cultural environment. So it is very much important for any countries, (particularly developing country like India) that new trademarks act must ensure that, it will protect and preserve the cultural, social, institutional, and intellectual heritage of that country. At the same time this new Trademark act should also ensure that it will safeguard the small and marginal producers (small & Cottage industry in case of India) of that country from being eliminated in the market where MNC houses operates and enjoys the benefits of IPRS in the TRIPS regime. The benevolent role of the state is clear in how to protect small & marginal producers from Big Corporate houses by limiting their activities to a certain limit and clear criteria for trademarks & patents to be excluded which is based on moral, ethical, impartial, fair economic and political ground. The Trademarks was enacted in India in 1999 which repealed the trademark & Merchandise mark act 1958 came in effect from 2002 which include the Protection to well known marks, as well as service and Collective marks. At the same time this act will protect innovators from piracy or any kind of infringement as it have established an Appellate Board for this which will give trademarks for ten years and which will be renewed for ten years.

Figure 5.5: Some trends of Applications of Trademarks in India in recent time



Source: worldtrdemarkreview.com

Copyright and India:

Copy Rights are the sole rights of the producers or innovators in manufacturing or selling the product. If any other person violates this by imitating selling the same product then it is the state's responsibility to take legal action against him because in the WTO the TRIPS regime clearly affirmed the member countries to comply with the Berne Convention (India is a signatory of Berne convention 1971) which says respect & Protection of copy rights is every member state's important responsibility.The Indian Copyright Act in 1957 has been amended many times for example it has been amended in 1983, 84,92,94,99 and latest in 2010.The revised Act has come into effect from 2012. Copy Right protection is granted for original music work or Compositions, writings, drama literary and Social science research work, etc to 60 years after the years of publication. Violation of Indian Copy right act is a crime and is subjected to punishable offence. The punishment may include both civil & criminal sections (section 63) of law which may include penalty up to Rs 200000 and imprisonment.

5.10: Traditional Knowledge of Indian Farmers & Protection of Plant Varieties and Farmer's Rights Act 2001.

By traditional knowledge in agriculture we mean indigenous knowledge about the development and adaptation of plants and crops to different ecological conditions, rainfall, temperature, altitude, soil etc about disseminated by one generation to the next either by mouth or as general awareness among the communities of rural farmers or group of people. India has got an Act on traditional Knowledge that protects farmer's right on plant varieties named Plant varieties protection Act of India. In the post Trips regime the IPR is mostly used by big MNCs in agri-business to repeal the benefits of Patent on traditional knowledge by taking away farmer's rights on plant varieties for profit. The **PPVFR 2001** is an Act which provides protection to the indigenous and traditional farming, cultivator's rights on plant and R & D on new plant varieties. This act not only helps farming it will help to protect plant breeders, ensures supply of new plant genetics, availability of HYV seeds and other supports to the farmers, instigate and stimulate new investment both from the private sector and public sectors on R & D on plant & Seed varieties in this way the overall development of the agricultural sector. The developing countries of the world were left with the choice between two provisions to develop agriculture one is joining the TRIPS regime and other is joining with UPOV (Union International Pour la Protection Des Abstentions Vegetables) which is also supports the sui generis system. India choose to have the sui generis system (Sui generis-self generating system which helps protecting farmers of any nation) and the **PPVFR 2001** Act is the Indian version sui generis Act which is an balanced act gives protections to the farmers right and maintains TRIPS obligations. The Indian version of PPVFR act 2001 is a model version of farmers right and plant varieties protection act to the world as it not only facilitates plant breeders and protects their rights but at the same time it is a combination of all different contents of TRIPS obligations for example the Indian Patents Act, Trademarks Act, Geographical Indications Act, Biodiversity Act etc. This helps India to maintain its IPR laws and at the same time harmony between agriculture and Biotech R & D of agricultural commodities.

5.11: The reverse effect of the TRIPS regime on Indian agriculture and Biodiversity

The Indian Farmer's problems under the TRIPS regime:

After the Uruguay round of agreement (1994) the agricultural sector (both plant & seed varieties) came under the jurisdiction of new IPR laws or patent laws of TRIPs regime in India, which created huge problem among cultivators of India as in the time of green revolution in 1970 new high yielding plant and seeds varieties were used again and again every year by the farmers of India to produce million tonnes of food grains and made it a revolutionary success but now to protect IPR on seeds & plants in the new TRIPS regime the traditional agricultural system became dependant on the market (which was already existed in many developed countries even before the WTO). This has created new competition, inequality, poverty and disparities among plant breeders and there by affecting agriculture. The invention of genetically modified sterile seeds narrowed down the scope of reuse of traditional seeds again and again every year by the Indian farmers as these genetic seeds are usable only once so they limits the scope and rights of farmers on Seeds and these genetic seeds sterilization patents helps earning maximum profits for the big Biotech MNC houses by taking away the farmers rights on plant varieties and seeds in a very clever way using the new IPR law. In this way the corporate greed was established once again in the name of protection and rights. The key issues of Indian Agriculture in the TRIPS regime are discussed as follows,

The production, procurement and distribution of Indian agricultural crops were mainly controlled by farmers and the Govt., but in the new IPR regime after TRIPS India is witnessing big MNC corporate houses has spread hand in everywhere in Indian agriculture particularly there where green revolution took place (like Punjab , UP, Haryana). Corporate houses like Monsanto, DuPont, retail chain Giant like Wall mart of US; Reliance Corporation of India has started operation in the Punjab state. These names are quite famous in their activities in developing world.

In the 1940s and 50s before and after the Green revolution in India and others parts of the world the world was united and committed to increase agricultural production, disseminating knowledge and research in agricultural development , creating international body or groups to help each other country agricultural problem to solve, creating a consortium of donors like Big institutions, Countries and the UN etc, collaborating through CGIAR and the countries distributed new varieties of HYV seeds all over the world. All these happened in the world without the need of the IPR at that time. Before1980s there was no patent on life forms or plant genetics. The US started an aggressive way of patenting the different inputs in agricultural sector and the other countries followed it (particularly the western world). The IPR act under TRIPS allows Microorganism and life form to be patented and all plant varieties. This was the most awaited Act for the greedy MNC corporate houses of the world. Around 75% of the plant DNA patents are in the hand of Private corporate houses in the World a study On Nature magazine came out recently) and about 14 MNCs hold half of those patents which didn't exist before 1985.

5.12: Impact of TRIPS on Indian Seed Industry and Farmer's distress:

Seeds are called the Symbol of Life Renewal and in India it is not only sown, harvested, exchanged with neighbours, and saved part of it for the next harvest it is part of most of the indigenous rural traditional rituals, festivals and cultures. But this could no longer be existed because the new Seeds act 2004 and revised patent act in India made Indian seeds most vulnerable and subject to come under the dictatorial greedy hands of the Corporate houses in Seed business and there by liquidating all rights and freedom of the farmers. The tradition of Indian farmers have been exchanging, procuring and

saving indigenous varieties of seeds which is very important for farm ecology and food security of the nation. Still today about 70% of the seeds are saved by the Indian farmers. Indian farmers evolved and procured varieties of seeds for example the farmers of different states of the country evolved seeds that can face hostile regional environments. For example the farmers of Rajasthan have evolved seeds that can fight droughts in arid region, farmers of Bihar & West Bengal has evolved seeds that can survive in flood situations, farmers in Coastal areas of India in the south developed and evolved traditional seeds to face and resist salt from sea water, Himalayan region farmers have evolved frost resistant breeds of Seeds. Indian farmers produce different indigenous varieties of seeds of Rice, wheat, Groundnut, Pulses (including Gahat, Narrangi, Rajma, Urad, Moong, Masur, Tur etc), Various type of Oilseeds, Millets, Coconuts, fruits & vegetables. This is interlinked with the country's diverse culture, nutritional base. This sector has been targeted by the Seeds act (which is part of new IPR act under TRIPS regime) as it has immense potentiality of earning billions of dollar profit by the corporate houses for the long time period. The seeds Act 2004 have gone in favour to the capitalist big corporate houses and against the farmers as mandatory registration of seeds for patent made the farmers bound to purchase new seeds from the Big MNC seed suppliers as they can't use unlicensed varieties of seeds for cultivation. This seeds act made Indian farmers completely vulnerable to be exploited in the seeds market and very weak bargainers of price of their produce. Under the new seeds act the IPR regime created many monopoly houses of seed suppliers in the market where the indigenous farmers are unable to exercise their old rights over reuse and exchange of new varieties of seeds and saving them. Many other countries including in European countries many farmers are being compelled to purchase seeds from the big business houses and if some of them are trying to discover and use new seeds but fail to register it by his own name in the IPR book then he is being subjected to legal action by the law. The World Bank pressurised Indian Govt. to follow new IPR rule, which dismantled India's big public sector cooperation in seed supply (around 20% of total seeds used by the Indian farmers are supplied by the Govt. of India and the rest 80% is traditional seeds of the farmers own saving from centuries). The good quality seed saving, exchange and supply by the traditional farmers to the communities of India is devastated by the seeds act 2004, whose main objective is how to stop Indian farmers from saving and exchange of seeds and compelled them to buy seeds from the market.

The Seeds act 2004 combined with the Corporate in India using vigilantes and watch dog for surveillance on farmers whether they are using or sharing unregistered seeds in their community or not . These seeds police roam around the traditional seeds markets and if any farmer found breaking the Seeds law they are taking legal action against him/her (Penalty of Rs. 25000 instantly) and there by terrorising farmers who are the backbone of Indian agriculture. But this Law is observed to be inefficient in taking legal actions against big seed companies who violates laws or is responsible for crop failures. For example in Bihar farmers lost around Rs 1000 crore as the maize harvest failed and in Maharashtra state thousands of crore of rupees lost every year because of failure of bt. Cotton seeds which is GM seed supplied by the private corporate house.

It is high time for the country to prioritise whether to ensure the farmer's sovereignty that will further secure the food sovereignty for the country or encourage the private seed industries or the MNCs that continue to run monopoly business of seed growing & selling. The farmers of India has not been saved by the 2004 Seed act which is responsible indirectly for severe distress of million and even death of thousands of farmers. The Non renewable seeds are not reliable but farmers are buying those seeds for the MNCs. Dependency on non-renewable seeds is one major reason for the farmers are to commit suicides for the already debt ridden farmers. There are other reasons for the misery of the farmers of our country. For example, though the farmers have already benefitted by the 1966 act that gives the farmers the opportunity for seed testing and seed certification but this is only a minor help because farmers are finally made to buy non-renewable seeds. CBR (Community Bio-Diversity Register) register

the local & Indigenous agrarian Bio diversity and the variety of farmer's seeds through the local Bio-diversity community. Which resulted in Considerable change in the regulations Acts that controls centralised Seed authority, which pushes the farmers for compulsory registration, as a result of which they can't grow their own seeds, even it forces to stop saving their own seeds and any kind of seed exchange. All the steps taken so far has only marginalised small farmers pushing them back and further back to the brink to ensure the growth of Seed industries of the MNCs.

5.13: The TRIPS regime in India:

5.13.1: Use of Technology in Basmati Rice & Basmati patent:

Looking back to the history of how Basmati rice was patented in India might give us a glimpse over the effects of TRIPS regime brought on to the Agrarian products. Article 22 of TRIPS relates how Basmati rice is bestowed with general level of protection. Basmati rice is famous across the planet for its long aromatic flavoured soft grains, said to have its origin in India & Pakistan. There are 400 types of Basmati found alone in India. Basmati is considered the most expensive and demanded rice in USA & Europe. In EU the Basmati is sold for US$ 1200 and in US it is of US$ 500 per metric ton and this was because of the patent on Basmati which resulted in less than US$ 300 tax rebate to Basmati rice in EU, and this will further result in substitution of US brand uncle Ben over Indian Basmati rice. Now let's try to review the history of patent on Basmati. On one hand we see the struggle of the poor and developing nations, to gain capital on and from the basic indigenous agrarian biodiversity of their country and on the other hand the first world countries or the developed nations trying to produce agrarian products using their technology on industrial level. This gives rise to an inevitable conflict and hence the 'patent'. India's natural connection to the Basamati Rice faced tremendous challenge when the US patented the American breed of basmati Rice known as Texmati. Article 22 explains that how the American breeds Texmati which is of Indian Born Basmati is influencing India's Basmati rice market in the context of both local & Global market, but on which basis of International Intellectual property rights.

5.13.2: Misuse of Patent rights:

The miss use of Patents rights and its severity is well explained by an US based international rice producing corporation named 'Ricetec. Ricetec developed a biotechnologically hybridaised species of rice which has similarity in fragrance & aroma with the Indian born Basmati Rice which the corporation has levelled as Texmati as the rice was grown in Texas and sold by the Ricetec since 1977. Two distinctive features of Texmati are short heighted and non sensitive to the slanting sun shine of the America. The patenting organisation of America called USPTO protected Texmati after granting patent to it in 1995.

Basmati rice its long flavoured aromatic grains with nutty flavour originated in the foot hills of Himalaya and Punjab, Haryana, Delhi & Uttar Pradesh in India and India & Pakistan have been producer and exporter of Basmati rice since centuries back. As per the APEDA India is the second largest producer of rice exporter after China and the export of basamati rice is high and alone in 1997 India has exported more than 5 lakh tonnes of basmati Rice to the Developed countries. The Basamati rice accounted more than US$ 250 million in that year in the US market only. The Rictec was granted patent in 1997 (with the help of UPOV now it can sell rice in the name Basmati anywhere outside India). Until now Ricetec has able to achieve little success in selling rice in the name of Texmati or Kasmati. With the Ricetec's latest success on the patents on Basmati, India and Pakistan received the ever massive jolt to their Basmati export Index. 10% of total basmati rice export of India which is about 45000 tonnes was ascribed to the US market which is totally devoured by Ricetec.

India also lost a large market share of Basmati export to UK, EU, Saudi Arabia and other countries of the Middle East. The patent of basmati was a good example of violation of Geographical origin & long rooted cultural heritage by an US based MNC. Ricetec is only using its biotech knowledge to produce Basmati like fragrance in its green houses and sell it out side. This is a clear violence of WTO & GATT norms which disharmonises the IPR regime and India & Pakistan is fighting against this. The forums of the multinational in WTO, which is suppose to imply that the member nations should obey the regulations and rules applied to all equally. The TRIPS section includes certain patent regimes – namely Drugs & Agro –Chemicals, Sui generis system for patent varieties and Geographical Indications. The American Govt. Keeps silence on Violation of GI in India by RIcetec where it shouted and brought Indian Pharma Company to TRIPs for violating patent of another American pharma company.
India challenged America in WTO forum on Violation of GI of Indian originated Basmati Rice and it got success after taking USA to dispute settlement body and revoked the patent from Ricetec.

5.13.3: Adverse Impact of Seed & Patent Act of India on Indian farmers:

Before the two consecutive and most effective amendments of patent Act 1970 Indian farmers were happily saving, improving, exchanging and exercising their whole rights on traditional seeds. This was somewhat their natural right which was delegitimized by the new amendment, which redefined of what should be called an 'invention 'and what not. As a result of this anew era ushered in with free and incessant patenting of **genetically modified (GM**) crops seeds. This made the farmers lose their traditional and natural right over seed and method of farming, because with the change in the Genetic quality in the seeds, it would also demand change in the method of farming. Now lets us talk about the 2nd amendment of the 1970 patent Act, should not be recognised as an 'invention'. According to the Article 3 (J) of Indian patent act, while dealing with Plants and animals i.e. weather it is an act of improving the quality of their products to increase their economic value by any surgical, medical, creative and by any other attempts of human beings, should not be considered an invention, possibly because this would not involve intervention of modern Biotechnology.
The omission of the term 'plant' in the second amendment purports to mean that only specially processed technologically modified plant can be taken into consideration as invention. Thus patent confer an exclusively special right on newly genetically modified Bt. Cotton with Biotechnological intervention of certain bacterium to produce certain toxins to protect it from bell worm which immediately gave US based Biotech Giant Monsanto a new patent right in India. So it is clearly understood that the new section 3(j) of second amendment of 1970 patent Act does not recognise the natural or Biological process of production or improvement of seeds, species or variety of plant or animal as invention; if Biotechnology is not involved there. But article 27.3 (b) of the 2nd amendment of TRIPS law in India explains that plants and animals produced by essentially Biological process and not non biological process should be kept out of patentability. This thing gave a setback to Monsanto. Immense public opinion and pressure had been generating on Govt. of India to raise the issue to Doha round that how far artificial Biotechnological hand is allowed to research & get patent to do business, especially on life forms.
The 2nd and 3rd amendments of 1970 patent act has brought not only the farmers but also the seeds which is the first link of production in the mouth of danger by hazardously endangering our seeds and there by our food security. According to the 2nd & 3rd amendments of Indian TRIPS law Corporations like Monsanto should be given all rights for patenting the GM seeds i.e. process on life forms, but this will not only bring disastrous effect on farmers and other seeds sellers as they cant reuse, save, exchange or improve seeds and thereby they would be thrown out of this old traditional process of

thousands of years but also on natural biodiversity as it will be hazardous to the nature if indigenous seeds are being modified genetically for higher yield. In this way if the new amendments are implemented by the Govt. of India it will establish a totalitarian dictatorship on agri-business by undermining natural, traditional and indigenous rights of the farmers on their seeds and there by jeopardising nations foundation of agriculture. The Seeds act 2004 under TRIPS gave monopoly power to the MNCs in agribusiness and now the farmers have become only seed purchasers and the price, supply of seeds, seed variety, how much they will, what will be the input price, what should be consumed by citizens and at what amount, how citizens should be converted to agro commodity consumers with help of IT and at what price, all shall be under the supervision of big Trans National Companies. Thus the farmers have ceased to become another tool in the mechanised structure of Agro-business; and an untold slavery is shrewdly superimposed on both the farmers & Citizens. If this thing continues, this will bring grave challenge for the sovereignty of the country. So one initiative can be taken to curve it down, which is, by community rights. The community right is a concept which may be brought to the public domain which will act as a effective balancing concept to guard public interest against corporate totalitarianism. In our country section 3(I) and section 3 (J) of patent law establishes corporate monopoly & totalitarian power on agriculture. These two sections of newly amended Indian patent laws stops farmers and seeds sellers to save, exchange, improve and sell seeds and regards these acts by them is illegal and in this way these acts delegitimizes farmers basic rights on seeds and immediate actions are being taken against violation of patent laws with rapid action team roaming around vegetable and rural seeds markets as vigilantes.
The struggle of the farmers have already started for their rights and sustenance but the role of the Government is crucial here to stop patenting life forms and natural plant genetics by profit making transnational companies which have little commitments to the citizen and Bio-diversity of any society. This thing should be curbed otherwise not only farmers and biodiversity but also the choice of the consumers also going under control of these giant MNCs of USA or any other part of the world as the consumers are becoming agro-food purchasers in place of their traditional choice to choose.

5.14: Indian agriculture in the Post Trips regime:

Agricultural sector plays a very important role in the GDP, self sustenance, trade and food security of this vast nation. The agriculture is essentially rural based, giving employment of more than 48% of the total population, traditional, subsistence and indigenous in nature so introducing biotechnology (which is all most essential today particularly for developing countries with huge population burden) has huge immediate and long lasting implication in agriculture and society. The public investment is comparatively low in Biotechnological R & D in India (which is very much essential as public investment in biotechnology intends to benefit both farmers & consumers) as compare to private investments in the Developed nations. The private investment is also good but record of Big MNCs in Biotechnology is different. As the previous record says if the Govt. of India allows these Big US Giants like Monsanto, DuPont, and Wal-Mart etc to come to India these companies will come with huge investments in R&D in Biotech sector and start patenting several agricultural lines, life forms, plant genetics and breads and make IPRs on various sectors of Indian agriculture and block any further development, improvement or R & D on agriculture, as a result of which will subside the traditional direct stake holders of Indian agricultural sector. The Govt of India established DBT (Department of biotechnology) in 1986 with good amount of investment which looks after three areas of Indian agricultural sector namely Research sector, agricultural sector and food sector. These types of public institutions are essential for India as it can work on the solution of huge food shortages by working on plant genetics but there exists many hurdles in their path because of lack of Investments in the R & D, Lack of Infrastructural base and supply of skilled personals and competition with giant Private

Biotech MNCs (who come in with big investment and advance R & D in Biotechnology) where it becomes very difficult to save patents for domestic innovators from the hand of these Corporations.

5.15: SPS & Non –Tariff challenge for Indian agricultural sector:

The SPS includes Sanitary (which is for Human & animal) and Phyto sanitary (for plants) measures for maintaining international food & heath safety standard at domestic areas. That means any country under the TRIPS can inspects, treat, and search imported food or other products, Use of Pesticides, additives, quality of materials etc on the basis of disease, International health standard and maintained high domestic standard under SPS measures. These are being maintained by 132 member countries and without any already specific written laws but deliberately and voluntarily. The SPS agreements allows nations to built their own SPS standard which shall match international standard as it is becoming real cause of concern that diseases are being spread throughout the world through exports and imports for example Avian Bird flu, Foot & Mouth Disease, Mad Cow disease etc recently broke out throughout the world. In Uruguay round agreement in 1988 few basic areas were made for effective SPS measures which are (**1) Harmonisation, (2) Effective Notification process, (3) bilateral Dispute resolution system.** These were meant to develop an international trade safety standard model or system which will help protecting and expanding agricultural trade among nations smoothly. Though there exists generalised model of SPS but the SPS standard varies from country to country depending upon Geographical & social standard for example the developing countries often fail to meet SPS standard framed by the Developed nations because of lack of infrastructural & institutional capacity, that is way sometime trade disputes arises as there is no clear definite norms for it provided by the WTO to the member countries. The standard SPS rules has been framed by article 3.2 of SPS agreement under WTO, and the WTO asks the member countries to abide by these rules to maintain international, human, animal, and plant safety measures from proliferation of diseases, but the developing nations have strong arguments against this because what they have found is that the developed countries are using these SPS measures as Non tariff barriers against tem because the developing nations are mostly incapable in meeting these standards because of their institutional & infrastructural bottlenecks. The competent authority like WTO should take initiatives to aware the Governments, Farmers, Exporters, Middlemen and all other stake holders of Agricultural sector when implementing SPS standard throughout the world. There exits several international bodies like FAO (Food & Agricultural Organisation), CAC (Codex Alimentarious commission) formed by WHO which looks after international standard of food, IOE (international office of Epizootics), and IPPC (International plant protection convention) which look after animals, and plants health standards. The WTO must also ensure to protect the interest of the developing countries that as most of the developing countries are suffering from institutional & infrastructural bottlenecks as well as lack of information and awareness so they must give training and time for preparation to meet international SPS standard, meanwhile the Developed countries should not impose Non tariff barriers on country like India where poor subsistent living below poverty line often fails to follow SPS standard framed with high standard of US and EU.

If we look at India it is also facing hurdles some times when it faces Non Tariff barriers by the developed countries as a result of not fulfilling SPS criteria. India is an emerging country in the field of export of processed food items and Horticultural exports and it ranks 2nd in the world just after china (India's produced approx 170 million metric tonnes of vegetables, approx 90.2 million metric tonnes of fruits in 2015-16 and its export of processed foods was around 27000 crore in 2017-18. These figures are optimistic but the commercial processing of these commodities is less than 2% of total

production. Despite the post reform period growth the capacity utilisation of food processing industry remains below 50%.for example India's processed milk is only 16% of its total produce which is much less than Britain (88%), and China (23%). Apart from these Indian producers and exporters of agricultural sector suffers from their knowledge of health & hygiene as mostly they are unaware of where to go to understand and full fill international SPS obligations as there exits multiple agencies in India forging health norms for local & international platform. The Ministry of Agriculture and Ministry of food processing agency looks after these issues in India and **BIS (Bureau of Indian Standards), MFP (ministry of Food processing Industry), Food and Agricultural Department (FAD)** are some of the premier institutions which look after the administrations, guidelines, Formulations & implementations of SPS regulations in India. **The ISI (Indian Standard Institution**) which was formed in 1986 (under the BIS which is known as WTO-TBT enquiry point for India) works under the Ministry of consumer's affairs, food & public distribution, govt of India. The BIS works relentlessly to maintain international standards (It has enforced around 26500 standards by August 2016) both on Agricultural & Manufacturing sectors of India where Indian producers as well as foreign exporters are required to obtain BIS license before entering into the market.

The **MFP:** the ministry of food processing industry was set up in 1988 with a view to administer regulations on the formulation and enforcement of Law regarding to food processing in India. Working as a catalyst and facilitator the MFP intends to attract domestic & foreign investments for the development of food processing Industry in India. The four sectors which its takes into account are (1) Infrastructural development, (2) Technological Up gradations, (3) Development of the farmers standard of Living, (4) Administering the quality control checks and maintaining the standard of processed food quality at domestic & International market.

The **FAD:** The food and agricultural department looks after the livestock's, agricultural machinery, all types of Bio & Non Bio elements used in agriculture and food processing industry.

Despite of many initiatives taken by India to comply its agri-exports with the international standards the Developed nations often block Indian imports of goods on SPS standard ground and there by uses it as a tool of non tariff measures as even most time the DCs denied the entry of commodities on SPS ground by undermining domestic infrastructural standard of the LDCs and given them not sufficient time to upgrade these (Akram 2007).

One hardcore about SPS and TBT as non –tariff barriers to create hindrance is proven from the ever increasing ban and detention of Indian products by depriving the country from correct and timely notification of information before rejecting the shipment. And non compliance with Minimum Required Performance limit (MRPL) is shown as the reason for rejection of shipments by the authorities and no compensation granted to the producer of the goods. Whereas the truth is that new clause of rules and regulations are announced just before the date of the consignment about to reach the destination. Though Indian exporters comply to Codex Standard, concrete examples of these kind of arbitrary imposition of SPS ban can be found in the incidence of the rejection of India's a consignment of 'Egg Powder' to EU. India must raise demand in the rounds of WTO, keeping in mind the interest of the domestic exporters and producers against any sort of Arbitrary and discriminatory ban in the name of SPS & TBT and ask for proper compensation for the producers and exporters from the importing countries on failure of timely intimation regarding the change of rule. Efforts should be on both sides on the importing and exporting nations and the governing body of the WTO for the proper utilisations of the SPS norms so that it does not become anon tariff hindrance to trade.

5.16: India's Response to Agreement on TBT:

Although the full form is Technical Barriers to Trade TBT is a 'Standard Code' which follows recommendations of CAC to set standards for packaging and levelling of agricultural products. The member countries which have so far signed the agreement on TBT are expected to embody the 'WTO Code of Good Practice's attached in the annex three to the agreement. All the signatory countries are expected to conform to the agreement and 'code of Good Practice for the formulation, incorporation & Implementation of the set standard'. TBT aims at propagation of smoother trade by resolving the ensuing difference between the domestic regulation of standards and that of international. Though both TBT & SPS act as Non-tariff barriers, however, distinctions lies between their scope- SPS measures intends to protect the entry and speared of disease carrying organism or disease causing organism, and administer regulation on the Use of additives, Contaminants, Pesticides, Toxins, or disease causing organisms in food on the other hand TBT measures is concerned with technical regulations regarding inspections, testing, verification, evaluations, assurance of compliance, approval and certification. The subjects, TBT measures could cover may include levelling of alcohol beverages or cigarettes, restrictions on pharmaceutical products, materials used in packaging of foods, regulations of car safety, on various energy saving devices etc. Human health issues, unless these are caused by contamination through plants and animals, mostly come under the TBT agreement. The sectors where BIS implements the TBT agreement norms are –water resources which include water purification process, bottling, packaging, labelling etc: Petroleum related products, coal related products, metallurgical engineering, textile –all types –cotton, Polyester, Nylon, Rayon etc: Transport engineering, Chemical production, Storage, Usage etc: Electronic and telecommunication engineering , civil Engineering, Food & Agriculture , Mechanical engineering: Equipments used in transport companies and factories: equipments used for medical purposes : Management of Hospital & Nursing home services etc. TBT encompasses the entire service sector. India has been making persistent effort with the view to complying with TBT agreement of WTO which makes platform for the signatory countries to actively participate in the meetings of CAC for better comprehension of rules and regulations, all pervasive and successful implementation of SPS and TBT. Developing countries like India are yet to improve the infrastructure to keep pace with TBT agreement to avert the inevitable trade barriers.

5.17: Effects of CBD VS TRIPS conflicts on Indian Agriculture:

The Convention on Bio-Diversity (CBD), more popularly known as Bio-diversity act passed on 5th June 1992 under the UN, has been in some kind of conflicting relationship with the TRIPS. Though both of these have nominal authority, TRIPS has penalty clauses. Since TRIPS has come into being by the power of patent clause the private entrepreneurs plunders the Bio-diverse resources all over the world. The misuse of patented knowledge and plunder of indigenous resources and exploitation of local community encouraged by TRIPs face the counter challenge from CBD which makes provisions for the establishment of community knowledge and community rights and equal share of benefits. Although CBD came into being before TRIPS, the clashes that arise time to time remain unresolved because of lack of established institutions, scientific and legal forum to deal with these conflicting issues and deliver fair judgement. There are 168 nations who have signed the CBD Act including India. The purpose of CBD is the protection or preservation of Bio-Diverse components of the World so that the resources are not plundered. CBD advocates for the sustainable use of Bio-diverse components or indigenous resources had upholds the cause of the indigenous community by recognising their equal rights in the equal sharing of benefits. CBD Act VS TRIPS clearly defines the clash between the interest of the private entrepreneurship and community rights. Most of the CBD signatory nations face

challenge in striking a balance between the laws already in force, formulated before conforming to the principles of CBD Act and Newly emerging rules and laws in the TRIPS regime which has directives conflicting with those of CBD Act. When conflicts as regards trade, Community rights and violation on Diversity ensues , which of the authority body, those CBD act came into being before TRIPS rides over the other is not clear: because of the vagueness in the framework in the international policies. While TRIPS fails to check Bio-Piracy, CBD is there to check and control Bio-Piracy. India signed Bio-Diversity Act in 2002 but later leaned completely on to the RIPS agreements. India's move brings about somewhat unhealthy effects on the natural resources of the country plundering Bi-diversity and thoroughly undermining the knowledge of the Indigenous community which nurtures the Bio-Diverse components from ages immemorial.

5.18: Summery & Conclusion:

The world development process has been skewed & Partial since long time due to immense economic, Political, Technical, administrative power & resources of the developed nations along with cooperative understanding to work as a group to cartel and substantial competency which enables to bargain in the WTO negotiating table and form mandate in favour of them. The Western Developed nations leaded by the US is replacing the international laws of Justice framed for conservation of Bio-diversities, natural resources & environment for sustainability of human being and nature by raising trade agreements and intend to showing them as universal laws which every countries has to abide by. In this way they have created a system of world capitalist hegemony over the rights and needs of poor countries. They don't bother to take decision which obviously is beneficial for their big Corporate MNC houses at the cost of Natural resource, Forests, environment or even mankind. India with many developing countries has been opposing and trying to resist different proposals initiated by the Developed Countries in various Rounds of WTO including Seattle, Doha Cancun etc on Biodiversity, Plant variety, New IPR, SPS, GI and many other sectors. In case of Plant Variety amendments under the TRIPS regime India is taking all precaution and rethinking before signing on contents like **UPOV** (Union of the protection of the New varieties of Plant) legislation (TRIPS Plus legislation) which has been put forwarded by the Developed countries for protection of higher standard of plant varieties (like many areas which were not covered by the old plant variety regulation act now comes under this UPOV) (Lalitha) [1] because it will displace farmers rights from all kinds of reuse , save or share of different genetical varieties of plants & seeds,(may it be traditional or GM crops) as all these would be under the legal control or patent of registered intellectual property right holder. This will definitely overthrow farmer's right to traditional varieties of plants & seeds which is dangerous for the poor subsistence farmers of the LDCs. The big MNC houses based in the United States along with their counter parts in Europe has been successful in influencing their governments to place proposals in WTO summits and technically pass it for their favour. For example the provision of Patenting life forms which is result in tremendous & outstanding research & development of Biotechnology sector owned by private MNC houses of these industrialised nations, is a completely conflicting matter and goes against the negotiations of environmental safety & Biodiversity under WTO & CBD. Like this many other new areas also has been targeted by the Bio-tech MNCs. ***The CBD & the TRIPS both are very important contents of WTO, but in many areas they have conflicting laws. The convention of Biodiversity in many areas are quite good to uphold values and need of sustainable Bio diversity in the world and this area has been referred in article 16(5) in WTO, but the article 27.3(b) of TRIPS went against it by providing rights to research & patent of Life form which may endangered the Basic idea of BIO diversity*.** That is why

it is important that WTO should take a sensitive look about this matter and try to resolve the issue of conflict between its two major organs TRIPS and CBD. **Articles 14.4, 15.1** etc of CBD is there which try to preserve Biodiversity issue more strongly. So it is important for the international community & WTO to review and replace the Article 27.3 (b) of TRIPS as it is creating ambiguity among the international arena of complex laws and helping Bio-piracy and at the same time give recognition to the Provisions of CBD called ABS and PIC etc which may be beneficial for conservation of Bio-diversity and traditional knowledge of LDCs. Like many developing countries India's economic base for the future of robust economic development lies on the diverse and substantially creative agricultural sector which is often called the back bone of Indian Economy that is why it has to decide where to go. Recently we are notarising India's agricultural development with very low growth rate is shifting from artificially & genetically engineered highly profitable but not sustainable GM development to new model of sustainable development programs in **Agriculture like Evergreen revolution, water harvesting, organic farming, look east policy, Farmers development by MSP, National Commission for Farmers, along with agricultural infrastructure development, improvement in Soil health, Use of organic & less harmful fertilisers, R & D in Biotechnology not only for corporate profits but also for farmers & farms welfare. We are hopeful that India shall no longer stuck into the complexities of new regulations under the new IPR regime but it will gradually** move forward for the overall development of agricultural sector for Inclusive Growth & sustainable Development.

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Chapter – Six

The negotiations & Outcomes of 11th WTO summit at Buenos Aires and the Implications of it on agricultural sector of Developing Countries including India

Introduction

- **The key agendas which were expected to be taken for negotiation on 11th ministerial conference at Buenos Aires.**
- **Discussion on Issues related to agricultural trade & Domestic Subsidies.**
- **Some of the Proposals put forwarded by the developing countries.**
- **Issues discussed about Public holding of Food Stocks and finding permanent Solution on it.**
- **The issues of Domestic Special Safeguard Mechanism (SSM) suggested in WTO before Buenos Aires Conference of WTO.**
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- **The outcomes of the 11th round ministerial conference of WTO in Buenos Aires.**
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Reference

Chapter VI

The negotiations & Outcomes of 11th WTO summit at Buenos Aires and the Implications of it on agricultural sector of Developing Countries including India

Introduction

The **11th** ministerial conference of WTO took place from 10th to 13th December 2017 **in Buenos Aires**, Argentina. The last WTO ministerial conference was held in Nairobi, Kenya in 2015, where the discussion on Doha Round was ended with a setback and no proper solution or joint agreement could be reached by the Developed and Developing countries. That is why the Developing Countries raised the old unresolved issues of Doha Round related to agriculture, **Market Access, Domestic Support & export Subsidy** in this Round and tried to make solutions out of it with the hope that this 11th conference has the potential power to resolve these issues. Many new issues have emerged in this meeting and got mandate by most of the countries to debate & negotiate on that for example **facilitation to issues like E. Commerce & Investment**. These types of new multilaterally applicable policies will definitely impact on agriculture on all over the world. Many international organisations were formed on trade before the conference held in 2017, for example **TPP (Trans pacific partnership), TISA (Trade & Services agreement) and TTIP (Transatlantic Trade & Investment Partnership)** etc recently. These organisations were formed (after the failure of agreements among the members of WTO in the Geneva conference in 2011) among European nations, the US and many other developing nations but the TPP was formed with Switzerland and 10 other countries without United States of America. The intentions were to raise many unresolved issues of Nairobi conference and bring many new issues to the international platform along with dealing sensitively the issues of Developing countries and sending these issues to the 11th round ministerial conference of WTO was on the agenda of these institutions. There were vast disagreements exists among the members regarding issues to be tabled for negotiation, particularly between the United States and other member countries which was pushing aside the very important unresolved negotiations on agricultural trade & tariff raised in Doha round which raises many issues. These include the issues related to sustainability of development and socio- economic problems of Developing countries. The Developed nations particularly the US, some members of the EU and Japan have submitted their agreement in favour of liberalising E Commerce & Investments in agriculture and many other places which may have serious long run implications on (Developing countries in particular) the world if no serious effective regulations are made on tech giants (Apple, Google, Amazon etc) prior to implement these policies. There existed vast differences among the member countries of WTO in staring negotiation and facilitation on E commerce and investments, where some member opposed it and some member including the Switzerland, USA, Israel, UK etc have supported it and demanded it to be mandated and implemented after passing in the Buenos Aires conference. So the chance of these issues to be placed and pass was very high and if it was not done to be so it could be negotiated by many countries at the plurilateral level. The US is seen keen to give more power to it famous tech Giants (**Apple, Microsoft, Google, Amazon, Face book** etc except Chinese tech Giant **Alibaba**) which are already hugely

influential and dominating in IT & Socio-political environment of the world. This is a case of serious concern because in today's world sharing, loosing, proliferating and theft of personal, national, defense, medical, educational data may take place as in digital e commerce these are lucrative so when the DCs backfires to the developing world by throwing away crucial the Doha issues of them one side and supporting the US and stand with it side by side for E commerce liberalisation, phasing out all kind of duties on electronic devices trade and handing over all kind of these jobs to private US multinational Corporations. After this Developing countries got afraid of it and they fear that the new institutions like TISA, TPP and TTIP are working together for the cause of e commerce and for the interest of the big multinationals of US and EU. The question arises to their mind is that why these are happening? The reason behind the failure of TISA negotiation in 2016 was related to non unanimous agreement on crucial issues. The US lobby in EU proposed the European Commission in October 2017 just before the WTO summit for prohibition on localisation of data and complete freedom for cross border data transfer globally. [**1]** This was highly opposed by the many developing countries. The developing countries also fears that the new issue presented by the developed countries about prohibition of local presence requirements of big multinational tech giants who will stay outside the host country (may stay at country of origin like US, EU etc) where any kind of dispute can be solved through international law based on country of origin or main data storage location and in accordance with GATS law. The developing countries also fear that there will be a sharp digital divide between people living in Developed world with advanced internet facility and people living in LDCs of Asia, Africa & Latin America where more than 50% people don't have basic internet facilities and it will have an immense impact on cultural attributes of the host country also as the local TV, Internet and radio content may disappear due to huge supply of foreign cultural Contents based on market value. The issue related to investment and technology transfer from investing country came into the fore front of the negotiation by the developing countries, but the content of source code disclosure elimination criteria creates hindrance in doing so when it gives emphasis strengthening the TRIPS regime and personal privacy. The LDCs particularly the African nations have become very much afraid of the fact that in the new of digital technology if the law & negations move forward for liberalisation for facilitation of E commerce, Investment on supply chain, Agriculture is allowed without any strong regulations (what they don't have actually in Africa) the whole continent may lose digital sovereignty over time and may become digitally colonalised under the big high tech MNCs in this field. That is why they opposed it and opposed it with many developing countries like India, Iran etc against US, Switzerland and many countries of EU. But last after the conference when no Joint agreement took place on the negotiations of this issue, these industrialised countries started making plurilateral bodies to start negotiation on this issue. The developing country's issues like the unresolved Doha Round demand along with **safeguards of domestic trade and permanent solutions of public food stocks** were not talked about, any negotiations started on these issues and without any certain time given to restart negotiations on these very important issues given in the conference. So the 11th ministerial conference of WTO ended without any consensus and become like Seattle & Cancun ministerial conference.[8]

6.1: The following were the key agendas which were expected to be taken for negotiation on 11th ministerial conference at Buenos Aires

(1)Issues related to agricultural trade & Subsidy:
Most of the developing countries including India, Brazil, South Africa and many countries from Asia, Latin America, Sub-Saharan Africa and middle East were demanding for negotiations to be started on major agricultural issues like trade distorting subsidies (particularly the **Amber Box** subsidies) provided by the developed world on their agricultural commodities which essentially dominates the world export prices and brings developing countries to comparatively disadvantageous situation but this agricultural commodity trade is the only sector which is vital for export of these developing countries and for the lively hood of multimillion farmers of these countries are associated with agriculture so negotiation on this issue was vital from the point of view of sustainability and free & fair trade development in future

(2) Agricultural Issues related to find out permanent Solutions for the public Food stocks programme
As per the demand & need of the developing countries with support from some Developed countries (with a prior condition that it will not create any hindrance to world trade) and for continuation of the Bali Round negotiation under WTO was there to find out permanent solution on public stock holding of agri-food programme where, trade negotiations under WTO would allow Poor countries, LDCs and developing country's governments to procure & constitute food grain stocks and sell it to their people at a low subsidised rate which may reduce poverty, hunger and help in sustainable development in future.

(3) Issues related to regulation on subsidies of Fisheries Industries:
There is an immense fear among the fisheries industries and small scale fishers in the developing countries that they will gradually be eliminated in coming future from fisheries business as the governments of the Developed nations are providing huge subsidies to their fisheries industries (like providing advance fishing vessels in sea) which is restricting & leading the developing countries to an unfair competition in this Industry, so negotiation on the WTO table is essential for reduction & complete elimination of subsidies on Fisheries by the developed countries.

(4)The issues of providing facilities for Investment : Most of the Developing countries opposed the investment facilitation issue which was brought with the proposal of Russia, China , Brazil and many other developing countries with support from some developed countries for expanding trade but this was opposed by the developing countries and no such negotiations on this issue was started so far. The developing nations didn't give their mandate at all to this as the unfinished Doha round was still there which needed to be discussed first according to them.

(5) The Issues related to reform & liberalise the E commerce industries:
Many Developed countries like the US and many countries of EU & other Developed nations want Electronic commerce & investment to be started and negotiation on this issue on the Buenos Aires conference which also enables trans border data transfer or data flow,

Complete prohibition on data localisations and handing over these liberalisation to operate through big US private tech giants. But no negotiations was able to be started on this nor multilaterally or at the plurilateral level as strong opposition was put forwarded from developing nations on this issue fearing of losing data sovereignty in future and digital colonalisation.

(6) Issues related to service regulation:
The WTO conference in Buenos Aires didn't able to reach any conclusive position to give mandate, joint declarations or even start negotiation at multilateral or at the plurilateral levels on regulating domestic services provided by domestic or foreign service provider including MNCs and the Governments as it was proposed by G-22 prior to the conference.

6.2: Discussion on Issues related to agricultural trade & Domestic Subsidies:

The Domestic subsidy remains a main issue in the international trade arena particularly from the [10]side of developing countries and this issue was further discussed in Nairobi , Kenya ministerial conference of WTO with a consensus to reduction and future elimination of export or domestic subsidies to agricultural sector which is being provided by the Govt.s of developed nations both at the domestic levels and export promoting levels which gives immense power in the hands of agri-commodity exporters to control domestic & international price and predatory dumping of produce to anywhere and other opposite side the countries with less or no subsidy the export loses their total comparative advantages to those who gained it after benefitted from subsidies. There exist various types of domestic subsidies in the world which has been categorised in the **AOA (Agreement on Agriculture)**, that are (**1) Green Box, (2) Blue Box and (3) Amber Box** subsidies,[2] among these the Green box subsidies are kept out of negotiations as this is found as non trade distorting, the Blue box subsidies are also given exemption to some extent with conditionality but not fully but the Amber Box subsidies (**provided mostly by the Developed nations**) are categorised as highly trade distorting and must be stopped with immediate negotiation to be started on this. These trade distorting subsidies have been discussed in article 6.3 in WTO charter with negotiations started on this to minimise trade distorting subsidies and in 2004 framework after Doha round agreement there were provision under S&DT (special & Differential treatment law) to developing countries to provide 10% product specific & non product specific on total value of agricultural products which was 5% for Developed nations. But over and above this de minimis level WTO provided **AMS (Aggregate Measures of Supports)** facility to the developed countries which gave them immense power & flexibility to control (the product specific subsidies ranges up to 50% on certain commodities) the Agricultural & primary sector products like milk & dairy products, horticultural and many agricultural export commodities. So this again brings the unequal treatment in forefront between developed & developing countries in export competiveness and make poor countries vulnerable to lose existing market share. The developing countries have been opposing this unequal & unfair treatment of WTO vigorously since 2001. The AMS provision for developed heavily subsiding countries puts them in a comparatively very much advantageous position to gain from trade as most of them like the US, EU subsidises agricultural commodities like Cotton, Wheat etc under the AMS provision and sometimes manipulate Green Box option of subsidy by bringing prohibited items under it and raise it to very high level. In this way they are distorting international trade & violating justice of trade. If we see in terms of Green box

and total subsidies the US has made its position on top after crossing all subsidy limits. If we see the 2015 data the US has given approx US$ 140 billion in Green Box, US$ 156 billion in total subsidy and approx US$ 69000 per farmer subsidies where the EU was comparatively low against the US & Japan with around US$ 75 billion in Green Box, US$ 146 billion in total and US$ 13000 as per farmer subsidies. This looks wired and awkward when we see and compare these with tiny small subsidy support of only approx US$ 230 in India and US$ 350 in China per farmer subsidy. In all many developing countries like India, China, Pakistan, Brazil, South Africa and many other developing countries have placed many proposals in Geneva head quarter of WTO in Switzerland just before the staring of the 11th ministerial conference to be discussed including the domestic support issue which have been given least importance in the successive meetings of WTO.

6.3: The following are some of the Proposals put forwarded by the developing countries.

(1) Proposal put forwarded by all most all the Developing countries including India and China to before the WTO in 2017 for eliminations of trade distorting AMS support entitlements to the Developed nations which have given then huge flexibility and higher support to subsidise agricultural trading commodities.

(2) Another proposal was tabled from the European Union with supports from some Latin American countries including Brazil to bring down world domestic support to 10% or less and the developed & developing countries to a same level of protection with a provision of only a difference of 2% subsidies in product specific & non specific level. But this proposal was highly opposed by many developing countries in the ground of unequal treatment and it was also opposed and rejected by some developed countries of EU & North America which were unpopular for heavily subsidising their agricultural sector and enjoying the provisions of AMS.

(3) The Countries like Japan, Paraguay, New Zealand & Australia proposed before the WTO for a fixed amount of value of all subsidies on a single subsidy to be discussed but this was opposed and rejected by many developing countries for their domestic development concerns and all countries opposed the idea of calculating AMS on Value of all products along with this the Argentina's proposal of giving Exemptions to Blue Box & Development Box subsidies in the AMS was also rejected by most of the countries, where the top developed countries like the US, EU have rejected any proposal which limits to de minimis level of AMS or any certain fixed amount with limit on its concentration.

The WTO conferences has been highly disappointing for developing countries because the issues of them are hardly heard in these conferences .The already burning old unfinished and unresolved issues of Doha Round agreements are thrown out to the cold storage and new trade liberalising proposal are being put on their heads by the Developed nations well organised manner. The developing countries are asked to maintain de minimis level of protection and no negotiations on trade distorting Green Box subsidies should be asked by them and they have to abide by all the laws of WTO to maintain domestic support and no violation would be tolerated in this regard. All these were against the basic objectives of WTO convention to bring free & fair multilateral world trading system.

6.4: Issues discussed about Public holding of Food Stocks and finding permanent Solution on it

As per the demand & need of the developing countries with support from some Developed countries[10] (with a prior condition that it will not create any hindrance to world trade) and for continuation of the Bali Round negotiation in 2015 under WTO was there to find out permanent solution on public stock holding of agri-food programme (as per the **AOA r**ules) where, trade negotiations under **WTO** would allow Poor countries, LDCs and developing country's governments to procure & constitute food grain stocks and sell it to their people at a low subsidised rate (for example we can see the PDS of India and same in many other countries of the World) which may reduce poverty, hunger and ensure food security & sustainable development in future. But as per WTO rules any price support to poor farmers even in developing countries through subsidies which is higher than de minimis level of 10% is taken as trade[11] distorting and must be stopped (But one thing should be noticed that WTO mostly overestimates the subsidies). This attitude of over estimating subsidies and taking old reference period (1988) to measure it was strongly criticised and opposed by most of the developing countries (46 nations) of the World including India, China, Egypt and many other African nations and they put forward a memorandum of proposals to the WTO in Bali (Indonesia 2013) ministerial conference (which was taken again for renegotiation in Nairobi ,Kenya 2015) for extending limit of subsidies of the poor LDCs to their marginal farmers beyond 10% and taking the food subsidies for food securities and public stake hold in food grain stockpiling issues in the Green Box subsidy, so that social security's can be ensured to the poor people of the developing countries. In the Bali declaration a clause related to these issues was made called peace clause which asks the developing countries to keep transparency and accountability to WTO norms while giving subsidies beyond the said limit of 10% and in doing so the developing countries have to ensure no trade distortions is taking place due to their subsidies. But one thing is noticeable is that there no such type of certain criteria's laid down for developed countries in framing AMS for them which is frequently used by the DCs to give huge subsidies and violating international trade justice. All most all of the developing countries including G-33 are opposing the higher AMS criteria for DCs and certain limits for providing subsidies to farmers for Public food production and distribution by the WTO. This unequal, unjust and Hippocratic behaviour of WTO was just unacceptable to the developing countries when they are seeing developing countries like China is being taken to WTO and sued as it had violated norms by giving subsidies to its farmers, and many other poor countries have been sued either by the EU or the USA for same reason. After the Bali round of MC, most of the developing countries prepared draft proposal regarding permanent solution in the amount of subsidies to be given by the developing or poor countries for public stock holding before the Buenos Aires summit in 2017. Many developing countries Including China, India, Indonesia etc have clearly said in Nairobi conference that the permanent solution on public stake holding of food stocks should passed without any limit of subsidies in PDS related public holdings, many new issues which didn't exists at the 2013 WTO summit and no prior conditions for transparency or safe guard in domestic trade is unacceptable to the developing countries. But this proposal was highly opposed by most of the developed and some developing countries (Groups) and finally was not taken for further discussion. Countries like the US started giving suggestions regarding arranging domestic subsidies, transparency and safe guards which are more strict & aggressive and difficult for developing countries to maintain than the EU and violations of

which is subject to punishment. The EU along with few Latin American countries proposed a new solution which is that the developing countries will be given freedom to subsidise a limited amount commodities related to public stake holding and for this these countries will maintain WTO framed policies related to transparency and safe guards. The developing countries had opposed it and rejected it. At last it is worth noting that even if the developing countries expects some freedom in peace clause of Bali round [12] negotiations then also they should be ready to open market for reform in e commerce and investment with domestic subsidy reduction.

6.5: The issues of Domestic Special Safeguard Mechanism (SSM) suggested in WTO before Buenos Aires Conference of WTO

The [4]Special safeguard Mechanism (SSM) under WTO & AOA is a particular agricultural safety mechanism can be negotiated and implemented in Developing countries. The developing countries are always at a risk of international price drops or volatility and as result of which they often experience surges in imports of Foreign products which is also produced domestically and sometimes because of high demand condition at home also creates huge import surges, which may be dangerous for domestic farmers and food security of the developing nations. So as the developed nations have instruments like special Agricultural safeguard (SSG) developing countries also must have some power to raise import duties particularly on special occasions when there emerge chances of price fall in the international markets. The international trade is already distorted by the actions of the Developed countries, but the WTO added various conditions to maintain along with SSM which are maintaining de minimis level of 10% subsidies, more accesses to domestic market and maintain transparency which are difficult for the developing countries to maintain because of development issues, so SSM should be granted to all developing countries without prior conditionalities if the justice of trade has to maintain. The SSM which was agreed but not mandated to be passed in Hong Kong ministerial conference occurred in 2005 ultimately mandated for negotiations in Nairobi ministerial conference in 2015 for giving protective measures to face Import surges with limits & conditions. This Nairobi negotiation on SSM has been going on and tabled in the last ministerial conference in Buenos Aires by the G-33 countries along with India, Philippines etc (where Philippines raised issues related to SSGs of DCs and suggested reform of it and limiting it to some certain products), but have faced tremendous oppositions from Developed countries and some developing agricultural export countries of Latin America.

6.6: The substitution of Doha Round negotiations by New Issues of Agricultural trade: [2]

In the 10th Ministerial conference of WTO was a major setback for the Doha round development talks as most of the countries could not able to reach to any fruitful conclusions about the issues related to developing countries (including market access, domestic support & export subsidy along with S&DT and SSM) and the Developed countries have brought "new issues" related to trade & environment **(including facilitation of E commerce & investment, new infrastructure for investment, Environmental issues & trade on climate related issues, SMEs, global value chains etc**)saying these are much more relevant than any other issues. In this way the very important issues related to the interests of developing countries have been subsided and sent to the cold storage as none of them has been raised in the 11th ministerial conference in Buenos Aires. But these new issues will

have serious implications on agriculture. For example new investments needs new infrastructural developments which further accentuates policy reform related to Land, water and mineral resources and new IPR regime will require new amendments of existing laws and in this way Biodiversity might get challenged.

One of these "New issues" is **E-commerce and investments.** This new issue will have substantial impact on production, procurement & sale, market information, prices, agricultural trade practices, Production pattern, character of fertilisers & seeds, Inputs, R & D on agriculture etc. There exist few many big MNC houses who are ready to take over the operations of ecommerce for example Monsanto, DuPont these are renowned old US giants and are ready to take over the job. Since these are private corporations and their objective is profit making so giving them these huge power can lead to a situation when they will start taking decision in agricultural production & sale in place of the Governments and they will influence the lively hood of the farmers, choice and consumption pattern of the people and data flows about agriculture. These will make poor countries more vulnerable to lose localised data to these MNCs. So in this era of digital colonalisation data protections is very important for agricultural sector also so developing countries must be cautious before taking any decision and engaging in any new trade dealing with the developed nations even at the pluriateral level.

6.7: Decisions in Buenos Aires regarding long term Development of Agriculture:

The long term development of agricultural sector should be based of Sustainability , equity, values to environment & farmers and social justice to poor & indigenous communities because only growth[3] oriented development has made wealthy people more wealthier and poor more poorer and this cant last long. There must be some spaces opened for dialogue among developed & developing nations over these issues. As contrary to the basic rules of AOA the 17 Sustainable Development goals designed for 2030 agenda of the world framed poor farmer's right to get subsidies who should be supported by the state for continuing farming to feed the country sustainably while wealthy farmers are not. These SDGs are based on Economic, Social and environmental issues which are meant for sustainable development of the society as a whole. So in the last 11th ministerial conference of WTO the Doha round development goals have been subsided or substituted by the sustainable Development Goals which says that (contrary to the old saying of AOA) the term Domestic Subsidy must have to sacrificed by the developing countries as it would never be accepted by the Developed countries and in that place subsidy or support should be given to poor farmers of developing nations and bring the developing nations or poor nations out of poverty by doubling their export level by 2020 is one of the 17 goals of SDG. So the member countries of WTO have agreed taking SDGs as part of the UN and it is also necessary for the developed countries as well as the developing countries to understand the necessities of SDGs and implement the SDGs with proper Governments initiatives without delay as the SDGs are inevitable and unavoidable for the sustainability of the agriculture of the future generations to come.

6.8: The outcomes of the 11th round ministerial conference of WTO in Buenos Aires [10]

[6] The last ministerial conference of WTO has taken place recently in Buenos Aires of Argentina where many different types of proposals had been placed by both the Developing

& Developed countries (which have been discussed in a very brief manner at above) to the WTO table. Other than new issues like including facilitation of E commerce & investment, new infrastructure for investment, Environmental issues & trade on climate related issues, SMEs, global value chains etc and discussion on 2030 Sustainable Development Goal many other issues which are extremely significant for discussion and negotiation were kept aside and no such kind of issues were dealt with any other way. The following are some of the important out comes related to new issues on agriculture & trade. [7]

(1) The very important new issue raised by the developed countries, particularly the USA was negotiations related to **liberalisation of facilitating E-commerce & Investment on Agriculture, and MSME** etc which was opposed by many Developing countries and as a result of which negotiation didn't take place because of not giving enough mandate on it by member countries even at the plurilateral level and ultimately discussion on this topic ended with no conclusion.

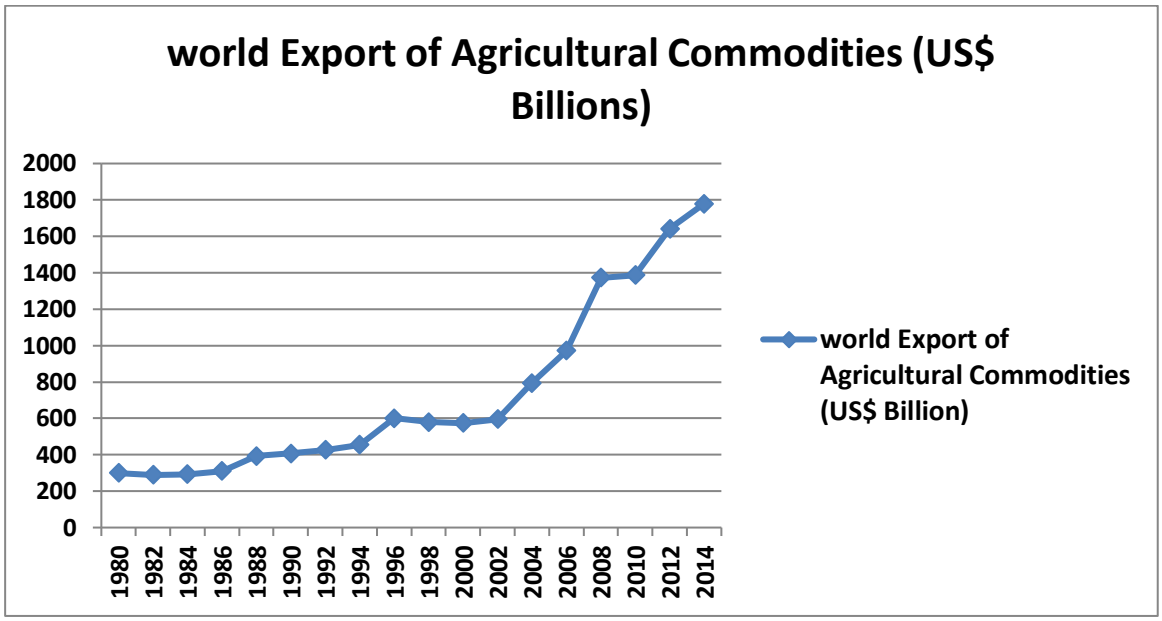
(2) As there was not enough mandate from the Developed countries on **banning illegal and unregulated fishing** so the member countries particularly the developing countries couldn't able to reach any conclusive agreement regarding banning illegal fishing and all members agreed to take decision on it in 2019 WTO summit.

(3) One important decision have been taken in this 11th WTO Summit regarding woman empowerment where most of the members agreed to **support & subsidise poor, Destitute and dependant women and open all windows for empowering women**.

(4) After understanding the basic & prior requirement to correct imbalance & inequality in WTO in Agriculture India & China (with a support more than 100 developing countries) put forwarded a joint proposal to the 11th ministerial conference of WTO to stop and **completely cease the huge amount of subsidies** given to the agricultural sector by the Developed countries which immensely distorts trade.

(5) The **Agricultural negotiations** based on Bali conference in 2013 where the developing countries were given consolations that many issues including reduction of trade distorting domestic subsidies by the DCs, (**including Amber Box subsidy, farmers support which is sky high in North America of US$ 60000 but only US$ 250 in India and US$ 346 in China along with maintaining 10% limit of subsidies on developing countries VOP** which are much higher than the subsidies on food by the developing countries. That is why along with G-33 nations many other poor, LDCs clearly hold their stand on not to reduce their food subsidies) domestic support like SSM, Public stock holding of food, SSG by developed countries and many more essential issues would be discussed in the next ministerial conference to come, but this has been laid down or collapsed and negotiations on permanent solution of Public Stockholding of food was completely blocked by the move of the US in Buenos Aires conference. The US more than the EU & many other countries seen to be much hostile towards the solutions of Doha & Bali negotiations of the issues of Developing countries. [9]

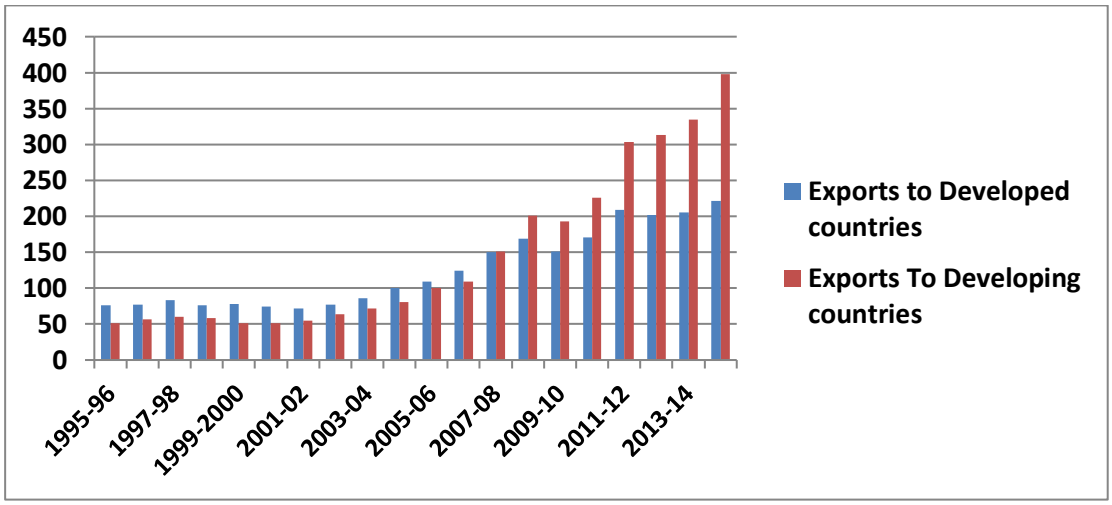
Figure 6.1: Trend of world Export of Agricultural Commodities (US$ Billions)



Source: WTO Data

The above figure shows the Trend of world Export of Agricultural Commodities (US$ Billion) in the pre & Post WTO period where the noticeable thing is that the growth in trade surged after the Doha round (2001).

Figure 6.2: Trends of Exports from Developing countries to both Developed & Developing Countries (US$ Billions)



Source: UNCTAD Data.

6.9: The Role of India in 11th Ministerial Conference of WTO:

India's role was clear and significant from the point of view of the developing countries as from the starting and before India not only fought for its own issues but stands with the poor LDCs and helped them positioning their move for rights & justice and backed & pushed the unresolved & unfinished negotiations related to agricultural sector between the developing and developed countries and many issues like domestic subsidies & Agricultural safety net, Food securities, Farmers rights, issues related to Biodiversity and others in new IPR regime called TRIPS in previous and current ministerial conferences. India opposed and puts its clear stand on new issues proposal **(E-commerce & Investment, MSME, Women Empowerment , Environmental Issues etc**) by the Developed countries (particularly the USA) that without solving the old unresolved issues of the developing countries (**Doha round issues**) no new issue would be accepted by the developing countries for negotiations. India supported the gender issue and women empowerment issues in new issue clause proposal of the Developed nations but expressed its serious disappointment over US refusal of the major issue of developing countries which is permanent solution of Public Stockholding of foods and WTO's deteriorating stand in holding multilateral value system in providing free & fair global trade.

6.10: Conclusion & Suggestions:

If we notice three basic measures has been discussed and proposed in 11th ministerial conference of WTO in Buenos Aires that are (**1) Facilitation of E-commerce & Investment, (2) Elimination of Domestic subsidies which distorts trade and (3) discussion on regulating the domestic services in as systemic manner.** Here it is worth noting the that the developed countries pushed and emphasised the above first & third issues saying these are new issues and of immense importance while put very less importance on the second issue which is already exiting unresolved for more than a decade. The developed countries opposed the new issues out of fear that these can have serious future implications on their domestic sovereignty of data protection & policy making and on the other hand they have expressed their disappointment of not prior negotiation on Doha round development issues before new issues to be discussed. In this way the discussion & negotiation space became small in WTO.

The WTO has utterly failed in giving & delivering mandate & Joint Declarations on negotiating issues, was unsuccessful in honouring the Nairobi (2015) commitment for negotiations on permanent solutions of Public holding of food stocks. WTO also failed to stop USA in creating divisive situation in the international trade and there by protect the international trade by solving its basic problems. If this situation prolongs for many years it will raise questions on the very existence of WTO itself.

Recommendations:

After the above discussion we can say that the Developed and the Developing countries have conflict of interest in many areas of trade which is not easy to solve. The developed countries particularly are very much rigid from their point of view and have narrow sometimes nationalistic approach which creates hindrance to multilateralism, and for the developing countries it is the basic issue of food security, farmer rights, domestic market

& economy safeguard so they can't afford to lose these. That is why for many years the WTO could not able to solve the Doha issues only.

The following are some of the key issues which should be dealt with seriously for Sustainability of free & fair multilateral trading system Under WTO.

[1] The WTO must provide space in international trade based on values & principals of multilateralism and free & fair in nature. The role of the WTO is immensely important in bringing economic & social justice by providing food securities & jobs to poorer countries and sustainable inclusive growth and development for the world.[5]

[2] The WTO must resolve the unfinished Doha Development Round negotiations on developing countries issues like **domestic support, S & DT** and many other issues. [13]

[3] The WTO should provide international agricultural safety and reform. The agricultural sector of the poor or least developed countries should be take care of by providing help & subsidies by the government and there should be curtailment in unregulated huge amount of subsidies in agricultural exports provided by the DCs and thereby distorting international trade in agriculture by the Developed countries. So both the developed & developing countries should sit together and start renegotiations on food subsidies and start reform on it for betterment of international agricultural trade.

[4] In case of new issues proposed by the DCs in 11th ministerial conference the WTO should go slow (particularly in case of facilitation of E-commerce & investment issue) and take all member countries into confidence and let good time for negotiations on these new issues before passing any new resolutions. In case of Fisheries reform & negotiations should be started in reducing subsidies provided by the developed countries to their fisheries industries which will help millions of farmers & fishers worldwide.

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Chapter – Seven

- **Summery & Conclusion**

  - ***Influence of WTO India's Export & External Trade Policies***
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Chapter VII

7.1: Summery & Conclusion:

Since the early 90s India is witnessing various substantial changes in its economy including liberalisation of its economy, Structural reforms, and opening its domestic market for the liberalised world trading system. Since the starting of New economic policy of liberalisation, Privatisation & globalisation India has gone through many ups & downs in its economy. As we have already mentioned in earlier chapters that our study is a comparative one between the Pre & Post WTO period and the overall effects of WTO on Indian agricultural trade, so we have gone through various literatures available (both online & offline) on that topic. What we have found have been discussed in various short chapters on the above. If we summarise them then our study mainly concentrates on implication of WTO on Growth, Agricultural GDP, Production & yield, Export competitiveness, Market share of Export, Changing Composition, Direction, diversity of export, Environmental issues of trade like preserving Bio-Diversity, SPS, etc, TBT, Domestic subsidy, IPRs Under new TRIPS regime and overall impact of AOA on developing country perspective (including WTO Summit, Negotiations on Issues on developing countries, TRIPS, Issues related to Domestic subsidies & export promotions and various Agreements). The analysis on the topic reveals that new international trade system and its rules under WTO not only affected Indian agricultural export but also domestic production, investment, market, Government decision, public consumption, Nature of agricultural trade & demand domestically but also it has significant role in shifting India's decision & role toward the International trade & policies of trade.

7.1.1: Influence of WTO India's Export & External Trade Policies:

If we see the role of trade in country's development and if go through many trade theories by famous economists & Philosophers (Adam Smith, David Ricardo, JM Mill, Malthus, Heckscher Ohlin etc) of the Past & Present we will see that trade has a indispensible role in country's growth & development, which can be understood by giving practical examples of the South East Asian countries which have achieved huge Growth & development in the last decades due to opening their economy to open World trade on contrast to that with comparatively more inward looking restricted trade policies of the Latin American & African nations led to comparatively low growth & development for them. So trade & economic development are very much interlinked as trade provides increase in demand of domestic product, GDP & employment, export, give boost to investment finance and transfer of advanced foreign technology and growth in Import further helps in capital accumulation and price stabilisation (equalising domestic price with international price level of commodities) of the countries engaged in trade and there by maximise their welfare. India always has been in favour of open free & fair international trade and it has shifted its trade policies from inward looking import substitution policies to Export promoting open liberalised trade policies in the 90s, and in this process it has participated in the Uruguay round agreement which led it to join WTO in 1995. The results were significant after WTO as the Indian trade has opened from nearly 14% in 1991-92 to about 36% in 2014-15 and Indian agricultural sector got boost in exporting commercial & Horticultural commodities in the Post WTO regime and its market share in international trade has also increased. The WTO which came

into existence in 1st Jan 1995 as result of Uruguay round discussion, negotiation & agreement (1986-94) advocates liberalising international trade with values of equity, non discrimination, free & fairness and multilateral in character promotes liberalisation, openness, reduction & elimination of tariff & non Tariff barriers to trade, quantitative restrictions and helps developing countries trade & export which resulted the increase of goods trade share of developing countries from 29% in 1994-95 to approx. 45% in 2014-15. With increasing integration with world trade system India gradually decreased its tariff level on imports & exports, completely eliminated import /export licensing & quantitative restriction on trade, participated in multilateral trade negotiations & agreements under GATT & WTO. India's applied tariff level have decreased gradually (the MFN tariff of India reduced to around 12% in 5 years from 15.1% in 2006) though the bound tariff remained high with. The tariff has been reduced mostly on capital goods & advanced machineries along with many other essential products but consumer goods import is still regulated. It is so because to give safeguard to large domestic industries. These gradual moves by India show its commitment to the WTO and liberalising its domestic market & export trade. India even took several initiatives to increase the amount foreign & domestic investments including opening spaces and shares on which FDI can enter in a huge amount including telecom, IT, Insurance & retail sector and gave exemptions of income tax in many areas(STPI, EOU etc) to raise capital domestically.

India with its huge emerging market & high growth economy and strong commitments to the poor & developing nations and free trade has become an important international player in negotiating trade related issues and rights of the LDCs in international platform and WTO conferences (from Uruguay to Doha & still today) with Developed countries. In formulation of agricultural policies India took two principles one is trade liberalisation and the other is safeguarding domestic economy and agriculture. For that it has joined many international interest groups of countries like G20, G33 etc and India is committed always in defending rights of the developing countries being one of the leading countries of them. India also engaged individually for promotion of its agri-exports on many plurilateral and non multilateral platforms. India has been fighting for S& DT (special & Differential Treatment) and SSM (special safety measures)for developing countries since 4th ministerial conference of WTO to 11th ministerial conference of WTO (Buenos Aires) for developing countries along with it is fighting for reviewing Green box & Blue Box subsidies, elimination or reduction of SSG in case of developed counties, reduction or elimination of domestic subsidies of the US & EU, expanding market access of the Developed nations, revision of new components & amendments under TRIPS, farmers rights, food security and sustainable development. As since Doha Round negotiations to Cancun (2003), Hong Kong (2005), Bali (2013), Nairobi (2015), and Buenos Aires (2017) WTO negotiations no strong amendments has been passed so far by the WTO in order to save and give securities to the agriculture based poor & developing nations. So, India has a significant role in bargaining with the WTO to raise voice against oppressive attitudes of highly influential US with EU towards developing nations. Trade & export growth has tremendous implications in growth & development understanding this India along with reforms and liberalisation process has taken many other Initiatives like infrastructure development, SEZs, devaluation of currency, EPZs and making country wise special economic partnership like **SAPTA, SAARC , ASEAN, CEPA (Comprehensive Economic partnership agreement), CECPA, BTIA (Broad Based trade & investment Agreement),** etc for free trade. Since the WTO India has devised its EXIM

policy in accordance with domestic political intentions and international order and made both bilateral and multilateral trade agreements. India achieved huge export surges in the Post WTO period since 2004 the Exim policies was to achieve US$ 200 billion by 2011 and in 2017-18 India has able to achieve export of **US$ 303.4 billion with 13.2% share of Agricultural sector**. This shows India's potency to achieve in Agricultural export growth in the Post WTO period.

7.1.2: Performance of India's Agricultural sector in the Post WTO regime:

The Indian agricultural sector plays a vital role in providing employment (largest employer in the world with 47% labour employment), food security (about 14% of its large GDP which is US$ 2.848 trillion in 2017-18) and export (with approx 2% global agricultural export share) In the Post WTO period though it is completely integrated with global agricultural market. India has to meet huge domestic demand for agricultural food crops. It is the largest producer of Banana, Mango, Papaya, Milk, Jute, Lemon, Spices etc second largest producer of Rice, Wheat, and fifth largest producer of over 80% of the total food crops produces in the world.

We have discussed the various impacts of WTO policies in previous chapters. In chapter four we have analyzed the effect of WTO on few major Indian agricultural export commodities where we have found that WTO policies have very least impact on Indian Agricultural trading commodities and the growth of many of these commodity export have not increased substantially rather growth rate of some of them have fall in the Post WTO period (particularly the traditional agri-export commodities like Tea, Coffee, Rice , Wheat, Marine products, Oil Meals, etc performance has not been up to the expectation so far). The share of agricultural production in GDP has declined since the inception of WTO from approx 21% in 1995-96 to approx 14 in 2011-12 to 17% in 2017-18. There is emerging negative sides of WTO is seen since post 2000. One of them is **International price fluctuations.** The WTO under AOA has amended various laws and asks developing countries to abide by them properly, referring them as multilateral and needed to be established for free & fair trade. But the Developed countries violate these philosophies by new loop holes of trade agreements. The DCs particularly EU & US subsidises their agricultural commodities & export heavily with the help of SSG provision and green & Blue box subsidy provision of AOA which distorts International agricultural trade environments by disabling poor countries to compete with them in unequal & non parallel ground. The DCs want more market access of the developing countries under **NAMA** under the WTO. The WTO asks the Developing countries to reduce all types of subsidies and gives no clear mandate for Public stock holding of essential agricultural stock piles. In this way it creates a completely unequal ground between Developed & Developing nations. In Doha declaration of WTO has given emphasis on reduction of Tariff & Non Tariff Barriers which have been followed by most developing countries including India. Apart from fall in demand of the South Asian countries in 1997-2002 and global recession in 2008-11, the decreased domestic support due to WTO rules make the agricultural commodities export growth to fall heavily. Commodities like Tea, Coffee, Oil meals, Cotton, Marine Products etc registered very low or negative growth rate during the Post WTO period. Except Meat all the other Indian agricultural export commodities show greater comparative advantages in trade and most of them have shown higher diversification of Export in our analysis in our study. Still some of the traditional

agricultural commodities have shown higher comparative advantage (including Rice, Tea, and Spices). In case of product export diversification in the Post WTO era we have noticed in our study that Tea, Rice, Marine Products & Oil Meal have shown higher diversification where Cashew showed little and Tobacco, Coffee & spices shown no diversification in export. In the post WTO period India's global share of Export have increased from 0.8% in 1991 to 1.3% in 2006, 1.8% in 2009, 2.01% in 2011 and 2.26% in 2015-16 , so Post WTO regime has helped increasing agri-export share of India in the World and making its good position with among leading exporters of agricultural products. In the Post WTO era there has been created potential environment for developing countries to grow faster in agricultural sector. But the WTO norms are bypassed by the Developing countries as countries like USA, Japan, the EU is giving huge trade distorting subsidies under Amber Box, Blue Box & Green Box, Product Specific subsidies, Direct financial supports to farmers and exporters 9 the US is giving more than US$ 50000 as per farmer direct support where India giving US$ 250) where the developing countries are to reduced AMS and maintain de minimis level of support to maintain WTO norms. In this way the Developed countries manages to dominate world agricultural market and elude the probable gains from liberalised world trade market of agriculture after competing in unequal ground with developing nations. WTO again failed to maintain proper global orders in agricultural trade as trade distortions is not only happening when international agricultural commodity prices are falling or fluctuating rather when the export products of the developing countries are failing to match global standards and are being blocked to enter in the Developed nations which are imposing Non Tariff measures like SPS measures on these products.
India facing tremendous competition in agricultural exports from other developing nations like the south & south east Asian nations. Along that though India has able to achieve comparative advantages and diversification in trading agricultural commodities and achieved growth of agri-export in terms of total value but the sharp declining trends of export share, Lacking of International Demand and weak domestic support measures making the future of agricultural production and export growth uncertain under the WTO and thereby making India to rethink on its decisions to continue WTO policies properly.

7.1.3: The Significant changes that have taken place in Agricultural trade in the Post WTO Regime in India:

- The expansion of Domestic market for Indian agricultural commodities has taken place in the Post WTO regime.

- The Share of agricultural sector to Indian GDP (**it was approx 21% in 1995, 14% in 2011-12, 17% in 2017-18**) and total export (**18.49% in 1991 to approx 16.5% in 2013**) has declined in the Post WTO period but the agricultural export share (in percentage) to total production has increased in the Post WTO period (**from 4.1% in 1991-92 to 8.9% in 2013-14).**
- There exists divergence in Indian agricultural commodity exports, as in the pre WTO period it is found that India has made effort to specialize in agricultural commodity export in which it has comparative advantage but in the post WTO period no such attempt was made where we can see any specialisation of agricultural commodity export, though in some cases India has able to gain some Comparative advantage in producing & exporting some of the agricultural commodities in the Post WTO

Regime which is the good effect of liberalising its economy.

- Both Export & Import of Agricultural commodities have increased in the Post WTO period and the value of Agricultural total export was comparatively higher than total import.

- The average growth of export, percentage share in total agricultural export, and export market share of many of the major Indian traditional Agricultural commodities has declined (**Tea, Coffee, Cotton, Marine products, Oil Meals , etc**) but mean growth rate have increased where for some agricultural commodities it has increased (**Spices, Meat, Cashew, Coarse cereals, Oil seeds, Pulses, fruits & vegetables, several horticultural products etc**) in the Post WTO period as compare to Pre WTO period but the overall export market share in the world has increased in the Post WTO period (from 0.8% in 1991 to 2.01% in 2011).

- The amount of diversification was higher in case of most of Indian agricultural trading commodities in the Post WTO regime as compare to the Pre WTO regime (the value of Simpson Index was higher in the Post WTO period which proves so).

- The composition & direction of the major Indian agricultural trading commodities has also changed in the Post WTO period.

- The Compound Annual growth Rate (CAGR) of Indian agricultural trading commodities was higher in Post WTO period than the Pre WTO period (**the CAGR has increased from 5.94 in the pre WTO era to 12.02 in the Post WTO era**)

- The structural Transformation in Indian agricultural sector is visible in the Post WTO period as commercial export oriented agricultural production is replacing traditional production structure. The production of inedible commercial crops (**Cotton, Bio Diesel**) has increased many times along with change in farm structure due to increase in new kind of demand after liberalisation in the Post WTO era.

- The price regime in the Post WTO era has not been stable since 1995. The international price of agricultural commodities is fluctuating and sometimes remains much lower than the domestic prices of Indian agri-products which are trade distorting, detrimental for domestic agricultural economy and one of the major reasons for slow Agricultural growth & farmer's distress. The reason for this Volatile international price regime is huge subsidies **(under Amber box, Blue Box & Green Box along with AMS, Product Specific & Non Specific Subsidies, direct & huge Subsidies to the farmers & exporters**) provided by the Developed nations to their agriculture along with support measures like **SSG** make their agricultural export commodities comparatively much cheaper and highly competitive in the international market as compare to the agricultural commodities of the Developing nations.

- There has not been substantial increase in investment (Both Private & Public) in Indian agricultural sector (Infrastructure building and marketing) in the Post WTO period.

- The amount of **Income inequality & disparity** has increased tremendously in rural Indian agricultural sector which have led to classification of Indian farmers as poor or marginal, Middle class & Rich in the Post WTO period where farmer's distress and amount of committing suicides have increased much than before in the Pre WTO period

- Despite that the Indian agricultural export has increased in absolute term in the post WTO period, the average share of agricultural export in total export from India has fallen down from 17.5% in the Pre WTO period to 13.62% in the post WTO era, which may be as a result of much increase in the share of non agricultural export in India's total export.

- The value of NPCs of mostly all commodities has gone down in Post WTO period comparing to the Pre WTO era, which implies that exporting capacity or export competitiveness has increased in the Post WTO era.

- India has been highly committed to the international multilateral principles of free & fair trade Under New Trade Regime Called WTO since its inception and maintaining all measures related prevent trade distortions for example it is maintaining very low amount of import & export tariff, it has abolished all kind of licenses and quantitative restrictions related to trade, it is maintaining much lower applied tariff than its bound level & De minimis level, it has decreased product specific subsidies and it gives very small amount of per farmer subsidy (US$ 250) as compare to Developed nations (approx. US$ 50000 for US , US$ 48000 for Japan, US$ 32000 for EU). India also has been fighting for the rights of its own and for the developing countries in WTO forums, Summits and ministerial conferences, in multilateral, plurilateral and Bilateral levels since 90s and particularly after the Doha round development. But the developed countries particularly the US and then EU has been distorting the environment of free & fair trade by giving huge amount of subsidies to their agricultural sector, Violating multilateral character & trust of WTO institution , bringing highly fluctuating international volatile & trade distorting price regime, overlooking the basic issues of the poor & Developing countries and forcing them to abide by the WTO rules and cut down any trade supporting subsidies with NAMA and increased market access for them along with new issues which have been tabled for discussion and negotiation in the 11th international ministerial conference in Buenos Aires. The role of the WTO in this regard as a guardian of International trade has been highly disappointing as it has failed to negotiate and form common agreement on the long lasting basic issues (**like Market access, domestic support & Export subsidies along with S&DT and SSM and Public stock holding of basic agricultural crops for food securities**) of the developing countries discussed under Uruguay and Doha round. It was expected that after along failure to come to an agreement on these issues in Bali and Nairobi rounds of talk, (as there is a huge difference between the developed and developing countries on these issues,

particularly the US which is committed to go against these issues to start negotiations) renegotiation would start in the 11th MC in Buenos Aires but it ended without any discussion or any kind of any negotiations on the very basic long lasing issues of the LDCs and Developing countries including India.

We see that the Indian agricultural sector and Agricultural trade has transformed from inward looking import substituting and depending on domestic market with price stability in the pre WTO period to outward looking export promoting with more dependence on international demand and price volatility on the post WTO period. So opening or liberalising of Indian agricultural sector trade to the world made Indian market more lucrative place for the international countries which may bring investments and thereby change the structure of traditional Indian agricultural trade but there no guarantee that it will go in favour of sustainable development for healthy future growth of this sector.

7.2: Policy Recommendations

The Export growth of agricultural commodities is immensely significant for India and other developing countries. India should focus on the area exporting of agricultural commodities where it has strategic and comparative advantages along with diversifying agricultural trading commodities. In the following we have discussed several measures and probable policies which may help India to overcome from Infrastructural & export growth bottlenecks to revamp its agricultural export and reach new heights of growth and development in agricultural sector.

i. India should make strong policies for Growth & sustainable development of domestic production & distribution and international export of its agricultural commodities and implement them as a national obligatory commitment without delay.

ii. India should encourage both Private & Public investments in a large number to meet & develop the infrastructural need, domestic & international market chain and research & development of seeds, organic use of fertilisers, Water management & irrigation etc. Promoting Public-private partnership to the effect of inviting more investment in the infrastructural development to achieve an integrated system covering the entire procedure involving processed food beginning with production to processing to packaging to marketing . More Integrated domestic market leads to more effective global competition.

iii. The export of food processing sector along with several horticultural products and fruits & fruit juices, Spice, vegetables have revealed to be advantageous comparatively & strategically for India, so India should promote export and maintain international standards (focusing on SPS standard) of this commodities to boost growth and export diversification apart from exporting traditional agricultural products. India should also focus on export growth of those commodities, whose export has declined substantially (Coffee & Tea) in the post WTO period.

iv. India should focus on negotiating bargaining strongly with WTO members both multilaterally & bilaterally on agricultural trade on the basis of Doha round and many issues generated in

India after legislating new amendments like SPS (Sanitary & Phyto Sanitary measures), TBT (Technical Barriers To Trade), CBD (Convention on Bio-Diversity including Un charters) under TRIPS regime of WTO, reduction of tariff & non tariff measures, Product specific subsidies by the DCs, along with its farmer's safety and rights and food security of its citizens.

v. Minimum support prices (MSP) should be provided by the Government of India to the farmers of their agricultural produce in order to save them from fluctuation of domestic and international price level (market prices of basic agricultural commodities fall due to heavily subsidising agriculture by Developed countries and Dumping due to over production).

vi. The Governments both at state and at the centre should develop harmonized policy to back the regional exporters to promote agricultural export surplus. There should be provision of funds to the small regional exporters to encourage more export. Effective market strategy should be prepare to boost up India's trade both import & export with age old trading partners like CIS countries, African Nations, USA, EU and south Asian countries.

vii. India should not stop negotiations of Doha Round agendas and constantly insist in WTO forum for reduction of huge domestic support & subsidies by the developed nations.

viii. The WTO is a new reality after the end of Cold war which can't be avoided in any way if a country don't wants to be isolated from the world economy & trade and India has become an integrated part of it so politically, economically & intellectually India should be ready to face, debate, negotiate and bargain both in multilateral, plurilateral & bilateral level of the comprehensive policy regulations of the WTO and place them according to the capacity and need of it with obligatory responsibility & accountability to its commitment to WTO along with this India should also prepare to face recessions and slow down growth & demand in the international market and fight them technically to protect its domestic market & economy from its influence.

ix. India should learn from South Asian countries and from their bitter experience related to food safety measures and continues playing a leading role with all developing nations in fighting and bargaining for the rights and issues them.

x. India should bargain & negotiate on the protection of its agricultural sector along with its farmers (to guarantee them food security and right on traditional seeds) with WTO and should not compromise on these issues.

xi. The central Government of India should sit & talk to its all state governments on Implementing WTO framed regulations, discuss on various implications of it on regional level basis and take decision jointly with the active supports of the states on market reforms, liberalising trade, bringing cost effective flexibility, interstate coordination, capacity building, increasing domestic investment on agricultural infrastructures to improve domestic competitiveness and efficiency and diversifying crop production and experimenting with Production of more cash crops

regarded as high value crop through Horticulture, Floriculture etc and also livestock rearing, Fishery, herbal and medicinal plants can open up new opportunities.

xii. Biotechnological R & D in the field of agriculture can bring about revolution in agri-trade because it propagates low cost and high yielding productivity. So effective policy should be taken to inspire Public-private partnership in establishing more research institute. India's rank is third in Asia pacific so far as patent filing is concerned and India is one among the top most five countries that under takes R & D in agriculture. There should be maximum and strategic utilization of low cost physical force, Intellectual & Biological resources to the effect of cost effective production.

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xiii. Government should take step toward crop insurance starting from the production to the last step of export. The banks of the country should come forward in this regard. The ministry of agriculture with APEDA and EXIM Bank should make provision for easy credit for Agriculture to promote export.

xiv. India should build more export processing zones (providing special facilities for agricultural commodities export) and encourage farmers to produce more food crops rather than inedible or non food crops to fight problems like food shortages in a situation of sudden international price rise. Development of basic infrastructure fir agriculture has been shaped into agri-trade industry after WTO is imperative. Development of road way & connectivity, transportation heavy goods carrier, supply of water & electricity are must.

xv. Frequent change in import/export regulations may hinder the stability of domestic price level and interest of the domestic and international consumers so for consistency and stability in domestic and world market Govt. should formulate stable agricultural trade policies consistent with the WTO policies and commitments here in India.

xvi. India should special care to promote it agricultural products in the global level & enhance its capacity to endorse them with international & environmental standards to fight enormous competition from other Developing countries. In doing so it should prioritise with special & immediate attention in enhancing production, marketing, processing efficiency along with building infrastructures for maintaining quality of products and stable supply chain with good transport facilities. Government should also venture into forging policy to bring about new trend of contrast and corporate farming and association of farmers should be motivated to grow crops with the view to marketing both at regional and global level. Their procedure includes creation of and driving to SHGs for farming, nurturing crops, production of seeds etc.

India is the second largest populous country (with more than 132 crore) in the world with agriculture as the chief source of livelihood to almost 805 of the rural population of the country; there by forming backbone of the nation's Economy. Compared to the other nations the percentage share of agricultural contribution to the nations GDP is still much high. In the Post WTO era the scope for India's economy to grow on the basis of agri-trade has considerably expanded. WTO & open free trade regime no doubt opens up new Vistas for the expansion of the economy but posed certain challenges at the sometime. India must contend for equal & in discriminatory trade policy

implementation of WTO policies in the WTO rounds and ministerial conferences to counter deceptive & tricky strategies of the Developed nations. India must demand for obliteration or reduction of all types of tariffs and non tariff barriers and total cut down in the domestic subsidies given by the Developed nations and there by violating the WTO commitments, for making room for greater market access. Domestic demand and supply conditions and some other factors contribute large to alteration of India's top export commodities between the year1997-2014. The Developed countries commitments in the Doha round agreement have revealed to be fake as most them giving huge subsidies and high level of AMS to their agricultural sectors. The US, Japan, EU are providing huge product specific support to boost international agricultural export of certain commodities like Wheat, Rice, Soya bean, Corn, Peanut, Diary, Cotton and on many processed foods etc where India is maintaining De minimis level of AMS and the AOA has no issue with India in case of domestic subsidies. According to many Indian agricultural policy makers and renown economists all kinds of subsidies (Green Box, Blue Box, and amber Box) with high level of AMS from the developed countries are distorting international trade and reason for the obstacles for the developing countries to benefit from free trade which WTO upholds. Unlike other resource poor developing nations India has huge potentialities to develop the economy by optimal utilization of labour, Intellectual, Biological resources in agricultural sector. India along with many Asian emerging economies can be able to counter the unfair challenges posed by developed nations and by adding innovations to policy making to move forward with stronger strategy encompassing the entire agri-business starting from production till the export of the commodities.

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List of abbreviations

Abbreviation	Meaning	Page
Agri.	Agricultural	13
AOA	Agreement on Agriculture	10
AMS	Aggregate Measures Support	48
ASEAN	Association of South East Asian Nations	18
APEDA	Agricultural & Processed food products Export Development Authority	16
BOP	Balance of Payments	32
BTIA	Broad Based trade & investment Agreement	86
CAGR	Compound Annual Growth rate	17
CBD	Convention on Bio-Diversity	48
CBR	Community Bio- Diversity Registrar	159
CEPA	Comprehensive Economic partnership agreement	186
DC	Developed Countries	13
DSM	Dispute Settlement Mechanism	11
EU	European Union	18
FAO	Food & Agricultural Organisation	16
FDI	Foreign Direct Investment	32
GATT	General Agreement on Trade & Tariff	3
GDP	Gross Domestic product	1
GI	Geographical Indications	39
GM	Genetically Modified	161
IMF	International Monetary fund	4
IPR	Intellectual Property Rights	10

ITO	International Trade organization	9
IDA	International Development Association	9
LDC	Least Developed Countries	15
MSP	Minimum Support Price	4
MFN	Most Favored Nation	10
MCA	Minimum Compulsory Access	50
MNC	Multinational Corporations	56
MSME	Micro Small & Medium Enterprises	179
NAMA	Non agricultural Market Access	41
NPC	Nominal Protection Coefficient	17
NSSO	National Sample Survey Organisation	16
NTMs	Non Tariff Measures	47
PPVFR	Protection of plant varieties and Farmers Right	149
Q.R.	Quantitative Restrictions	18
RBI	Reserve Bank of India	16
R & D	Research & Development	28
S & DT	Special & Differential Treatment	35
SPS	Sanitary & Phyto Sanitary Measures	14
SSM	Special Safe- Guard Mechanism	177
TBT	Technical Barriers to Trade	39
TOT	Terms of Trade	29
TRIMS	Trade Related Investment Measures	3
TRIPS	Trade Related Aspects of Intellectual Property Rights	13

WIPO	World Intellectual property Rights	148
WTO	World Trade Organisation	4
UN	United Nation	18

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Scenario of Indian Agricultural Export of Major Agricultural Commodities in the Post WTO Regime

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ABSTRACT

Agriculture was included under WTO through AOA negotiation in 1995. Today around 17% of India's GDP (India's GDP is US $ 2.545 trillion) is from agricultural sector and 12% of total export earning which is substantial amount to have a huge impact on nation's economy if any change occurs in the world economy. 55% of total employment comes from agricultural sector. About 70% people directly or indirectly depends on it and about 43% of India's total land is covered by agricultural sector. India became self sufficient in Food grain production decades after independence. It is now producing around 280 million metric tons of food grains in the world and ranks first in many major agricultural food crops in the world. But after liberalization phase started in the world with WTO (1st Jan 1995) and AOA many thing has dramatically changed in agricultural sector of India, for example, Total yield or Output, Farm Pattern, Agricultural Infrastructure, Annual Compound Growth rate in Production & Export, Imports, Prices of major agricultural food and non food materials, Export Competitiveness, quantitative restrictions, tariff & non tariff barriers, export subsidy, domestic support, sanitary & Phyto sanitary measures, Geographical Indication, Trade related intellectual property rights etc. WTO which has replaced GATT (general agreement on trade & tariff 1947-1994) was established for multilateral trade agreements among nations is committed to Free trade, Non discriminations in trade, Removal of Quantitative Restrictions, non tariff barriers between nations and free & fair competitions in trade among nations[12]. India who is a founding member among 162 member nations of WTO, maintaining and obeying most of the clauses related to developing nations in WTO charters. Our study have looked into the norms and rules of WTO, how far India has followed those rules and what are the consequences has happened to India's agricultural trade since WTO and a comparison between the pre & post WTO era in trading of Indian agricultural commodities. And our Findings in this small study is that India has benefitted in many extent in agricultural trade the post liberlisation or post WTO period and trade indicators are positive in many extent. This thing has surfaced many issues that may be taken for study and research. This paper like many papers compares Indian agricultural export in the pre & post WTO era but at the same time it also took into consideration the commodity wise trade and both convergence & divergence in Indian agricultural export. This paper reveals that India was

specializing in agricultural commodity export in the pre WTO period but it left it and started gaining its expertise in agricultural commodity export in the post WTO era. So WTO has made mixed impact on Indian agricultural commodity export.

Keywords: WTO, Agricultural Trade, Import & Export growth etc.

The Indian agricultural sector is much diversified and self reliant after. Around 15% (2015-16) of India's total GDP generates from agricultural sector, and about 60 % of its total population depend on agriculture for employment. India's total agricultural production was 280 million tonnes in 2015-16 as compare to 52 million tonnes in 1950-51. It is the result of Green revolution and constant supply of public Investment in developing agricultural infrastructure in the country. Then also with ever growing huge burden of population (1320 million in recent published data) and increasing demand for job & foodstuff both India needs a vibrant agricultural sector with high growth rate in Agricultural export share in world trade. Though India has a good potential in agricultural trade then also as Indian agricultural trade exhibits fluctuations which is more than any other trade[1]. India needs to take care of it. Though enormous competition has emerged during the last decades among the countries of the world in agricultural trade, the WTO has tried to develop & provide several measures for fairly competitive environment for fair trade where there are fewer barriers & restrictions but more openness and accessibility toward other countries markets. Though there is violations of WTO framed regulations by many developed countries for their favour, there are still enormous possibilities for agricultural trade to develop[2]. This paper tries to analyse India's situation, Potential and probable possibilities in development of agricultural trade.

Objective of the Study

The objective of the paper to find out:

1. India's position in the world in agricultural trade & export.
2. That the total agricultural exports of Indian agricultural trading commodities either increased or decreased during the post WTO period. And also the amount of Convergence & divergence In Agricultural commodity export.
3. That Whether India became vulnerable to cheap world agricultural imports in the post WTO phase.
4. How India has reformed or reshaped its agricultural trading policies in order to protect its domestic market and at the same time take benefit from new international multilateral trade agreements.

Data and Methodology

The present study is based on secondary data. These data has been collected from various secondary data sources which includes government data from Ministry of Agriculture & Cooperation, NSSO reports, Agricultural census data, Beauro of Economics & Statistics, CMIE and other public reports, state government department of agriculture, internet website www.wto.org, Economic survey of India, (GOI) data like Ministry of agriculture, A.P.E.D.A., FAO trade & production year books, Indian Journal of Agricultural marketing and Indian Journal of Agricultural Economics, Related data published on E.P.W.S., Ministry of commerce Government of India and various papers published on interested topics.

Reference period of the study is taken from 2000-2002 to 2012- 3 (post WTO period). This research study would discuss the comparative performance of trade of major Indian agricultural commodities during post WTO regime. It would analyze the export performance and competitiveness of major Indian agricultural commodities during post –WTO regime.

$$NPC\ i = Pi^{d} / Pi^{w}$$

Where, $NPC\ i$ = Nominal protection coefficient of commodity i.

P_i^d = Domestic price of commodity i.

P_i^w = World reference price of commodity i, adjusted for transportation, handling and marketing expenses.

Here, NPC < 1 indicates the commodity is exportable and NPC > 1 indicates that the commodity is importable.

REVIEW OF LITERATURE

Empirical Studies: Some important studies done recently have shown that terms of trade in agricultural trade declines in many very poor countries (Least Developed Countries as mentioned by the UN) especially Sub-Saharan African countries. These heavily indebted marginalized countries fell in the group where few agricultural commodities comprise about 90% of their total export making them marginal player in global trade (Watkins and Fowler 2002; FAO 2004; UNCTAD 2004). One study recently done by FAO show the terms of trade has declined to about half of these developing nations. A different opinion regarding TOT is found in case of BRICS and ASEAN nations by policy makers[9].

One major finding in recent studies it has been revealed that since 1950 to 2010 it is found that real prices for agricultural exports of developing countries exports declined comparing to the relative prices of Imports of their manufactured goods by almost 70 per cent (FAO 2004). The DCs mostly rely on exporting synthetic products and protectionism in domestic import of agricultural goods from LDCs. That is why the third world countries united drawing attention of the world in the WTO conference of CANCUN in 2003 on the pricing problems associated with the commodities. Though the chance is very less that the final outcome of the DOHA round will end with proper solution to the LDCs long standing grievances[8].

The 12 OECD countries controls about 65% of the world's total Agricultural trade which was reflected in the book '*Negotiating the Future of Agricultural Policies'* by Bilal (2001). Though the U.S., EU, Canada, and Australia have proven production advantages in wheat and other cereals and other temperate zone commodities, India has benefitted from its good comparative advantage in many agri-commodities[18].

Market should be open rather than manipulated being the narrative and contention of the Developed world particularly the USA and EU, these countries always tried to create pressure on developing nations for maintaining open market norms but they themselves violated these norms time and time again by putting tariff barriers, QRs, Anti Dumping measures and other different types of protectionist measures on importing agricultural goods from developing nations[17]. Here India's role is very crucial and different as India being in a significantly comparatively advantageous position (India's agricultural export has risen multiple times after the WTO to the Developed nations) and being a developing nation has always tabled argument against the DCs for the discriminations to LDCs by them and protectionist measures

adopted by them[13]. India's role has been positive and constructive in the post trade liberalization era for multilateral free and fair trade.

There has been substantial empirical literature on various aspects of this research paper. Where some of the researchers have expressed their opinion which is as follows:

- **Matthew Saunders and Rolf Mirus (2003):** They argued in favour of free trade and against protectionism and they argued in favour of proposed changes to anti dumping agreements. And even they have argued in favour of Proposed Changes to the Agreement on Subsidies and Countervailing Measures.
- **Peter M. Rosset (2004) :** According to him the three basic pillars of AOA are (I) Market access (ii) Export subsidy (iii) Domestic support. He showed a lot in the media about "trade wars" between the U.S. and Europe, about steel quotas and cotton subsidies, and about how dissatisfied poor countries are with global trade rules.
- **R S Deshpande, J Prachitha (2005):** These persons have put forwarded impacts of WTO policies on the Indian state of Karnataka, where according to their study the cell recommends that India's concern on food security, rural employment and need to protect the environment should not be neglected in a purely market-oriented 82 approach. They argued that it is necessary to adopt market-friendly approach without government support.
- **Ashok Gulati and A. Sharma (1994**): Both of these two authors have explained the upcoming situation of Indian agriculture under the WTO regime. According to them Indian agriculture will not gain much in the open trade environment under the free trade regime of WTO[4].
- **Martin Khor(2004):** He has studied and worked on the topic "The WTO Agriculture Agreement: Features, Effects, Negotiations, and What is at Stake". Here his paper starts with a brief summary of the main features of the commitments made by Members in the World Trade Organization's Agreement on Agriculture (AOA).
- **Samar Datta (2000).** According to S. Dutta, India is self sufficient in competing with the world in rice export. And India needs not to worry about the competitive environment under the WTO regime other than price manipulation of the rival exporters of rice. India should stay at its zero import duty position on rice[5].
- **Rani, Pooja (2015):** In this paper *"A Study of WTO and Agriculture Sector in India"* they have explained the global trade that how it is well connected. What they have found regarding WTO and India is that after engaging with WTO India has increased its domestic production and export of agricultural product and it has been helpful in increasing employment level of the country in agricultural sector. According to them Indian agricultural growth will take momentum in the coming future as investments are taking place in agricultural infrastructure in the country[7].
- **Deepika MG (2005):** In her theses named *"Changing Trade Scenario in Agriculture and its Implications for the Indian Economy"* she wanted to express that tough trade libcralisation assumed a special significance in the context of economic reforms in the late eighties and early nineties in India, they were not directly made applicable to the agricultural sector due to its unique characteristics[11].

- **Hedayat Hosseinzadeh (2008):** The main object of his research was to examine the economic effects of Globalization and the trade openness on Iran's agricultural sector. He reviewed the agricultural exports and imports policies in Iran during the period from 1980 to 2004. He surveyed the impact of economic liberalization and privatization policy on the performance of agricultural export and import during 1980-2004. He studied the future prospects of agricultural products, exports and imports.
- **Umesh, K.B., Akshara M., Shripad Bhat, Harish Kumar, K. and Srinivasan, S.M. (Beijing 2009):** In 2009 these people have worked together for presenting paper in Economists Conference, Beijing, China, August 16-22, 2009 on the topic *"Performance Analysis of Production and Trade of Indian Silk under WTO Regime"* where they have showed that India is the second largest producer of silk and also the largest consumer of silk in the world having a strong tradition bound domestic market. In this paper, they estimated growth functions for India's aggregate production and trade parameters using annual data from 1984/85 to 2006/07.
- **Andre M. Nassar, Diego Ures (2009):** In their IFPRI Discussion paper named *"Brazil: Shadow WTO Agricultural Domestic Support Notifications"* where they has argued that Brazil is presenting itself as being in a comfortable position with respect to domestic support in the Doha Round negotiations, and our analysis confirms this position. New rules are necessary to guarantee that policies oriented to create demand for biofuels will not jeopardize world agricultural markets. WTO rules, however, must be improved in order to capture the specific situations of biofuels, which are not the same as other agricultural commodities.
- **Ranga M. & Sharma, D. (2014):** in their paper *"WTO and Indian Agriculture"* showed that if aspects there exists no real insecurity, related to WTO norms (like market access, domestic support, export subsidy, removal of tariff, provisions related to IPR, non tariff barriers etc) be dealt with good vigilance there exists no real threats or insecurity on agricultural trade[2].
- **Renuka Mahadevan (2003):** In her paper named *"Productivity Growth in Indian Agriculture: The Role of Globalization and Economic Reform"* she has explained that although India missed the opportunity to open up two decades ago, its attempts to do so now must be regarded as better late than never. Having realized that globalization is a necessary but not a sufficient condition for high growth production, India has undertaken economic reforms, both internal and external.
- **Mithilesh Kumar (2006):** In his work titled *"Temporal Changes in Dairy Industry in India"* he has explained that the dairy sector occupies a dominant place in providing food, income, employment and foreign exchange to the Indian economy. The positive trend in export and negative trend in imports was observed due to the success full implementation of Operation Flood and set of Government policies regarding international trade.
- **Kavitha, N. V.** and **Reddy, N. Suma (2015):** Their paper named *"A* Study on the Commodity Derivatives Market and Development in India - Towards Sustainability" was based on the agricultural commodity trading in India. They have shown on their paper that how the Government of India has initiated reforms in the commodity market of agriculture so as to solve the issue of dependant farmer or people using old agricultural exchange mechanism of agricultural commodity trade.
- **Vijayakumar B.K. (2007):** Mr. Vijayakumar worked on impact of WTO on the Indian state of Karnataka's cereal production and his research was named *"Changes in Cereals Economy of*

Karnataka Pre and Post WTO Analysis" where he analysed that the global competitiveness of cereals (rice and maize) and their economics of production over the period of time in Karnataka. In his study, he has made an attempt to estimate NPC, DRC, direction of trade, integration between domestic and international prices and supply response of rice and maize. The findings of the study would help the planners and the policy makers to formulate appropriate agricultural development, export and stabilization policies for the state as a whole.

- **Sheshagiri, B. & Honkan, G.G. (2011):** This paper named *"Impact of W.T.O on Indian Agriculture: Performance and Prospects"* showed that the developed countries which have high tariff on agricultural import from countries India should bring down their tariff rate in order to improve agricultural commodity trade. Their study highly suggests that there is huge scope in increasing agricultural trade between developed and developing nations like India even without resorting to paradigm shift to new improved technology or policy regarding that[10].
- **Nitin Vinod Dacha (2005):** In his paper *"Prospects of the Uruguay Round Agreement on Agriculture and the Reality of its Impact on Indian Agricultural Trade"* he showed that Inconsistencies within the developed countries agenda concerning agricultural liberalization have stalled the progress of the process at least until the next trade round. It seems that developed countries only concede when it is convenient and have protected themselves exclusively at times through the use of such measures as the 'special safeguard' provision and the 'peace clause'.
- **Niranjan, S.K. (2016) & Ranjith, D. (2016):** In their work they both analysed the pattern of import and export since the beginning of WTO regime, where they found Indian imports of agricultural goods were cheaper as most of the exporting nations were giving huge subsidies to their domestic agricultural production & export. Both of them concluded that India's post WTO trading experience of agricultural commodities was not much satisfactory as compare to the pre WTO phase.
- **Shukla, S.P. (2000):** In his paper titled *"From GATT to WTO and Beyond"* he intended to show that to analyse the evolution of the international trading system from its inception as the GATT in 1947 to its latest incarnation in the form of WTO, comprising the complex array of agreements forming its substance and mandate. His study focuses on the adequacy and in adequacy of the system as it evolved and functioned in an environment of changing international economic and political reality.

Trend of Agricultural Trade performance of India from the inception of WTO

Indian agricultural trade performance in the pre WTO period (if we take 10 years before the WTO) was quite satisfactory i.e. the volume of trade in agriculture was approximately 18% of the total export at that time. The agricultural commodity export in the post WTO period has been inconsistent as it has been fluctuating since 1995[14]. It has never been stable since then. For example It was 19.14% in 1996 and rose up to its highest level i.e. nearly 21% of total export of the country in 1997. But from 1998 it has been fluctuating rather declining. For example it was around 10% of the total export in 2006 as it was declining continuously since 1998. After that a series of agricultural export fluctuation has been occurring in Indian economy every consecutive year. For example It fluctuated and it was recorded around 13% in 2016-17 (latest). If we compare this value with the pre WTO record then it is quite dissatisfactory. It is much lower than the pre WTO estimation. Though the compound annual growth rate of post WTO

period was higher than that of the pre WTO era,In the post WTO period, in 2015 the CAG of agricultural export was 12.35% as compare to 7.16% in 1996)[3]. Thus, it is visible that an average annual growth in agricultural commodity export in the post WTO period is declining and much less than the Pre WTO period, which implies a negative impact of WTO on Indian agricultural commodity export. Though WTO and AOA was meant to establish to flourish and improve fair growth of trade. In the following we shall discuss and focus on some important tabular expression of data regarding Indian agri-trade during and prior the liberalisation phase, which will help us understanding the role of WTO policies and AOA on Indian agricultural export trade on selected and multiple commodities[19].

Table 1: Indian Agricultural commodity Export (A Comparison between PRE & Post WTO era)
(Values expressed in terms of US dollar in millions)

Pre-WTO Period

Year	Total Export	Agricultural Export	Agricultural Export Growth rates	Percentage share of Agriculture in total Export
1990-91	18146	3356	17.58	18.4
1991-92	17849	3207	-4.5	17.94
1992-93	18552	3133	-2.1	16.91
1993-94	22230	4031	28.4	18.11
1994-95	26339	4220	4.9	16.02
Average	20623.2	3589.4	8.86	17.5
Coefficient of Variation	17.7	13.98		5.7
Compound Annual Growth Rate	10.12	7.16		-2.69

Post- WTO Period

1995-96	31795	6082	43.9	19.13
1996-97	33470	6863	12.8	20.5
1997-98	35006	6626	-3.4	18.93
1998-99	33219	6035	-11.3	18.17
1999-2000	36822	5608	-7.0	15.68
2000-01	44560	5973	6.5	13.5
2001-02	43827	5901	-1.7	13.5
2002-03	52719	6710	14.1	12.8
2003-04	63843	7533	12.2	11.8
2004-05	83536	8475	11.7	10.1
2005-06	103091	10214	20.5	9.9
2006-07	126414	12683	24.0	10.3
2007-08	163132	18432	45	11.3
2008-09	185295	17534	-4.8	9.5
2009-10	178751	17735	1.1	10.0
2010-11	251136	24696	39.2	9.9
2011-12	217664	37420.8	51.52	17.19
2012-13	300400.7	42356.50	13.19	14.1
2013-14	314415.7	43357.92	2.36	13.79
2014-15	310352	39290.56	-9.38	12.66
2015-16	262003.7	34503.42	-12.18	13.17

Average	136735.81	17334.72	11.82	13.62
Coefficient of Variation	75.82	79.25		25.20
Compound Annual Growth Rate	14.62	12.35		-2.00

Source: RBI, Handbook of Statistics on Indian Economy

Though the table 1 shows that Indian agricultural export has increased over the years from US $ 3590 million in the Pre WTO era to US $ 17335 million in the post WTO era, the amount of average share of agricultural export has gone down from 17.5% in the pre WTO era to 13.62% in the post WTO era[6]. In this time the CV (coefficient of Variation) has showed much variation, like it was 5.7 in the pre WTO period and become 25.20 in the post WTO era[15]. This may be as a result of increase in export of non-agricultural commodities rather than agricultural commodities.

Table 2: Five yearly Compound Annual Growth rate (CAGR) of Indian Agricultural Import & Export commodities.

Period	Agricultural Export percentage	Agricultural Import percentage
1991-1995	21.78	48.96
1996-2000	5.55	28.51
2001-2005	9.77	17.21
2006-2010	16.07	29.00
2011-2015	31.71	22.04

Source: Ministry of Agriculture, Government of India, New Delhi

The table 2 shows that agricultural export was adversely affected after the WTO during the early years after India's signing in WTO, but there after again Indian agricultural sector became competitive in the global market by raising the export level. In that time the import also declined sharply but it further started increasing since 2006-07.

Table 3: Percentage Share of Indian Agricultural exports in World Agricultural Exports and value of Indian Agricultural Exports (Value Expressed in US $ in Millions)

Year Pre WTO	World	India	India's Share in World agricultural Exports
1990	414723	3506	0.80
1991	418236	3361	0.80
1992	447887	3676	0.82
1993	429335	4167	0.97
1994	500913	4399	0.88
Average	442218.8	3821.8	0.85
CAGR(1990-1994)	4.12	6.92	3.91
Post WTO			
1995	583200	6322	1.0
1996	592870	7040	1.18
1997	589230	6863	1.16

1998	560560	6235	1.11
1999	543820	5835	1.07
2000	552250	6401	1.15
2001	554130	6265	1.13
2002	582530	7025	1.20
2003	683336	7935	1.16
2004	788084	8588	1.08
2005	851847	10134	1.18
2006	943676	12353	1.30
2007	1127667	16020	1.42
2008	1348136	21251	1.57
2009	1181391	16384	1.38
2010	1366469	23106	1.69
2011	1659524	34323	2.06
2012	1656711	42356.50	2.56
2013	1744833	43357.92	2.48
2014	1765405	39290.56	2.23
2015	1568337	34503.42	2.2
Average	1011620.76	17218.50	1.49
CAGR(1995-2015)	7.26	11.90	4.46

Source: WTO, International Trade Statistics.

The Table 3 shows that India's average exports share in the world in the Post WTO period became as high as 1.49%, which was quite low (0.85%) in the pre WTO era. This means that there has been tremendous shift in share of Indian Agricultural export in the post WTO period. Other than this India's share of agri -export in 1995 was 1% which had improved to 1.69% in 2010 and 2.06% in 2011. This sudden increase of share of Agricultural export globally brought India to leading exporters of agricultural commodities in the World. Though the share has gradually declined from 2.56% in 2012 to 2.20% in 2015 with negative growth in these consecutive years, India still holds a good position in agricultural export market.

Table 4: Share of Few Agricultural Commodities in Percentage in India's Total Exports in Pre-WTO Period

Commodities	1990-91	1991-92	1992-93	1993-94	1994-95	Average
Tea	3.3	2.8	1.8	1.5	1.2	2.12
Coffee	0.8	0.8	0.7	0.8	1.3	0.88
Rice	1.4	1.7	1.8	1.8	1.5	1.64
Wheat	0.1	0.3	0.0	0.0	0.1	0.1
Tobacco	0.8	0.9	0.9	0.7	0.3	0.72
Cashew	1.4	1.5	1.4	1.5	1.5	1.46
Spices	0.7	0.8	0.7	0.8	0.7	0.74
Oil meal	1.9	2.1	2.9	3.3	2.2	2.48

Fruits & vegetables	0.7	0.7	0.6	0.6	0.5	0.64
Marine products	2.9	3.3	3.2	3.7	4.3	3.48
Agriculture & Allied products	18.5	17.9	16.9	18.1	16.1	17.5

Source: Calculated on the basis of data collected from RBI, Handbook of Statistics on Indian Economy.

Table 5: Share of Few Agricultural Commodities in Percentage in India's Total Exports in Post-WTO Period

Commodities	1994-95	95-96	96-97	97-98	98-99	99-2000	2000-01	2001-02	2002-03	2003-04	2004-05
Tea	1.1	1.2	1.4	1.6	1.1	1.0	0.8	0.7	0.6	0.5	0.4
Coffee	1.4	1.2	1.3	1.2	0.9	0.6	0.5	0.4	0.4	0.3	0.3
Rice	4.2	2.6	2.6	4.4	1.9	1.4	1.5	2.2	1.4	1.8	1.3
Wheat	0.3	0.6	0.0	0.0	0.0	0.2	0.6	0.7	0.8	0.4	0.1
Tobacco	0.8	1.0	1.1	1.1	1.1	0.8	0.7	0.7	0.5	0.5	0.5
Cashew	1.1	1.1	1.1	1.1	1.5	0.9	0.9	0.8	0.6	0.7	0.6
Spices	2.2	2.9	2.6	1.4	1.0	1.0	1.1	0.6	1.1	0.8	1.1
Oilseeds	0.8	0.4	0.6	0.5	0.6	0.6	0.6	0.6	0.7	0.6	0.6
Fruits & Vegetables	3.2	3.4	3.4	3.1	3.2	3.1	2.8	2.7	2.1	1.7	1.7
Marine Products	0.2	1.3	0.6	0.2	0.04	0.1	0.2	0.02	0.3	0.1	0.6
Agriculture & allied Products	19.13	20.5	18.98	18.17	15.68	13.5	13.5	12.8	11.8	10.1	9.9

Cont....

Commodities	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Average
Tea	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.63
Coffee	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.54
Rice	1.2	1.7	1.3	1.3	0.9	1.6	2.1	2.5	2.5	2.2	2.08
Wheat	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.5	0.0	0.3	0.2
Tobacco	0.6	0.6	0.7	0.7	0.7	0.3	0.3	0.3	0.3	0.4	0.65
Cashew	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.63
Spices	1.0	1.2	1.2	0.9	0.9	0.9	0.9	0.8	0.8	1.0	1.21
Oilseeds	0.6	0.5	0.6	0.7	0.5	0.8	1.0	0.9	0.4	0.2	0.61
Fruits & Vegetables	1.4	1.1	0.8	1.2	1.0	0.4	0.6	0.7	0.7	0.8	1.86
Marine Products	1.1	1.3	0.3	1.1	1.1	1.1	1.2	1.6	1.8	1.8	0.76
Agriculture & Allied Products	10.3	11.3	9.5	10	9.9	17.19	14.1	13.79	12.66	13.17	13.62

Source: Calculated on the basis of data collected from RBI, Handbook of Statistics on Indian Economy.

The Tables 4 and 5 demonstrates the average percentage share in export of selected agricultural commodities Pre & Post WTO era. These tables show that there is both positive and negative impact of WTO regime on different agricultural export commodities, for example there is positive impact of WTO on export of Rice, Wheat, Spices, and Fruits & Vegetables (the export share rose from 1.64, 0.1, 0.74, 0.64% in the pre WTO period to 2.03,0.2,1.21, and 1.86% Rice, Wheat, Spices and fruits & vegetables in the Post WTO era) but on the other hand there has been negative impact of WTO on some selected agricultural commodity export. For example The average percentage share of export of Tea, Coffee, Tobacco, Cashew, Oil meals, and Marine products has reduced from 2.12, 0.88, 0.72, 1.46, 2.48, 3.48% in the Pre WTO era to 0.63, 0.54, 0.65, 0.63, 0.61, 0.76% in the post WTO period respectively. We also see in these tables that the average share of agricultural exports in total exports has declined from 17.5% to 13.62% in the post WTO era. This may be as a result of increase in the share of non agricultural commodity share in India's total export.

Table 6: Compound Annual Growth Rate of value of export of few Agricultural trading Commodities in Pre and Post WTO era

Commodities	Pre WTO era (1990-1995)	Post WTO era (1996-2014)
Tea	-15.0	4.6
Coffee	24.2	5.1
Rice	10.5	12.4
Tobacco	13.7	11.7
Cashew	12.3	4.8
Spices	10.5	14.4
Oil Meals	13.9	9.8
Fruits & Vegetables	4.0	17.7
Marine Products	20.4	8.2

Source: computed on the basis of data collected from RBI, Handbook of statistics on Indian Economy.

Table 6 shows the CAGR (compound annual growth Rate) of value of few agricultural commodities like Coffee, Tobacco, Cashew, Oil Meals and Marine Products has declined in the post WTO period, Where CAGR of value of tea, rice, spices and fruits & vegetables has increased in the same period. This means that the WTO has shown both Positive and negative impact or influence on different selected agricultural commodity export in the same period.

Table 7: NPC (Nominal Protection Coefficient) results of Indian major agricultural commodity export share estimated to compare before and after the WTO

Agricultural Commodities	1985-94		1995-2014	
	Average	Standard Deviation	Average	Standard Deviation
Rice	1.18	0.30	1.04	0.12
Wheat	1.81	0.33	1.24	0.33
Coffee	1.46	0.99	2.06	1.03
Tea	1.67	0.96	1.14	0.16
Sugar	2.78	0.95	1.53	0.27

Cashew nuts	1.15	0.12	1.10	0.10
Ground Nuts	0.63	0.21	0.56	0.08
Cake of Ground Nuts	1.58	0.43	1.12	0.19
Oil of Ground Nuts	2.19	0.77	1.42	0.38
Linseeds	4.37	1.69	3.05	0.56
Oil of Linseeds	2.14	0.42	1.63	0.38
Cake of Rapeseeds	1.27	0.39	0.96	0.26
Oil of Rapeseeds	2.96	0.83	1.95	0.55
Sesame Seeds	0.84	0.14	0.66	0.09
Oil of Sesame seeds	0.77	0.14	0.41	0.09
Cake of Coconuts	3.87	0.74	2.54	0.86
Onion	0.84	0.09	0.78	0.33
Potato	0.93	0.33	0.45	0.13
Apple	2.03	0.36	1.63	0.25
Banana	0.51	0.44	0.33	0.10
Pepper	1.04	0.08	1.03	0.11
Rubber	1.28	0.34	1.34	0.58
Cotton	0.77	0.18	0.77	0.18
Jute	1.81	1.67	1.14	0.31
Tobacco	0.30	0.06	0.40	0.04
Soya bean	0.92	0.15	1.27	0.36
Cake of Soya bean	0.97	0.06	1.19	0.34
Oil Of Soya bean	1.33	0.62	2.50	0.42

Source: FAO Data interpretation.

The NPC is a ratio shows the trading agri-commodity is exportable or Importable (NPC = Pi^d / Pi^w)

P_i^d = Domestic price of commodity *i*. P_i^w = World reference price of commodity *i*, adjusted for transportation, handling and marketing expenses.

Here, NPC < 1 indicates the commodity is exportable and NPC > 1 indicates that the commodity is importable. Other than some notable cases like Ground Nut, Sesame Seeds, Onion, Potato, Banana, Cotton, tobacco and Soya bean most other agricultural trading commodities remained in higher than unity value in the Post WTO period. The value of NPCs of mostly all commodities has gone down in Post WTO period comparing to the Pre WTO era.

The Fig. 1 shows how Indian export has been increasing faster than the Import. In the whole period import was lowest as compare to export was in 2000-01. After 2010 India removed bans on few agricultural commodities export including Wheat, as a result of this export of agri-commodities surged and in 2011 to 120000 crore approx. In the next two years both import and export got doubled. The export reaches 232000 crore and the import became 110000 crore approx. In this time the CAGR of agricultural export and import in the post-WTO period shows that the Agri- export growth rate came down first from 21.78% (1991-95) to 5.5% (1996-2000) then again rose to 16.07% in 2006-10, and rose faster after that to 31.71%

during the next five year. It reveals that agricultural trade liberalisation effected Indian agri-trade adversely in the first ten years of liberalisation and thereafter the agricultural sector become competitive globally and export growth took it pace[16].

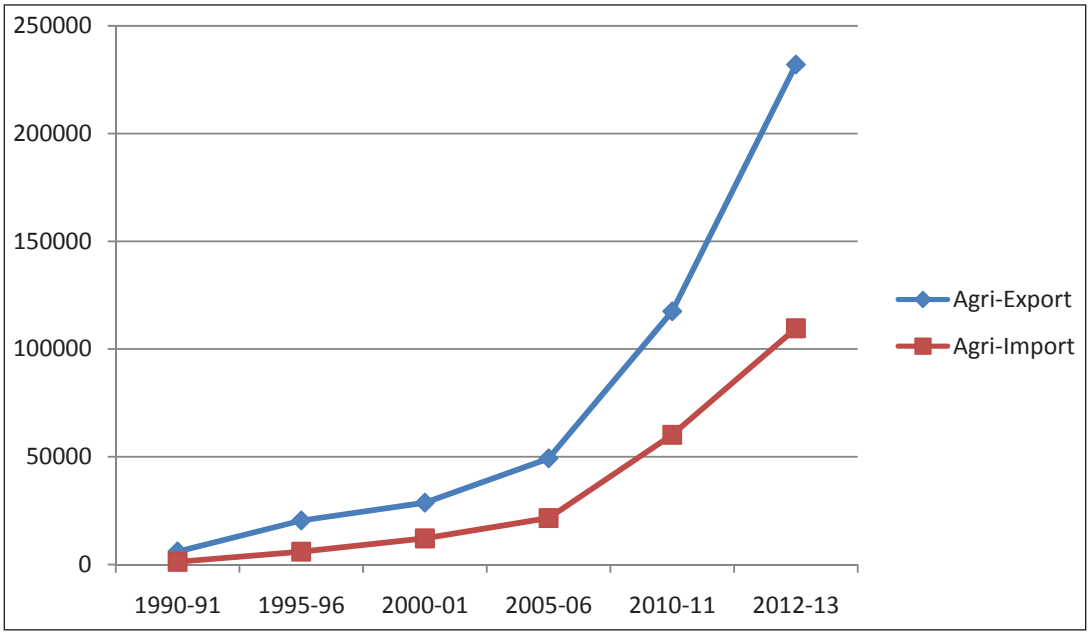

Fig. 1: Agricultural export, import of India from 1990-91 to 2012-13 (During Pre & Post WTO Era) Amount estimated in thousand crore of Indian rupees

Source: Director General of Commercial Intelligence & Statistics, Ministry of Commerce, Government of India

Table 8: Several Major destinations for the export of Indian agricultural Commodities during 2014-15

Importing Countries	Share in Percent	Importing countries	Share in Percent	Importing Countries	Share in Percent
USA	11.50	China	2.51	Pakistan	1.30
Vietnam	9.28	Japan	2.45	Kuwait	1.26
Iran	8.43	South Korea	2.01	Nepal	1.25
UAE	4.98	UK	1.84	Germany	1.20
Saudi Arabia	4.84	Belgium	1.78	Italy	1.18
Bangladesh	3.55	Netherlands	1.72	Russia	1.16
Malayasia	3.09	Benin	1.42	Yemen	1.10
Indonasia	2.70	Egypt	1.40	Other Countries	24.12
Thailand	2.55	France	1.38		

Source: ITC data base, Switzerland.

CONCLUSION

From the above discussion and after the analysis of the trend of Indian agricultural export in the pre and post WTO era we see that there has been huge fluctuations occurred in India's agricultural Export and Import in the Post WTO period as compare to the Pre WTO period. The share of agricultural export as compare to total export has gone down drastically in the early phase of trade liberalisation under WTO but it accommodated itself with the international market competition later in the post 2000. After 2012 we found that amount of Export volume has gone high up, and it got doubled as compare to early 2010 data. But the data shows a negative aspect in case of export share of agricultural commodities to countries total export in the post WTO period. The share of agri-export as compare to the total export of India has gone down in the post WTO period though the amount of volume of export has gone multiple times up as compare to the pre WTO period. As it was expected that after the AOA and WTO the amount of Export share of Agricultural commodity would go up and it will help improving country's agri-export, but on the contrary it has fallen during the post WTO period. On the other hand however India's share of agricultural commodity Export in the World has gone up to 1.49% in the Post WTO period as compare to 0.85% in the Pre WTO period. This implies that under WTO India's export share in agriculture has improved. In many research studies it is found that there exists divergence in Indian agricultural commodity exports, as in the pre WTO period it is found that India has made effort to specialize in agricultural commodity export in which it has comparative advantage but in the post WTO period no such attempt was made where we can see any specialisation of agricultural commodity export. It implies that the WTO has not laid India to gain expertise in the export of agricultural product where it has comparative advantage. When we go into further analysis of impact of WTO on few selected agricultural trading commodities we came to know that several commodities are there on which WTO positive effect like has impacted , for example commodities like Wheat, Rice, Spices, Fruits & vegetables have increased their share in export in the post WTO period, while commodities like Tea, coffee, Tobacco, Cashew, Oil Meals, Marine products has shown negative impact of WTO on them, as their export share has fallen down in the post WTO era. Despite that the Indian agricultural export has increased in absolute term in the post WTO period, the average share of agricultural export in total export from India has fallen down from 17.5% in the Pre WTO period to 13.62% in the post WTO era, which may be as a result of much increase in the share of non agricultural export in India's total export. Furthermore the value of NPCs of mostly all commodities has gone down in Post WTO period comparing to the Pre WTO era, which implies that exporting capacity or export competitiveness has increased in the Post WTO era.

Thus in conclusion we can say that WTO has a mixed impact on India's Agricultural commodity Export. In one side WTO impacted negatively where many selected agricultural commodities export share has been declined than pre WTO era and at the same time WTO didn't help to gain expertise in agricultural trade, on the other hand it has helped increasing export share of many other agricultural trading commodities and at the same time it has helped India to gain world agricultural export market share by improving India's position in the global agricultural export.

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