

US - INDIA AGRICULTURAL COOPERATION, 1991 - 2010

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SIMI MEHTA



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CENTRE FOR CANADIAN, US AND LATIN AMERICAN STUDIES
SCHOOL OF INTERNATIONAL STUDIES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110067

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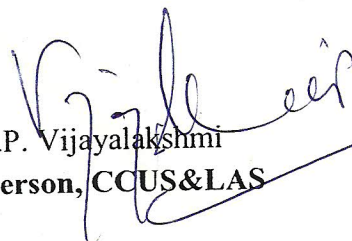
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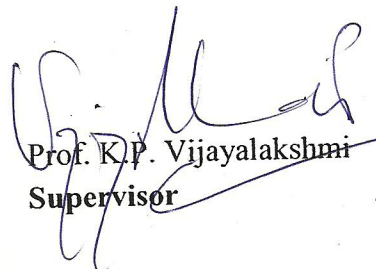
I declare that the dissertation entitled "US - INDIA AGRICULTURAL COOPERATION, 1991 - 2010" submitted by me in partial fulfilment of the requirements for the award of the degree of **MASTER OF PHILOSOPHY** of Jawaharlal Nehru University is my own work. The dissertation has not been submitted for any other degree of this University or any other university.


SIMI MEHTA

CERTIFICATE

It is recommended that this dissertation be placed before the examiners for evaluation.


Prof. K.P. Vijayalakshmi
Chairperson, CCUS&LAS


Prof. K.P. Vijayalakshmi
Supervisor

To my Parents, Didi and Kuku...

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Simi Mehta

CCUS&LAS, SIS

JNU, New Delhi

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List of Abbreviations

AoA	Agreement on Agriculture
AIPAC	The American Israel Public Affairs Committee
APMC	Agriculture Produce Market Committee
BT	Bacillus Thuringiensis
CBD	Convention on Bio Diversity
CCC	Commodity Credit Corporation
CII	Confederation of Indian Industry
CIMMYT	Centro Internacional de Mejoramiento de Maíz y Trigo (Spanish) International Maize and Wheat Improvement Center
CoP	Conference of Parties
CY	Calendar Year
DDA	Doha Development Round
EU	European Union
ExIm	Export-Import
FAO	Food and Agricultural Organisation
FARA	Forum for Agricultural Research in Africa
FAS	Foreign Agricultural Services
FDI	Foreign Direct Investment
G-20	Group of 20
GATT	General Agreement on Tariff and Trade
GDP	Gross Domestic Product
GE/ GMO	Genetically Engineered/Genetically Modified Organisms
Ha	Hectare
HP	Horse Power
HYV	High Yielding Variety
IACPA	Indian American Centre for Political Awareness
IARC	International Agricultural Research Centre
ICAR	Indian Council of Agricultural Research
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
IFY	Indian Financial Year

IMF	International Monetary Fund
IPCC	Inter-governmental Panel for Climate Change
IPRs	Intellectual Property Rights
ISRO	Indian Space Research Organisation
IT	Information Technology
ITC	Indian Tobacco Company
NAMA	Non Agricultural Market Access
NEI	National Exports Initiative
NGO	Non-Governmental Organisation
NSSO	National Sample Survey Organisation
OIC	Organisation of Islamic Countries
PL-480	Public Law 480
SPs	Special Products
SPS	Sanitary and Phyto- Sanitary Standards
SSM	Special Safeguard Mechanism
SUSTA	Southern United States Trade Association
TPF	Trade Policy Forum
TRIPs	Trade Related Intellectual Property Rights
UN	United Nations
USAID	United States Agency for International Development
UNCSD	United Nations Conference on Sustainable Development
UNCTAD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
UR	Uruguay Round
USA	United States Of America
USAID	United States Agency for International Development
USBIC	United States Business and Industry Council
USDA	United States Department of Agriculture
USIKIA/AKI	United States-India Knowledge Initiatives on Agriculture
USINPAC	United States-India Political Action Committee
USTR	United States Trade Representative
WTO	World Trade Organisation

PREFACE

Agriculture, the science and engineering of activities relating to the production, processing, marketing, distribution, utilization and trade of food, feed, fibre, fuel and many other useful natural bio-materials is the foundation that supports the edifice of a modern society on a sustainable basis.

The US - India Agricultural Cooperation has had a long history. The formal partnership between the two began in the mid-1960s which culminated in the so-called “Green Revolution”. With the turn of the century, this was transformed into an emerging collaboration and partnership in the sphere of economics, trade and agriculture. Since agriculture is one of the most important constituents of the Indian economy, with more than half of the total population directly or indirectly involved in it, hence it becomes imperative for the policymakers to put ‘prosperity of farmers’ at the core of the agricultural development strategy.

The following research takes into account a comprehensive historical understanding of the major developments in the relations between USA and India after the end of the Cold War that led to enhanced collaboration in the zone of agriculture, and shows how the initiatives of the political leadership on both sides hastened up the progress in reinforcing a new era of economic relationship in the agrarian sector. This is further established by supplementing it with statistical comparison of exports, imports, Foreign Direct Investments (FDIs), aids and grants, etc.

The thesis critically examines the paradigm shift in perceptions reshaping US- India relations and to relate the overall strategy of agricultural cooperation to political alignments, with references to the major factors that contributed to greater focus on reciprocity in agricultural partnership. The study also analyses the extent to which the role of the US Congress was influential in supporting agricultural cooperation. Besides this, the role of Indian Diaspora in lobbying for the inclusion of agricultural cooperation in the strategic dialogues and what was the Indian response and what shaped that response to the US initiative on agricultural cooperation, is also dwelled upon.

A thorough analysis of the United States'- Indian cooperation in order to have enhanced living conditions of the vast majority of population dependent upon agriculture while working in concert with each other to globalize their cooperation forms an indispensable facet of this thesis.

The study thesis would aim to investigate major points of contentions surrounding the United States- Indian cooperation on agricultural cooperation like the issue of cooperation at the Doha Development Round of the WTO, genetically modified (GM) crops, trade and non-trade barriers and the aspect of protection of Intellectual Property Rights.

The thesis assesses the recent successes and failures and incorporates an evaluation of both American and Indian efforts to reinforce greater economic cooperation while concurrently addressing shortcomings and possible steps to strengthen this cooperation. The entire study is conducted on the backdrop of US- India relations as a whole to bring into perspective the nature of bilateral political relations between the two nations which enabled a better comprehension of the nuances in the cooperation or contestation between them on the economic issues. A strengthened economic synergy between the two countries has been permanent considerations during the research undertaken to understand the fact that by pursuing economic relationship and close agricultural collaboration, both countries can progressively build up their own institutional capacity to develop and execute a grander strategy internationally, while simultaneously attending better to their key internal security challenges.

CHAPTER I:
INTRODUCTION

Humanity's longest struggle has been the on-going battle, waged with different weapons on different fronts, adequately to feed itself. The marriage of technical prowess and agricultural skill in the twenty-first century promises advances on many fronts: a greater abundance of food, much of it more conducive to health, and available in a global marketplace that affords an ever increasing number of people access to this bounty. This is likely to build stronger links between farmers in rural areas and city dwellers in order to create market systems with greater efficiency and better technologies (US Department of State: 2010a).

Agriculture, the science and engineering of activities relating to the production, processing, marketing, distribution, utilization and trade of food, feed, fibre, fuel and many other useful natural bio-materials is the foundation that supports the edifice of a modern society on a sustainable basis. Strengthening agriculture is critical to meet the challenges of rural poverty, food security, unemployment, and sustainability of natural resources. Hence, any agricultural development strategy must address not only farmers but also all those forward and backward linkages that are necessary to let them function efficiently with adequate financial benefits. Prosperity of the farmers should be at the core of the agricultural development strategy (Chandra: 2007).

The US- India Agricultural Cooperation that was initiated in the mid-1960s culminated in the so-called "Green Revolution" in India. The magnitude of this cooperation unfolded in the succeeding years and by the late seventies it constituted a significant part of India's agricultural landscape.

The agricultural relations between USA and India has experienced a paradigmatic shift, where from 1950- 90 USA was largely a donor, to meet India's agricultural requirements and with the turn of the century this relationship has been revamped into an emerging collaboration and partnership in the sphere of economics, trade and agriculture.

'Sustainable agriculture' has been quoted in the National Security Strategy of President Barack Obama as one of the important areas of cooperation between India and USA. To this effect, in the Indo-US Strategic Dialogue concluded in June 2010, both sides signed a Memorandum of Understanding for cooperation and shared research on agriculture and food related issues. The joint declaration also accepted India's leadership role in global agriculture and food security and work together to improve the farm to market supply chain, food processing, and agricultural extension programs (U.S.-India Strategic Dialogue Joint Statement: 2010).

In his address to the Parliament the US President Barack Obama during his November 2010 visit to India appears noteworthy. Announcing a new era of collaboration on agricultural research, while addressing a Joint Session of the Indian Parliament, he emphasized the need to strengthen agriculture, and said that, “...as farmers and rural areas face the effects of climate change and drought, we'll work together to spark a second, more sustainable *Evergreen Revolution*” (Obama:2010).

Given this context, there is a need to survey the various developments in the intervening years that have led to the fresh initiatives in agricultural cooperation. It is also important to study the impact of climate change on agricultural pursuits, which appears as a dominant theme in the current US - India Agricultural Knowledge Initiative. Clearly there is a perceptible shift in the focus of agricultural cooperation: the earlier focus on food security in the 1960s and 70s, giving way to India's contribution to the evolving discussions on climate change, and for determining the future structure of the Agreement on Agriculture (AoA).

The agricultural cooperation both at the bilateral and multilateral levels has provided dynamism to the current exalted levels of US- India relations. Further, it also highlights how a highly contested issue has nevertheless contributed to an active broad engagement of US and India.

1.1 BACKGROUND

The expertise of America in land farming techniques generated considerable interest and curiosity in India in the initial decades of its independence, which arose out of the concern for millions of its citizens reeling below two course meal a day. The general American concern for their Indian counterparts to grow ‘more food and fewer children’ paved the way for massive food and economic assistance such as the importation of fertilisers, along with the transfer of modern agricultural technology like the drilling of deep irrigation wells, supply of modern earth-moving and concrete placing equipment to speed up the construction dams and canals, equipment for agricultural research institutions to India (Cohen: 1997; Ferris: 1955).

There were three groups of international agencies involved in transferring the American model of agriculture to India - the private American Foundations like the Ford and Rockefeller Foundations that were involved in training and agricultural extension and remodelling of the agricultural research system in India since 1950s, the American

Government and the World Bank that provided credit for the foreign exchange needed to implement new policies in agriculture and also for the import of fertilizers, seeds and pesticides, the new input in a chemically intensive strategy. The Indian Agricultural Research Institute set up in 1905, was reorganized in 1953, and Ralph Cummings, the field director of the Rockefeller Foundation, became its first dean and later succeeded by Prof. M.S. Swaminathan (Shiva: 2005).

The national income growth in the early 1960s had been very erratic varying from year to year primarily due to fluctuations in agricultural production. Further, the most pressing need of the hour for India was a massive break-through on the agricultural front which could hedge both the population explosion and the spiral of rising prices which has created serious problems as far as per capita availability of food grains is concerned and is also partly responsible for the so called "inflation barrier" which the Indian economy is currently facing. The Indian food problem historically speaking has always been one of wide fluctuations in production coupled with total crop failures leading to periodic famines (Subramaniam: 1967).

US aid reached its height in 1960 at \$1.6 billion when food aid comprised 92 per cent of the annual assistance budget. The 1960s were primarily focused on assisting India's Green Revolution Programs. In 1951 the US made its first loan to India for the purchase of two million tons of wheat to meet a food crisis. Then, in 1956 the two States signed the first PL-480 agreements worth \$360 million. (Chaudhary and Vanduzer-Snow: 2008).

The then US Agency for International Development (USAID) Director John P. Lewis and Secretary of Agriculture Orville Freeman were highly optimistic about India's long-term prospects, and believed that with higher priority on agriculture, changes in agricultural price and distribution policies, expanded irrigation, better seeds, increased use of fertilizers and other agricultural inputs along with the necessary policy shifts and increased foreign assistance--India could surge to self-sustaining growth. President Lyndon B. Johnson believed that the "Operation Big Push" would result in India's self-sufficiency in agricultural production and called for lesser controls on the economy by the Indian government (Kux: 1992).

The occurrence of drought in 1966 caused a severe drop in the food production in India and an unprecedented increase in the food grain supply from the US (Shiva: 2005). This was sanctioned under the US Public Law 480 or P.L. 480 which provided nearly \$15 billion worth of around seven million tonnes of food grains, until the production increased (Barnds: 1973;

Cohen: 2005), to the extent that by the turn of the century India was a net exporter of food grains. Indeed this “Johnson” liberalization was one of the crucial steps on the way to the success of the green revolution (Mahant: 2007). In the words of Walt W. Rostow, “*it was part of Johnson's fundamental concern for human beings and his hatred of poverty*”.

Faced with low living standards and desperate agricultural situation the Indian government undertook the American help to conquer drought related problems in order to increase food production and to increase its foreign trade (Jernegan: 1954).

The defining feature of US- India economic relations in this period was the state of India’s agriculture. India came to depend on food aid from the US. In normal years, the US was willing to provide food aid in order to reduce the burden of its surplus food stockpiles. But occasionally the US tried to use the food aid to coerce India to change its foreign policy, thus making it for “suspicious cooperation to uneasy negotiations” (S. Chandrashekar: 2006). The introduction of new technology during the mid-1960s led to extensive capitalist development in agriculture and substantially increased incomes for farmers (Ray and Kincaid: 1998).

This crisis was the harbinger to the Green Revolution that gave the country’s leadership an opportunity to resolve to become self-sufficient in food grains. It was a package of agricultural reforms that transformed the agricultural strategy in India with the introduction of high yielding varieties (HYV) of seeds (like Lerma Rojo, Sonora 64, Siete Cerros, and Super X), the increased use of fertilizers and irrigation that were much needed to make self-sufficient in food grains, thereby improving the condition of agriculture in India and that of agricultural production and productivity. India adopted a series of highly successful agriculture policies, including double cropping, increased irrigation, and greater land use for agriculture.

This period also coincided with a breakthrough in technology at international centres for improvement of rice and wheat strains. India took advantage of these technologies, experimented with them, and launched large scale agricultural extension services, instead of viewing these technologies merely as research curiosities.

The country became self-sufficient in food grains by 1970s and soon became a food-grain exporting nation, whereby its agricultural output quadrupled by the 1990s (Hormats:2010). One of the attractions of the green revolution technologies is that they are, in principle, scale

neutral, and can raise yields and incomes for both small- and large-scale farmers. Given the importance of future rounds of yield-increasing technologies for fostering economic development and feeding growing populations in most developing countries, it is imperative that the economic and social forces released by these technologies be better understood so that they can be harnessed to achieve the twin goals of growth and equity (Hazell and Ramasamy: 1991).

In the seventies, Indian efforts in improving agriculture were boosted by the formation of the International Crops Research Institute for the Semiarid Tropics (ICRISAT), a non-profit organization in India. Founded in 1972 by a consortium of organizations convened by the Ford and the Rockefeller Foundations, its charter was signed by the Food and Agricultural Organisation and the United Nations Development Programme, to conduct research on four themes, viz., Agro- ecosystems development, Harnessing biotechnology (bioinformatics), Crop improvement and management, and Institutions, Markets, policy and impacts. Two major science based breakthroughs attributed to crop improvement research at ICRISAT relate to Pearl Millet and Pigeon pea. A team of researchers at ICRISAT have released the first- ever sector bred marker assisted hybrid pearl millet, HHB 67. This was released in India in 2006. It is assessed to have superior agronomic performance and improved tolerance to terminal drought. The first ever release of a hybrid pigeon pea by ICRISAT researchers has been reported in 2008.

Thus, to put it succinctly, the major turning points of the Indian economy (Agarwal: 2006) were:

- (1) Poor harvests in 1965-66 and the resulting devaluation and change in trade policies and the adoption of the “Green Revolution” strategy for agricultural development,
- (2) The gradual relaxation of the severity of the trade and industrial licensing systems in the mid-1970s and mid-1980s, and
- (3) The biggest change that came through the initiation of the movement towards a more open and market oriented policy framework and the abandonment of the earlier control policy framework in 1991.

Over the course of the new decade, the end of the Cold War, a new commitment to economic reform in India, and the growing political clout of the Indian-American community combined

to shift American thinking about India and gave a fresh thrust to build a renewed Indo-American relationship (Ganguly: 2005; Jha: 1994).

1.2 REVIEW OF LITERATURE

US-India Politico-Economic Relations: Linkages and Impact

Analysis of the current galloping era in the US-India relations requires a comprehensive historical understanding of major issues, events and personalities, from the Roosevelt administration through the Obama administration.

1945-1965

Direct diplomatic relations between New Delhi and Washington was established as early as 1941 (when the World War II was at its peak), with President Roosevelt being a strong proponent of India's freedom and self-determination. However, the end of the World War II enfolded a new picture, where the world was divided into two hostile Power Blocs, one led by USA and the other by the Soviet Union, each aspiring for greater spheres of influence. Enthused with its newly won independence, although it came at a price of Partition of the nation, India, led by Prime Minister Jawaharlal Nehru, took the innovative path of non-alignment with either of the Blocs. During this time the US policy of containment of communism and of Soviet Union began to take shape. Pt. Nehru's affinity to socialistic principles, and a covert inclination towards the Soviet Union for economic and technical assistance, raised eyebrows in the US, which saw non-alignment as mere neutrality. India viewed the stance of the Truman administration over the Kashmir issue as "unfriendly" for India. The warm welcome given to the Pakistani Prime Minister Liyaqat Ali Khan in the US, annoyed Nehru, who remarked that there was a concerted US attempt to build up Pakistan, and to build down India (Kux: 1992).

India was taken aback by the decision of the Eisenhower administration to arm Pakistan militarily, in its quest to contain communism. This went on to become the most important hurdle towards friendlier ties between US and India. India was apprehensive that the arms would be used against India, and which happened in 1965, when Pakistan attacked India. To offset the US support to Pakistan, India edged closer to the Soviet Union.

President Eisenhower was not happy with the downturn in the US-India relations, and felt that the newly independent countries would see this as a reason to join the communist Bloc. The economic assistance by the US to India, during this period, was the sole positive edge of the relations between the two countries. Series of famines in India forced India to request food aid from the US. US assistance grew substantially, surging from about \$400 million in 1957, to a record \$822 million in 1960. A mammoth \$1.276 billion PL 480 food agreement was signed between US and India. It called for the export of 12 million tons of US wheat over a four-year period, providing India a badly needed cushion in the face of continued slow progress in raising food production. This was followed by the visit of President Eisenhower to India in 1959 which was seen to be a public relations triumph (Kux: 1992).

Cooperative relations continued during the Sino-Indian War, 1962, when USA supported India against China. Some in Washington regarded Sino-Indian tensions as opening the way for far closer US relations with New Delhi, with the possibility of even making India a strategic counterweight against China.

In 1961, President John F. Kennedy praised "the soaring idealism of Nehru" in his first State of the Union address, and regarded India with its vast population, economic potential and democratic aspirations as the centrepiece of the developing world worthy of major attention by the United States. His administration called for a tripling of US development lending for India. USAID (United States Agency for International Development) project covered funding of an MIT-style engineering institute in Kanpur, named Indian Institute of Technology (IIT), agricultural package program to increase farm output by concentrating experts, farm equipment, and agricultural inputs.

In 1965, President Lyndon B. Johnson called for a sudden halt in the approval of new aid commitments for India, and then retrieved it by approving only a one million ton agreement-enough to provide food for two months. He stressed on the need for India to address the food problem by itself, as failure to do so, would spell disaster in the future if India's population growth outran food production and the United States were no longer able to fill the gap. According to Walt Rostow, Johnson felt deeply about getting the Indians to do a better job in producing food. It was part of Johnson's fundamental concern for human beings and his hatred of poverty. His Secretary of Agriculture, Orville Freeman, believed that along with American and Indian specialists, India could boost food production substantially with higher priority on agriculture, changes in agricultural price and distribution policies, expanded

irrigation, better seeds, increased use of fertilizers and other agricultural inputs. Taking a personal charge over the effort to force a change in Indian agricultural policy, Johnson was pleased with the results when the Indian government publicly announced the new policy, the President authorized a further 1.5 million ton wheat agreement, a \$50 million fertilizer commodity loan, and set up an interdepartmental committee under Freeman to expedite wheat exports.

1966-1977

In 1966, President Lyndon B. Johnson discussed with Prime Minister Indira Gandhi in her visit to the US about an Indo-American Foundation for higher education which would be financed by the US. Indira Gandhi acknowledged the valuable US assistance in India's struggle against poverty, against hunger, against ignorance, and against disease.

With another drought in 1966 and a possible famine in 1967, US released five million tonnes of PL-480 to India, at a time when India was critical of US war in Vietnam.

The consistent efforts of Indian and American scientists bore results, with good monsoons in 1968-69, and first signs of India's Green Revolution, which by the next decade India became self-sufficient in food grain production.

Indira Gandhi's domestic shift towards populism and socialism was paralleled by strengthening of Indo-Soviet relations, which was unwelcomed by the Nixon administration. The US sold military aircrafts to Pakistan, which raised eyebrows in India. With an ardent support from India, a new nation, Bangladesh, was born in the map of the world. In the same year, the Indo-Soviet Treaty of Peace, Friendship and Cooperation were signed, that specified mutual strategic cooperation. India and the US along with Pakistan were at the opposite ends, when the liberation movement in East Pakistan began in 1971. This further led the US-India relations to low ebb, which was to continue with India's denial to sign the Non-Proliferation Treaty and its subsequent explosion of nuclear bomb in 1974, becoming world's sixth nuclear power. The Tarapur plant which showcased example of US technological assistance to India, by utilising enriched uranium supplies from the US became controversial after the explosions.

When Secretary of State Henry Kissinger visited India after the resignation of President Nixon following the Watergate fiasco, efforts on both sides were to normalise US-India relations. But the proclamation of Emergency in India plummeted these efforts.

Despite the tense situation, the United States felt that it could not entirely ignore India in during the two-year Ford presidency. An agreement to establish an Indo-US Joint Commission was signed (Kux: 1992).

1977- 1990

Prime Minister Morarji Desai's critical stance towards previous governments' inclination towards the Soviet Union gained favourable reputation in the US. In 1977, President Carter visited India, to highlight that the irritants of the past have been removed, and to consolidate efforts for better relations, better mutual respect and trust. In a major speech before the Indian parliament, the President drew attention to the triumph of democratic values in the two countries, praised India's achievements since independence, and proposed a broad effort to develop the economic potential of the major rivers of eastern India, Bangladesh, and Nepal. President Carter and Prime Minister Desai issued a "Delhi Declaration" that stressed common support for democracy and economic development, and pledged that India and the United States will do their utmost to resolve their disputes with amicably.

However, expansion in the economic relationship remained largely unfulfilled. Although the two-way trade grew somewhat and the United States again became India's largest trading partner during the Carter-Desai years, yet, India insisted on strict enforcement of the restrictive Foreign Exchange Regulation Act (FERA) enacted by Mrs. Gandhi. Under the FERA, foreign investors could not own more than 40 per cent of the share capital of Indian enterprises. Existing foreign owners were supposed to reduce their equity holdings to this level. Non-compliance by companies like IBM and Coca Cola marked their departure from India, which drew criticisms from the US businesses.

India refused to condemn the Soviet invasion of Afghanistan in 1979, causing a backlash in the US. Later President Carter sent Clark Clifford to India to hold discussions with Indira Gandhi, so that she would use her influence over Moscow that would lead to the withdrawal of Soviet forces from Afghanistan, which according to her was the result of Pakistani interference in the Afghan affairs.

Indira Gandhi's trip to the US in 1982 was characterised as a trip of friendship and goodwill, in which discussions to boost the economic and agricultural productivity of India was discussed with her counterpart President Ronald Reagan (Anderson: 1983). The Science and Technology Initiative of 1982 pioneered by the US President Ronald Reagan and Indian

Prime Minister Mrs. Indira Gandhi focused on collaboration for fuel wood research, nitrogen fixation and efficient uses of fertilizers in irrigated lands and introduction of latest US weather modelling techniques for agricultural benefits in India (Marshall: 1983; Crawford: 1985). The Reagan administration avoided the trap Eisenhower fell into of offering assurances that the arms provided Pakistan would not be used against India (Kux: 1992).

In 1985, due to Prime Minister Rajiv Gandhi's efforts US and India reached at an MoU on technology, which would increase US computer sales and facilitate other cooperative technology agreements with India like the development of next-generation fighter aircraft or the Light Combat Aircraft (LCA), that signalled an important shift in US arms policy toward India, that is, cooperation with India's growing defence industry by providing technical assistance and high technology components for the production of advanced weapons systems. Besides this, the US was willing to provide a highly sophisticated Cray supercomputer model XMP-24 to the Indian Institute of Science to help the country's weather research program. Mutual understanding increased at the top levels of government.

Despite the gradual warming up of US-India relations, the trade relations received a setback when in 1989 the US listed India in the Super 301 list or the Omnibus Trade Competitiveness Act of 1988, according to which required the President to take retaliatory action against countries that restricted US commerce in instances where, as in the case of India, the United States was running a trade deficit. According to the Congressional Research Office, Washington's move "offended India's deep seated sense of economic nationalism and long-held views that its status as a developing country entitled it to favourable treatment by the industrialized world.

The last decade of the 20th century was marked by the most important and cataclysmic change in international politics, with the disintegration of the Soviet Union and the end of the Cold War. This established the United States as the leader of a uni-polar world, and heralded the dawn of a propitious time to spread the much admired Western political and economic prosperity throughout the world (Shariff: 2008).

The end of the Cold War eased US-India relations and enabled them to move beyond the suspicions that had soured their bilateral relationship for over four decades (Andersen: 2010). India, accepted the proposal of the George Bush administration to engage in the Indian sub-continent to allay the fears of possible arms race and nuclear confrontation in the region.

During the first Iraq War, the V.P. Singh government in India allowed refuelling rights to the US military aircrafts flying towards the Persian Gulf region.

This heralded an American security strategy of “beyond balance of power” towards South Asia, with characteristics of tilting towards India with the aim of transforming the relationship between the two countries from estranged to engaged democracies (Bajpai and Mattoo: 2000). This was evident when Anthony Lake, the then National Security Adviser, pointed out to India, when he announced the Clinton Doctrine in 1993 that ‘throughout the Cold War, we contained a global threat to market democracies: now we should seek to enlarge their reach’. The ‘new world’ opening before us presents immense opportunities to move forward, to ‘consolidate the victory of democracy and open markets, and it was evident that India would be one of these market democracies (Chaturvedi: 2009).

1991-2010

Until 1991, India had pursued policies that sought to assert government planning over most sectors of the economy and strove to promote relative economic self-sufficiency. This included extensive government spending on infrastructure, the promotion of government owned companies, pervasive regulatory authority over private sector investment, and extensive use of trade and investment barriers to protect local firms from foreign competition. The import of a number of products was banned and over 1,400 products faced quantitative restrictions, besides a comprehensive import licensing system. While these policies achieved some economic goals (such as rapid industrialization), the overall effect was to promote widespread inefficiency throughout the economy (e.g., unprofitable state run firms and a constrained private sector) and to greatly restrict the level of foreign direct investment (FDI) in India. India’s real GDP growth was relatively stagnant during the 1970s, averaging about 2.7%. Piecemeal economic reforms and increased government spending during the 1980s helped boost average real GDP growth to 6.0% (Martin and Kronstadt: 2007).

In 1991, India experienced internal economic turmoil, leading to acute foreign exchange and balance of payment deficit, aggravated by increasing oil prices due to the Gulf War. This forced India to turn to the IMF for emergency financial assistance. The IMF made its help conditional on major economic reforms. After India sold 67 tonnes of gold to the IMF, the government of PV Narsimha Rao, and his Finance Minister launched an economic reform programme with the unveiling of a New Economic Policy in 1991. Rao and Singh abandoned

India's atavistic commitment to "import-substituting industrialization" and chose to move India toward more market friendly economic policies. Key aspects of this approach included adopting a structural adjustment regime, reducing tariffs and agricultural subsidies, loosening industrial regulations, and paring down India's massive public sector (Kapur and Ganguly: 2007). Although the changes introduced attracted relatively limited interest when it began in June 1991, the pace of progress has been noteworthy since then (Ahluwalia: 1994). India implemented far reaching structural reforms that aim at deregulating the economy and shifting from a path of relatively protected inward looking industrialization to a new phase based on greater competition in the domestic markets, openness to trade and investment, and fuller integration with the global economy.

The ebb and flow of relations over half a century made it imperative for both countries to address the lingering impediments towards friendly relations. The neo-liberal economic policies of the Indian government sowed the seeds for real prospects for fundamental improvement of US- India relations (Gould and Ganguly: 1992). Welcoming its new economic policy, the then U.S. Commerce Secretary Ronald Brown in 1993 noted that though India was ignored in the past, India would be Asia's rising power in the years to come, and play a very important role in the economic future of the planet, which calls for keen US attention towards India (Jha: 1994; Schaffer: 2002) which culminated in a resolution to seek a healthy US-India relationship by the Clinton administration (Ganguly: 2005).

As early as 1985, Professor Fred Charles Ikle envisaged a security cooperation in which India together with the United States could contribute to world stability in the 21st century. In the year 2000, President Clinton and Prime Minister, Atal Bihari Vajpayee expressed the willingness to explore ways of enhancing security cooperation and information exchange. They were of the opinion that joint collaborative projects and training of scientists in agriculture biotechnology research, should be a part of a broader bilateral engagement.

Under President George W. Bush, the two countries resolved to launch a U.S.- India Knowledge Initiative on Agriculture focused on promoting teaching, research, service and commercial linkages, to reinvigorate the cooperation that had been so positive during the Green Revolution of the 1960s. Evidently, there was a continuing emphasis on agricultural cooperation as part of widening and deepening ties between US and India. The recent visit of President Obama has underscored the fact that constructive dialogue on a highly contested issue such as agriculture needs a bilateral setting.

Citing the United States as the leader of in the field of agricultural productivity and research, President Obama said that the US and India are collaborating to improve Indian weather forecasting systems, to help millions of Indian farmers, farming households save water and increase productivity, improve food processing so crops don't spoil on the way to market, and enhance climate and crop forecasting to avoid losses that cripple communities and drive up food prices. As part of America's food security initiative, India's expertise would be shared with farmers in Africa, which is an indication of India's rise whose expertise could help countries that see India as a model for agricultural development. It is another powerful example of how American and Indian partnership can address an urgent global challenge.

Washington has transformed its view of India from that of a "strategic backwater" (Kronstadt: 2007) to one that necessitates a "strategic partnership" based on shared values such as democracy, multi-culturalism, and rule of law. Many U.S. business interests view India as a lucrative market and candidate for foreign investment. U.S. and congressional interests in India cover a wide spectrum of issues, of which agriculture, trade and investment, have gained prominence over the years. Prime Minister P. V. Narasimha Rao's visit to the U.S. in May 1994, however, cleared up many misunderstandings between the two democracies and again aroused the hope of at least a more relaxed ambience in bilateral dealings. Joan Spero, the then Undersecretary of State for Economic and Agricultural Affairs, put this visit in the context of the new emphasis in Washington on economic diplomacy (Jha: 1994).

By the dawn of the twenty-first century, India was in the midst of a major and rapid economic expansion; there is a growing confidence within India as well as the outside world that India's economic performance has shifted to a higher trajectory and will emerge as the third largest economy in the next few decades (Kronstadt: 2007 and Mohan and Ayers: 2009). Economic reforms to explore its full potential needed agricultural reforms (Parikh, et al.:1993).

The tangible 'injections' provided by the aid programs and the technological breakthrough of the Green revolution in India enabled it to overcome chronic food deficits and large food imports through a significant rise in domestic food grain output and evokes considerable interests regarding the growth, equity and sustainability (Bhagwati, et al.: 1973; Ninan and Chandrashekhar: 1993). In the twenty-first century, there is a felt need for US and India to revive their cooperation in agriculture. The US has had a close working relationship with

India in agriculture with a support to over 700 research projects and investment of millions of dollars.

As of December 2010, USA is the third largest trade partner of India, where major U.S. exports of agricultural products to India totalled \$489 million in 2008. Leading categories include: tree nuts (\$187 million), cotton (\$103 million), and pulses (\$63 million). It is the twelfth largest importer of India's agricultural exports (11.8%), while U.S. imports of agricultural products from India totalled \$1.6 billion in 2008, the 16th largest supplier of agricultural imports. Leading categories include: tree nuts (\$243 million), spices (\$179 million), and essential oils (\$146 million) (United States Department of Agriculture, Foreign Agricultural Service: 2010).

The above snapshot of statistics indicate that in both India and the United States, there is interest in improving market access to each other's markets in anticipation of greater trade in agricultural goods. This would be further explicated in the following chapters.

United States' famous Midwestern land-grant Institutions have again come to the forefront in assisting India through the implementation of public private partnerships, market-oriented agriculture, and new agricultural methods.

Besides this there is a lot of potential in the collaboration between USA and India in the sphere of agriculture. Irrigation systems could be more efficient so that the agricultural sector, the largest user of water, can reduce waste. U.S. experience in wastewater pollution control could be applied to increase the availability of potable water. The U.S. Agency for International Development (USAID) is poised to help develop a pricing mechanism for rural water use, by charging consumers for water thereby encouraging a more rational allocation of hydrological resources and generating revenues for water conservation projects (Bajpai: 2001). U.S. private sector expertise and investment in India for the creation of cold storage facilities, supply chains, and food processing technology that form the backbone of a sophisticated agricultural market is in the offing. The two countries have also decided to collaborate on spreading environmentally sustainable farming methods, such as land conservation and water resource management.

A new PL-480 programme based on India's import of maize and soybean is being considered to be a prospective area to provide a new push. The US department of agriculture has embarked on the farm equivalent of the human genome project at Cornell University's

biosciences centre. It is a must for India to participate and play a key role in this project, backing up its participation with financial commitments as well (Ramesh: 1999). In 2006, the United States exported over \$300 million in agricultural goods (including over \$42 million in prepared foods) to India and imported \$1.3 billion in agricultural goods from India.

In the words of Professor M.S. Swaminathan said, “*Novel solutions and technological advances must be married with ecological thinking to drive a truly sustainable agricultural revolution*”, hence a radical transformation of the agricultural sector is the need of the hour.

In recognition of India’s unique position as an emerging global power is also on the forefront of the fight against hunger for which the USAID and India have embarked on a new partnership that would bring together the capabilities of the U.S. and India to address poverty and hunger in India and around the world.

In order to attain high growth in agriculture production and productivity needed to ensure food security, USAID would help improve agricultural technologies and innovations that reach smallholder farmers, including those innovations that address climate change. Better focused and more cost-effective interventions that accelerate the development and deployment of new technologies and sustainable food systems would be introduced. The primary objective of the US in its Feed the Future Initiative is to increase its investment in agriculture development while maintaining support for humanitarian food assistance (Clinton: 2009).

The U.S. is committed to working as part of a collaborative effort with India to improve food security, by working with stakeholders to advance action that addresses the needs of small scale farmers and agri-businesses, and harnesses the power of women to drive economic growth.

High profile visits have expanded the economic ties between US and India, with a further expansion in the strategic cooperation in agriculture and food security, food processing, agriculture extension, farm-to-market linkages, and weather and crop forecasting.

On President Clinton’s address to the Indian Parliament in March 2000, the then Prime Minister of India, Atal Bihari Vajpayee remarked that his visit marked the beginning of a new voyage in a new century by two countries that have all the potential to become natural allies (Mansingh: 2005). They expressed the need to explore ways of enhancing cooperation

and information exchange, joint collaborative projects and training of scientists in agriculture biotechnology research on Vajpayee's visit to Washington D.C. in October 2000.

David C. Mulford, the then US Ambassador to India in 2004 recalled US' role in India's Green Revolution that re-shaped India's agriculture sector through shared science, educational exchanges and applied agricultural technology, allowing the country to become self-sufficient in food production.

In the joint address made by Indian Prime Minister Manmohan Singh and President George W. Bush, on the former's visit to the US agreed that policies encouraging greater integration of the two economies and with the global economy would offer opportunities to expand and strengthen their economic partnership. To this end, the two leaders expressed their desire to strengthen cooperation on international economic issues including the WTO's Doha Development Agenda, and on the bilateral efforts such as the US - India Economic Dialogue.

In his address to the Council of Foreign Relations in September 2004, Prime Minister Manmohan Singh reiterated the fact that, while India and the US are on the thresholds of a renewed partnership, India counts on the US in its firm stand on the commitment to free trade and open access, and that protectionism by the US adversely affects the Indian rural and agricultural economy.

In an interview to the Wall Street Journal Editorial Board, Dr. Singh on September 22, 2004, USA, said that Indian agriculture had not received the investment resources that it needs. Agriculture accounts for 25 % of India's GDP, but in recent years, particularly in the last five years, the rate of growth of agriculture has declined sharply, which is a matter of concern. In part it is because agriculture is not getting the resources it needs to commensurate with its importance in our national economy. Public sector involvement in irrigation would be expanded.

The need of a second Green Revolution, making use of modern advances in biotechnology and other frontier technologies to usher in a new phase of expansion, a new frontier as it were in the agriculture possibility curve, is needed. For which India's research agricultural system, extension and credit system needs to be revitalized. Commercialization of agriculture would give access to more commercial inputs to the farmers. Agricultural credit would be addressed effectively along with the creation of new marketing opportunities, whereby the farmers from selling their produce where they get the highest rate of return.

In the short term, there is a considerable scope for increased labour power in agriculture. Crops like paddy and other, particularly in the Eastern India, where there is considerable scope for increased productivity, given the cropping pattern there is still very substantial scope for increased absorption for labour in agriculture.

If agriculture becomes more prosperous and farmers invest in farmer implements, in better housing, rural electrification comes about and that creates new opportunities for other enterprises, which are decentralized ones, having considerable scope of absorbing the surplus manpower released from agriculture to these activities. As a result the pre-mature rush from rural to urban areas would be avoided and ensure that new jobs can be created around rural areas without too much investment in overhead capital.

A June 2005 summit between the Indian defence minister and the US Secretary of Defence was followed by a July 2005 official visit to Washington by the Indian Prime Minister. In their joint statement, Prime Minister Singh and President Bush resolved to launch a U.S. - India Knowledge Initiative on Agriculture focused on promoting teaching, research, service and commercial linkages, to reinvigorate the cooperation that had been so positive during the Green Revolution of the 1960s (Mohan: 2009).

India's future in many respects depends on the re-invention of its agriculture sector. Though services and manufacturing may be the wave of the future for job growth and contributions to GDP, reform of the agriculture sector will be critical to ensuring the secure passage to the future for the majority of India's labour force.

America is conscious of the significant challenges India faces in this regard. Notwithstanding the fact that the Services sector today accounts for 60% of India's GDP as compared to 20% for Agriculture, we recognize that over 60% of India's labour pool remains in the agricultural sector – the same per cent as 25 years ago. Many employed in the Agricultural sector are subsistence farmers, and those employed in the rural sector have effectively seen their share of national income decline by 50% in the past quarter century. A significant challenge for the US is to help India address some of its most urgent domestic problems, particularly in agriculture and education (Burns: 2007).

When Prime Minister Singh first met with President Bush in 2005, he expressed a strong desire to work with the United States on a second green revolution to help India's rural poor.

This is an urgent task: despite India's progress, nearly 700 million of its citizens--25 per cent of the world's poor live on less than \$2 a day.

In March 2006, in his visit to the US, Prime Minister Dr. Singh spoke that he was delighted that a new agricultural initiative would be launched in collaboration with the USA, and as such renew an old association in the field of agriculture, which greatly benefitted Indian farmers then.

The joint statement of President Bush and Prime Minister Singh on March 2, 2006, highlighted the expansion of US - India agricultural cooperation by:

1. Launching the Knowledge Initiative on Agriculture with a three-year financial commitment to link our universities, technical institutions, and businesses to support agricultural education, joint research, and capacity building projects including in the area of biotechnology.
2. Endorsing an agreed work plan to promote bilateral trade in agriculture through agreements that lay out a path to open the US market to Indian mangoes, recognize India as having the authority to certify that shipments of Indian products to the United States meet USDA organic standards, and provide for discussions on current regulations affecting trade in fresh fruits and vegetables, poultry and dairy, and almonds.
3. Reaffirmed their shared commitment to completing the WTO Doha Development Agenda before the end of 2006, and agreed to work together to help achieve this outcome.

On November 18, 2006, US Agricultural Secretary, Mike Johanns, in New Delhi met top Indian officials to discuss trade issues and get the Doha talks on track. He urged India to further open its farm markets to exports from other countries.

US Secretary of State, Hillary Clinton, at the Indian Agriculture Research Institute, New Delhi on July 19, 2009, gave the message that fighting hunger and ensuring food security was the signature issue of the Obama administration. A White House Report declared that Prime Minister Singh and President Obama agreed to work together to develop, test, and replicate transformative technologies to extend food security in India as part of an "Evergreen Revolution." These efforts build on the historic legacy of cooperation between the United States and India during the Green Revolution, and will benefit farmers and

consumers in India, the United States, and around the globe, and will extend food security in India, Africa and globally.

The Partnership for an Evergreen Revolution will leverage Indian and U.S. expertise in a number of agreed upon activities, including, enhanced weather and climate forecasting for agriculture, improved food processing and farm-to-market links, partnering for global food security in Africa, and promotion of improved agricultural trade (Clinton: 2010).

Since, agriculture has become more global in its reach, more complex in trade and exchanges, more technologically grounded and ever more challenged with balancing sustainability, productivity and social responsiveness, the Ministry of Agriculture of India and the United States Department of Agriculture (USDA) sought to promote a new “US - India Knowledge Initiative on Agricultural Education, Research, Service and Commercial Linkages”. The objective of the US - India Knowledge Initiative on Agricultural Education, Research, Service and Commercial Linkages (the “Initiative”) is to re-energize the partnership by promoting teaching, research, service and commercial linkages to address contemporary challenges. A key feature of this Initiative will be a public private partnership where the private sector can help identify research areas that have the potential for rapid commercialization, with a view to develop new and commercially viable technologies for agricultural advancement in both countries.

Opportunities for Collaboration in the Food & Agriculture Sector based on the strengths and opportunities in both the countries the following areas have been identified for collaboration in the Food & Agriculture Sector: food processing, dairy, cold chain, infrastructure, agri-biotechnology, bio-fuels, and agricultural diversification in India.

The Under Secretary for Economic, Energy and Agricultural Affairs Robert D. Hormats, while in India in 2010 said that an area of cooperation that requires “the participation of not only our governments, but our businesses, farmers, NGOs, scientists and economists—and that is agriculture”.

Agriculture cooperation has played an increasingly important role in the US - India relationship. In India, over 60% of the population’s economic activity is agriculture based. And just last year bilateral trade in agriculture, fish and forestry products between the two countries reached \$2.2 billion (Hormats: 2010).

Widespread hunger and under nutrition demand the necessity of a second Green Revolution in India. The US- India Agriculture Dialogue (which also dovetails with the Obama Administration's Feed the Future initiative that aims to reduce poverty, hunger, and under- nutrition around the world) is set to focus on the ways we can harness modern technology to improve crop yields and other productivity metrics for farmers, benefitting the common man. US saw this as a partnership for progress between Indian and American scientists and agricultural experts where each side has something special to contribute to the process.

One of the major agenda for reform in Indian agriculture should be acceleration of the liberalization in domestic markets and preparing to challenge any deviation from the main objective of WTO (Vyas: 2001). Development process is complex and it is required to aid and encourage initiatives at individual and governmental levels for a better intersect oral integration and realignment of investment priorities regarding expansion of capital base and technology (Shah: 1984).

The growing importance of Indian Americans in US politics, together with perceived economic opportunities for U.S. businesses, brought a fundamental change in congressional attitudes and public policy towards New Delhi, despite the controversy created by India's nuclear tests in 1998. For the first time, legislators organized to play a more constructive role in the formulation of bilateral relations. In particular, members of the House of Representatives concluded that increased attention to the Indian subcontinent could bring benefits in the American political system. That realization had two immediate results: It prompted greater congressional interest in South Asia, and it led to a dramatic shift in congressional sympathies (Rubinoff: 2001).

The US Congress, has a bipartisan support in both US and India for pursuing stronger economic ties, and has a willingness for the resolution of some of the key economic and trade issues relating to agriculture and agricultural goods (Blake Jr: 2011 and Kronstadt: 2007).

Issues of Contention

While there is a surge and strengthening of agricultural cooperation on the bilateral front, multilateral settings have produced some of their most difficult encounters notably in the WTO. In these settings both USA and India have a great deal at stake. Some of the interests

coincide, but others clash. The challenge then is to find ways to reconcile their domestic and foreign policy styles and interests (Schaffer: 2009). The US remains greatly concerned about the pace and scope of India's economic reforms. A few US scholars along with some government officials argue that excessive regulatory and bureaucratic structures may hinder the full realisation of India's economic potential. The Washington DC based Heritage Foundation's "2004 Index of Economic Freedom" rated the Indian economy as "mostly un-free" (Guihong: 2005).

The United States has actively sought market opening opportunities in India, both bilaterally and multilaterally in the Doha Development Round. The U.S. Trade Representative (USTR) and India's Minister of Commerce chair the United States India Trade Policy Forum (TPF) meeting, which was constituted during Prime Minister Sing's visit to Washington in 2005. As part of the United States India Economic Dialogue, the TPF meets regularly through its five focus groups – agriculture, innovation and creativity (including Intellectual Property Rights), investment, services, and tariff and non-tariff barriers – to discuss the full range of bilateral trade and investment issues. In agriculture, India's WTO bound tariffs range from 100 per cent to 300 per cent, also higher than the applied rates in many product areas (Nissam: 2005).

While the trade between India and USA is increasing, several contentious issues remain. These include the American practice of linking human rights issues with economic policies, the question of child labour, the disappearance of Indian brands, and the danger of a political backlash from uneven economic growth within India. These seem to be balanced by the benefits to India's new high technology sector and the growing competitiveness of many Indian firms, but there remains the possibility that intense Indian nationalism (or American protectionism) might lead to an economic backlash. While this is a relationship that will require nurturing, that are now powerful economic forces on both sides interested in maintaining it (Cohen: 2000).

Some of the foremost hiccups in smooth agricultural cooperation between the two countries are:

A. Doha Development Round Negotiations

In terms of global trade, the collapse of World Trade Organization (WTO) Doha Round talks in August 2003, July 2006, June 2007, and July 2008 occurred in part because India—with

allies in the global South— took a clear stand against continued agricultural protectionism in the European Union (EU) and the United States (Mohan: 2009).

The key outstanding issues for the Doha Round centre around trade in agricultural goods, non- agricultural market access (or NAMA), trade in services, and trade remedies and at present, differences on trade in agricultural goods are foremost among the four remaining issues, and are generally viewed as the lynchpin for the successful completion of the Doha Round.

Current discussions among WTO members regarding the Doha Round have placed the United States and India on opposing sides of key issues. In November 2006, during a visit to New Delhi to discuss trade issues with top Indian leaders, U.S. Agriculture Secretary Mike Johanns urged India to match “ambitious” U.S. offers and “lead the way toward unlocking the Doha negotiations by offering real market access.”

India is resistant to opening its markets to subsidized agricultural products from developed countries, claiming this would result in further depopulation of the countryside. India’s Commerce Minister, Kamal Nath, blamed U.S. intransigence for the Doha Round’s collapse.

In July 2006, the World Trade Organization’s “Doha Round” of multilateral trade negotiations was suspended indefinitely due to disagreement among the WTO’s six core group members — which include the United States and India — over methods to reduce trade distorting domestic subsidies, eliminate export subsidies, and increase market access for agricultural products. The United States and other developed countries seek substantial tariff reductions in the developing world. India, like other members of the “G-20” group of developing states, has sought more market access for its goods and services in the developed countries, while claiming that developing countries should be given additional time to liberalize their own markets. In particular, India is resistant to opening its markets to subsidized agricultural products from developed countries, claiming this would result in further depopulation of the countryside. India’s Commerce Minister, Kamal Nath, blamed U.S. Intransigence for the Doha Round’s collapse.

B. Issue of Subsidies

Subsidies are the payments made by governments to manufacturers or farmers to reduce the cost of their product to consumers. The U.S. farm subsidy program is also a source of India’s

concern about agricultural imports from the United States. Agricultural subsidies in the US undermine market access in areas like cotton and sugar (Chanda: 2006).

Economists have debated the agricultural producer support by the US. At the domestic level the high costs of such support are borne by the consumers and taxpayers, while at the international level, developing countries that might otherwise enhance their continued economic development by exporting agricultural products to developed countries are hindered by tariffs, subsidies and other mechanisms designed to keep them out of business (Thies and Porsche: 2007). The justification for agricultural export subsidies is that they reduce government costs of deficiency payments (Leathers: 2001).

Critics of subsidies argue that even though developing countries have a distinct cost advantage in the production of agricultural products, given the large subsidies given to competitors in advanced nations, they are unable to compete on an even playing field (Shariff:2008).

The Indian government has been spending large sums on fertilizer subsidies, some part of which is a subsidy to agriculture, but besides that farmers have had to pay more than world prices for inputs, e.g. machinery and pesticides (Joshi and Little: 1996).

India, along with a number of other nations, views the current U.S. farm support program as a form of trade distorting export subsidy and is calling on the United States to significantly reduce the annual limit on farm assistance. India has rejected the proposed U.S. limit of \$22 billion as insufficient, pointing out that the actual level of support in 2006 — \$19 billion — was already below the U.S. offer. India, the United States, Brazil, and the European Union are actively discussing the agricultural support programs as part of the reinvigorated Doha Round negotiations.

The extremely high level of payments to the farmers given by the US government while encouraging other countries to reduce domestic agricultural commitments under the WTO Agreements have come under widespread criticisms. As a result negotiations in the WTO are bogged down and several countries point accusingly at the US for serious violations of the principles of free trade in agriculture (Ray, et al.: 2003).

During the last decade, Washington raised the subsidies given to U.S. agricultural producers by 300 per cent, or \$32 billion, annually (Drummond: 2001). The likelihood of a substantial reduction in U.S. corn-based ethanol subsidies is unlikely. Once democratic governments

begin to subsidize something, withdrawing the subsidy becomes politically very difficult, mainly because the subsidies create constituencies which make a great deal of money and wield substantial political power (Natsios and Doley: 2009). The elimination of domestic subsidies is the key issue dominating international negotiations on US agricultural policy. While some in the European Union or Cairns Group countries demand an end to US subsidies as a point of fairness or to equalize perceived market advantage, the developing world seeks an end to these subsidies as a point of survival. The goal, well beyond that of merely ending direct payments to US farmers, is to restore a measure of sustainability for the world's poorest farmers for whom receiving better prices—that is, fairer prices—in the marketplace is absolutely critical (Ray et al. :2003).

C. Issues of Tariff and Non-Tariff Barriers and Protection of Intellectual Property Rights (IPRs)

U.S. exports of live animals and animal products are hindered by Indian import restrictions and cultural norms. Cattle and beef imports are subject to import controls because of the risk of “mad cow” and “hoof in mouth” disease, as well as the Hindi and Buddhist prohibitions of eating beef and Muslim prohibitions of eating pork. Other U.S. products, such as coffee, tea and most grains are effectively kept out of India by tariff rates as high as 100%.

A July 2007 Indian government report determined that U.S. wheat was unfit to be imported into India due to the presence of pervasive weeds. On March 6, 2007, the United States requested WTO dispute settlement consultations with India over the customs duties it imposes on imports of wine and distilled spirits, claiming that charges for “additional duty” and “extra additional duty” increased the imposed tariff rate to 150% to 550% (Martin and Kronstadt: 2007).

Intellectual property rights (IPRs) can be broadly defined as legal rights established over creative or inventive ideas. Such legal rights generally allow right holders to exclude the unauthorized commercial use of their creations/inventions by third persons. The rationale for the establishment of a legal framework on IPRs is that it is a signal to society that creative and inventive ideas will be rewarded.

The inadequate intellectual property rights (IPRs) protection has been a long-standing issue between India and the US. In May 2004, the US Trade Representative (USTR) inducted India in the Special 301 Priority Watch List for its “weak” protection and enforcement of

IPRs (Guihong: 2005). The two countries have differences on whether such a patent based system is necessary to ensure the equitable sharing of benefits from genetic resources (Das: 2006).

D. Sanitary and Phyto-Sanitary (SPS) Regulations

The United States has also expressed concern about India's application of its sanitary and phyto-sanitary (SPS) regulations on certain U.S. exports. The United States questions some of the scientific basis for India's SPS regulations. It also believes that some of the SPS standards are not in accord with internationally recognized standards. Plus, the United States has indicated that India has failed to notify other nations of changes in SPS regulations in a timely fashion. In particular, the U.S. Trade Representative has objected to India's proposed import and labelling requirements for genetically modified foods.

For its part, India has also indicated dissatisfaction with U.S. SPS regulations with regards to the treatment of Indian agricultural goods. For example, one longstanding source of tension between the two nations is a 17-year old ban on the import Indian mangoes into the continental United States. The mango ban was a subject of discussion during President Bush's trip to India in March 2006, during which President Bush promised to have the ban lifted. On March 12, 2007, when the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) issued a final rule allowing, under certain conditions, the import of mangoes from India. However, according to India's Commerce Department, the estimated cost of compliance with the new rule is about \$3 per mango, rendering the Indian mango uncompetitive.

Another instance is that of almonds exports, from US to India, where because of the application of sanitary and phyto-sanitary standards, some of which are found to be not consistent with what are existing international standards (Chanda: 2006).

E. Issue of Genetically Modified (GM) Crops

A genetically modified organism (GMO) or genetically engineered organism (GEO) is an organism whose genetic material has been altered using genetic engineering techniques. These techniques, generally known as recombinant DNA technology, permit manipulating plants at a pace that nature can't achieve, for example bringing genetic materials of fish into crop varieties. They can transfer a gene across species or from the animal kingdom to the plant kingdom. This process is called genetic engineering, or biotechnology. Although the

transfer of genetic material has long occurred through selective breeding and other techniques, new technologies permit more controlled transfers, and transfers of genes from completely unrelated species.

The US has raised concerns over India's plans to formulate labelling norms for genetically modified (GM) foods at the WTO committee on technical barriers to trade. US have urged India to rather resolve the issue through a dialogue between the regulatory specialists of both the countries. It said that both the countries believe in biotechnology as an important tool for enhancing farm growth and hinted at the recent US - India accord on agricultural research and education. US believes that GM foods are "substantially equivalent" to their non-GM counterparts and any attempt to segregate and label GM foods would amount to "trade restrictive measures." It has said that India should notify its decision for labelling of GM foods before the WTO panel also as a sanitary and phyto-sanitary (SPS) measures since it involves "approval for biotechnology". US has questioned India's approval process for GM products and said: "The scope of the 1989 Rules under the 1986 Environment Protection Act is vague and appears to be broader than any other existing regulatory system in the world for biotechnology products." It has questioned the rationale for such broad product coverage and measures.

Role of the U.S. Congress, Lobbies and Indian Diaspora in Fostering Greater US-India Agricultural Cooperation

The early attitude of neglect of India among the members of the Congress in USA was dramatically transformed to one of great attention after the liberalization of the Indian economy in 1991, as its burgeoning middle class was seen as potential customers of US' private ventures in India that could yield domestic dividends. Besides this, the growing profile of India on the international arena, its activism for justice and against terrorism, nuclear proliferation, its economic prosperity, high growth rates, its near- immunity to the impacts of the global meltdown, its rapidly increasing and affluent Diaspora in the USA, have drawn the attention of the US policy makers towards the country in particular and the South-Asian region in general. India- based lobbies provide continuity and a balanced perspective when conflict develops in other areas and function towards the betterment of US-India ties.

The well-educated Indian Diaspora in the USA, which has been accumulating wealth and power, have been playing a growing role in advancing FDI and trade between India and the United States (Bergman: 2010). All economic interests are ultimately concerned with wages, prices and profits. In the American economy, government does not determine these directly and government regulations are fretted by business, labour and farmers. As a result, business executives, factory workers and farmers, seek to influence government because regulations, taxes, subsidies, and international economic policy all affect their economic livelihoods. There are several broad based agricultural groups, such as the American Farm Bureau Federation, but equally important are the commodity associations formed of peanut farmers, potato growers, dairy farmers and other producers. The US Department of Agriculture and the agricultural sub- committees in the Congress are organised along commodity lines, such as dairy or wheat.

The Carnegie Endowment for International Peace, the Heritage Foundation, International Trade Administration- a think-tank within the Department of Commerce, USA, has several Indian scholars, academics and business persons who seek to advance the development of national and international economic policies including agriculture, maximize U.S. gains in trade negotiations and support the enforcement of U.S. trade laws, seeking to bring about balanced gains to both USA and India, in matters of economic and agricultural cooperation.

Similarly, the Sikh American community in the United States are known to have much influence in the deliberations between USA and India on matters of agricultural cooperation.

Thus, from the literature reviewed, it is evident that given the wide array of interests and counter interests among the many issues of bilateral relationship between USA and India, the one that runs high on the agenda is agricultural cooperation. The US conviction is supportive of a strong economic and agricultural relationship with India. Although differences remain, US is increasingly viewing India as a growing world power, with which it shares common strategic interests, and through a strong partnership of the two countries, the differences can be addressed, thereby shaping a vibrant future. Thus, from the literature reviewed, it is evident that given the wide array of interests and counter interests among the many issues of bilateral relationship between USA and India, the one that runs high on the agenda is agricultural cooperation. The US conviction is supportive of a strong economic and agricultural relationship with India. Although differences remain, US is increasingly viewing India as a growing world power, with which it shares common strategic interests, and

through a strong partnership of the two countries, the differences can be addressed, thereby shaping a vibrant future.

1.3 DEFINITION, RATIONALE AND SCOPE OF THE STUDY

US- India agricultural cooperation has had a long history. However, in recent years this area was impacted by the fast changing developments in the international and bilateral spheres. In particular the end of the Cold War, India's liberalisation and US interests and involvement in South Asia sparked a new approach to India. This so-called transformation of US - India ties that spanned over two decades was also visible in the agricultural sector. The proposed study would attempt to examine, analyse and understand the contours through which US - India agricultural relations have evolved with an insight into the major turning points, both international and domestic, that brought about a transformation of US - India relations in the 1990s. An emphasis on developing the agricultural sector and linking it better to markets would allow an improvement in the dependent livelihoods and work for peace.

The study would assess the developments in the relations between USA and India after the end of the Cold War that led to enhanced collaboration in the zone of agriculture, and show how the initiatives of the political leadership on both sides hastened up the progress in reinforcing a new era of economic relationship in the agrarian sector. This would be further established by supplementing it with statistical comparison of exports, imports, Foreign Direct Investments (FDIs), aids and grants, etc.

The thesis would critically examine the paradigm shift in perceptions reshaping US - India relations and to relate the overall strategy of agricultural cooperation to political alignments, with references to the major factors that contributed to greater focus on reciprocity in agricultural partnership. Along the study one would attempt to analyse the extent to which the role of the US Congress was influential in supporting agricultural cooperation.

The study would also dwell into the role of Indian Diaspora in lobbying for the inclusion of agricultural cooperation in the strategic dialogues and what was the Indian response and what shaped that response to the US initiative on agricultural cooperation.

A thorough analysis of the United States'- Indian cooperation in order to have enhanced living conditions of the vast majority of population dependent upon agriculture while

working in concert with each other to globalize their cooperation will form an indispensable facet of this thesis.

The study thesis would aim to investigate major points of contentions surrounding the United States- Indian cooperation on agricultural cooperation like the issue of cooperation at the Doha Development Round of the WTO, genetically modified (GM) crops, trade and non-trade barriers and the aspect of protection of Intellectual Property Rights.

The thesis would assess the recent successes and failures and incorporate an evaluation of both American and Indian efforts to reinforce greater economic cooperation while concurrently addressing shortcomings and possible steps to strengthen this cooperation. The entire study would be conducted on the backdrop of US – India relations as a whole to bring into perspective the nature of bilateral political relations between the two nations which will enable better comprehension of the nuances in the cooperation or contestation between them on the economic issues. A strengthened economic synergy between the two countries will be permanent considerations during the research undertaken to understand the fact that by pursuing economic relationship and close agricultural collaboration, both countries can progressively build up their own institutional capacity to develop and execute a grander strategy internationally, while simultaneously attending better to their key internal security challenges.

1.4 RESEARCH QUESTIONS

- How did the constraints of the Cold War affect agricultural cooperation between US and India?
- What are the major developments both international and domestic that brought about a transformation of US - India relations in the nineties?
- How did the economic engagement between the two become a significant aspect of the Indo- US Strategic dialogue in the Clinton and Bush years?
- What were the main factors that contributed to the focus on agricultural cooperation? What did this agreement entail?
- How far the economic trade and non-- trade barriers in both countries make it difficult for the exports of either country to gain access to the agricultural goods market of the other?
- To what extent was the role of the Congress influential in supporting agricultural cooperation?
- How did the Indian Diaspora lobby for the inclusion of agricultural cooperation in the strategic dialogues?
- Does the agricultural cooperation between US and India argue well for the future of Indo - US relations? Will the jointness and inter-operability in the sphere of agriculture be the pragmatic basis of US - India relations?
- How will the United States be a major facilitator for the Second Green Revolution in India after its noteworthy role in the Green Revolution of the 1960s?

1.5 HYPOTHESES

Based on the survey of the existing literature and the objectives of this study outlined above, it is proposed to test the following hypotheses:

- US cooperation for 'second generation' Green revolution is at the centre of bilateral strategic relationship.
- Congressional support to agricultural technology transfers in India is aimed at furthering the transformation of US-India relations.

1.6 RESEARCH METHODOGY

The proposed study is based on a deductive, analytical and descriptive method using statistical techniques. Primary sources comprising of government publications from both the United States and India have been consulted. US Congressional publications of Hearings and Research reports, issue Briefs and Records of Legislations have been consulted.

In order to access a uniform data which is comparable for both the countries observed, generated and accepted from a valid source internationally, information from international organizations such as the World Bank (World Bank Statistics), Food and Agricultural Organisation (FAO) of the United Nations (UN) (Country Stats), United Nations Conference on trade and Development (UNCTAD) Stats and the World Trade Organisation (WTO) databases have been used. The problem of concordance over time and other complex issues pertaining to the data is not being investigated and the use of secondary sources has been taken up with full caution of comparability and authenticity for the use of this study. The data may defer from the respective government source as it is re-processed and adjusted by these international organizations. The use of this data has been very widely accepted by researchers, policy makers and academics and is considered to be authentic internationally.

In the present study seeks to capture the indicators, observations and other quantitative and qualitative information available so as to empirically examine and assess the US-India Agricultural Cooperation.

Data for GDP growth rate; Sectoral composition of GDP; Sectoral GDP; Sectoral growth rate of GDP; the exports of goods and services (levels, growth as a share in GDP); the imports of

goods and services (levels, growth as a share in GDP); food exports and imports (as a per cent of merchandise export and imports); fertilizer consumption (in quantity and kilograms per hectare of arable land); agricultural raw materials (export and imports); agricultural machinery (tractors per thousand per hundred square kilometre of arable land) have been taken from the World Bank database.

Data for production, exports and imports of agricultural sector are taken from the FAO database. The data provided by the FAO are a rich source of agricultural data.

The data for bilateral trade (exports and imports) in agriculture between US and India has been taken from UNCTAD Stats. UNCTAD Stats provide the most reliable disaggregated trade data.

The data for tariffs, subsidies, duties among others have been taken from the WTO which is the apex organization for regulating international trade related issues and thus the data provided by it are highly reliable and authentic.

Besides the above information pertaining to industry and lobbies from business publications have also been utilised. Newspapers and other internet sources have also been constant sources for substantiating the evidence collected.

CHAPTER II

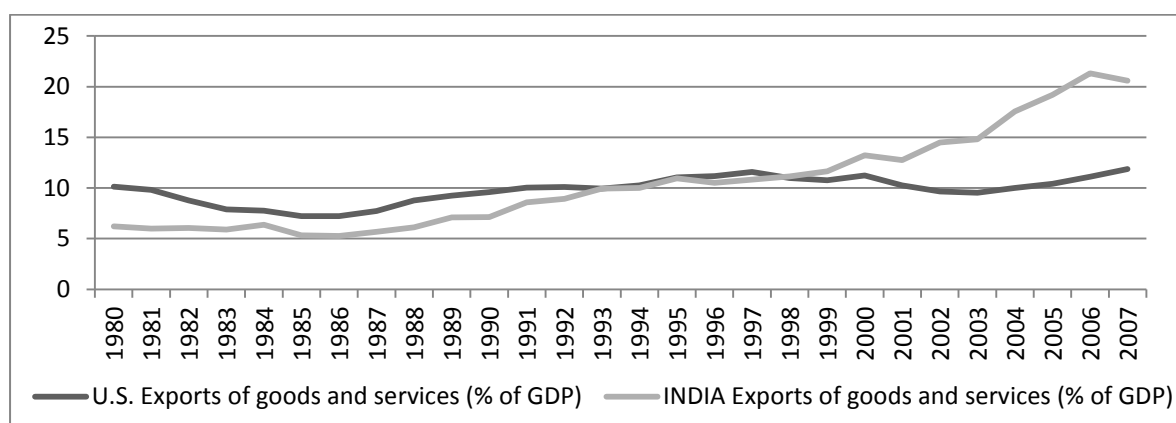
AGRICULTURAL COOPERATION BETWEEN USA AND

INDIA

2.1 BACKGROUND

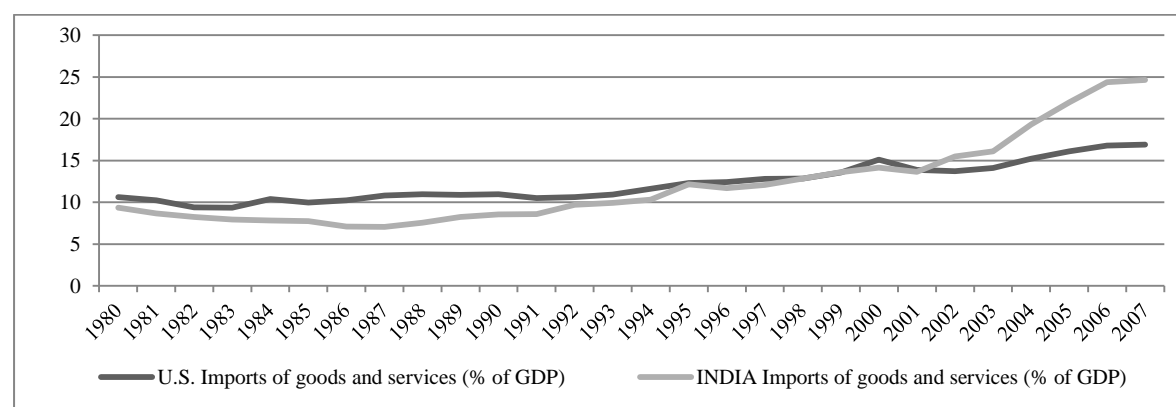
While the last decade of the twentieth century marked the end of the Cold War hailing the US as the leader of the free-market capitalist economies of the world, it also was a turning point in the Indian economic history. To begin with, the economic reforms that were initiated in 1991 were evolutionary and incremental, but since then India has never looked back to the Licence Raj that prevailed for around half a century (Jenkins: 1999). While the share of exports and of exports and imports of goods and services of the GDP from 1980 to 2007 of the US has remained more or less constant or increased very slightly over the years, in the case of India there has been a rapid increase in international trade. It is thus important to note that in that last decade, in India the share of trade in the GDP increased at a very high pace. This is explained by the following graphs (Figures 1 and 2):

Figure 1 Share of Exports (Goods and Services) in the GDP, 1980-2007.



Source- World Bank

Figure 2 Share of Imports (Goods and Services) in the GDP, 1980-2007.

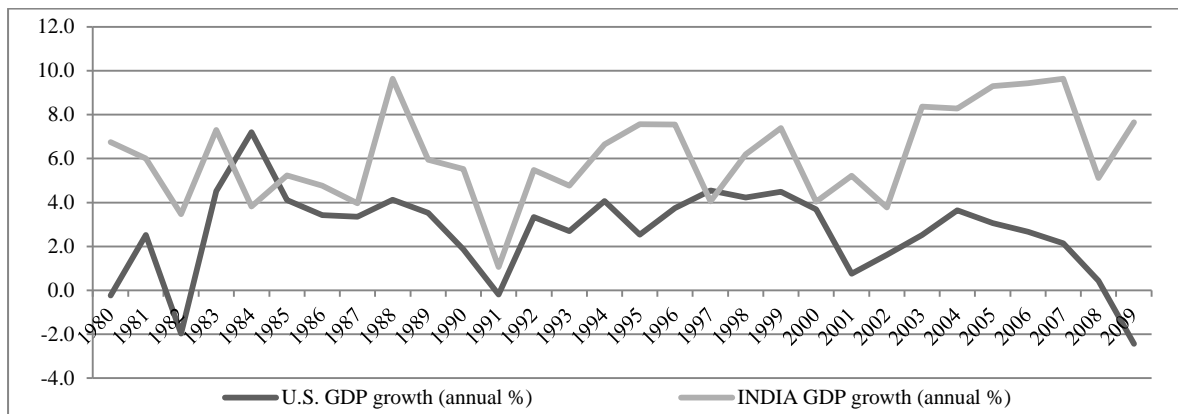


Source- World Bank

The US welcomed India's altered development strategy and piecemeal economic reforms, and set forth on a greater engagement with India on more equitable terms not based on a donor-receiver relationship of the past but as partners for mutual benefits, besides the well-being of the global economy. This further gained momentum as India joined the WTO in 1995 and signed the Agreement on Agriculture, introducing a slew of trade, tariff and administrative measures; the tariff rates for several commodities and quantitative restrictions on agricultural trade were reduced in varying proportions from time to time. These policy changes paved way for gradual liberalization of the economy. Indian agricultural commodity markets began integrating with the global market and international trade gained more importance (Tuteja: 2008).

The benefit of opening up of the Indian economy is vindicated by the high rate of growth of GDP of the country, witnessed primarily because of the New Economic Policy adopted by India in 1991. The following figure (Figure 3) captures the annual growth rates of GDP of USA and India. The slowdown in the recent past (2008-09), due to the global recession of 2007-08, can be observed in both the economies, affecting USA more than India.

Figure 3 Annual Growth Rates of GDP, U.S. and India (1980-2009), in percentages.



Source- World Bank

Before we seek to understand the trends, patterns and the nature of agricultural cooperation between the US and India, it is important to grasp the significance of the laws and policies in these countries, on the issues concerning the sector of agriculture in the economy.

2.2 UNITED STATES AND INDIAN LEGISLATIONS ON THE FOOD AND AGRICULTURAL SECTOR

United States of America: Laws and Regulations on Agriculture

Historical Background

Agriculture in the United States of America, ever since it attained independence in has seen heights of prosperity by the combination of natural and human factors. The hard work and innovativeness of the farmers amalgamated with some of the richest soil of the world in the American mid-west; adequate rainfall; rivers and underground water permitting extensive irrigation besides the technological advances, large capital investments and the increasing use of highly trained labour also contributed to the success of American agriculture.

As per the Economic Research Service of the US Department of Agriculture, the percentage of population engaged in agricultural and related activities by 2008 declined to around 2% from around 95% during the time of American Revolution in 1776 (USDA: 2011). While 64% of the farmland in the US is owned by families and individuals, the rest is owned by several small and large corporations engaged in agriculture, making farming and its related industries a big business or ‘Agribusiness’.

The role of government in the agricultural sector has undergone change, particularly as it relates to trade, farm policy, infrastructure demands, conservation and the environment, rural communities, and nutrition and food assistance (US Department of State: 2008).

US agricultural policy has heavily influenced two important aspects of US crop agriculture: growth in its capacity to produce and the proportion of productive capacity used. From its birth as a nation, the US pursued policies that promoted phenomenal growth in productive capacity, supported by the taxpaying public. Calls for government assistance come when factors work against the farmers' success, in the 1930s, for instance, overproduction, bad weather, and the Great Depression combined to present what seemed like insurmountable odds to many American farmers. The government responded with sweeping agricultural reforms, most notably, a system of price supports. Until the 1980s, the primary focus of US agricultural policy was on production management programs and price support and stabilization programs (Ray et al.: 2003).

The Federal Agriculture Improvement and Reform Act, 1996

This large-scale intervention, which was unprecedented, continued until 1996, when the Republican Congress and President Bill Clinton enacted the Federal Agriculture Improvement and Reform Act of 1996 commonly known as the 1996 Farm Bill, which dismantled all vestiges of government price supports and annual supply controls with the effect of sustaining the persistence of low prices (Womach: 2005; US Department of State: 2008; Hansen-Kuhn: 2011). The Act covers nine policy areas, or "titles", viz., Agriculture Market Transition Act (i.e. commodity programs); Agricultural Trade; Conservation; Nutrition Assistance; Agricultural Promotion; Credit; Rural Development; Research, Extension and Education; and Miscellaneous. By the late 1990s, the U.S. farm economy continued its own cycle of ups and downs, booming in 1996 and 1997, then entering another slump in the subsequent two years. The title of agricultural trade called upon the government to shift its support towards countries taking steps towards a market economy. In fact its Export Enhancement Program gave authority to pressurise its trading partners to agree to major reforms in their domestic agricultural policies, under the aegis of the WTO talks (Ministry of Agriculture and Food, Canada: 2002). This is because the United States is thoroughly committed to market-oriented policies, and perceived this to serve the best long-term interests of all stakeholders in the food system and society at large as markets have continually demonstrated their superiority to other alternatives in guiding allocation of resources, investment, and production in patterns that are most beneficial to society at large (US, Department of Agriculture: 2001).

The law removed the link between income support payments and farm prices, whereby farmers would get fixed subsidy payments unrelated to market prices. The law also ordered that dairy price supports be phased out. Congress sought to ease the transition by providing farmers \$36,000 million in payments over seven years (1996- 2002) even though crop prices at the time were at high levels.

The law increased planting flexibility by allowing participants to plant 100% of their total contract acreage to any crop, except with limitations on fruits and vegetables. The authority for acreage reduction programs was eliminated (Nelson and Schertz: 1996).

The Farm Security and Rural Investment Act, 2002

After the Farm Bill of 1996 expired, the US Congress passed The Farm Security and Rural Investment Act of 2002, popularly called the 2002 Farm Bill. It addressed a great variety of issues related to agriculture, ecology, energy, trade, and nutrition. This farm bill preserved the main market-oriented features of the 1996 Bill including the planting flexibility, no forced-idling of cropland, no government stockpiling of crops and price responsive payment programs. This bill was intended to provide a safety net for farmers generous enough to restore the ability of farmers to plan for the long term, while ensuring more stable and predictable funding. It ensured that spending remains within the limits of WTO agreements and offers incentives for good conservation practices on working lands in order to help farmers meet new higher environmental standards, while continuing to work the land. In the words of President George W. Bush the 2002 Farm Bill was “compassionate” as it allowed legal immigrants residing in the U.S. for five years to become eligible for food stamp assistance¹ (The White House Archives: 2002).

The deliberate design of the Bill was to allow prices to fall as low as market and weather conditions will permit. Three safety net mechanisms appear in the form of income support programs:

- (1) Continuation of the direct payment program;
- (2) A new counter-cyclical payment program; and
- (3) Continuation of the marketing loan program, which authorized payment of loan deficiency payments and marketing loan gains.

The implication of this Bill for the US farmers was that it resulted in relatively constant net farm income, ranging between \$46 billion and \$52 billion. It did not cause a departure from the low commodity prices that persisted since the mid- 1990s and continued the approach of making up losses in net farm income in the US with government subsidies. Its provisions offered little by way of improving the economic welfare of farmers in developing countries,

¹This program supplements the food buying power of eligible low-income households by providing them with monthly benefits through coupons or electronic benefit transfer (EBT) cards. Eligibility is governed primarily by a household’s financial resources (e.g., income eligibility generally is limited to those with total cash income below 130% of the federal poverty guidelines). However, applicants and recipients also must meet some non-financial requirements (e.g., the eligibility of non-citizens is limited; work requirements are imposed on most adults). In general, benefits may be used to purchase any food item for home consumption in an approved food store.

whose production is either threatened by low-priced imports, or whose revenues are curtailed by the woefully inadequate prices for their exports. Market prices were to languish below the cost of production, and American commodities would be dumped on world markets, further weakening the position of poor farmers around the globe (Ray et al.: 2003).

The Food, Conservation, and Energy Act, 2008

In continuation with the 2002 Farm Bill, The Food, Conservation, and Energy Act of 2008 as a continuation of agricultural and other programs of the Department of Agriculture through fiscal year 2012 was passed by the US Congress. Extending the United States' long history of agricultural subsidy as well as pursuing areas such as energy, conservation, nutrition, and rural development, it increased in Food Stamp benefits, increased support for the production of cellulosic ethanol, and money for the research of pests, diseases and other agricultural problems.

U.S. Food Security Initiative

Taking inspiration from Norman Borlaug who applied the latest technological and scientific advances to the age-old goal of feeding the world's people and revolutionized food production and reiterating the fact that food security is important in achieving economic, environmental, and national security, the US Secretary of State Hillary Clinton and Secretary of Agriculture Tom Vilsack outlined the U.S. Food Security Initiative to improve food security worldwide on World Food Day (16th October) 2009 and pointed out that the U.S. Food Policy Aims for a “Transformational Change”, whose goals were to reduce hunger sustainably, raise the incomes of the rural poor, and reduce the number of children suffering from under-nutrition.

Being a long-term and accountable U.S. commitment, the guiding principles guiding this initiative are close coordination with local and regional efforts in order to support the multilateral institutions combating world hunger by investments in the tools necessary to support farmers, their skills, and perseverance.

Crop-Based Fuels in the United States

Outlining the importance of agriculture for the US, apart from food security, the US Department of State pointed out how it even holds a key to delivering new forms of clean energy (US Department of State: 2010b). According to the U.S. Energy Information Administration as the U.S. liquid fuel needs expand over the next twenty-five years; bio-energy would help fill the gap. The two major forms of crop-based fuel used in the United States are ethanol from corn and biodiesel from soybeans. The market for these fuels is expected to grow. Corn farmers, in particular, are reaping benefits from the bio-energy boom, because of a U.S. policy to increase the amount of ethanol in the gasoline mix. The nation added more than 34 billion kilolitres of ethanol to gasoline in 2008, using 3.2 billion bushels of corn. A federal mandate will quadruple ethanol production by 2022. As manufacturers expand, they will need more corn. By 2018 ethanol production will likely account for 35 per cent of U.S. corn use, according to the U.S. Department of Agriculture. Corn makes sense as an energy crop in the United States because “we grow corn, process corn better than anything else we do” (US Department of State: 2010).

Impact of US' Agricultural Policies on the Rest of the World

US policies influence the fate of farmers well beyond its borders; hence policy approaches addressing the needs of US farmers must be recognized for their larger global influence. Since the late 1980s, but particularly since 1996, the US government's official policy has been to permit, even encourage, a free fall in domestic farm prices while simultaneously promoting rapid liberal trade measures to open new markets for US products.

US farmers, the intended beneficiaries of these policies, have languished, despite official rhetoric to the contrary. Meanwhile, major agribusinesses have thrived, while aggregate US exports remained flat, and farmer income from the marketplace declined dramatically. The precipitous decline in prices of primary commodities, especially grains, is providing agribusiness and corporate livestock producers' access to agricultural commodities at below the cost of production, consolidating their control over the entire production and marketing chain (Ray, et al. 2003).

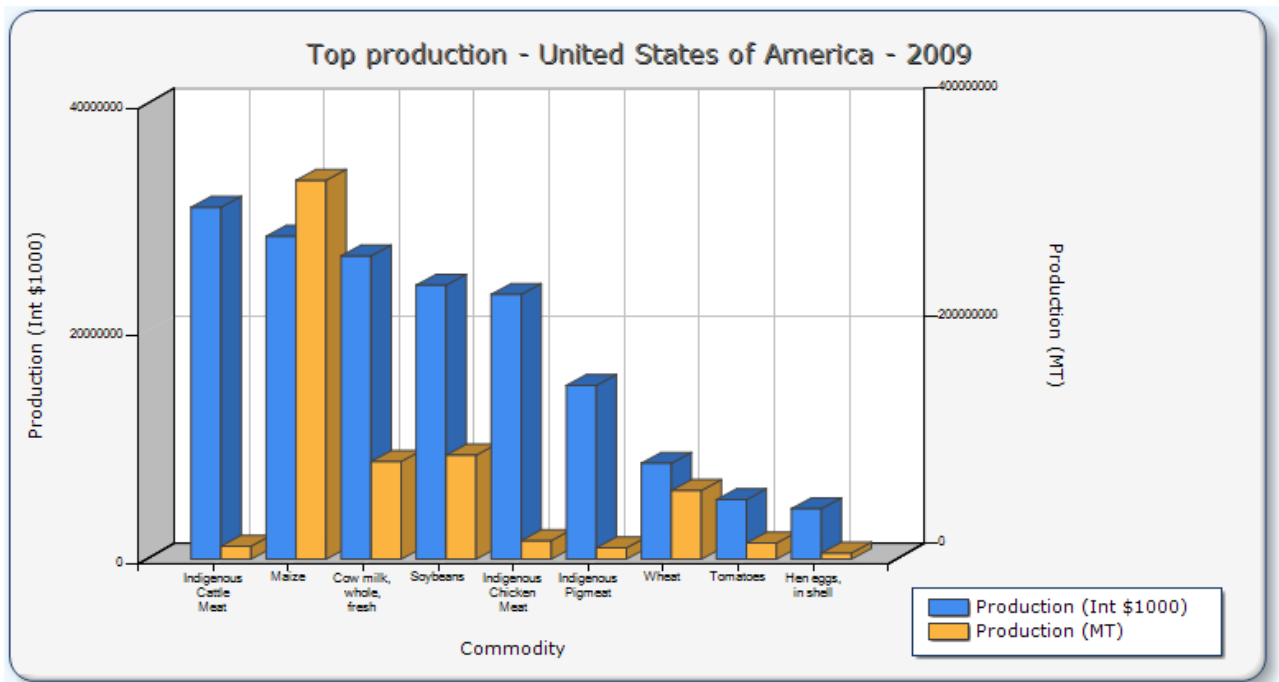
Currently, the budget \$ 1.2 billion food aid budget is used primarily to purchase U.S. food to distribute abroad in order to address famines and other exigencies. However, this system is inefficient and costly and hence the food aid law has needed to be made more flexible. President George W. Bush's proposal to allow 25 per cent of the USAID food aid budget to be used to purchase food locally was found as being economically sensible because it cut down delays in the delivery of U.S. purchased food, reduced logistical risks, and saved transport costs (Natsios and Doley: 2009).

The latest U.S. farm bill contains authorization for a Department of Agriculture-managed pilot program/which compromises the integrity of the program since USDA is strongly opposed to local purchase, for local and regional procurement of a total of \$60 million over five years. This is only a fraction of the \$1.2 billion USAID that is appropriated annually. Authors have pointed out that a plan such as this would be unnecessary because the World Food Program has been purchasing food locally for several years with limited funding from other donors.

The best way to prevent the politically destabilizing effects of mass population movements, increased theft and lawlessness, and other disruptive coping mechanisms is through rapid and decisive action which can best be initiated with locally purchased food (Natsios and Doley: 2009).

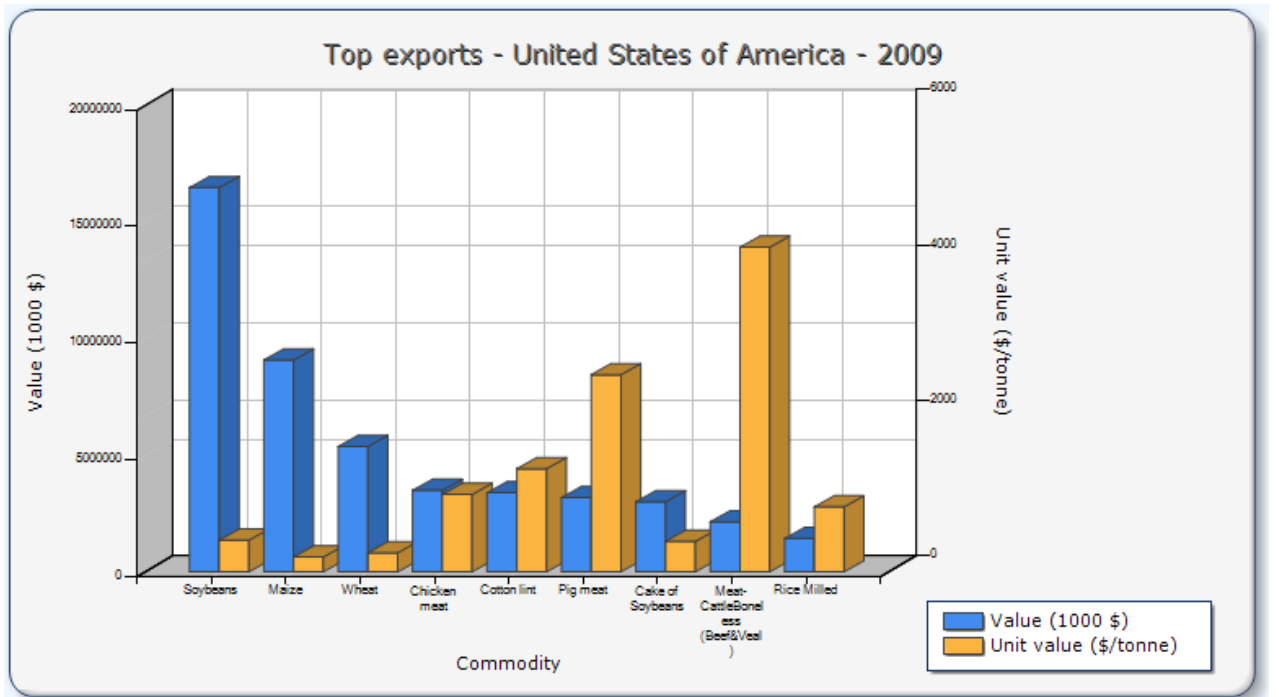
Figures 4, 5 and 6 show the production, exports and imports in the agricultural sector of USA in 2009. The highest share in the production is of indigenous cattle and maize. Top exports from the US are constituted by soybeans and maize, while distilled beverages and coffee constitute its top imports.

Figure 4 Top Productions in the Agriculture Sector, U.S., 2009



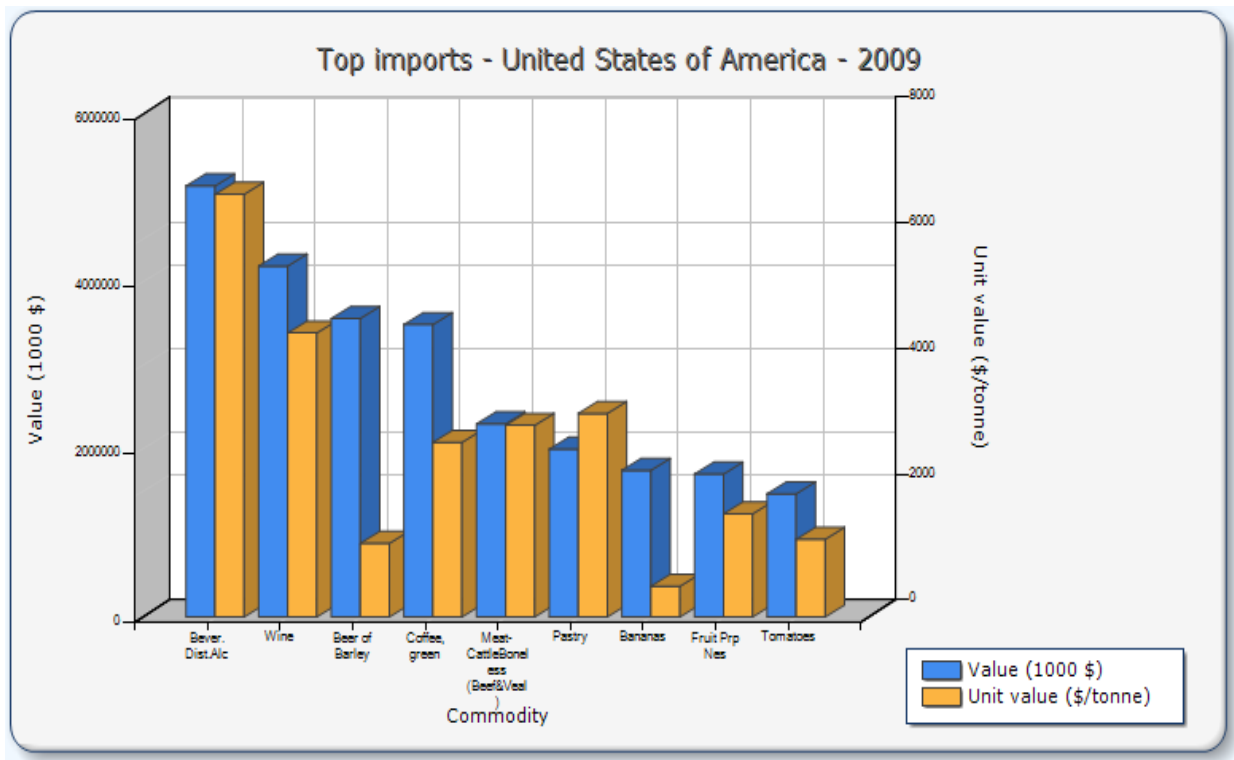
Source- FAO

Figure 5 Top Agricultural Exports, U.S., 2009



Source- FAO

Figure 6 Top Agricultural Imports, U.S., 2009



Source- FAO

India: Laws and Regulations on Agriculture

According to the Economic Survey released by the Ministry of Finance, Government of India in 2012, agriculture and allied activities contribute 13.9% to the country's GDP, while it employs around 53% of the workforce. This description reveals that India is fundamentally an agrarian economy, where the agricultural sector absorbs the most labour and hence is an indispensable factor in the lives of the majority (Economic Survey: 2012; Dutz and Dahlman: 2007).

Given the huge population engaged in this sector, the 59th Round Survey Report of National Sample Survey Organisation (NSSO), 2005 points to the irony that 40 per cent of the farmer households do not like farming as a profession as they consider it unprofitable, risky, lacking social status and so on. While 27 per cent of the farmer households consider agriculture being not profitable, 8 per cent consider it as a risky venture. Remaining 5 per cent dislike it for some other reasons, which also include lack of social status.

People's reckoning on agriculture as a profession is not altogether misplaced, because Indian agriculture suffers from a great degree of inefficiency, and is characterized by low productivity, with average crop yields for most crops well below world levels, thereby limiting overall economic growth. Only 35 per cent of the net cropped area (141 million hectares) is fully or partly irrigated; 65 per cent depends on monsoon rains. Large farms (greater than 25 acres) account for only 1.0 per cent of the total of 119.2 million farms in India. State land-ceiling laws restrict farm size to 10 to 20 acres (irrigated, double-cropped) and 15 to 60 acres (non-irrigated) in various states.

In agriculture, a radical change was wrought through the Green Revolution, and a technocratic model initiated by Prime Minister Lal Bahadur Shastri (prior to Indira Gandhi's term) replaced the Socialist model for agriculture. The new agricultural policies created food surpluses for India, and agricultural production more than doubled after their implementation in the mid-1960s (Mittal: 2007). In the late 1980's the country saw another set of reforms initiated by broad trade liberalisation and depreciation of exchange rate which made the terms of trade in favour of agriculture. Reforms focused on liberalisation of export trade mainly due to some surpluses created in rice and wheat.

Impact on Agriculture after Economic Reforms of 1991

Faster agricultural growth and broad based rural development has been central to India's strategy for reducing poverty, for which expansion in irrigation, land development, soil and moisture conservation, agricultural research, development of agricultural marketing facilities were instituted (Ahluwalia: 1999). With the beginning of economic liberalization in 1991, the Indian Government (GOI) encouraged foreign direct investment in agriculture and food processing paving the way for the evolution of a globally competitive Indian agribusiness landscape (Chakravarty: 2007). Although the GOI banned 100 per cent foreign direct investment in the retail sector, there are opportunities for foreign retailers to enter India through "cash & carry" (wholesaling) and franchising routes where 100 per cent FDI is permitted (India –Agricultural Economy and Policy Report: 2009).

The Reforms also led to the simplification of the existing food laws (to reduce redundancies and multiplicities in the certification of foods) and the Amendment of the Agriculture Produce Marketing (Development and Regulation) Act (APMC Act) by several State Governments which permit the farmers to sell their produce directly to the buyers outside regulated market yards. Such initiatives are intended to rationalize costs across the supply chain by facilitating organized farmer-processor relationships apart from infusing the much needed corporate investment in the sector.

National Agricultural Policy, 2000

The National Policy on Agriculture sought to actualise the vast untapped growth potential of Indian agriculture, strengthen rural infrastructure to support faster agricultural development, promote value addition, accelerate the growth of agri-business, create employment in rural areas, secure a fair standard of living for the farmers and agricultural workers and their families, discourage migration to urban areas and face the challenges arising out of economic liberalization and globalisation.

Its aims over the next two decades were to attain:

- A growth rate in excess of 4 percent per annum in the agriculture sector;
- Growth that is based on efficient use of resources and conserves our soil, water and bio-diversity;

- Growth with equity, i.e., growth which is widespread across regions and farmers;
- Growth that is demand driven and caters to domestic markets and maximises benefits from exports of agricultural products in the face of the challenges arising from economic liberalization and globalisation;
- Growth that is sustainable technologically, environmentally and economically (National Agricultural Policy: 2000)

In order to attain these objectives, the Standing Committee of Union Ministers and Chief Ministers have been constituted to consider issues concerning agricultural strategies, food management and promotion of agriculture exports. The Committee has since approved the outline of the proposed Grain Bank Scheme which will be extended to BPL families in identified areas and developed on the contours of the recently launched Sampoorna Grameen Rozgar Yojana. Besides this, cooperatives and regional rural banks under the leadership of National Agricultural bank for Rural Development (NABARD) have been given the task of providing support to agricultural insurance and various rural infrastructure development projects.

Agricultural Trade Policy of India

In India, agricultural trade policy is a part of a larger food and agriculture policy regime that seeks to maintain food self-sufficiency while providing income support to the agricultural sector and poor consumers. The Government of India (GOI) uses a variety of policy instruments in attempting to achieve these goals, including:

- Domestic subsidies to inputs, outputs, transportation, storage, and consumption to reduce producer costs and consumer prices.
- Border measures such as subsidies, tariffs, quotas, and non-tariff measures to protect domestic producers from import competition, manage domestic price levels, and guarantee domestic supply.

India subsidizes agricultural inputs in an attempt to keep farm costs low and production high. GOI's intended result is for farmers to benefit from lower costs, but also for them to pass some of the savings on to the consumers in the form of lower food prices. GOI pays fertilizer producers directly in exchange for the companies selling fertilizer at lower than market

prices. Irrigation and electricity, on the other hand, are supplied directly to farmers by GOI at prices that are below the cost of production. These policies result in effective subsidies to the farmer of 40 to 75 per cent for fertilizer and 70 to 90 per cent for irrigation and electricity (Grossman and Carlson: 2011).

By the turn of the century, the terms of trade was moved in favour of agriculture by real devaluation of rupee. An agricultural trade surplus would have seen the upliftment of the agricultural sector with a positive impact on the economic conditions of the farmers dependent on this sector. Under the policy of trade liberalisation and complying the WTO rules by 2001, all quantitative restrictions to imports of agricultural produce was reduced in India. Tariffs were also reduced for number of commodities like edible oil, pulses and cotton (Landes: 2004). The imports of pulses and edible oil was huge in India, which was not only because of reduction in tariffs but also because of increased domestic demand and inability to meet it due to low productivity in these two commodities and also poor performance of processing units, due to which there are huge post-harvest losses too. The liberalisation of agricultural exports also led to an increase in exports in initial period of liberalisation but in recent years the export performance of the agricultural sector has not been that good. For wheat and rice fluctuating in exports and in recent past even imports of wheat has created an uncertainty in the agricultural trade position of India. On the other hand for fresh and processed fruits and vegetables high tariffs are been imposed thus protecting the domestic sector from imports (Mattoo et.al, 2007). Fall in the world agricultural prices further made some of our agricultural exports non-competitive. The per cent share of agricultural exports to national exports has declined from 18.5 per cent in 1990-91 to 11.2 per cent in 2004-05 whereas the import share has increased from 2.8 per cent in 1990-91 to 4.6 per cent in 2004-05 (Mittal: 2007).

Further, moderate changes were instituted to reduce the role of the state in the agricultural sector, such as decreasing regulation of product markets in wheat, rice, sugar, cotton, and edible oils; lessening controls in the markets for inputs, such as machinery, seeds, electricity, and irrigation water; and reducing subsidies and controls for fertilizers. However, price supports in agriculture remain, and the agricultural market needs further opening to imports (Lall: 2006).

India introduced a slew of trade, tariff and administrative measures after it signed an Agreement on Agriculture in WTO. The tariff rates for several commodities and quantitative

restrictions on agricultural trade were reduced in varying proportions from time to time. These policy changes paved way for gradual liberalization of the economy. Indian agricultural commodity markets began integrating with the global market and international trade gained more importance.

Therefore, agricultural production needs to be examined from the point of view of trade. International competitiveness in terms of comparative advantage in prices of commodities has become a crucial factor that plays an important role in the decision-making process about crop choices. If international prices are higher and producers are in a position to reap the benefit, farmers would be induced to allocate a larger area under the crop and this would result in increased production. On the other hand, lower international prices are sure to encourage larger inflow of cheap imports into the country, which is already burdened with low indigenous production. Therefore, a study of international competitiveness has become necessary to understand the production prospects of various agricultural commodities. It has been established that the global competitiveness of cereals, fruits, vegetables, processed fruits and processed vegetables and determined that India is moderately to highly competitive in most of these products (Tuteja: 2008).

While budget outlays for subsidies on food grains and farm inputs have been rising, while rates of new public and private investment in agriculture have remained low compared with other sectors. Reforms in the agricultural sector have been limited. Many analysts consider neglect of the rural sector the greatest threat to the sustainability of economic reform.

There are many agriculture-related areas, such as research, extension, and investment in infrastructure, where reforms and increased investment are desirable. But two major reforms stand out, the removal of input subsidies and the freeing of international trade (Joshi and Little: 1996). However, in the current policy discourse, agriculture is being identified as a sector that has features of slowed growth, increased unemployment, shows rigidity and is acting as a dampener to the euphoria of reforms.

The whole sector is in crisis which is evident in supply side constraints, food scarcity, import of food often at higher rates than domestic production costs, agriculture becoming unviable, declining public investment and overall neglect of agriculture such that it has become a constraint on future growth. Added to that is the plight of farmers across the states who are forced to commit suicides facing indebtedness, depressing real wages in agriculture, frequent failure of crops and increasing vulnerability in agriculture. The total numbers of cultivators

across the country have declined from 110.7 million in 1991 to 103.63 million. The agricultural sector has grown at a mere average of 2.3 per cent yearly during the Tenth Five-Year Plan. The share of agriculture (including the allied sectors of forestry and fishery) in total GDP has seen a constant decline over the years from 25.3 per cent in 1999–2000 to 19.9 per cent in 2005–06, and further as already shown before.

The Indian agricultural sector, at present, suffers from decelerating productivity growth rate, becoming essential to catalyse agricultural productivity, raise rural incomes, and release land for urbanisation and industrialisation to feed the growing population. Authors have called for addressing the serious challenges like infrastructure constraints, supply chain inefficiencies and significant problems in the diffusion of and access to information, in order to achieve faster productivity growth (Mittal et al.: 2010).

The problem becomes even more acute in the absence of any considerable private investment in the agricultural sector. Government has to step in with matching budgetary allocations to fill this gap. The Economic Survey presented the ITC (Indian Tobacco Company) *e-choupal*, as perhaps its flagship initiative (says ‘novel private sector initiatives to improve the marketing channels in agriculture’) on agricultural marketing (Economic Survey: 2006). This ITC initiative is considered a model for interface between farmers and global markets (Citizens’ Report on Governance and Development: 2007).

Prime Minister Manmohan Singh while inaugurating the 93rd session of the Indian Science Congress in Hyderabad in 2006, called upon the scientific community to work towards bringing about a second green revolution that would have a special focus on dry land agriculture and address the needs of small and marginal farmers and the new technologies should be economically affordable to them (Sunderajan: 2006).

Policy makers have reiterated the need for agricultural diversification as India’s future agricultural strategy. India’s food grain production capacity has increased significantly over the years and there is evidence that household consumption patterns are changing away from food grain towards higher value crops such as vegetables, fruits, milk, eggs, etc.

Horticulture development is constrained by poor marketing arrangements. The gap between prices received by the farmers and those paid by urban consumers is large, reflecting inefficient marketing arrangements. Horticultural produce is typically collected from farmers by market agents, who sell it organised markets established under the Agricultural Produce

Marketing Acts. Unfortunately these markets are controlled by a few traders and operate on a highly non-transparent basis. Facilities for grading and handling are poor and methods of price discovery in the markets are non-transparent. Wastage is high owing to poor logistics and the absence of cold chains. The net result is much lower realisation by the farmer.

Several experts have outlined the necessity to amend out-dated laws restricting the establishment of markets to allow cooperatives and private entrepreneurs to set up modern markets with grading facilities, cold storages and transparent auction procedures. Many states have amended their existing laws on agricultural marketing to allow such markets to be established and a dozen others are in the process of doing so. These changes are being resisted by those who control the existing structure but this opposition will weaken over time.

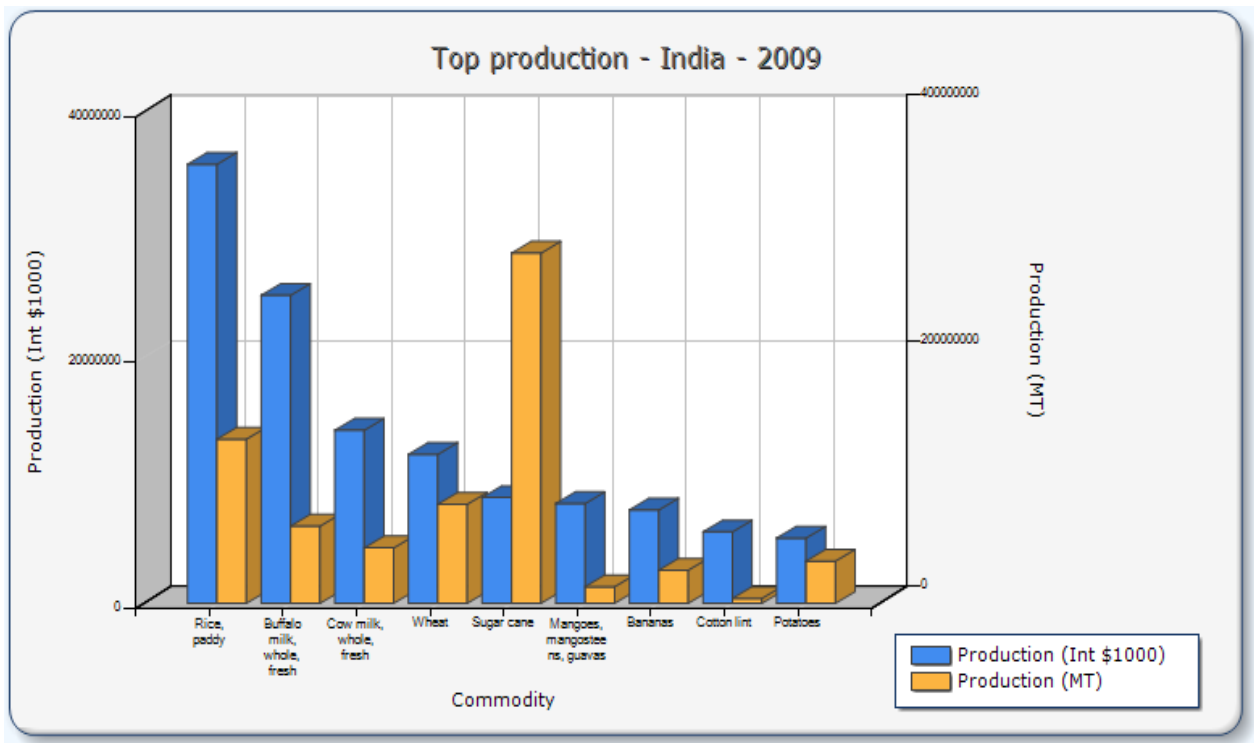
Nevertheless, it is worth emphasising that even in this neglected sector, more has been accomplished than expected at the outset of the reform process. Key reforms include abolition of central government restrictions on the movement of agricultural commodities between government-owned zones; the freeing of prices on some types of fertiliser; the substantial abandonment of canalisation of agricultural trade through state trading corporations, though with important exceptions; and the dismantling of quantitative restrictions on agricultural trade. While these measures do not add up to a revolution in agriculture, it is important that the substantial efforts made in many Indian states to alter the ways in which governments treat cultivators, agricultural labourers, and the conduct of trade in agricultural commodities are not ignored (Jenkins: 1999).

Contract farming is another innovation that has been introduced in many states and could accelerate diversification. India's laws on agricultural land do not allow corporate bodies to purchase land and operate large-scale farms, a national policy to prevent displacement of a large number of small farmers. Corporate buyers who know what is needed in export markets, in high end domestic markets or in agro-processing, can engage in contract farming to procure high quality produce. Buyers select areas suitable for the crops they are interested in and organize farmers to produce these crops under contract, while providing planting material of the right quality and technical supervisory. The process enables the farmer to eliminate marketing risk while allowing the corporate buyer to ensure quality supplies by selecting planting material, and provide access to scientific advice on disease and other types of stress.

Agro-processing has been stimulated by the agricultural diversification and the government attention to this area. At present, the proportion of India's agricultural output that is processed is very small compared with that in most developing countries and the demand for processed food is bound to increase as incomes rise. There are several obstacles to the more rapid development of food processing. Taxation structures often discriminate against food processing because processed food is the first stage for application of indirect taxes and the absence of tax rebate on taxes paid on inputs means the effective tax on value added is very high. Another impediment is the reservation of certain categories of products for small scale production. The absence of a modern food processing law has meant that this sector is governed by multiple laws, making it difficult to operate effectively. An Integrated Food Processing Law has been introduced in Parliament to replace and the passage expected in the current year will make a qualitative difference to the operating environment (Ahluwalia: 2005).

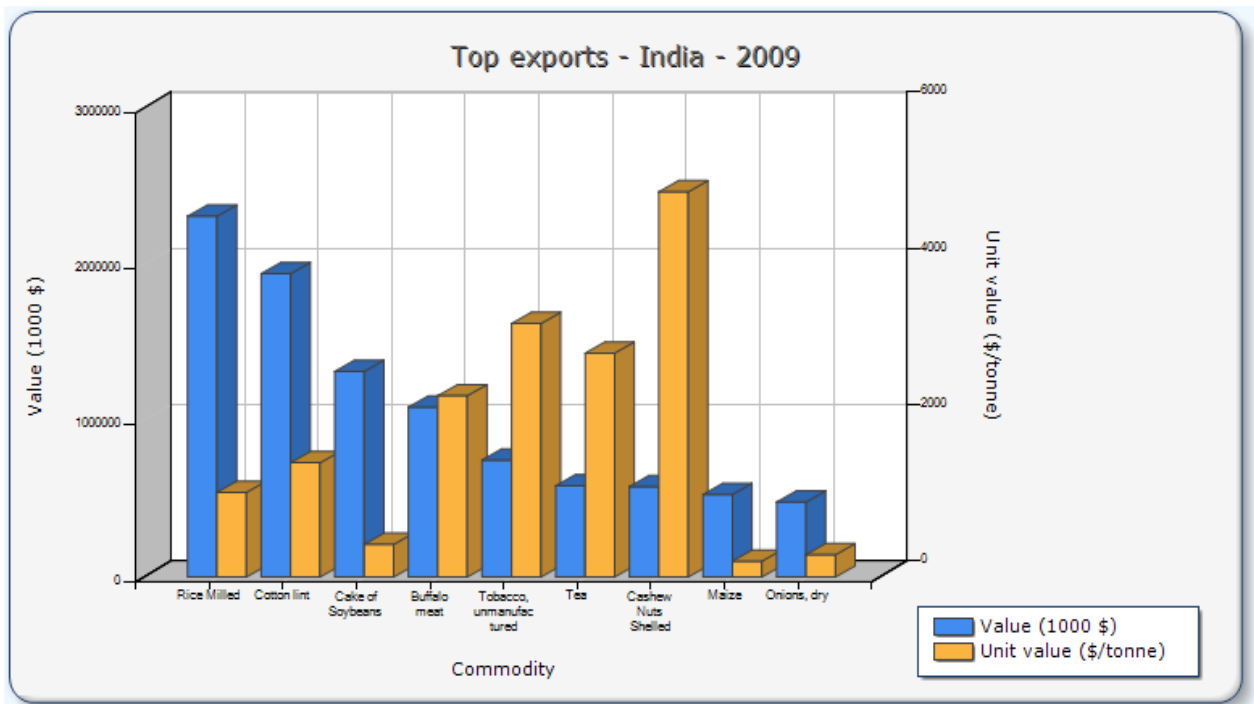
To give a brief insight into the performance of trade in the agricultural sector in India spurred by various government efforts, figures 7, 8 and 9 show the production, exports and imports of India in 2009 in the agricultural sector. It is found that rice, buffalo milk, and sugarcane are among the top production in India, while rice, cotton and cashew constitute top exports from the country. India mainly imports palm oil and dry natural rubber.

Figure 7 Top Productions in the Agriculture Sector, India, 2009



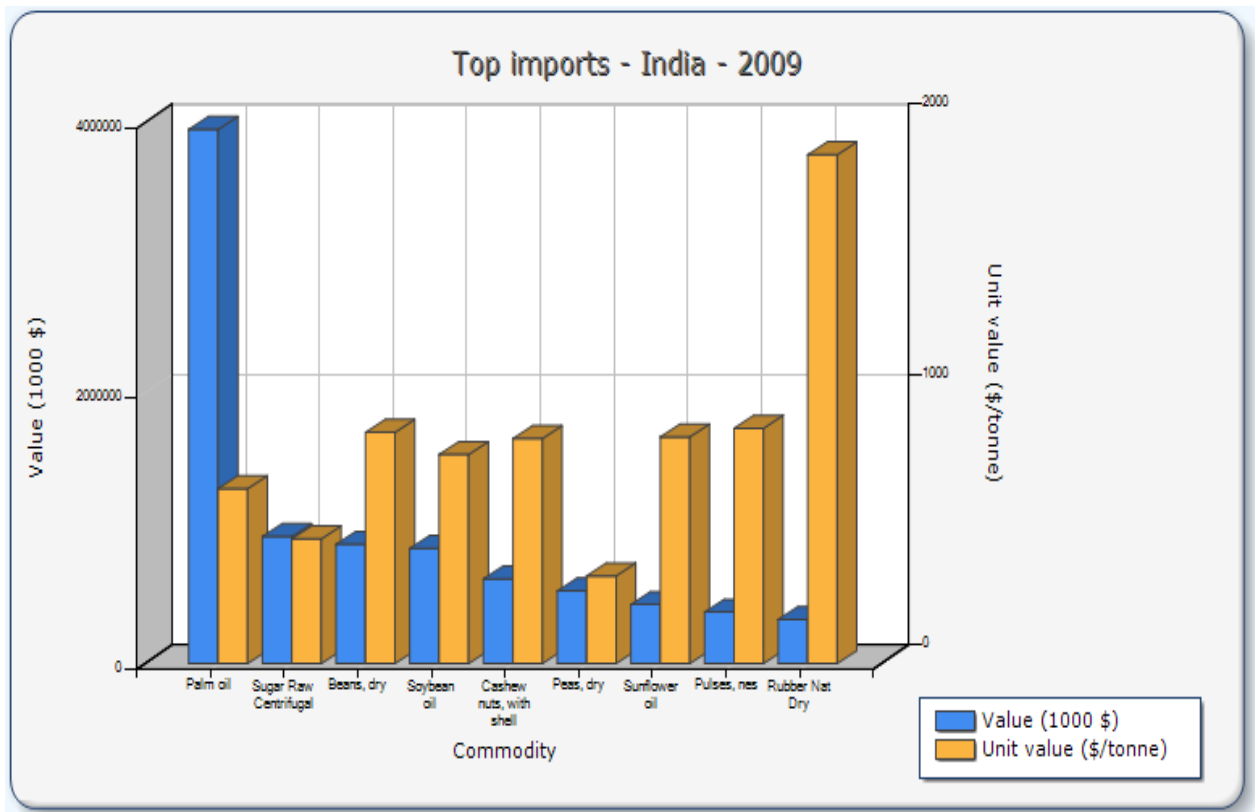
Source- FAO

Figure 8 Top Agricultural Exports, India, 2009



Source- FAO

Figure 9 Top Agricultural Imports, India, 2009



Source- FAO

2.3 AGRICULTURAL TRADE AND COOPERATION BETWEEN US AND INDIA

“India and the United States are separated by half a globe. Yet, today our two nations are closer than ever before” (Bush: 2005). Relations between the United States and India are at an all-time high, with the two countries enjoying unprecedented levels of cooperation in the economic, strategic, and diplomatic spheres. High level visits between USA and India have expanded the economic ties of the two countries. Among other issues, one of the focus has been to expand the strategic cooperation in agriculture and food security, food processing, agriculture extension, farm-to-market linkages, and weather and crop forecasting.

An amazing success story of collaboration and intellectual exchange between the U.S. and India was India’s Green Revolution in the 1960s, where the US played an important supporting role and India ‘caused’ the Green Revolution. The grit and hard work of the Indian farmer was combined with the vision of scientists from both the countries along with the assistance from the US government and the USAID to meet a monumental human challenge: to reshape Indian agriculture for the last 40 years. The momentum of the Green Revolution continued to reap dividends: Indian farmers diversified their operations with new crops and livestock products, particularly dairy and poultry in the 1980s the annual agricultural growth in India rose to three per cent, outpaced population growth rates for the first time since India’s independence and dramatically cutting rural poverty. The bilateral "revolution" of shared science, educational exchanges and applied agricultural technology made India self-sufficient in food production and was a foundation for people-to-people and government-to-government ties that have matured and are coming of age today (Mulford: 2004).

The success in the cooperation in agriculture between USA and India have been realised by the efforts of successive governments on both sides to cement their ties, especially after India embarking on the path to a free market economy. Such a determination on the part of the US was reiterated by the Secretary of State, Hillary Clinton in 2009, that the U.S. is committed to working as part of a collaborative global effort centred on country led processes to improve food security, by working with stakeholders to advance action that addresses the needs of small scale farmers and agri-businesses, and harnesses the power of women to drive economic growth. The objective is to increase the investment in agriculture development while maintaining our support for humanitarian food assistance (Clinton: 2009).

US Shifts Perceptions on Indian Agriculture:

On President Clinton's address to the Indian Parliament in March 2000, the then Prime Minister of India, Atal Bihari Vajpayee remarked that his visit marked the beginning of a new voyage in a new century by two countries that have all the potential to become natural allies (Mansingh: 2005). They expressed the need to explore ways of enhancing cooperation and information exchange, joint collaborative projects and training of scientists in agriculture biotechnology research on Vajpayee's visit to Washington D.C. in October 2000.

Realising the enormous potential of Indian agriculture in the development of its domestic economy, as well as in mutual trade relations and its capabilities to contribute globally, the US and India have decided to move to a next level of strategic partnership the next generation agricultural development. Instances of the cementing tradition of American-Indian university cooperation include the USAID grant support in 2003 for joint work by the Punjab Agricultural University and Ohio State University on market diversification and value added agricultural products, development of a food industries centre, cooperation on agribusinesses with researchers on food processing approaches. It underscored the need to maintain steady improvement in seed quality through the use of biotechnology which is the key component of sustained productivity and reducing rural poverty. The potential of horticulture and livestock enterprises have the capacity to stimulate the sector (World Bank: 2011).

David C. Mulford, the then US Ambassador to India in 2004 recalled US' role in India's Green Revolution that re-shaped India's agriculture sector through shared science, educational exchanges and applied agricultural technology, allowing the country to become self-sufficient in food production (Mulford: 2004)

A major challenge for the United States is to help India address some of its most urgent domestic problems, particularly in agriculture and education. When Prime Minister Singh first met with President Bush in 2005, he expressed a strong desire to work with the United States on a second green revolution to help India's rural poor (Burns: 2007). In the joint address made by them agreed that policies encouraging greater integration of the two economies and with the global economy would offer opportunities to expand and strengthen their economic partnership. To this end, the two leaders expressed their desire to strengthen cooperation on international economic issues including the WTO's Doha Development Agenda, and on the bilateral efforts such as the US - India Economic Dialogue.

In his address to the Council on Foreign Relations on September 24, 2004, Prime Minister Manmohan Singh reiterated the fact that, while India and the US are on the thresholds of a renewed partnership, India counts on the US in its firm stand on the commitment to free trade and open access, and that protectionism by the US adversely affects the Indian rural and agricultural economy (Singh: 2004)

In an interview to the *Wall Street Journal* Editorial Board, Dr. Singh on September 22, 2004, USA, said that Indian agriculture had not received the investment resources that it needs. Agriculture accounts for 25 % of India's GDP, but in recent years, particularly in the last five years, the rate of growth of agriculture has declined sharply, which is a matter of concern. In part it is because agriculture is not getting the resources it needs to commensurate with its importance in our national economy. Public sector involvement in irrigation would be expanded.

Deepening of Understanding on Agriculture between US and India

The MoU on Science and Technology signed between the U.S and India on 20th July, 2005 made it clear that teaching and research would focus on Biotechnology or genetic engineering often referred to as the second Green Revolution, which would make use of modern advances in biotechnology and other frontier technologies to usher in a new phase of expansion, is needed. This "Science and Technology Agreement" refers the Green Revolution of the 1960s as the beginning of the US-India cooperation in India. It highlights that commercialization of agriculture would give access to more commercial inputs to the farmers. Agricultural credit would be addressed effectively along with the creation of new marketing opportunities, whereby the farmers from selling their produce where they get the highest rate of return (Purushothaman: 2011).

Both governments seemed to believe that in the short term, there is a considerable scope for increased labour power in agriculture. Crops like paddy and other, particularly in the Eastern India, where there is considerable scope for increased productivity, given the cropping pattern there is still very substantial scope for increased absorption for labour in agriculture.

If agriculture becomes more prosperous and farmers invest in farmer implements, in better housing, rural electrification comes about and that creates new opportunities for other enterprises, which are decentralized ones, having considerable scope of absorbing the surplus

manpower released from agriculture to these activities. As a result the pre-mature rush from rural to urban areas would be avoided and ensure that new jobs can be created around rural areas without too much investment in overhead capital.

A June 2005 summit between the Indian defence minister and the US Secretary of Defence was followed by a July 2005 official visit to Washington by the Indian Prime Minister. In their joint statement, Prime Minister Singh and President Bush resolved to launch a U.S.-India Knowledge Initiative on Agriculture focused on promoting teaching, research, service and commercial linkages, to reinvigorate the cooperation that had been so positive during the Green Revolution of the 1960s (Mohan: 2009).

India has become an important country for US foreign policy, as evidenced by recent time and energy spent by the US Presidents and Secretaries of State. India's size, its increased economic interdependence with the United States, its political stability, its democratic form of government, and its geographical placement all make it a priority for foreign policy (Shuja: 2006).

Acceleration of US-India goals on Mutual Agreement on Agriculture

India's future in many respects depends on the re-invention of its agriculture sector. Though services and manufacturing may be the wave of the future for job growth and contributions to GDP, reform of the agriculture sector will be critical to ensuring the secure passage to the future for the majority of India's labour force. Former President George Bush and Prime Minister Manmohan Singh took the first step towards expanding agricultural cooperation in July 2005 when they announced the US-India Knowledge Initiative on Agriculture. Prime Minister Dr. Singh spoke that he was delighted that a new agricultural initiative would be launched in collaboration with the USA, and as such renew an old association in the field of agriculture, which greatly benefitted Indian farmers then. Furthermore, in their March 2006 joint statement, they agreed to expand agricultural cooperation by:

1. Launching the Knowledge Initiative on Agriculture (KIA) with a three-year financial commitment to link India's universities, technical institutions and businesses to support agriculture education, joint research, and capacity building projects including in the area of biotechnology.

2. Endorsing an agreed work plan to promote bilateral trade in agriculture through agreements that would lay out a path to open the US market to Indian mangoes, and to recognize India's authority to certify that shipments of Indian products meet USDA organic standards, as also to provide for discussions on current regulations affecting trade in fresh fruits, vegetables, poultry and dairy items and almonds.

3. Reaffirmed their shared commitment to completing the WTO Doha Development Agenda before the end of 2006, and agreed to work together to help achieve this outcome.

Following this announcement, Washington and New Delhi launched a three-year programme on agriculture (2006–2008), with both committing about US \$ 24 million each to the project. However, much of the US money came within the ambit of the existing USAID agricultural programmes (Purushothaman: 2011; US-India Joint Statement: 2006).

America is conscious of the significant challenges India faces in this regard. Notwithstanding the fact that the Services sector today accounts for 60% of India's GDP as compared to 20% for Agriculture, we recognize that over 60% of India's labour pool remains in the agricultural sector – the same per cent as 25 years ago. Many employed in the Agricultural sector are subsistence farmers, and those employed in the rural sector have effectively seen their share of national income decline by 50% in the past quarter century. A significant challenge for the US is to help India address some of its most urgent domestic problems, particularly in agriculture and education (Burns: 2007).

On November 18, 2006, US Agricultural Secretary, Mike Johanns, in New Delhi met top Indian officials to discuss trade issues and get the Doha talks on track. He urged India to further open its farm markets to exports from other countries.

Recent Trends in US-India Agricultural Cooperation

A de-classified report of the U.S. National Intelligence Council's 2020 project emphatically claimed that the likely emergence of India "as the new major global players, similar to the rise of Germany in the 19th century and the United States in the early 20th century, will transform the geopolitical landscape, with impacts potentially as dramatic as those of the previous two centuries" (Sáez: 2007). Former Secretary Kissinger said in 2008 that, "The relationship with India is one of the very positive things that are happening. We can

cooperate with them both on ideological grounds and on strategic grounds” (Inderfurth: 2008).

The US Secretary of State, Hillary Clinton, at the Indian Agriculture Research Institute, New Delhi on July 19, 2009, gave the message that fighting hunger and ensuring food security was the signature issue of the Obama administration. A White House Report, 2010 declared that Prime Minister Singh and President Obama agreed to work together to develop, test, and replicate transformative technologies to extend food security in India as part of an “Evergreen Revolution (The White House: 2010a). These efforts build on the historic legacy of cooperation between the United States and India during the Green Revolution, and will benefit farmers and consumers in India, the United States, and around the globe, and will extend food security in India, Africa and globally.

The Partnership for an Evergreen Revolution will leverage Indian and U.S. expertise in a number of agreed upon activities, including, enhanced weather and climate forecasting for agriculture, improved food processing and farm-to-market links, partnering for global food security in Africa, and promotion of improved agricultural trade (Clinton: 2010).

Since, agriculture has become more global in its reach, more complex in trade and exchanges, more technologically grounded and ever more challenged with balancing sustainability, productivity and social responsiveness, the Ministry of Agriculture of India and the United States Department of Agriculture (USDA) sought to promote a new “US- India Knowledge Initiative on Agricultural Education, Research, Service and Commercial Linkages”. The objective of the US- India Knowledge Initiative on Agricultural Education, Research, Service and Commercial Linkages (the “Initiative”) is to re-energize our partnership by promoting teaching, research, service and commercial linkages to address contemporary challenges. A key feature of this Initiative will be a public private partnership where the private sector can help identify research areas that have the potential for rapid commercialization, with a view to develop new and commercially viable technologies for agricultural advancement in both countries.

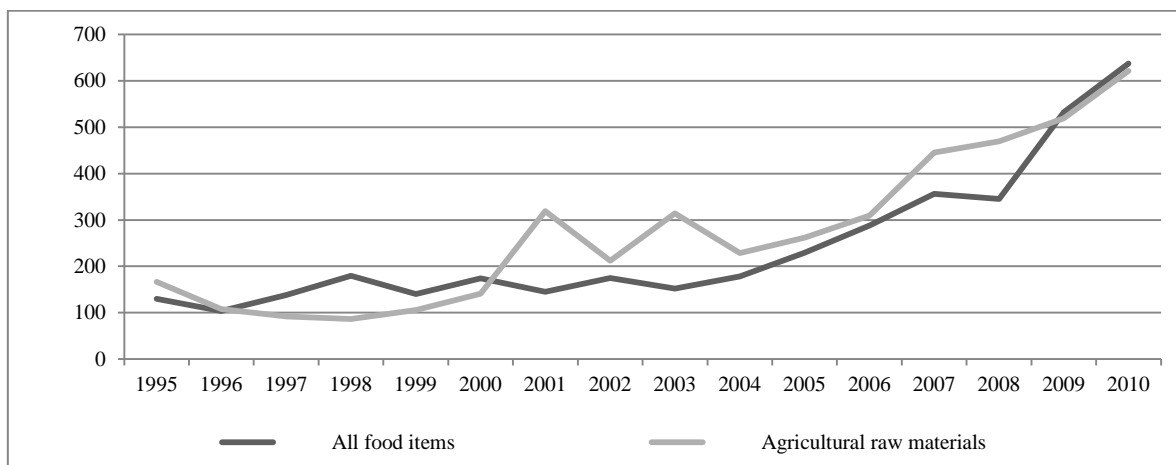
Opportunities for Collaboration in the Food & Agriculture Sector based on the strengths and opportunities in both the countries the following areas have been identified for collaboration in the Food & Agriculture Sector: food processing, dairy, cold chain, infrastructure, agri-biotechnology, bio-fuels, and agricultural diversification in India.

The Under Secretary for Economic, Energy and Agricultural Affairs Robert D. Hormats, while in India in 2010 said that an area of cooperation that requires “the participation of not only our governments, but our businesses, farmers, NGOs, scientists and economists, which is agriculture”.

Agriculture cooperation has played an increasingly important role in the US- India relationship and is poised to grow tremendously, offering plenty of food choices to millions of consumers in both countries. India removed quantitative trade restrictions in 2000, allowing importation of a wider variety of foods, but tariffs remain high, at 30 to 60 per cent on most food items. As a result, the pace of American agricultural exports to India has remained slow, reaching a mere \$260 million in 2004, most of it in high-value consumer products, such as processed and packaged foods.

Figure 10 shows the share of US agricultural exports to India. It is observed that there has been a gradual rise in the exports of both food items and agricultural raw materials to India.

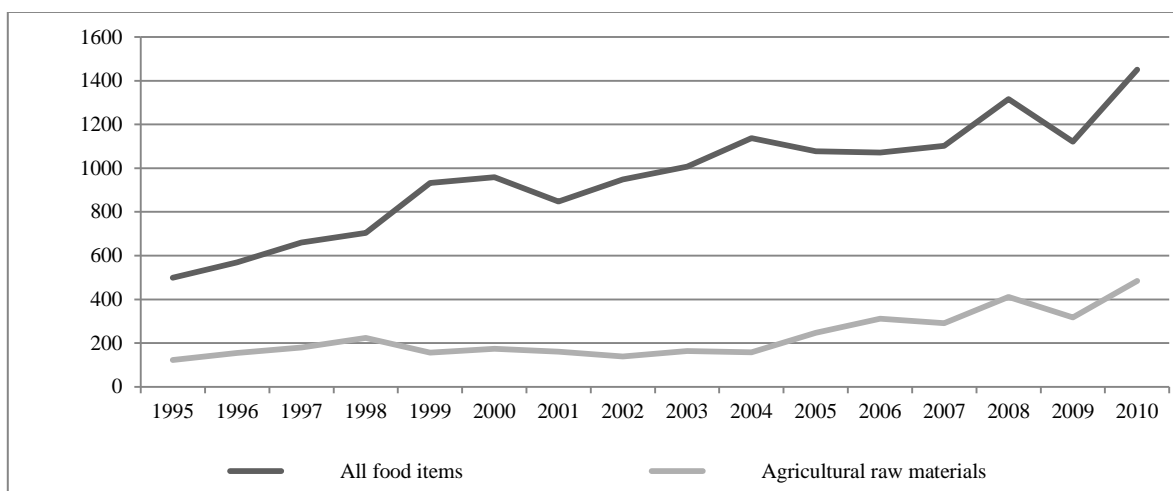
Figure 10 U.S. Agricultural Exports to India, 1995 to 2010 (in Millions, at US \$ 2000)



Source- UNCTAD

Figure 11 shows the share of agricultural imports to the US from India. While there has been a rising trend in the exports of all food items and agricultural raw materials from India to the US, the share of the former is much higher than the latter.

Figure 11 U.S. Agricultural Imports from India, 1995 to 2010 (in Millions, at US \$ 2000)



Source- UNCTAD

Hence, figures 10 and 11 indicate that while USA imports more of food items, India imports more of agricultural raw materials. India's agricultural exports to the United States touched \$1.3 billion in 2009, while the bilateral trade in agriculture, fish and forestry products between the two countries reached \$2.2 billion (Hormats: 2010). While the United States imported tree nuts from India, it also exported the same item to India, besides cotton, soybean oil and fresh fruit to a total value of \$260 million last year, according to the U.S. Department of Commerce. That leaves the balance of agricultural trade in favour of India by more than \$1 billion for the calendar year 2004.

From the U.S. perspective, India is a potential major market for food exports and joint ventures but needs to address issues such as high tariffs, higher transaction costs, trade facilitation, and the remaining long list of blocked imports, remnants of the licensing system and protection of intellectual property rights (IPRs).

Aiming at India's large and growing middle class with increasing urbanization and exposure to western culture, a population of around fifty million concentrated in the major metros, and with growing health consciousness among them, along with the vibrant domestic food processing industry the American food exporters view the country as a lucrative market for business opportunities.

Widespread hunger and under nutrition demand the necessity of a second Green Revolution in India. The US- India Agriculture Dialogue (which also dovetails with the Obama Administration's Feed the Future initiative that aims to reduce poverty, hunger, and under- nutrition around the world) is set to focus on the ways we can harness modern technology to improve crop yields and other productivity metrics for farmers, benefitting the common man. US saw this as a partnership for progress between Indian and American scientists and agricultural experts where each side has something special to contribute to the process.

Responding to the changing food preferences of millions of Indians, the government is aiming to bring reforms to the age-old food safety laws. It is a welcome sign to those who want to sell their products in India and desire a “level playing field” with Indian food exporters. America is keen to see that the new laws are transparent, scientific and not trade restrictive. The US agricultural attaché in India is of the opinion that the United States and India should work on areas of biotechnology, research and investment, and in order to attract investments needed to stimulate growth of the biotechnology sector, proper Intellectual Property Rights (IPRs) protections must be adopted and enforced.

The benefits of such a collaboration flow both ways, as was evidenced in the conclusion a longstanding market access dispute in 2007. Eighteen years since the initial Indian request, the first consignment of Indian mangoes shipped from Mumbai arrived in the United States, opening up the world’s largest market for mangoes to the world’s biggest producer of mangoes. This shipment was hailed as a major breakthrough that augurs well for Indian agricultural exports. Many more milestones such as these are needed to realize the full potential of the U.S.-India economic relationship (Inderfurth: 2008).

The Indian food processing industry as viewed by the Confederation of Indian Industry (CII) is a sunrise sector due to its strong product base and great export potential. According to CII estimates, India produces 41 per cent of the world’s mangoes, 30 per cent of cauliflowers, 28 per cent of tea, 23 per cent of bananas, 24 per cent of cashews and 36 per cent of green peas. These advantages, if leveraged optimally, could translate into India becoming a leading food supplier to the world. In order to increase exports to the United States, India should design a strategy with specific targets and diversify into new products and add to the quality of current exports to the United States such as shrimp, other marine products, nuts and spices. Besides this there are huge opportunities for large investments in food and food processing

technologies, skills and equipment, especially in canning, dairy products, specialty processing, packaging, frozen foods, refrigeration and thermo processing.

Although India is the world's third largest producer of agricultural products after the United States and China, already grows 150 million tons of fruit and vegetables per year and is the largest producer of eggs at 43 million per year, according to the CII. Yet, 40 per cent of all Indian agricultural produce is wasted before reaching the market and could be preserved through new technologies available through partnerships and trade with American and other importers. Grading, sorting, packaging and refrigeration enhance the shelf life of food products and will especially benefit India's poultry and fishery sectors. Trade provides consumers access to a wider variety of food products at reasonable prices. American consumers receive tropical fruits, coffee and exotic French cheese. Imports make fresh fruits and vegetables, such as asparagus and grapes, available at affordable prices during the winter. Indian consumers can also have these advantages.

One of the reasons for India's restrictions on food imports has been a demand by Indian farmers for protection from the competition. A representative of American exporters opined that consumers would always want a choice and there is room for local and imported produce in India. For example, until ten years ago, growers in Himachal Pradesh were resigned to selling their apples at about Rupees 30 per kilogram. When the government lifted quantitative import restrictions in the year 2000, imported apples began appearing in the Indian market and sold at about Rupees 100-120 per kilogram. This led the prices of Himachal apples raise significantly. Hence, the imported fruit, instead of harming the local farmers' interest, boosted the popularity and price of Himachal apples.

As the food industry becomes globalized, it increasingly uses not just trade, but a variety of innovative business arrangements to access global markets and provide services and products (Span: 2005). U.S. Secretary of State Hillary Clinton said that agriculture would be the strongest and most important pillar of cooperation between the United States and India. It is imperative for the two countries to invest in science, to link farms and markets so that farmers can sell their products. The US is determined to export technology and training to bring more assistance to the farmers as a vulnerable community in India so as to strengthen the response to climate change which threatens the waterways in the agricultural part of the world.

Secretary of State Hillary Clinton during her visit to India in 2009 pointed at the crucial need of India's leadership in strengthening agriculture and fighting hunger not just in India but in South Asia, Africa and elsewhere. As a major issue of the Obama administration, the US was a willing partner to confront the challenges of bio-energy, bio-security and bio-diversity and work towards alleviating hunger and ensuring food security. The effort towards achieving this has already begun, and Indian scientists are engaged in the development of seeds that produce higher yield, crops that require less water, farm equipment that conserve energy apart from continuous research in the field which constitutes a critical component of the comprehensive approach to improving agriculture. In order to achieve these objectives, it is imperative to establish a connection between the laboratories (where new technologies were being developed and research was being done), to the fields (where the farmers laboured), to the markets (where the crops were sold), and finally to the homes that relied on the labour of the farmers. To accomplish the above target, it is a pre-requisite that the governments, the private sector, universities, research laboratories, institutions and non-governmental organisations work in consort with each other (Pandey: 2009).

U.S. Secretary of Agriculture Tom Vilsack and Indian Deputy Chairman of the Planning Commission Montek Singh Ahluwalia met in July 2010 to discuss cooperation on agriculture and food security. They renewed their commitment to work together bilaterally. They also agreed on a new Agriculture Dialogue and agreed on a Memorandum of Understanding on Agricultural Cooperation and Food Security that would set a pathway to robust cooperation between the governments in crop forecasting, management and market information; regional and global food security through the Food Security Initiative; science, technology, and education; nutrition; and expanding private sector investment in agriculture. The United States and India expect cooperation under the agreement to expand access to knowledge to improve productivity, safety, and nutritional quality of food crops; to strengthen market institutions and foster growth of agribusiness investment and improve food security and access to adequate quantities and quality of food, particularly for women and young children (The White House: 2010b).

This unequivocal commitment for furthering agricultural cooperation with India was reiterated in the US- India Strategic Dialogue, Washington D.C., in June 2010, by both the US Secretary of State Hillary Clinton and Minister of External Affairs of India S. M. Krishna (Sharma: 2011).

According to a September 2010 'Report to The President on the National Export Initiative' (NEI) by the US Secretary of Commerce, Gary Locke (he was also part of the Obama mission to India), and the NEI has five components of which three apply directly to the new American agriculture hard sell to India.

He said that, "We will improve advocacy and trade promotion efforts on behalf of US exporters, so trade missions can introduce the world to American products and advocacy centres can help US exporters pursue opportunities; reinforce our efforts to remove barriers to trade, so as many markets as possible are open to our products; enforce our trade rules, to make sure our trade partners live up to their obligations".

With emphasis on strengthening agriculture and empowerment of farmers the US President Barack Obama on his visit to India, called for greater cooperation between the Indian and American researchers and scientists, like the one that sparked the Green Revolution in the 1960s, and work together to spark a second, more sustainable Evergreen Revolution that addresses the effects of climate change and drought that the farmers and rural areas face (The White House: 2010c) In November 2010 a crucial Memoranda of Understanding with the Indian Council of Agricultural Research (ICAR) was signed on US President Barack Obama's visit to India in November 2010, for a mutually beneficial research programme in animal husbandry, product agriculture, food technology, agriculture engineering, IT, agribusiness, agri-finance, agri-marketing and biotechnology (The Hindu: 2010). An agreement for cooperation in weather and crop forecasting, to help the farming households save water and increase productivity, improve food processing so crops don't spoil on the way to market, and enhance climate and crop forecasting to avoid losses that cripple communities and drive up food prices was signed between India and US on his visit.

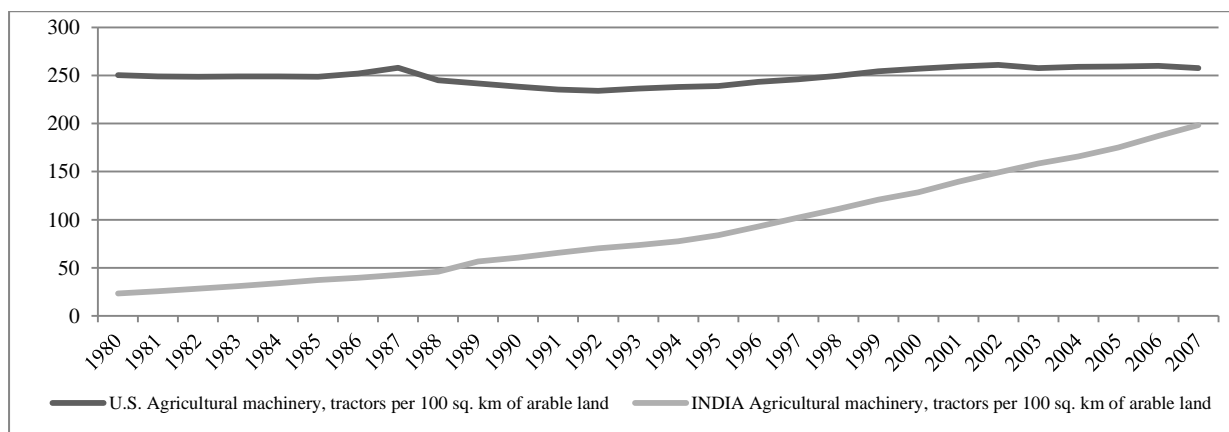
With focus on the issue of climate change and help India predict its increasingly erratic monsoon a US-India tie-up was finalised in July 2010, when Planning Commission member Dr. K Kasturirangan (who headed Indian Space Research Organisation) and secretary in the Department of Earth Sciences, Shailesh Nayak, visited the US National Oceanographic and Atmospheric Administration. The Indian government's justification for the weather and crop forecasting tie-up is that it combines both oceanographic and atmospheric sciences. From the information now available, crop scientists in the ICAR network and earth scientists at ISRO will be able to use the forecasting model. The US administration is hopeful that it would help predict sudden breaks in the monsoon cycle and would enable district-level predictions of

crop sowing, harvesting and movement to a degree not seen before in the sub-continent (Goswami: 2010).

As part of the American food security initiative, Prime Minister Manmohan Singh and President Barack Obama agreed to work together to develop, test, and replicate transformative technologies to extend food security in India as part of an “Evergreen Revolution.” These efforts build on the historic legacy of cooperation between the United States and India during the Green Revolution, and will benefit farmers and consumers in India, the United States, and around the globe, and will extend food security in India, Africa and globally. The White Report on US-India Cooperation in Agriculture, reaffirmed that India’s rise, and stated that India’s expertise would be shared with farmers in Africa who see India as a model for agricultural development. It’s another powerful example of how American and Indian partnership can address an urgent global challenge (The White House Report: 2010d).

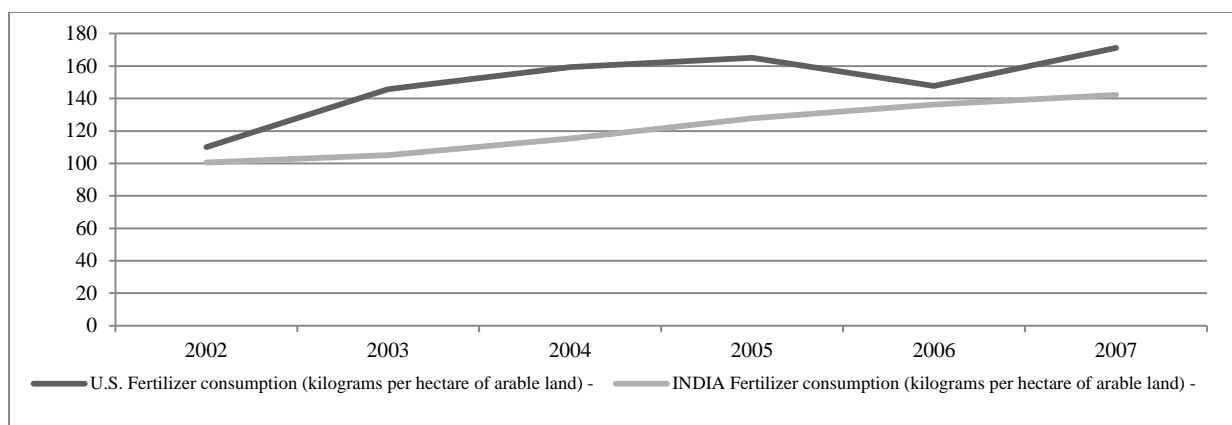
Figures 12, 13 and 14 highlight the low levels of use of science and mechanization in India, and the low reliance on the use of fertilisers, even though more proportion of the population is engaged in agriculture. It can be pointed out here that the problem of food security and availability can be tackled if India adopts greater modes of mechanisation in agriculture. At this juncture the prospects of greater engagement and technology transfers from USA are recognised for the realisation of the goal of achieving the Second-Generation Green Revolution or the Evergreen Revolution in India.

Figure 12 Agricultural Machinery, tractors per 100 sq. Km of arable land.



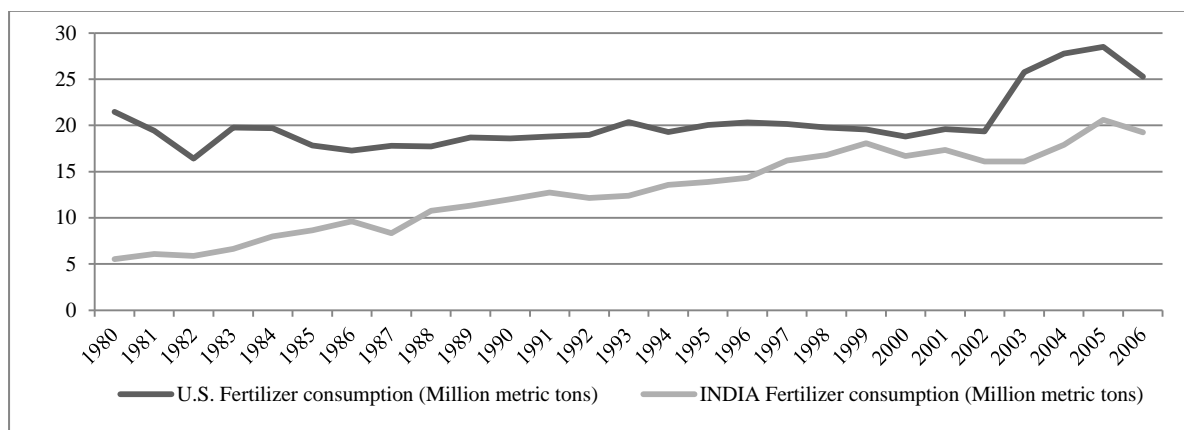
Source- World Bank

Figure 13 Fertilizer consumption (kilogram per hectare of arable land)



Source- World Bank

Figure 14 Fertilizer Consumption (Million metric tonnes)



Source- World Bank

The Partnership for an Evergreen Revolution will contribute to achieving the objectives of the U.S. global development policy, which places a premium on broad-based economic growth as the foundation for sustainable development, and the bilateral U.S. Feed the Future Initiative, which focuses on creating a foundation for sustainable economic growth by helping countries accelerate inclusive agriculture sector growth through improved agricultural productivity, expanded markets and trade, and increased economic resilience in vulnerable rural communities.

Failures to mitigate the effects of climate change will not only affect India's deprived millions, but it also obscures the fact that economic progress and environmentally sustainable development are eminently compatible. The United States has committed to work with India bilaterally, particularly through the inauguration of a "green development" initiative that expands cooperation in agriculture, energy, industry, transportation, infrastructure, and regulation, which would help reduce rising Indian emissions. In his upcoming meeting with Singh, President Obama should promote practical initiatives to mitigate climate change, rather than adherence to a multilateral treaty. Both nations agree that rising carbon emissions spell disaster for the planet, especially for developing countries because of their location in higher risk parts of the world, greater dependence on agriculture, and relatively lower economic and institutional resilience (Tellis: 2009).

Having affirmed to work toward a Second Green Revolution in India, taking inspiration from the Green Revolution of the 1960s, that began with the public-private engagement of the Rockefeller Foundation agronomist Norman Borlaug's hybrid wheat seed work, and furthered by the many US to Indian university partnerships that trained thousands and which transformed India from conditions of famine to food self-sufficiency, US and India are confident of a global impact that would profoundly transform the lives of a quarter of the world's poor.

Influential think tank Asia Society based in New York, affirms that the foundations and governments on both sides can support the agricultural as well as policy research necessary; our venture capitalists and banks can together explore investment mechanisms that allow farmers better access to capital while mitigating risk, perhaps in cooperation with India's cutting edge information or communications technology companies. Indian Information Technology and communications initiatives are already seeking to redress the market information deficit for rural farmers by offering kiosks and mobile phones to help farmers receive the best prices for their goods based on greater market knowledge. Crop risk micro policies should be another avenue to develop, with technical assistance from the US Department of Agriculture (highly experienced with crop risk management) working closely with Indian and American insurance companies (Asia Society: 2009).

It has been outlined that the only part of agriculture in developing countries that will continue to grow significantly faster than population in the next twenty years is the high value sector. The implications for the vast mass of smallholder farmers are sobering: to significantly

improve their incomes per capita over the next twenty years, they must either be part of the shift to high-value agricultural production or increase the share of income they get from non-agricultural sources. Furthermore, it is suggested that unless smallholders become vertically integrated with processors and retailers, they will increasingly have difficulties in participating in increasingly more demanding high-value markets". (Meijerink and Roza: 2007). Protecting agricultural employment remains a high priority because smallholder agriculture provides the bulk of employment in virtually all regions (Landes: 2007).

The rural poor across the world, including India, have contributed little to human-induced climate change, yet they are on the front line in coping with its effects. As many as two billion people worldwide depend on them for their food and livelihood. Smallholder farmers in India produce 41 per cent of the country's food grains, and other food items that contribute to local and national food security. Small farmers cannot be ignored, and special attention must be given to the most vulnerable groups, particularly women, who make up a large percentage of farmers in the developing world. Addressing the plight of smallholders isn't just a matter of equity; it's a necessity if we are going to be able to feed ourselves in the future. Smallholders farm 80 per cent of the total farmland in sub-Saharan Africa and parts of Asia. If we don't help them to adapt to climate change, their achievements, feeding a large portion of humanity, will be endangered. With appropriate support, smallholders can play a key role in protecting our environment, for example through actions that contribute to carbon sequestration and limit carbon emissions (planting and maintaining forests, engaging in agro-forestry activities, managing rangelands and rice lands, and watershed protection that limits deforestation and soil erosion).

To continue farming in a sustainable way in the face of climate change, rural women and men need to be given the resources to cope with the challenges. Smallholder farmers need support such as resilience-building technologies (including drought- and salt-tolerant seed varieties and new methods of rainwater harvesting), and training in sustainable practices of conservation agriculture, such as minimum-till farming to reduce erosion and moisture loss. Investing in adaptation measures now will be far less costly than in the future.

The International Fund for Agricultural Development (IFAD) and the M.S. Swaminathan Foundation, together with the government of India and other partners, has undertaken a range of projects to do just that. Climate-resilient sustainable agriculture requires knowledge. Successful projects such as these can provide a model for others to follow. Knowledge

transfer that brings the benefits of research from the laboratory to the farm is essential. The upcoming 17th Conference of the Parties (COP17) to the United Nations Framework Convention on Climate Change (UNFCCC), and the United Nations Conference on Sustainable Development (UNCSD) in Rio de Janeiro in June 2012 — marking the twentieth anniversary of the landmark Earth Summit that produced Agenda 21, “a roadmap” for sustainable development — will both need to ensure that agriculture and the world's smallholder farmers are high on the agenda if we are to overcome the many challenges we face in achieving the Millennium Development Goal. Price volatility and the persistence of widespread, endemic and hidden hunger underline the need for urgent attention to enhancing the productivity and profitability of smallholder agriculture in an environmentally sustainable manner. This is the pathway to increasing agriculture's contribution to climate change mitigation as well as to sustainable food security (Swaminathan and Nwanze: 2011).

Climate change holds the greatest risks for India in the agricultural sector, a sector that employs half of the Indian workforce and yet makes up just 18 per cent of the GDP. The challenge of ensuring food security and social stability demands greater national investments in rural infrastructure and agriculture and also simultaneously requires finding a way to leapfrog to green technologies.

According to Prof. Brahma Chellaney, an enduring international regime to combat global warming will have to be anchored in differential responsibility, a concept at the heart of the United Nations Framework Convention on Climate Change and the Kyoto Protocol (it is a concept also embedded in international law through several other agreements, from the Montreal Protocol on Substances that Deplete the Ozone Layer to the Treaty of Maastricht.) Climate change, it is evident, is not just a matter of science but also a matter of geopolitics (Chellaney: 2009).

The technology regime of green revolution is certainly not anymore in position to tackle in a sustainable way the contemporary challenge of food security and absorption of surplus labour in India. It describes the process of evolution of failures of the Indian pathway of green revolution (GR) as being determined not only by the limitations imposed upon by the inability to complete land reforms but also by the limits of selected technology regime of green revolution arriving earlier than expected that the agro-food innovation system is unable to deal with in an adequate way (Abrol: 2008).

Technology, to a great extent, is the foundation of the U.S. position as the world's leading exporter of agricultural products. The United States continues to dominate the field of agricultural technology and maintains its edge in agricultural. The introduction of the crop biotechnologies into commercial usage has enhanced the U.S. advantage over other nations; however, because international diffusion of biotechnology can occur rapidly, U.S. farmers may enjoy cost advantages for a shorter period of time than has occurred with past technological innovations (Phillips and Lu: 1987).

According to the US Agency for International Development, the partnership in agriculture is expected to leverage Indian and U.S. expertise in a number of agreed-upon activities, including the following:

1. Enhanced Weather and Climate Forecasting for Agriculture: U.S. - India collaboration will give farmers reliable information and tools to enhance agricultural production and manage the risks of weather-related crop loss in the context of changing climatic conditions and shifts in the global agricultural market. This includes building a broad U.S. and Indian interagency partnership to:

- (a) Enhance forecast systems in India in advance of the 2011 monsoon season;
- (b) Advance crop forecasting and strengthen agricultural market outlooks; and
- (c) Improve water resource modeling and flood forecasting for agricultural management.

2. Improved Food Processing and Farm-to-Market Links: The United States and India will collaborate to foster an improved food value chain, reduced losses and an Indian food processing industry, by focusing on:

- (a) marketing, cold chain logistics, and sharing of market knowledge by introducing Indian private entrepreneurs and public sector officials to U.S. best practices, standards and technologies in cold chain infrastructure;
- (b) Technology transfer, such as in packaging or water recycling; and
- (c) Programs to improve quality, safety, and professional certification.

3. Partnering for Global Food Security in Africa: The U.S. - India partnership will leverage unique Indian capabilities to collaborate with U.S., African, and other international partners to improve food security.

- 4. Promoting Improved Agricultural Trade:** U.S. - India agricultural cooperation and India's own agricultural productivity will benefit from policies that remove or reduce barriers to trade and investment. The U.S. and India continue an ongoing bilateral dialogue on agricultural trade issues in the Trade Policy Forum Agricultural Focus Group (The White House: 2010).

India and the US are cooperating at a government-to-government level, at an enterprise-to-enterprise level, at a university-to-university-to-university level, and at levels that are combinations of two or all three levels. All support the Agricultural Knowledge Initiative (AKI) objective of facilitating technology transfer, trade, and investment and bolstering agricultural research, education, and extension between India and the US. A non-exhaustive list of on-going investment-generating activities under the AKI umbrella includes:

1. Strengthening Agriculture Marketing Systems

A US Agency for International Development (USAID) funded Memorandum of Agreement between US Department of Agriculture and the National Institute of Agricultural Management, India seeks collaboration in developing market-useful grades and standards, farmer access to market news and information, farmer-to-retailer (or processor or exporter) awareness of food and product safety (Good Agricultural Practices, Good Processing Practices, Good Management Practices). Investment Impact: creating national and international markets for Indian farm produce depends on information about those markets, and product standards accepted and used by buyers and sellers. Developing tools to improve information and standard-setting will contribute to investing.

2. Partnerships for Food Industry Development

A USAID world-wide program implemented by Michigan State University to

- (i) identify fresh produce markets for developing countries;
- (ii) promote private sector links between developing country suppliers and buyers;
- (iii) improve produce safety and quality systems and private sector implementation in developing countries; and
- (iv) Improve produce supply chains.

The collaboration in India is with the Maharashtra State Agricultural Marketing Board and Maharashtra mango producers in mango marketing, more directly connecting producers and retailers/processors.

The impact of the investment is that it shortens the supply chain that is, directly connecting producers to retailers, processors or exporters, thereby improving product quality to the advantage of both buyers and sellers. This partnership is developing more-efficient alternatives to established markets, and increases the attractiveness of investments of produce marketing and thus of production.

3. Commodity Futures Regulation Project

Collaboration between the USAID and the Department of Consumer Affairs, Ministry of Consumer Affairs Food and Public Distribution, India has been brought about, in order to bring best practices to regulation. Technical assistance and training is now available to the Forward Markets Commission, Mumbai and on commodity futures exchanges from the US regulator, the Commodity Futures Trading Commission, so as to enable rational enterprise planning, and production planning, by improving price discovery and controlling costs. Greater confidence in these markets encourages production and processing investments.

4. Higher Education Partnerships

With USAID grants, six universities are collaborating with five Indian universities in biotechnology, food processing, curriculum development (focus on agribusiness) and extension programs, and outreach to local agribusinesses. The mutual benefit in working together would lead to outcomes of better availability and application of academic knowledge and agriculture graduates more-appropriately prepared for employment.

5. Agricultural Biotechnology Support Project

The US and Indian universities, GOI agricultural research institutes (with Department of Biotechnology support) and seed companies are collaborating to develop and commercialize biotech food crops. Intellectual property policies and procedures for state agriculture universities have been developed through university-to-university collaboration.

Development of public-private and public-public-private partnerships through this collaboration would entail the benefits of new ways to share or transfer intellectual property, product research, and marketing planning.

6. South Asia Bio-safety Program

A USAID grant through an international agricultural research centre, International Food Policy Research Institute (IFPRI), assists Ministry of Environment and Forests, Department of Biotechnology, Ministry of Science and Technology and Ministry of Health and Family Welfare, Government of India and state agencies in bio-safety management including policy and training, and raising awareness of biotechnology and bio-safety. As a result a well-functioning regulatory process will reduce this constraint and increase investing.

7. Rice-Wheat Consortium

A USAID grant through an international agricultural research centre for improvement of maize and wheat, CIMMYT, Mexico, assists an existing collaborative program of ICAR, state universities and state governments in water conserving tillage practices. The grant finances promotion of technologies through demonstration and mobilizing small machinery manufacturers to commercialize the technologies.

8. Workshops (on contract farming, cold-chains, biotechnology, water management)

Indian and US AKI participating agencies and Board members are sponsoring a variety of conferences and workshops to investigate cooperation within the four theme areas that is, contract farming, cold-chains, biotechnology, and water management. Since small joint projects are underway between US and Indian universities, much exposure and information-sharing in the recent “Linking Farmers to Markets” conference, that may lead to investments and partnerships.

9. Short-term training programs (Fulbright, Cochrane, and Borlaug)

On-going exchange programs of the US State Department and USDA like the Norman E. Borlaug International Agricultural Science and Technology Fellowship Program, the Fulbright Program and the Cochrane Program have reserved slots for AKI-associated participants, and hence establishing and encouraging relationships that may result in future collaborations and facilitate effective inter-agency, and public-private, cooperation and effective problem-solving.

Potential for collaboration in agriculture and agri-business investments would help in creating structures and systems that support or enable investment (regulation, quality standards, Information, organizing), introducing or developing public-private partnerships (universities and seed companies or agri-businesses), exposure, training, co-investing in and co-generating technologies, facilities, market chains. These are not mutually exclusive categories but show that collaborations can be of different types and are for different purposes; each contributes to AKI objectives as in more basic research, education, training or regulation, or direct.

There are several issues that have affected the pace of deepening collaboration under the AKI. The AKI promotes technology transfer, trade, and investment and bolstering agricultural research, education, and extension. Within this broad objective, the US lead agency, USDA, has focused on the first three components while the Indian nodal agency, ICAR, has focused on the last three and particularly on research. A second issue has been participation of the Board members. Roles and responsibilities are not defined; a result has been domination of meetings by the co-chairs with limited participation by others. A special issue is the role of non-governmental, non-university members whose expertise and resources have not yet been mobilized (Paulson: 2007).

After an elaborate discussion on the US- India collaboration in the agricultural sector, it is important to highlight the major stakeholders from the USA in Indian agriculture and major Indian stakeholders in the American agriculture. The US Foreign Agricultural Service (FAS) Co-operators based in India include the U.S. Dry Pea and Lentil Council, the U.S. Grains Council, Cotton Council International, the Almond Board of California, Blue Diamond Growers, the Washington State Apple Commission, the American Soybean Association, the California Dried Plum Board, the California Pistachio Commission, the Pear Bureau Northwest, the California Table Grapes Commission, the Southern United States Trade Association (SUSTA), the Mid- America International Agri-Trade Council, and Food Export USA – Northwest.

A number of Indian agro-based and food companies have their presence in the United States, which include the Indian Oilseeds and Produce Export Promotion Council, India Mart, India Food Exports, Swani Spice, Mittulaul Lalah and Sons, Manjilas Group of Companies, Kitchens of India which is part of the Indian Tobacco Company (ITC), Mahindra and Mahindra, the Eight O'clock Coffee and the Good Earth Tea which was acquired by the Tata Group in 2006 and 2005 respectively, and a host of other such companies. It is worth

mentioning that Kitchens of India's products were the talk of the town among critics and foodies at the notoriously finicky fancy food shows in New York and San Francisco, where they premiered in 2003. After getting rave reviews, Kitchens of India began offering its line in the U.S. in the mainstream grocery stores. Today there isn't a major grocery chain that doesn't carry the products in at least some part of the country (U.S.-India Business Council: 2008). With the growing westernisation among the Indian middle-class, especially in the metropolitan cities, a number of U.S. agriculture and food companies have made their solid presence-base in India. These include Cargill, ConAgra, ADM, Pillsbury, Kellogg's, McDonald's, Pizza Hut, Kentucky Fried Chicken, Subway, TGIF, Pepsi, Coca-Cola, Corn Products International, Monsanto, Dow, John Deere, and DuPont. Most of them source their input requirements locally. Select U.S. hotel chains such as Radisson, Best Western, Hilton, and Marriott have also established a presence through Franchising (India- Agricultural Economy and Policy Report: 2009).

Since 1991, when India and the United States established and then augmented their commercial ties, the food and agriculture industry in India has posed many challenges, but now also offers the greatest potential for providing real benefit. Dr. Borlaug and Dr. Swaminathan combined Indian and American expertise to launch a Green Revolution that changed forever the way the world feeds itself. Once again, the populations are witnessing the partnership of American and Indian expertise that will revitalize the Indian agricultural landscape and provide sustenance for our countries and for the world (U.S.-India Business Council: 2009).

CHAPTER III

**U.S. – INDIA AGRICULTURAL COOPERATION: ISSUES
AND CHALLENGES**

During a time of dramatic improvement and reinvigoration in the bilateral relations between India and the United States, their interactions in multilateral settings have produced some of their most difficult encounters, notably those in the World Trade Organization (WTO) (Schaffer: 2009). Such irritants between the two nations especially in the path of a smooth cooperation in the field of agriculture is also one of the causes as to why agriculture remains the most contested sectors in the dialogues on international trade. Due to the coexistence of a very high level of domestic and export subsidies and almost impenetrable import barriers for temperate and tropical zone agricultural goods in USA, has held up negotiations in the Doha Development Round of the WTO. The controversy over Genetically Modified (GM) Foods has been yet another recent causal factor in the emergent discord in Agricultural Cooperation envisaged by the two.

3.1 WTO AND DOHA DEVELOPMENT ROUND NEGOTIATIONS

The United States and India were both founding signatories to the General Agreement on Tariffs and Trade (GATT).

The Uruguay Round of multilateral trade negotiations concluded in Marrakesh, Morocco in 1994, led to the establishment of the World Trade Organisation (WTO) as the successor of GATT, which came into being on 1st January 1995.

The World Trade Organization is the principal international organization governing world trade. Its goal is to supervise and liberalise the international trade, through transparency of trade rules and procedures (WTO: 2009).

Although decisions in the WTO are made by consensus, the United States has a highly influential role in shaping decisions within the institution befitting its status as the largest trading nation in the world. It is a leading proponent of the trade-liberalizing principles, continually urging for further discussions on opening markets to trade.

The Agreement on Agriculture (AoA) was included in the Doha Ministerial Conference, 2001 as a broad negotiating agenda, commonly known as the Doha Development Agenda (DDA). Agriculture has become the lynchpin in the Doha Development Agenda. The key outstanding issues for the Doha Round centre around trade in agricultural goods, non-agricultural market access (or NAMA), trade in services, and trade remedies. At present,

differences on trade in agricultural goods are foremost among the four remaining issues, and are generally viewed as crucial for the successful completion of the Doha Round (Kronstadt: 2007).

The U.S. goals in the new round coincided with the scheme of the Doha Development Agenda (DDA) that called for comprehensive negotiations aimed at substantial improvements in market access; reductions of, with a view to phasing out, all forms of export subsidies; and substantial reductions in trade-distorting domestic support (Fergusson: 2008; Bouet and Laborde: 2009). Despite being a somewhat reluctant partner, India is actively committed to the DDA negotiations (Country Strategy Paper: 2007). Indian representatives committed themselves to comprehensive negotiations aimed at substantial improvements in market access; reduction of, with a view to phasing out, all forms of export subsidies; and substantial reductions in trade distorting domestic support (Srinivasan and Tendulkar: 2003).

Although the objective of the Agriculture Agreement is to reform trade in the sector and to make policies more market-oriented thereby improving predictability and security for importing and exporting countries alike (Department of Commerce, Ministry of Commerce and Industry, Government of India), yet in India a Parliamentary Standing Committee on Commerce report 1998, expressed apprehension about the membership of this new international organisation (WTO) as entailing ‘an erosion of a country’s sovereign rights’ and criticized as ‘self-inflicted injury’ the government decision to ‘lower tariff rates much beyond what the WTO provisions had allowed for the transitional period’ (Tendulkar: 1999).

Overall, the results of the negotiations are oriented to provide a framework for the long-term reform of agricultural trade and domestic policies in the years to come. It makes a decisive move towards the objective of increased market orientation in agricultural trade. The rules governing agricultural trade are strengthened is focussed on improved predictability and stability for importing and exporting countries alike. These also include provisions that encourage the use of less trade-distorting domestic support policies to maintain the rural economy, that allow actions to be taken to ease any adjustment burden, and also the introduction of tightly prescribed provisions that allow some flexibility in the implementation of commitments. Specific concerns of developing countries have been addressed including the concerns of net-food importing countries and least-developed countries.

India’s access to the agricultural markets of the developed countries, in the light of the DDA has been a questionable issue, especially after the passage of the Farm Bill in the US

Congress and its subsequent signing into law on May 13, 2002, substantially raised US agricultural subsidies. It is likely to lead to similar increases in Europe and other developed countries, and to have a deleterious effect on upcoming trade negotiations. The Doha Declaration of November 2001, in its section on agriculture, had called for “substantial improvements in market access for developing countries; reductions of, with a view to phasing out, all forms of export subsidies”. This goal, already ambitious at the time, is now much farther from reach. The US Farm Bill will make it politically very difficult for developing countries to agree to concessions of their own on other topics (Wacziarg: 2003).

A Framework Agreement was approved by the WTO members on July 31, 2004 that included the most contentious and crucial issue of agriculture, which set the stage for negotiations to determine specific targets or formulas (“modalities”) for curbing trade-distorting domestic support, reducing trade barriers and eliminating export subsidies (Hanrahan: 2005).

It is generally understood that resolution of all the outstanding issues must occur for a successful outcome to the Doha Round, in part because the four key issues are to varying degrees linked to one another. Despite several rounds of discussions, the differences between various groups of countries remained, especially among the Group-Six (United States, EU, Japan, Australia, Brazil, and India) as they failed to break a deadlock on agricultural tariffs and subsidies and the talks were stalled indefinitely. Members of the US Congress praised the hard-line position taken by U.S. negotiators that additional domestic subsidy concessions must be met with increased offers of market access (Fergusson: 2008).

Despite this and other substantial obstacles to the success of the Doha Round, it is imperative for India to actively engage in these negotiations, as it constitutes the best option for further liberalizing the Indian economy and reaping the benefits. Authors have pointed that India in particular, should be prepared to concede significant reductions in their barriers in exchange for a softening of industrial countries’ barriers, especially for agricultural imports. Both of these would benefit the developing world (Wacziarg: 2003).

In November 2006, during a visit to New Delhi to discuss trade issues with top Indian leaders, the then U.S. Agriculture Secretary Mike Johanns urged India to match “ambitious” U.S. offers and “lead the way toward unlocking the Doha negotiations by offering real market access” (Martin and Kronstadt: 2007).

Although Indian officials later re-joined the negotiations, but by June 2007 claimed that the talks had “collapsed” due to lack of convergence among the major actors. This was countered by the then US Trade Representative Susan Schwab who expressed surprise at the rigidity and inflexibility of India (and Brazil) and suggested that “some” countries were not willing for a fruitful Doha round (Kronstad: 2007).

India was at the centre of the dispute over agricultural trade that ultimately led to the breakdown of the Doha Round in 2008. The fundamental problem was that it saw little gain for itself in a successful Doha Round, and hence had little political incentive to compromise. Accentuating this problem, trade negotiations went to the heart of India’s politics. The WTO is primarily a forum for negotiations among member countries, rather than a technical organization run by an expert secretariat. India’s participation is carried out almost entirely by the commerce minister and negotiators drawn from India’s civil service, rather than by Indian nationals on the international staff. From the U.S. perspective, the WTO is the most difficult setting for dealing with India (Schaffer: 2009).

The then Under Secretary for Political Affairs, USA, Nicholas Burns pointed that as India's rural poor become integrated into global markets, the United States and India must also find a way to bridge differences on global trade. USA has differed with India on critical issues during the long Doha Round of trade negotiations. However it continues to believe that the completion of the Doha Round talks offers the best hope for expanding global economic growth and prosperity. An Indian global trade policy that increases liberalization and stimulates significant and sustained trade in agriculture and manufactured goods would benefit all (Burns: 2007).

As per the WTO estimate, successful conclusion of Doha talks could boost the global trade by up to US \$ 200 billion within a year (The Hindu: 2011).

3.2 CONTROVERSY OVER SUBSIDIES

Subsidies are the payments made by governments to manufacturers or farmers to reduce the cost of their product to consumers (Chanda: 2006). The subsidies given by the governments towards agriculture and agricultural products have been a source of conflict between nations trading on these products.

The Uruguay Round Agreement on Agriculture (AoA) sought to discipline the farming sector by putting restrictions and imposing reduction commitments on domestic and export subsidies. It was expected that the integration of agriculture in the multilateral system would reduce distortions in international agricultural trade and would bring benefits for developing countries. It has been more than ten years since the Uruguay Round (UR) AoA was implemented. The implementation experience shows that domestic subsidy reduction commitments turned out to be the least binding of all WTO commitments (Pal: 2005).

One of the primary objectives of the Doha Development Round was to substantially reduce the distortions that have plagued global agricultural markets, caused primarily through subsidies and protection by the developed countries. So far, the negotiations have seen that the developed countries have been reluctant to lower their farm subsidies, while the onus has been on developing countries to provide greater market access. However, developing countries have been able to secure access to two significant measures, viz. Special Products (SPs) and the Special Safeguard Mechanism (SSM) both of which are especially intended to protect the food security and livelihoods of billions of poor and vulnerable farmers, which form the bulk of the farm population in their countries, from the vagaries of the global market place. SPs are the agricultural products on which a developing country can ask for tariff relaxation on grounds of development, food security and livelihood concerns. India has problems with the advance disclosure demand and the restrictions on the number of products to which SP can be applied. The US wants a limit on the number of SPs. In the case of SSMs (which refers to tariffs that countries can impose in the case of an import surge of agricultural products), India wants unrestricted rights to increase duties to protect its farmers. The US and other developed countries want to limit the extent of tariffs that can be imposed. India sees food aid as a form of export subsidy and prefers that food aid be given as cash and not in kind. India is also against the US policy of monetization of food aid, as it causes distortions in the market, both local and global (Purushothaman: 2011).

India maintains that the U.S. farm subsidy program—worth an estimated \$17.7 billion per year—provides U.S. agricultural exports with an unfair trade advantage. To the Indian government, the U.S. program poses a threat to millions of Indian farmers; hence it maintains restrictions on U.S. agricultural imports. In addition, India sees the U.S. reluctance to curtail or eliminate its farm subsidy program as a major roadblock in making progress in the Doha Round negotiations (Kronstadt, et al.: 2011)

The Doha talks were suspended indefinitely over methods to reduce trade distorting domestic subsidies, eliminate export subsidies, and increase market access for agricultural products. The United States and other developed countries seek substantial tariff reductions in the developing world. India, like other members of the “G-20” group of developing states, has sought more market access for its goods and services in the developed countries, while claiming that developing countries should be given additional time to liberalize their own markets. In particular, India is resistant to opening its markets to subsidized agricultural products from developed countries, claiming this would result in further depopulation of the countryside.

The July 2004 Framework Agreement provided a basis for which to continue the agriculture talks. On domestic support, subsidies are to be reduced by means of a “tiered” or “banded” approach applied to achieve “harmonization” in the levels of support. Subsidizing countries will make a down-payment of a 20% reduction in levels of support in the first year of the agreement. Tariff reduction will utilize a tiered formula with a harmonization component, but with some exceptions for “import sensitive products” (Fergusson: 2008).

High subsidies in developed countries are hurting the developing countries. The subsidies have artificially depressed commodity prices in global markets and have thus prevented efficient producers in the developing countries from getting their rightful share in the global markets (Centre for WTO Studies: 2008). Recent estimates by International Food Policy Research Institute (IFPRI) reveal that protectionism and subsidies in industrialized countries cost developing countries about US\$24 billion in agricultural and agro-industrial income (Pal: 2005).

The extremely high level of US government payments to farmers while simultaneously encouraging other countries to reduce domestic agricultural supports, as a result exemplify the fact that negotiations within the WTO to come to a common Agreement on Agriculture are completely bogged down, with many nations accusing the US for serious violations of the principles of free trade in agriculture.

The U.S. farm subsidy program is also a source of India’s concern about agricultural imports from the United States. Domestic support in US led to low international commodity prices which have forced many developing countries out of farm trade, besides undermining market access in areas like cotton and sugar.

Farm subsidies distort the production structure of a country by raising crop prices in a country's internal market. Higher prices induce over-production of the subsidized crop. Most agricultural goods are price and income inelastic (which means there is little change in the demand of this product even if there are greater changes in the prices or the income levels) in nature and therefore, high income countries tend to have a stagnant demand for such commodities. Over production and stagnant demand for agricultural goods lead to 'structural surpluses' in these countries. This surplus not only squeezes out imports in the already restricted domestic markets, it is also dumped in the international market at a cheaper rate. This leads to price suppression of that commodity in the international market. Export subsidies are used to cover the price difference between high domestic prices and lower international prices (Pal: 2005).

During the last decade, Washington raised the subsidies given to U.S. agricultural producers by 300 per cent, or \$32 billion, annually (Drummond: 2001). The likelihood of a substantial reduction in U.S. corn-based ethanol subsidies is unlikely. Once democratic governments begin to subsidize something, withdrawing the subsidy becomes politically very difficult, mainly because the subsidies create constituencies which make a great deal of money and wield substantial political power (Natsios and Doley: 2009). The elimination of domestic subsidies is the key issue dominating international negotiations on US agricultural policy. While some in the European Union or Cairns Group countries demand an end to US subsidies as a point of fairness or to equalize perceived market advantage, the developing world seeks an end to these subsidies as a point of survival. The goal, well beyond that of merely ending direct payments to US farmers, is to restore a measure of sustainability for the world's poorest farmers for whom receiving better prices, that is, fairer prices, in the marketplace is absolutely critical (Ray et al.:2003).

USA, through its Farm Bill 2002 (Farm Security and Rural Investment Act of 2002), has proposed to increase its agricultural subsidies significantly. Under this law, federal spending on US agriculture is slated to increase by US\$ 82.6 billion over the next ten years. This will be in addition to US\$ 100 billion which the US Government was already set to give farmers.

The WTO Annual Report 2003 indicated that this huge increase in subsidies primarily would be in production enhancing subsidies. It says: "several of the subsidies contained in the bill would provide incentives to boost production. Under these growers of wheat, corn, rice, soybeans, and cotton will be guaranteed a certain price irrespective of market conditions,

thereby distorting both production and trade; in the event that prices fall further, such subsidies will rise accordingly. This large increase in production enhancing subsidies in the US is likely to exacerbate the distortions present in global agricultural trade (Pal: 2005).

The negative effects of the US policy on agriculture are transferred to poor farmers outside the US through the operation of the downward pressure the US prices put on world commodity prices. Low prices affect every other country, especially those driven by trade liberalization to reduce domestic and border protections for their agricultural sectors. Although the US does not hold a monopoly—it is one of a few major players in the oligopolistic world markets—low US prices consistently drive down world prices directly affecting the livelihoods and sustainability of small farmers around the world (Kapur and Ganguly: 2007).

India, along with a number of other nations, views the current U.S. farm support program as a form of trade distorting export subsidy and is calling on the United States to significantly reduce the annual limit on farm assistance. India has rejected the proposed U.S. limit of \$22 billion as insufficient, pointing out that the actual level of support in 2006 — \$19 billion — was already below the U.S. offer. India, the United States, Brazil, and the European Union are actively discussing the agricultural support programs as part of the reinvigorated Doha Round negotiations.

The Indian government has been spending large sums on fertilizer subsidies, some part of which is a subsidy to agriculture, but besides that farmers have had to pay more than world prices for inputs, e.g. machinery and pesticides (Joshi and Little: 1996).

India has followed a two pronged approach towards domestic subsidies in the current of negotiations. On one hand, India wants substantial reduction in domestic subsidies in developed countries. On the other hand, it proposes that there should be sufficient flexibility in the rules to allow developing countries pursue support measures towards non-trade concerns like poverty alleviation, rural development, rural employment and diversification of agriculture.(Pal: 2005).

The prospects of reining in of US farm subsidies in the near future were effectively squashed by the recently enacted US Farm Act 2008. According to some estimates, US farm subsidies are expected to increase by \$20 billion during the pendency of the new Farm Act (2008-2012). This in essence means that the farm sector in the United States would continue to

provide subsidies using the categories of subsidies in the so-called “Green Box”², i.e. those that are not subjected to any reduction commitments (Centre for WTO Studies: 2008).

It has been observed that the US has increased its domestic subsidies, while fulfilling its WTO subsidy reduction commitments. This apparently puzzling situation can be explained by the fact that after the Uruguay Round, most developed countries have shifted a significant part of the prohibited subsidies (the Amber Box³ subsidies) to the permissible Blue⁴ and Green Box subsidies, which are supposedly less trade distorting.

Currently, Blue and Green Box subsidies account for a significant share of domestic subsidies in many WTO Member countries.

²The green box is defined in Annex 2 of the WTO Agreement on Agriculture. The green box subsidies do not distort trade, or at most cause minimal distortion. They are government-funded (not by charging higher prices to the consumers) and must not involve price support. They tend to be programmes that are not targeted at particular products, and include direct income supports for farmers that are not related to (are “decoupled” from) current production levels or prices. They also include environmental protection and regional development programmes. “Green box” subsidies are therefore allowed without limits, provided they comply with the policy-specific criteria set out in Annex 2 (WTO).

³All domestic support measures considered to distort production and trade (with some exceptions) fall into the amber box, which is defined in Article 6 of the Agriculture Agreement as all domestic supports except those in the blue and green boxes. These include measures to support prices, or subsidies directly related to production quantities.

These supports are subject to limits: “de minimis” or minimal supports that are allowed (5% of agricultural production for developed countries, 10% for developing countries).

The reduction commitments are expressed in terms of a “Total Aggregate Measurement of Support” (Total AMS) which includes all supports for specified products together with supports that are not for specific products, in one single figure. In the current negotiations, various proposals deal with how much further these subsidies should be reduced, and whether limits should be set for specific products rather than continuing with the single overall “aggregate” limits.

⁴This is the “amber box with conditions” — conditions designed to reduce distortion. Any support that would normally be in the amber box is placed in the blue box if the support also requires farmers to limit production.

At present there are no limits on spending on blue box subsidies. In the current negotiations, some countries want to keep the blue box as it is because they see it as a crucial means of moving away from distorting amber box subsidies without causing too much hardship. Others wanted to set limits or reduction commitments, some advocating moving these supports into the amber box.

However, there is a growing consensus among economists that all Blue Box measures and some of the Green Box measures indeed have trade distorting effects and by providing exemptions to these types of subsidies the agreement has allowed the distortion in agricultural trade to continue.

India, in its proposal to WTO, has categorically pointed out that all Blue and Green Box subsidies are not as minimally trade distorting as is made out on account of the following reasons:

- (i) The ability of the farmers to take risk as well as to make farm investments substantially increases if support in the form of assured payments including decoupled income support is provided, since such payments entail insurance and wealth effects.
- (ii) These direct payments encourage greater use of farm inputs and enhance access to technology leading to over-production, which in turn distorts agricultural markets.
- (iii) Direct payments can be a powerful incentive to maintain or increase current production in the expectation of receiving higher levels of future support.
- (iv) Direct payments have been found to increase land values resulting in maintenance of land in farming rather than putting it to some other economically better use.
- (v) Direct heavily subsidise the cost of production, which enables the receivers of such support to capture a substantial share in the export markets at the cost of more efficient producers.

Economists have debated the agricultural producer support by the US. At the domestic level the high costs of such support are borne by the consumers and taxpayers, while at the international level, developing countries that might otherwise enhance their continued economic development by exporting agricultural products to developed countries are hindered by tariffs, subsidies and other mechanisms designed to keep them out of business (Thies and Porsche: 2007). The justification for agricultural export subsidies is that they reduce government costs of deficiency payments (Leathers: 2001).

Indian economists are of the view that, subsidies elsewhere do not call for hurting the Indian economy, just as the protection in India has no effect on other country's subsidies. Also, the sudden exposure of the Indian farmers to world prices could be serious; hence it must be

phased over a reasonable time. Given the opportunity, India's diverse agriculture can be very competitive internationally and without any fear of competition (Srinivasan: 2003).

Most critics of these direct payments or subsidies in the US, point to their role in increasing production, thereby glutting the market and forcing prices lower. The continuation of this practise is likely to lead to the US government outlays for farm programs exceed \$247 billion. (Ray, et al.:2003). Critics of subsidies argue that even though developing countries have a distinct cost advantage in the production of agricultural products, given the large subsidies given to competitors in advanced nations, they are unable to compete on an even playing field (Shariff: 2008).

The US proposal of a substantial liberalization of world agricultural trade does not offer a viable option as it does not eliminate export subsidies on all products, but only on "products of particular interest to developing countries"—the subsidies on other products would be merely reduced. (Srinivasan: 2003).

3.3 CONTROVERSY OVER TARIFF, NON-TARIFF BARRIERS AND PROTECTION OF INTELLECTUAL PROPERTY RIGHTS (IPRs)

Although a founding party of both the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO), the Indian government continues to use high tariffs and non-tariff barriers to limit imports of agricultural products. India's average WTO bound agricultural tariff is 112 per cent; however, the median applied agricultural duty is 35.2 per cent. This differs significantly from tariffs on non-agricultural products which have been gradually reduced to the current peak level of 10 per cent. Some sensitive food items such as wine, alcoholic beverages, poultry meat, raisins, rice, wheat, and vegetable oils, are protected by much higher bound duties, ranging from 50 to 150 per cent. For most agricultural products, the government levies a countervailing duty equal to domestic excise taxes, a three per cent education cess (surcharge), and a four per cent "special" countervailing duty on all direct and indirect taxes, including custom tariffs, which results in higher tariff rates.

India is a net agricultural exporter with exports valued at \$19.33 billion and imports valued at \$7.5 billion in IFY 2007/08. Imports are growing and include vegetable oils, wheat, pulses, raw cashews, dry fruits, cotton, wool, hides and skins, and fruits and vegetables. India is the largest global importer of pulses (beans, peas, and lentils) and soybean oil and second largest

importer of palm oil. In 2006/07 India emerged as the third largest importer of wheat in the world, with total imports of around 6.2 million tons. Imports declined to around two million tons in 2007/08. However, no U.S. wheat was imported due to the Indian government's unreasonable phyto-sanitary requirements. Total U.S. agricultural exports to India in CY 2007 were valued at \$483 million, up 30 per cent from 2006, driven mostly by almonds, apples, peas, cotton, and planting seeds. With pulse imports from the U.S. valued at a record \$60 million in CY 2007, India is now the largest market for U.S. pulses. Imports of various consumer-oriented food products from the United States, including fruits like apples and grapes are increasing, reaching a record \$265 million in CY 2007. India's agricultural exports to the United States, valued at \$1.5 billion in CY 2007, were three times U.S. agricultural exports to India, and consisted mainly of shrimp, rice, cashews, sugar, tea, spices, oil meals, and coffee.

U.S. exports of live animals and animal products are hindered by Indian import restrictions and cultural norms. Cattle and beef imports are subject to import controls because of the risk of "mad cow" and "hoof in mouth" disease, as well as the Hindi and Buddhist prohibitions of eating beef and Muslim prohibitions of eating pork.

Other U.S. products, such as coffee, tea and most grains are effectively kept out of India by tariff rates as high as 100%.

A July 2007 Indian government report determined that U.S. wheat was unfit to be imported into India due to the presence of pervasive weeds. On March 6, 2007, the United States requested WTO dispute settlement consultations with India over the customs duties it imposes on imports of wine and distilled spirits, claiming that charges for "additional duty" and "extra additional duty" increased the imposed tariff rate to 150% to 550% (Martin and Kronstadt: 2007).

A further insight to the above argument is provided by Tables 2 and 3 given below. The duty ranges of tariffs and imports, tariffs and imports of product groups and exports and duties faced of USA is in accordance with the WTO rules, while there is a noticeable high difference in the case of India. This highlights the fact that USA aptly exemplifies a free-market economy, and consequently calling for continued pressure upon India to liberalise its economy much more than what it is at present, in the bilateral and multilateral fora.

Table 1 Summary of Trade Duties, U.S.

United States										
Part A.1 Tariffs and imports: Summary and duty ranges										
Summary		Total	Ag	Non-Ag	WTO member since				1995	
Simple average final bound		3.5	4.8	3.3	Binding coverage:				Total	100.0
Simple average MFN applied	2010	3.5	4.9	3.3					Non-Ag	100.0
Trade weighted average	2009	2.1	4.3	2.0	Ag: Tariff quotas (in %)				4.5	
Imports in billion US\$	2009	1,484.1	74.9	1,409.2	Ag: Special safeguards (in %)				2.9	
Frequency distribution										
Duty-free		0 <= 5	5 <= 10	10 <= 15	15 <= 25	25 <= 50	50 <= 100	> 100	NAV	
Tariff lines and import values (in %)										in %
Agricultural products										
Final bound		32.8	41.8	12.9	4.3	3.4	1.6	0.3	0.5	40.1
MFN applied	2010	30.5	44.0	14.2	4.7	3.4	1.3	0.4	0.3	40.7
Imports	2009	41.6	36.7	15.2	2.8	2.2	1.2	0.1	0.1	38.1
Non-agricultural products										
Final bound		47.6	26.8	16.7	5.0	1.9	0.5	0.0	0	3.4
MFN applied	2010	47.6	26.8	17.0	4.9	1.9	0.5	0.0	0	3.2
Imports	2009	51.4	36.6	6.8	1.0	3.5	0.7	0.0	0	15.0
Part A.2 Tariffs and imports by product groups										
Product groups	Final bound duties				MFN applied duties			Imports		
	AVG	Duty-free	Max	Binding	AVG	Duty-free	Max	Share	Duty-free	
	in %				in %			in %		
Animal products	2.3	31.0	26	100	2.3	31.0	26	0.4	24.4	
Dairy products	19.8	0.3	88	100	20.3	0.2	88	0.1	16.5	
Fruit, vegetables, plants	4.8	23.3	132	100	4.9	20.1	132	1.3	24.0	
Coffee, tea	3.5	53.5	63	100	3.2	53.3	63	0.5	78.9	
Cereals & preparations	3.6	20.8	62	100	3.5	20.9	62	0.7	32.0	
Oilseeds, fats & oils	4.3	27.6	164	100	4.6	24.0	164	0.3	36.4	
Sugars and confectionery	12.1	2.9	41	100	10.3	2.1	41	0.2	6.9	
Beverages & tobacco	16.3	27.7	350	100	15.6	26.8	350	1.2	52.0	
Cotton	4.9	38.3	20	100	4.1	40.0	20	0.0	81.4	
Other agricultural products	1.1	62.5	68	100	1.1	59.7	68	0.3	65.6	
Fish & fish products	1.0	80.2	35	100	1.0	81.6	35	0.9	90.5	
Minerals & metals	1.7	59.9	38	100	1.7	61.0	38	11.7	73.7	
Petroleum	1.5	0	7	80.0	1.4	20.0	7	13.6	0.0	
Chemicals	2.8	40.0	7	100	2.8	40.6	7	11.1	68.2	
Wood, paper, etc.	0.4	91.8	14	100	0.5	90.2	14	3.7	92.1	
Textiles	7.9	16.0	40	100	7.9	15.1	40	2.0	11.7	
Clothing	11.4	3.4	32	100	11.7	2.8	32	4.3	0.8	
Leather, footwear, etc.	4.3	38.4	56	100	3.9	38.6	56	2.4	16.4	
Non-electrical machinery	1.2	66.3	10	100	1.2	65.0	10	13.9	82.5	
Electrical machinery	1.7	48.8	15	100	1.7	48.4	15	13.6	65.0	
Transport equipment	3.1	54.8	25	100	3.0	55.7	25	10.2	17.0	
Manufactures, n.e.s.	2.1	49.8	46	100	2.4	45.1	46	7.5	74.4	
Part B Exports to major trading partners and duties faced										
Major markets	Bilateral imports		Diversification		MFN AVG of		Pref.	Duty-free imports		
	in million		95% trade in no.		traded TL		margin	TL	Value	
	US\$		HS 2-digit	HS 6-digit	Simple	Weighted	Weighted	in %	in %	
Agricultural products										
1. Canada	2009	15,082	28	262	21.6	10.4	4.7	92.3	97.6	
2. Japan	2009	13,933	25	99	23.3	19.0	0.0	24.8	57.5	
3. Mexico	2009	13,799	26	168	23.4	31.1	30.3	95.9	95.5	
4. China	2009	13,355	16	26	15.6	4.9	0.3	7.3	0.7	
5. European Union	2009	7,452	27	171	16.4	6.6	0.0	16.0	40.4	
Non-agricultural products										
1. European Union	2009	1,63,300	66	1,420	4.0	1.3	0.0	30.1	68.5	
2. Canada	2009	1,44,834	59	1,429	3.8	3.0	3.0	100.0	100.0	
3. Mexico	2009	97,494	64	1,474	8.8	7.2	7.0	99.4	98.9	
4. China	2009	64,383	54	907	8.6	4.8	0.0	10.6	34.7	
5. Japan	2009	42,015	59	740	2.7	0.6	0.0	54.7	86.3	

Source- WTO

Table 2 Summary of Trade Duties, India

India										
Part A.1 Tariffs and imports: Summary and duty ranges										
Summary		Total	Ag	Non-Ag	WTO member since				1995	
Simple average final bound		48.7	113.1	34.6	Binding coverage:				Total 73.8	
Simple average MFN applied	2009	13.0	31.8	10.1					Non-Ag 69.8	
Trade weighted average	2009	6.9	44.2	5.1	Ag: Tariff quotas (in %)				0.6	
Imports in billion US\$	2009	276.3	12.8	263.5	Ag: Special safeguards (in %)				0	
Frequency distribution	Duty-free	0 <= 5	5 <= 10	10 <= 15	15 <= 25	25 <= 50	50 <= 100	> 100	NAV	
Tariff lines and import values (in %)									in %	
Agricultural products										
Final bound		0	0	1.2	0.1	2.3	7.2	54.1	34.9	0.3
MFN applied	2009	5.6	3.2	3.6	5.2	4.9	68.9	6.2	2.4	0.3
Imports	2009	19.3	2.1	8.4	2.4	3.5	27.8	35.4	1.1	1.9
Non-agricultural products										
Final bound		3.1	0.5	0.0	0	14.7	50.8	0.5	0.2	6.0
MFN applied	2009	2.4	12.8	76.8	1.2	1.8	4.2	0.6	0.1	6.0
Imports	2009	37.3	17.3	45.0	0.0	0.2	0.1	0.1	0.0	0.2
Part A.2 Tariffs and imports by product groups										
Product groups	Final bound duties				MFN applied duties			Imports		
	AVG	Duty-free	Max	Binding	AVG	Duty-free	Max	Share	Duty-free	
	in %			in %	in %			in %	in %	
Animal products	105.9	0	150	100	33.1	0	100	0.0	0	
Dairy products	65.0	0	150	100	33.7	0	60	0.0	0	
Fruit, vegetables, plants	99.4	0	150	100	30.4	0.5	100	1.3	17.4	
Coffee, tea	133.1	0	150	100	56.3	0	100	0.1	0	
Cereals & preparations	115.7	0	150	100	32.2	10.9	150	0.1	9.0	
Oilseeds, fats & oils	165.2	0	300	100	18.3	16.9	100	2.1	25.8	
Sugars and confectionery	124.7	0	150	100	34.4	0	60	0.5	0	
Beverages & tobacco	120.5	0	150	100	70.8	0	150	0.1	0	
Cotton	110.0	0	150	100	12.0	20.0	30	0.1	98.0	
Other agricultural products	105.6	0	150	100	21.7	11.2	70	0.4	6.7	
Fish & fish products	100.8	0	150	11.5	29.8	0	30	0.0	3.1	
Minerals & metals	38.3	0.4	55	60.6	7.5	0.3	10	32.1	5.3	
Petroleum	-	-	-	0	3.8	22.2	5	29.1	94.6	
Chemicals	39.6	0.1	100	89.3	7.9	0.4	10	8.2	1.9	
Wood, paper, etc.	36.6	0	40	64.6	9.1	2.8	10	1.7	1.3	
Textiles	30.0	0	130	68.9	14.7	0	170	1.0	0	
Clothing	37.8	0	58	55.3	13.4	0	83	0.0	0	
Leather, footwear, etc.	34.7	0	40	50.9	10.2	2.5	70	0.8	0.0	
Non-electrical machinery	28.2	7.0	40	94.5	7.3	4.5	10	8.6	17.0	
Electrical machinery	27.0	26.9	40	93.7	7.2	16.7	10	6.9	54.6	
Transport equipment	35.7	0	40	70.7	20.7	2.1	100	4.1	2.6	
Manufactures, n.e.s.	30.8	21.6	40	42.5	8.9	5.4	10	2.7	33.3	
Part B Exports to major trading partners and duties faced										
Major markets	Bilateral imports		Diversification		MFN AVG of		Pref.	Duty-free imports		
	in million		95% trade in no.		traded TL		margin	TL	Value	
	US\$		HS 2-digit	HS 6-digit	Simple	Weighted	Weighted	in %	in %	
Agricultural products										
1. European Union	2009	2,168	24	107	12.9	7.1	4.0	25.7	59.2	
2. United Arab Emirates	2008	1,946	18	69	6.9	3.1	0.0	23.1	75.9	
3. United States	2009	1,219	20	77	5.0	2.1	1.5	74.8	79.8	
4. Saudi Arabia, Kingdom of	2009	1,134	2	5	3.9	0.8	0.0	21.4	84.4	
5. China	2009	815	8	14	14.0	7.2	5.3	44.1	19.1	
Non-agricultural products										
1. European Union	2009	31,973	65	1,101	4.1	5.0	2.0	65.8	58.5	
2. United States	2009	19,695	60	744	3.7	3.9	0.6	74.1	66.0	
3. United Arab Emirates	2008	14,928	57	562	4.7	3.5	0.0	6.1	29.9	
4. China	2009	12,885	34	150	8.9	1.9	1.6	57.3	93.4	
5. Hong Kong, China	2009	7,913	11	30	0.0	0.0	0.0	100.0	100.0	

Source- WTO

Intellectual property rights (IPRs) can be broadly defined as legal rights established over creative or inventive ideas. Such legal rights generally allow right holders to exclude the unauthorized commercial use of their creations/inventions by third persons. The rationale for the establishment of a legal framework on IPRs is that it is a signal to society that creative and inventive ideas will be rewarded.

Several IPRs relevant to the agricultural sector in that they can be used to protect goods or services produced in the agricultural sector are mainly patents, plant breeders' rights, trademarks, geographical indications and trade secrets, etc. Patents are probably the most important IPR today for agricultural goods and services as they provide, wherever these are available, the strongest protection for patentable plants and animals and biotechnological processes for their production. Patentable products have to meet the criteria of patentability, viz., novelty, i.e. that which is not known in the prior art, non-obviousness i.e. that which involves an inventive step and usefulness i.e. that which is industrially applicable. Biotechnology is the sector that holds the most potential for advances in agriculture to improve productivity.

The essential purpose of a trademark is to distinguish the goods and services of one enterprise from another, thus preventing deception of the consumer. One category of commercial marks more often used in agriculture than industry is geographical indications, including appellations of origin. The central objective of the harmonisation work programme of the WTO is to ensure that the rules of origin are employed without/or with least trade distorting effects. Rules of origin are the criteria needed to determine the national source of a product. Knowing the country of origin of a product is important in international commerce for a variety of reasons including the need to gather trade statistics. The prime reason, however, is the desire to discriminate between different sources of origin. Even though rules of origin are supposed to be used as devices to support implementation of trade policy instruments, their misuse, which has become quite rampant in recent times, transform them into trade policy instruments per se (Harilal and Beena: 2005).

Trade secret protection can be used by the agricultural sector to protect, for instance, hybrid plant varieties. Trade secrets can be protected against third party misappropriation through laws relating to unfair competition or to restrictive trade practices or to contract law. In the United States there are separate trade secret laws at the State level. Protection of trade secrets is not limited in time but, unlike patents, the disadvantage of this type of protection is that it

is lost the moment it is discovered independently by a third party. The advantage, at least to the proprietor, is that, unlike patents, there is no obligation to disclose the inventive or creative ideas to society.

Given the importance of agriculture in the Indian economy, there has been extensive public debate of an intensely political nature, on certain legislative changes required to implement TRIPS as related to the agricultural sector. These relate to the institution of plant breeders' rights, patents for biotechnological inventions and geographical indications. In addition, the implementation of the Convention on Bio-Diversity (CBD) to establish the so-called 'farmers' rights' and the fair and equitable sharing of benefits on commercialization of biological/genetic resources and traditional knowledge and practices originating from India, has also been controversial. This public debate has been characterized by some degree of confusion in the intermingling these various issues. Guided by NGO activists, political parties or at least some leading political personalities, cutting across political affiliations ranging from the left to the right, have taken entrenched positions, forcing policy makers to consult such activists while finalising the legislation on IPRs. It has been well recognized that the initiatives for introducing plant breeders' rights were made by the private seed companies in India in the late '80's after the adoption of the New Seed Policy in 1988. With this policy the government of India liberalized the import of seed for joint ventures, including hybrid seeds, for a number of important crops. Empirical studies have shown that such liberalization, including the development of hybrids, does have a positive impact on private research and development in this sector¹⁶. However, others forecast that the increasingly proprietary nature of plant biotechnologies and the decreasing role of International Agricultural Research Centres (IARCs) and national research centres will adversely affect the diffusion of such technologies. The two aspects of incentives for generation of and for the diffusion of IPRs are not irreconcilable.

The inadequate intellectual property rights (IPRs) protection has been a long-standing issue between India and the US. In May 2004, the US Trade Representative (USTR) inducted India in the Special 301 Priority Watch List for its “weak” protection and enforcement of IPRs (Guihong: 2005). India continues to remain in this list even in 2011, for failing to provide an adequate level of IPR protection or enforcement, or market access for persons relying on intellectual property protection (Kronstadt: 2011). The USTR recognised the introduction of a Copyright Amendment Bill as an improvement in the regulatory regime, but expressed concerns about its compliance with international standards.

The two countries have differences on whether such a patent based system is necessary to ensure the equitable sharing of benefits from genetic resources (Das: 2006). In the 1980s the US government sought to encourage India to liberalize its trade regime in services and foreign investment. US officials sought to achieve their objective by naming India to the 1988 Trade Act's 'Super 301' list of target countries for mandatory market-opening negotiations under threat of retaliation while at the same time also pursuing Indian trade liberalization multilaterally under the General Agreement on Tariffs and Trade (GATT) Uruguay Round negotiations (Pigman: 1996).

An area of IPRs related to the agriculture sector that has raised considerable controversy in India recently is geographical indications. This issue occupied the centre stage in the context of the patent granted in the US in September 1997 to Ricetec, a US company, on the claim of novel basmati rice lines and grains. In this case most Indians believe that India should have a strong law on the protection of geographical indications so that Indian names are not patented and misused for economic gain in India's export markets (Wattal: 1998).

Serious implications arise from various international obligations for the protection of Intellectual Property Rights (IPRs). This means far greater commercial restrictions in the use of technologies developed elsewhere in the world. Even the Indian research cannot be based on mere imitation of foreign technologies. For example, the easy availability of better seeds cannot be assumed as India obtained through the Mexican high-yielding varieties at the beginning of its Green Revolution: witness the trend of foreign scientists and technologists attempting to patent an agriculture related invention of new methods of growing basmati rice as happened recently in the US. When India will have to depend on imports to provide food for its people, foreign companies and governments can use this issue politically to derive many trade and political advantages with the likelihood that they will resort to conditional ties, further perpetuating this dependence (Kalam and Rajan: 1998).

3.4 CONTROVERSY OVER SANITARY AND PHYTO-SANITARY (SPS) REGULATIONS

International trade in food is as old as nations. Ever since nations existed, they have exchanged food and other agricultural products such as wood and fibres. This trade in agricultural products provides clear economic benefits. Thus, food and other products

become cheaper, and the choice of products available expands considerably. Agriculture remains a cornerstone of many economies, especially in developing countries. Agricultural production and processing are activities which offer many low-income countries the possibility to trade their way out of poverty.

One fundamental requirement is that imported (as well as domestic) agricultural products are safe, and do not pose risks to human, animal and plant health. To ensure food safety, and to avoid the introduction of diseases and pests through trade, countries impose regulations to protect human and animal health (sanitary measures) and plant health (phyto-sanitary measures). The WTO agreement on sanitary and phyto-sanitary regulations that are concerned with food safety and animal and plant health regulations in international trade related to agriculture recognises that governments have the right to take sanitary and phyto-sanitary measures but that they should be applied only to the extent necessary to protect human, animal or plant life or health and should not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail.

The SPS Agreement has a two-fold objective. It aims to both:

1. Recognise the sovereign right of Members to provide the level of health protection they deem appropriate.
2. Ensure that SPS measures do not represent unnecessary, arbitrary, scientifically unjustifiable, or disguised restrictions on international trade.

In order to harmonize sanitary and phyto-sanitary measures on as wide a basis as possible, the WTO members are encouraged to base their measures on international standards, guidelines and recommendations where they exist. However, Members may maintain or introduce measures which result in higher standards if there is scientific justification or as a consequence of consistent risk decisions based on an appropriate risk assessment. The Agreement spells out procedures and criteria for the assessment of risk and the determination of appropriate levels of sanitary or phyto-sanitary protection.

It is expected that Members would accept the sanitary and phyto-sanitary measures of others as equivalent if the exporting country demonstrates to the importing country that its measures achieve the importing country's appropriate level of health protection. The agreement includes provisions on control, inspection and approval procedures.

Indeed, the SPS Agreement allows countries to set their own food safety and animal and plant health standards. At the same time, however, the SPS Agreement requires that such regulations be based on science, that they are applied only to the extent necessary to protect health, and that they not arbitrarily or unjustifiably discriminate between countries where identical or similar conditions prevail.

In order to achieve its objective, the SPS Agreement encourages Members to use international standards, guidelines and recommendations where they exist. Members may adopt SPS measures which result in higher levels of health protection — or measures for health concerns for which international standards do not exist — provided that they are scientifically justified (WTO).

The United States has also expressed concern about India's application of its sanitary and phyto-sanitary (SPS) regulations on certain U.S. exports. The United States questions some of the scientific basis for India's SPS regulations. It also believes that some of the SPS standards are not in accord with internationally recognized standards. Plus, the United States has indicated that India has failed to notify other nations of changes in SPS regulations in a timely fashion. In particular, the U.S. Trade Representative has objected to India's proposed import and labelling requirements for genetically modified foods. The agricultural counsellor at the US embassy in New Delhi, Chad R. Russell, highlighted India's onerous food laws, increasing use of SPS measures, its fragmented market chain, lack of a cold chain (to keep food refrigerated) and a complex tax structure work as disincentives to the exporters. When this is put in a micro-economic context, a consumer product valued at \$1 in New York will cost at least \$3.50 at retail in New Delhi.

Washington is of the view that India should remove non-science based SPS measures that are negatively affecting U.S. agricultural exports and India new measures to the World Trade Organization prior to their implementation and establish a regular dialogue between technical experts from India and the United States to systematically address SPS issues with a view to increase bilateral agricultural trade.

For its part, India has also indicated dissatisfaction with U.S. SPS regulations with regards to the treatment of Indian agricultural goods. For example, one longstanding source of tension between the two nations is a 17-year old ban on the import Indian mangoes into the continental United States. The mango ban was a subject of discussion during President Bush's trip to India in March 2006, during which President Bush promised to have the ban

lifted. On March 12, 2007, when the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) issued a final rule allowing, under certain conditions, the import of mangoes from India. However, according to India's Commerce Department, the estimated cost of compliance with the new rule is about \$3 per mango, rendering the Indian mango uncompetitive.

Another instance is that of almonds exports, from US to India, where because of the application of sanitary and phyto-sanitary standards, some of which are found to be not consistent with what are existing international standards (Chanda: 2006).

3.5 CONTROVERSY OVER GENETICALLY MODIFIED CROPS

The directives for the research and development and trade of Genetically Modified (GM) crops and organisms are contained in the SPS Agreement of the WTO. The inspiration behind genetic modification can be summed up by the following equation:

“Nature + Science = New Crops”

A genetically modified organism (GMO) or genetically engineered organism (GEO) is an organism whose genetic material has been altered using genetic engineering techniques. These techniques, generally known as recombinant DNA technology, permit manipulating plants at a pace that nature can't achieve, for example bringing genetic materials of fish into crop varieties. They can transfer a gene across species or from the animal kingdom to the plant kingdom. This process is called genetic engineering, or biotechnology. Although the transfer of genetic material has long occurred through selective breeding and other techniques, new technologies permit more controlled transfers, and transfers of genes from completely unrelated species.

Most GM crops grown today have been modified with "input traits", which provide benefits mainly to farmers. The GM crops in development offer a wider array of environmental and consumer benefits such as nutritional enhancement, drought and stress tolerance. Also if the use of GM seeds sees reduction in the production costs, there is a chance that you might see lower prices for some basic food items for consumers in the future. The labelling requirements for the GM food in regarding international trade regulations are a must (Neefjes and Fowler: 1999).

Although citizens and governments in different countries all want to ensure that these GMOs do not pose a threat to human health or the environment, they do not agree on the best way to protect against these potential threats.

Trade problems arise when countries have different regulations regarding the testing and approval procedures necessary to place GMOs and their products on the market, or when they disagree about labelling and identification requirements. Some countries ban imports and sales of GMOs and their products altogether. In other countries, a large part of the production of some crops, such as maize or soybeans, is from genetically modified seeds, and is mixed with non-modified varieties during storage, transport and processing. These countries argue it would be unnecessary and very costly to keep GMOs separate, and consider that labelling requirements or import bans are unnecessary trade barriers.

The SPS Regulations apply to the GMOs in order to protect:

- human or animal life from risks arising from additives, contaminants, toxins or disease-causing organisms in their food, beverages, feedstuffs;
- human life from plant- or animal-carried diseases (zoonoses);
- animal or plant life from pests, diseases, or disease-causing organisms;
- A country from damage caused by the entry, establishment or spread of pests.

The TRIPs Agreement requires countries to provide a minimum level of protection for certain intellectual property rights. However, only new inventions have to be patentable, not discoveries. Even where a patent is granted, the government can still regulate or ban a product from sale. With respect to GMOs, countries may exclude from patentability plants and animals as well as essentially biological processes for the production of plants and animals. However, they must provide protection for microorganisms and non-biological and microbiological processes. The TRIPs Agreement also allows temporary exclusion from patentability when necessary to protect human, animal or plant life or health or to avoid prejudice to the environment. The TRIPs Agreement would normally not be invoked in a conflict regarding market access for GMOs, but it might be invoked in a dispute on intellectual property protection related to GMOs.

The Inter-governmental Panel for Climate Change (IPCC) has formed an open-ended working group on phyto-sanitary aspects of GMOs, bio safety and invasive species. It will develop standards for risk analysis as applied to environmental hazards (WTO).

India was one of the first Asian countries to invest in agricultural biotechnology research and to set up a bio-safety system to regulate the approval of genetically modified (GM) crops. Despite the government of India's acknowledged interest in encouraging growth in the biotechnology sector and the increasing number of research initiatives in the public and private domains, the commercial approval of new transgenic crops has been slow. The country has only approved one GM crop, BT (*Bacillus Thuringiensis*) cotton, which was planted on 7.7 million hectares by 3.8 million farmers in 2007/08. There are several other GM crops and traits in the biotechnology regulatory pipeline. It is in the area of cooperation in biotechnology that the most concerns have arisen.

There was also vibrant resistance to the advent of genetically modified crops and foodstuff in the wake of India's membership of the WTO (Pederson: 2008).

In India, the feminist movement is at the forefront of protests about GM technologies and patenting. The eco-feminist perspectives associate women's interests with the interests of 'nature', meaning bio-diversity and ecosystems, especially local eco-systems. If these are being harmed, then poorer farmers, including women, who depend on local resources, will be harmed, because the natural ability of eco-systems to cope with pests and diseases will be reduced (Neefjes and Fowler: 1999).

Farmers in particular identified WTO as a foe that represented all that was wrong with globalization. Prices of several key crops dropped significantly as the government eased quantitative restrictions, which accelerated after India joined the WTO. Additionally, the right to sow seeds became a particularly contentious issue in rural India. India's accession to WTO's intellectual property rules "made seed-saving a crime": farmers would have to re-purchase seeds from multinationals such as Monsanto every year, instead of collecting seeds from their previous harvest. Similarly, within a few months of opening up soybean imports, this began to drive out mustard as the source of edible oil. Before 1998, 68 per cent of edible oil in India was pressed through small-scale crushers using local technology. This type of processing was banned in 1998, around the same time that soybean imports were deregulated, resulting in large job losses in the local edible oil industry (Pederson: 2008). Given the assault from multiple fronts, especially the reduction in income, and at times, a failure in the

ability to sell, farmers by the end of the 1990s began to commit suicide in several well-publicized waves. In a particularly tragic incident in 1998, 500 mostly marginal cotton farmers in Warangal District of Andhra Pradesh committed suicide by drinking pesticides and insecticides. The All-Indian Kisan Sabha (Farmers' Forum) rallied thousands in mid-2001 in several protests against the WTO and the consequences of openness.

Environmentalists are concerned about the thrust on biotechnology and GM food, whose effects on the environment and the human body are as yet unknown and some Indian scholars argue that evidence points towards GM food having harmful effects on humans and animals. GM seeds and technology could destroy our biodiversity, make our soils less fertile due to mono-cropping, lead to the spawning of secondary pests and uncontrollable super weeds and super bugs that would make the human body resistant to antibiotics and medicines. It is in view of this that India has imposed a moratorium on growing GM brinjal developed by Monsanto on the grounds that it might have an adverse effect on health and on the ecosystem. Also, GM seeds are patented and expensive and would push farmers towards further poverty.

The consumer concerns that the crops may be a threat to health are valid although the probability that something may be wrong is tiny, but if it is, the consequences will be serious. There may be new and increased instances of allergies among consumers; plant viruses could transfer to gut bacteria, new human viruses could develop through recombining DNA and many scientists fear increased resistance against antibiotics. The environmental risks could have enormous effects on human life, apart from that on wildlife, and on farming potential.

Rejecting such criticism, the US holds that GM is the technology of the future and is needed to boost production. Further, it says that it is impossible to now separate GM food from non-GM food in the US. Moreover, they claim that Americans have been consuming GM food for the last 15 years or more without facing any side effects. Also, GM crops would be drought resistant, yield more, mature earlier and would consume less water. They also need less fertilizer and pesticides, as they are programmed to fight commonly-occurring pests and diseases. The importance of GM crops and the influence that agricultural biotechnology firms have in the US is evident from the recent Wikileaks cables where the US Ambassador to France apparently called on Washington to launch a trade war against EU countries for not allowing US-grown GM crops into their countries. Wikileaks cables also show that the US was lobbying the Vatican to speak in favour of GM foods. Thus, finding new markets for US-grown GM crops is an important driver of US agricultural policy. Some Indian scholars have

alleged that the presence of US agri-business firms in the AKI board would enable them to change India's regulatory regimes like: (1) regulation of genetically modified organisms (GMOs); (2) contract farming; (3) seeds regulation and; (4) Intellectual Property Rights (IPRs) in agriculture. The fact that the US is not a party to the UN biodiversity convention makes it doubly important for India to ensure that its biodiversity and traditional knowledge are protected. India has so far only approved BT cotton, but its economic benefits have not been great. In fact, it has been accused of causing a large number of suicide by farmers in the cotton-growing states of Maharashtra and Andhra Pradesh, all because they could not afford to buy the exorbitantly-priced seeds and fell into debt traps for buying these seeds.

The AKI has come under criticism for other reasons too. There is concern that the focus on technology will force many small farmers to give up their small land holdings, paving the way for contract farming and corporate farming that would focus only on a few selected profitable crops. There is fear that the AKI would increase farmers' dependence on corporate and US agribusiness because, if GM crops are allowed, farmers would have to depend on them to buy GM seeds patented by these companies (Prushothaman: 2011).

CHAPTER IV

ROLE OF THE U.S. CONGRESS AND INDIAN DIASPORA IN FURTHERING U.S.- INDIA AGRICULTURAL COOPERATION AND DIALOGUES

4.1 CONGRESSIONAL APPROACH AND INFLUENCE ON ISSUES OF INDIA IN THE COLD WAR PERIOD

Before World War II, American contact with India (with the exception of missionary activity) was nominal, and political and economic relations between the two countries were sporadic. American attitudes toward India tended to be based on ignorance and, as a result, American policy towards the latter was often one of neglect. Members of the Congress, whether consciously or not, often gave offense to India and damaged the bilateral relations by their outspoken criticisms of India's leaders, policies, and ways of life, particularly during debates on foreign assistance.

As analysts point out, the American Congress probably remains more representative of public attitudes than of the executive branch (Rubinoff: 2005), and it may be noted that, most Congressmen get their news and impressions from the media, on many countries of the world including India. Congressional perceptions guided their eventual positions in policy debates in Capitol Hill. Furthermore, individual lawmakers were also influenced by their perceptions of constituency interests and impacted by lobbies. This may perhaps explain how the annual congressional debates on foreign aid appropriations “consistently elicited a spate of criticism directed at India.” Further, Indian approach towards several foreign policy issues were seen as contrary to American interests. Thus, for instance, early on when a wheat loan agreement signed in 1951, followed by a \$53 million package of direct assistance, there were bitter comments made in the course of prolonged debates. Evidence points out that such instance counteracted the goodwill that American aid in time of crisis would have otherwise produced. Congressional records reveal that in response to a special message from President Truman that recommended emergency assistance for India, a bipartisan group of forty Senators and Representatives introduced legislation that called for the immediate dispatch of one million tons of American surplus wheat and authorized the eventual shipment of another million tons. Although the House Foreign Affairs Committee reported the bill favourably, conservatives on the Rules Committee blocked the measure until it was rewritten in the form of a loan. Finally, the Senate Foreign Relations Committee reported a bill that was partly a loan and partly a grant (Rubinoff: 2001). In the Cold War years, legislators such as Otto Passman (Democrat-Louisiana) and Clarence Long (Democrat- Maryland) ensured that the appropriations subcommittees that they chaired only grudgingly provided aid to a country that seldom agreed with American positions on global issues.

For instance evidence indicates that the then Senator Daniel Patrick Moynihan (Democrat-New York), who was considered to be perhaps the most knowledgeable legislator of his time on the subject had stated that India does not export anything except communicable diseases. However, many accounts noted the fact that he tried his best to negotiate an agreement to forgive the significant sums that India owed the United States in payment for foodstuffs, and presided over American disengagement in the region.

Studies on the US Congress also pointed out that one of the most informed and thoughtful Congressmen, Lee Hamilton (Democrat-Indiana), the chairman of a House Foreign Affairs subcommittee that dealt with South Asia and the Near East, and later chairman of the full committee, while describing India's circumstances exclaimed that he had never heard of such a long list of difficulties, ills and problems and so little hope, as in India (Rubinoff: 2005). Interestingly it was found that a US Department of State analysis in 1982 pointed out that the American attitudes about India, more than about any other place, focussed on disease, death, and illiteracy (Rubinoff: 2008) .

During the foreign aid appropriations process, Congressional activities often occurs in the committees stage, for an in depth analysis of the prevailing problem. Pressures of the budgetary process often contribute to the seizure of the role of the authorisation committees (which make policies), by the appropriations committees (which dispense funds), in both the Senate and the House of Representatives. In the 1980s foreign assistance bills were virtually replaced by continuing resolutions and supplemental appropriations as the principal mechanisms for the making of legislative foreign policy. Under such circumstances, policy creation is without any structural or long-term direction (Drischler: 1985). In fact, studies on the functioning of the Congress reveal that as a rule, the more liberal, internationalist members of Congress tended to gravitate towards the foreign-policy authorisation committees while the conservatives concerned about limiting expenditures were inclined more towards the appropriations committees. Moreover, appropriations committee chairmen can engage in countless trade-offs on various issues to gain support, but authorisation chairmen have less to offer their members. Legislators on the two committees do not work with each other individually or along party lines. In general, the authorisation committees have shown a more favourable disposition towards India than have the appropriation committees. This evolution placed power in the hands of legislators unsympathetic to New Delhi (Rubinoff: 2001).

4.2 CONGRESSIONAL CAUCUS: IMPACT ON INDIAN CONCERNS IN 1990s

An influential commentator and writer Robert Hathaway has ruefully stated that, “Representative Gary L. Ackerman (Democrat-New York), former co-chair of the Congressional Caucus on India and Indian Americans underscored a painful fact of life for many in India: 50 years into its national existence, their country has seldom commanded the attention, let alone the respect, of the U.S. Congress that its standing as the world’s largest democracy demands” (Hathaway: 2001).

However the high-level visits in both US and India by dignitaries from both sides in the last two decades, have led to a fundamental re-organisation of US-India ties. Further, the 1990s also witnessed a new phenomenon in U.S. congressional politics. For the first time, several members of both the Senate and the House of Representatives concluded that increased attention to the Indian Sub-continent could bring benefits in the U.S. political arena. This realization had two immediate results. First, it prompted greater congressional interest in South Asia. Second, it accelerated the dramatic shift in congressional sympathies already underway (Rubinoff: 2001). U.S. lawmakers moved away from the pro-Pakistan stance that had prevailed throughout much of the Cold War, and especially during the war in Afghanistan, and toward a perspective tilted much more toward India. The past indifference in the US Congress about India has now changed into an attitude of keen interest, especially in the spheres of economics and trade, energy security and trans-national challenges like drug trafficking, terrorism, and others.

Furthermore, American legislators seemingly realised that India's 1991 economic liberalisation could yield domestic dividends. Its millions of consumers have attracted the attention of both Wall Street and Main Street. Economic opportunity has begun to figure in the Congressional thinking about India. Legislators who once avoided the region have become regular visitors of the country’s commercial centres like Mumbai, and India's Silicon Valley in Bangalore, as well as the capital, New Delhi.

Following the sanctions that the US applied over India, over the latter’s nuclear tests in May 1999, with a personal interest from President Bill Clinton, an eighteen-member Senate task force headed by Senators Mitch McConnell (Republican-Kentucky) and Joseph Biden (Democrat-Delaware) recommended that agricultural credits be exempt, to avoid penalising

the American farmer. Most important, Senator Sam Brownback (Republican-Kansas), who came from the agriculturally depressed farm belt, introduced an amendment to an appropriations bill to waive non-military sanctions against India (Rennack: 2003).

By 2000, experts on South Asia had begun to argue that the growing profile of India on the international arena, its activism for justice and against terrorism, nuclear proliferation, its economic prosperity, high growth rates, its near- immunity to the impacts of the global meltdown and its rapidly increasing and affluent Diaspora in the US, should draw have drawn the attention of the US policy makers towards the country in particular and the South-Asian region in general. With the US ranking as one of the largest trading partners of India, and the third largest source of Foreign Direct Investment (FDI) (US\$ 9529 million as of 2010-11) (Department of Industrial Policy & Promotion Ministry of Commerce and Industry, Government of India), and the emergence of a strong India on the political scene of the world map, there has been a record increase in the influence that New Delhi now wields over Washington (Kronstadt, et al.: 2011).

The US Congress, though has a bipartisan support in both US and India for pursuing stronger economic ties, and has a willingness for the resolution of some of the key economic and trade issues relating to agriculture and agricultural goods (Blake Jr: 2011 and Kronstadt: 2007).

Any examination of how such a dramatic change of the image of India in the eyes of the US in particular, would be incomplete without a discussion on the powerful influence exercised by the lobbies in the corridors of the US Congress. While domestic lobby groups with foreign agendas have always existed, they are now becoming increasingly sophisticated in regards to their organization and economic clout. The belief that better economic ties can create important political dependencies has led to powerful “lobbies” in both countries. These provide continuity and a balanced perspective when conflict develops in other areas (Cohen: 2000).

4.3 LOBBYING FOR INDIA: APPROACHES AND IMPACT OF ETHNIC INTEREST GROUPS

Not content to rely on national embassies to further their national interests, foreign governments including that of India have turned to lobbyists as a more effective way of bending American foreign policy. These lobbies, as well as domestic pressure groups organized around cultural or ethnic lines, are effectively privatizing American foreign policy. However notwithstanding the professional lobby firms hired by India, the Indian Diaspora remains to date India's best bets in influencing US policymakers.

As several media reports as well as studies on the subject of Indian Diaspora in the US reveal, New Delhi's position on Capitol Hill has been bolstered especially by the political activity of the more than two million Indian Americans-up from 387,000 in 1980-who reside in the United States. Prominent lobbies functioning for favourable policies towards India are the Congressional Caucus on India and Indian Americans, US-India Political Action Committee (USINPAC) (Freedman: 2009), Indian American Friendship Council, U.S.-India Business Council and others.

Many commentaries also suggest that the Congressional Caucus on India and Indian Americans (the largest caucus on the Capitol Hill) (Gupta: 2004) which is registered within the House of Representatives also in a way lobbies for it. Media reports had claimed that the purpose of its formation was to bring India and the United States closer; and that remains its primary purpose. It is expected to work towards betterment of the Indian-American community in the US as well (News India-Times: 2004). To some extent, this development marks the importance of the Indian Diaspora's sentiments on not merely domestic American issues, but also issues that are important to US- India relations. For instance, Congressman Joseph Crowley (Democrat- New York) worked hard with the US-India Political Action Committee (USINPAC) and small business owners to help provide access for Indian American-owned businesses to have an equal opportunity in the federal contracting marketplace. It must be mentioned that the India Caucus under him strove hard for fostering agro-based partnership between US and India.

Till recently, however, Indian-Americans were an almost invisible community, who had not assimilated as much as succeeded and disappeared into American society. It was a

community with a low political profile and its cultural impact on the United States was low. However, India's position on the Capitol Hill has been bolstered especially by the political activity of more around two million Indian Americans who reside in the United States. The educational achievement and economic status of this upwardly mobile community have changed the perceptions of India in the US Congress.

4.4 APPROACHES, INFLUENCE AND IMPACT OF INDIAN DIASPORA

To more than a million and half from India, America is now home. In turn, their industry, enterprise and skills are contributing to the advancement of American society. In a government release, the outstanding success of the Indian community in America is a metaphor of the vast potential that exists in Indo-U.S. relations and what we can achieve together (Indian Embassy: 2000). Over the years the Indian-American community are a large ethnic group of Asian Americans has grown over the years and is considered to be a model community in the USA. According to the 2010 U.S. Census, the Indian population in the United States grew from almost 1,678,765 in 2000 to 2,843,391 in 2010, a growth rate of 69.37%, the highest for any Asian American community, and among the fastest growing ethnic groups in the United States., making it the most rapidly growing Asian American group.

Any Diaspora's ideational effects depend on its size, socio economic characteristics and its access to points in the power structure in the country of origin. In the first years of India's existence as an independent state, when the Indian community in the United States was small and uneducated, its impact on foreign policy was negligible. Over time the Diaspora's influence in the United States has grown as its skills, education, income, and size have increased.

According to Robert Hathaway, by the 1990s, the Indian community had grown in size and started to make its influence felt among congressional members and their staffs (Hathaway: 2001). As the Indian-American community grew in numbers, the India government tried to use it to influence Congress and the Executive Branch, and in 1998 the Indian Embassy in Washington finally hired a public relations firm to assist it in shaping American policy (Cohen: 2000). The economically flourishing Indian-American community have also become

a force for better relations. In one sign of the community's political muscle, some 130 members of Congress from both parties have now joined the India caucus in the House of Representatives (Kux: 2002). By 2004, the India caucus in Congress had the largest membership (186) of any such political group. Congressmen, who in the past had supported cutting foreign aid to India, now strenuously opposed such moves (Gupta: 2004).

The well-educated, technologically savvy Indian Diaspora in the USA, which has been accumulating wealth and power, have been playing a growing role in advancing FDI and trade between India and the United States (Bergman: 2010).

All economic interests are ultimately concerned with wages, prices and profits. In the American economy, government does not determine these directly and government regulations are fettered by business, labour and farmers. As a result, business executives, factory workers and farmers, seek to influence government because regulations, taxes, subsidies, and international economic policy all affect their economic livelihoods.

There are several broad based agricultural groups, such as the American Farm Bureau Federation, but equally important are the commodity associations formed of peanut farmers, potato growers, dairy farmers and other producers. The US Department of Agriculture and the agricultural sub- committees in the Congress are organised along commodity lines, such as dairy or wheat.

The Carnegie Endowment for International Peace, the Heritage Foundation, International Trade Administration- a think-tank within the Department of Commerce, USA, has several Indian scholars, academics and business persons who seek to advance the development of national and international economic policies including agriculture, maximize U.S. gains in trade negotiations and support the enforcement of U.S. trade laws, seeking to bring about balanced gains to both USA and India, in matters of economic and agricultural cooperation.

Similarly, the Sikh American community in the United States, are known to have much influence in the deliberations between USA and India on matters of agricultural cooperation. The influence of this community on American images of India, and Indian images of the United States, has been generally positive and is likely to have an enduring

impact on the bilateral Relationship. The organisation of the Indian-American community along political lines has become an important source of funding in several Congressional and Senate races (Cohen: 2000).

Growth of Indian Diaspora's Strategic Influence towards US-India Cooperation

The Diaspora serves as a reservoir of support for New Delhi in Washington. It has also played a major role in transforming Indian society by infusing new ideas-formally or informally-as well as economic, human, and social capital from the United States. Its entrepreneurial success in the United States has also influenced Indian policymakers as they undertake economic reforms, a reality recently acknowledged by Prime Minister Manmohan Singh during his visit to the United States in 2009.

While the size of the Indian middle class market American firms understand the advantages of South Asia as a production site as well as a place to sell goods. This new perception of India has rippled through the bureaucracy and Congress. American corporations now actively lobby Congress for legislation favourable to the region (Cohen: 2000).

Washington conducted relations with New Delhi under the rubric of three major dialogue areas: strategic (including global issues and defence), economic (including trade, finance, commerce and the environment) and energy. As supporters of improved US-Indian relations, the Indian-American caucus represented the largest of all country-specific caucuses in Congress (Sutter: 2009). President Clinton and Prime Minister Vajpayee paid tribute to the contributions of the Indian-American community in providing a bridge of understanding between the two societies and in strengthening the ties of commerce and culture between the two countries (Embassy of India Report: 2000).

The net result of these diverse developments has been a remarkable turnaround in congressional attitudes toward India and U.S.-India ties. *"The transformation of congressional attitudes from indifference or deep-seated hostility to their current positive state on Capitol Hill confirms the necessity for a foreign country to have a strong domestic base of support in the American political system if it intends to be influential in Washington"* (Rubinoff: 2005).

The growing influence of the Indian American community is reflected in the strength of the Caucus of India and Indian Americans in the House of Representatives, which claims 163 members, making it the largest country caucus on the Hill in the 108th Congress (2003-05). The caucus was founded by Frank Pallone (Democrat-New Jersey), whose district had a significant population of Indian Americans and Bill McCollum (Republican-Florida), who was critical of Pakistan's record on narcotics and terrorism after India's advocate Stephen Solarz (Democrat-New York) left Congress in 1993.

The example of the House caucus was not lost on the Senate. In March 2004, a thirty-five member "Friends of India" grouping was formed in the Senate in conjunction with the Indian Embassy, the first such country-focused grouping in the history of that body—a development made easier by the departure of legislators with a broader agenda than ethnic politics, such as the late Daniel Patrick Moynihan and John Glenn (Democrat-Ohio). Co-chaired by John Cornyn (Republican-Texas) and Hilary Rodham Clinton (Democrat-New York), its membership includes Senate Majority Leader Bill Frist (Republican-Tennessee), Senate Minority Leader Tom Daschle (Democrat-South Dakota), former Judiciary Committee Chair Orrin Hatch (Republican-Utah), Finance Committee Chair Charles Grassley (Republican-Iowa), Appropriations Chair Thad Cochran (Republican-Mississippi), and other influential senators such as Joe Lieberman (Democrat-Connecticut) and Edward Kennedy (Democrat-Massachusetts).

Political Activism and Rising Influence of Indian Diaspora

Members of Congress see little downside, and have many reasons to be attentive to the community's concerns. The Indian American Friendship Council attracted nearly forty lawmakers to a July 1999 function in Washington that featured speeches by House Minority Leader Richard Gephardt, House International Relations Committee chair Benjamin Gilman, and Doug Bereuter, the chairman of the House subcommittee that dealt with Asia. The India Abroad Centre for Political Awareness regularly runs summer sessions for congressional interns, an activity that has led to the placement of more than three dozen staffers of Indian origin on the Hill.

Members of the Indian Diaspora are active in the US politics and it is reflected in their willingness and determination to participate in the politics of America. A number of organizations, such as India League of America and the Association of Asian Indians in North America have taken leading steps in this direction. In 1994, Kumar Barve and Upendra Chivukula - the first Indian Americans - from Maryland and New Jersey respectively were elected to their respective state legislatures (Cho and Yoon: 2004). In the year 2000, Satveer Choudhary became the first state senator to be elected in Minnesota. He was re-elected in 2006 as well. Iowa State Representative Swati Dandekar, Democrat, also won for the third time. Several Indian-Americans have held the position of mayor as well. They include: Bala K. Srinivas in Hollywood Park, Texas, John Abraham in Teaneck, New Jersey, and Arun Jhaveri in Burien, Washington. Number of Indians has also become prominent at the national level. For instance, during Clinton administration, Dr. Arati Prabhakar was appointed as the Director of National Institute of Standards and Technology, Neil Dhillon as the Deputy Assistant Secretary of Transportation and Dr. Rajen Anand as Executive Director of Centre for Nutrition Policy under USDA. Similarly, Bobby Jindal was appointed as the Assistant Secretary of Health, Gopal Khanna, and Chief Technology Officer of Peace Corps while Karan Bhatia was appointed as the Deputy Under Secretary in the Department of Commerce in the George Bush, Jr. administration. During Barack Obama administration that took over on January 20, 2009, it has appointed a number of Indian Americans in key positions including Farah Pandith as US State Department's representative to the muslim world, Rashad Hussain as US envoy to the 57-member Organization of Islamic Countries (OIC), Dr. Islam Siddiqui as US Chief Agricultural Negotiator, Dr Rajiv Shah, as the administrator of the United States Agency for International Development (USAID), etc. In the election held for the U.S. Congress on 6 November 2006, bucking the anti-Republican trend, incumbent Bobby Jindal won a thumping victory and got re-elected to the House of Representatives from Louisiana's 1st District, securing 88 per cent of the vote. Subsequently, Bobby Jindal was also elected as the Governor of Louisiana on October 20, 2007, thus becoming the first ever person of Asian Indian origin to hold such august office. His name is often being touted as a possible future US Vice Presidential or a Presidential candidate from the Republican Party. Similarly, Nimrata Nikki Randhawa Haley won the 2010 South Carolina gubernatorial election and in the process, became the second person of Indian-American origin and the first woman to serve as Governor of South Carolina (Alam: 2011).

During President Barack Obama's November 7-9, 2010, visit to India, Asian Indians residing in the United States have been instrumental in the shaping of several important policy measures including voicing support for India's entry as a permanent member in the UN Security Council, Singh-Obama 21st Century Knowledge Initiative – all geared towards inclusive growth, mutual prosperity and strategic and economic cooperation between the world's two largest democracies, and others.

4.5 LOBBIES AS A FACTOR IN DEEPENING US – INDIA COOPERATION

While domestic lobby groups with foreign agendas have always existed, they are now becoming increasingly sophisticated in regards to their organization and economic clout. Not content to rely on national embassies to further their national interests, foreign governments have turned to lobbyists as a more effective way of bending American foreign policy. These lobbies, as well as domestic pressure groups organized around cultural or ethnic lines, are effectively privatizing American foreign policy.

The India lobby is fast establishing itself as a force to be reckoned with on Capitol Hill, joining the ranks of other major lobbies representing Israel, China, Taiwan, Ukraine, and Armenia to name a few. There are several Indian-American pressure groups currently operating in Washington, including: the U.S.-India Business Council, the Indian-American Republican Council, and the Confederation of Indian Industry. Of all these groups, the undisputed rising star of the Indian-American lobby is the U.S.-India Political Action Committee (USINPAC), a group that models itself after the highly successful pro-Israel lobby group AIPAC (The American Israel Public Affairs Committee).

According to its website, the US India Political Action Committee (USINPAC) is seeking to achieve the goal to promote Indian and Indian-American interests in the United States. One of its objectives is to, “provide a national platform for local leaders and organizations and give them the ability to leverage their activities and coordinate their efforts with like-minded people in our community and country” (www.usinpac.com).

The Indian American Centre for Political Awareness (IACPA) founded in 1993 was started mainly to empower the Indian American community - particularly the younger generation - to participate in the political process and public policy. IACPA's goals are

- To inspire, encourage and introduce Indian Americans to public service, both in the United States and in India.
- In the United States it would mean civic and political engagement, with a view to influence public policy, to benefit the community, here, in the U.S. and US-India relations; because historically it has been proven that the two tend to move together.
- In India it would mean, the Diaspora, using their spare resources -- expertise, time and money to help India and Indians wherever such help is needed. Again this has the potential of resulting in mutual gain. With more education, literacy, poverty alleviation, improved infrastructure, and improved healthcare -- India could offer better potential for global competition resulting in better potential for foreign investment including from the non-resident Indian.
- To be a legislative watchdog monitoring and analyzing legislations at the State and Federal levels which impact India and Indian Americans.

Owing to the large and affluent Indian-American community, USINPAC has been able to attract a wide membership and command a large pool of economic resources with which to influence members of Congress. Like AIPAC, USINPAC is not regulated by the Foreign Agents Regulation Act (FARA) because its' stated focus is Indian-Americans (<http://www.collegecostshowmuch.com/2005/aboutus/aboutus.html>). However, in the case of foreign policy lobbying, trying to separate domestic from foreign interests is exceedingly difficult, for promoting policies that are 'friendly to India' is often just a euphemism for promoting India's national interest.

A new bipartisan organisation called 'Friends of India' was formed in the US Senate in 2004, similar to the 10-year-old Congressional Caucus on India and Indian Americans in the US House of Representatives. This was the first time in the history of the US Senate that a country-focussed caucus was constituted and announcing its formation was the driving force behind the move Senator John Cornyn, a Republican Senator from Texas who in his visit to India said that he undertook the job of creating an India Caucus in the US Senate, because of

the incredible experience that he had in India and because of the underlying importance of US-India relations.

The response, across the political spectrum, to the formation of the India Caucus has been outstanding and that underlines the need to work on the good relationship that exists in the Senate towards promoting ties between the two democracies.

Cornyn did acknowledge that it was unfortunate that over the years, and particularly during the Cold War years, despite both the US and India being democracies with so much in common did not have good relations, and described it as an accident of history, that needed to be put right and the lost time and opportunity needs to be bridged.

Economic Lobbies: Role of Business and Industry in Deepening US-India Cooperation

The U.S.-India Business Council (USIBC) is the premier business advocacy organisation , established in 1975 , which comprised of America's and India's top –tier companies, aimed to strengthen commercial ties investing in India together with Indian companies, with a shared aim to deepen trade and strengthen commercial ties.. It is the principal interlocutor for industry operating in the U.S. and Indian marketplace, playing a critical role supporting U.S. Government initiatives that include the U.S.-India Economic Dialogue (CEO Forum), the U.S.-India High Technology Cooperation Group, U.S.-India Energy Dialogue, the Defense Procurement & Production Group, and the U.S.-India Trade Policy Forum. The U.S.-India Business Council (USIBC) develops its advocacy positions through dialogue with members of the Council's Executive Committees. The Council currently has twelve Executive Committees, covering every major business sector. And one such sector is the food and agricultural sector. These Executive Committees are staffed by USIBC and Chaired by member-companies to shape advocacy efforts within the Council. Members may join as many Executive Committees as they wish.

USIBC Food & Agriculture member-companies represent every aspect of the farm-to-market supply chain. In an effort to enhance bilateral commercial relations, the committee seeks to promote policy reforms that will lead to greater agricultural productivity and security in India.

In recent times, analysts have pointed out that the technologies, expertise, resources, and leadership for ensuring food security for the growing population of India can no longer be fully supported and provided by the government alone. The business sector, which has spent decades investing in all aspects of the agricultural supply chain, is now ready and willing to supplement the government's efforts and support India's goal of achieving food security through an Evergreen Revolution new program which would engage the country's rural sector, providing water utilization and crop management 'best practices' to promote greater food security-this time based on technology to increase efficiency and productivity. The effort to vitalize India's agriculture sector should be driven by business, and the first step is improving India's farm-to-market global supply chain (Goswami: 2010). In fact, it is this line of argument that seems to explain how there was a growing interest by the US business in India's Agriculture. It may be pointed that three overarching themes characterize the approach of the USIBC:

- I.** Enhance Productivity- Leveraging world class technologies, including seeds, farm mechanization, and drip irrigation, can support Indian farmers produce more for a growing population. Incorporating time and labour saving technologies will support farmers as they seek better yields, higher quality products and remunerative prices.
- II.** Improve Efficiency- Although India is a top producer of fruit, vegetable and dairy products, between 20 and 40 percent of food products rot before reaching market due to supply chain inefficiencies. Introducing cold chain technology, connecting farmers directly to markets, and allowing the entry of global multi-brand retailers with expertise in supply chains will have the dual benefit of reducing consumer costs while increasing farmers' incomes.
- III.** Leverage Global Markets and Products- as Indian farmers and food processors seek new markets abroad, developing a food safety regime aligned with international best practices will support their ability to reach new consumers. Consumers within India can benefit by the permanent reduction of market access barriers for agricultural goods, inputs, and implements, particularly those not produced domestically, as prices will fall and a greater variety of products will be introduced to the growing middle class. Increased market access can also stabilize prices in the face of inflationary

pressures or if poor farming conditions within India lead to inadequate food supplies (US- India Business Council: 2011).

The USIBC in its study “US Industry Contributions on Unlocking India’s Rural Sector” has exemplified how Indian collaboration with American private sector companies have risen to the challenge of meeting India’s growing appetite, while achieving remarkable strides toward food security. U.S. company interventions, together with Indian partners, have added value to food and agriculture. A positive result has been the nurturing of a whole new industry, which brings out the potential in agricultural production and food processing, transfers best practices, and, importantly, enables social outreach to a large swath of the Indian economy, the rural sector.

The studies shed light on the many contributions that have blossomed in this sector as a result of the collaborations that are under way in India by U.S.-India Business Council (USIBC) member- companies.

Through special partnerships with small and medium-size enterprises, Bharti Walmart develops small farmers’ production capacity and offers a ready sales channel for their goods. The Bharti Walmart program provides high-quality fresh produce to retail stores and does so by enhancing farmers’ net incomes through better agronomic practices. Bharti Walmart engages field agronomists who visit the fields at every stage of cultivation, beginning with land levelling, nursery management, transplanting, nutrient management, and harvesting and post-harvest practices to reduce wastages and improve quality. Detailed records provide for traceability. The Bharti Walmart program provides high-quality fresh produce to retail stores and does so by enhancing farmers’ net incomes through better agronomic practices (<http://www.walmartstores.com/AboutUs/276.aspx>).

Cargill founded in 1865, an international producer and marketer of food, agricultural, financial and industrial products and services began its joint venture operations in India in 1987, has been growing ever since. The company maintains a number of businesses in India and employs 1,200 people in the country, with operations spanning a range of activities including the handling, shipping, processing, and production of a variety of products such as refined oils, grains and oilseeds, sugar, cotton, and animal feed. Cargill is also majority owner in Mosaic, a fertilizer business that is well known among Indian farmers. Cargill

markets two leading brands of edible oils ‘NatureFresh’ and ‘Gemini’, considered amongst the most powerful consumer brands in India (<http://www.cargill.co.in/en/index.jsp>).

Coca-Cola which began its productions in 1886, in Atlanta, has grown from selling nine glasses per day of the soft drink to nearly two billion servings a day all around the globe. Ever since it re-entered the Indian market in 1992, it has recognised India’s demographic makeup as an agrarian economy, with 70% of its population residing in villages. Sustainable living for this large and growing population can only occur through the responsible use of water, particularly for agricultural uses that consume up to 80% of India’s total available groundwater. By introducing technologies, such as drip irrigation, to the country’s rural communities, Coca-Cola continually underscores its commitment to mitigate groundwater depletion and support rural livelihoods in the communities in which it does business. Agriculture accounts for more than 80% of groundwater usage in India, while industry accounts for an additional 5% to 7% each year. Continued usage and extraction of water are resulting in the decline of per capita availability of water in India for both of these uses, as well as for potable water for citizens.

To support India’s water management needs, Coca-Cola aims to reach a net zero balance with respect to groundwater usage by the end of 2009. To support that goal, the company follows a ‘3R’ policy for water management and conservation: Reduce, Recycle and Replenish. The reduction of usage and recycling of used water is primarily carried out at manufacturing units, while programs to replenish water are implemented through water conservation and groundwater recharge projects in both local communities and at manufacturing plants (<http://www.coca-colaindia.com/>).

Agricultural Lobbies: Technology Transfers and Genetically Modified Seeds

Indian farmers produce more agricultural commodities than those of almost any other nation, owing, in part, to the advanced techniques implemented during the Green Revolution of the 1960s. However, while these techniques gave rise to more resilient seeds and farming practices in food grains, farmers did not have the appropriate tools available with which to quickly and efficiently cultivate crops and take full advantage of India’s Green Revolution. Though India today produces 220 million metric tons of food grain, it has yet to make rapid

strides in productivity improvement in all crops to meet an increasing food demand for its growing population. In this environment, farm mechanization assumes greater-than-ever relevance and significance, with a focus on effective utilization of inputs to increase productivity of land and labour. As in the 1960s, tractors used for sowing, tilling, and cultivating the land, were, and still are, needed to more efficiently feed India's population, both for food grains like wheat and rice, but also for more varied and higher value-added food products like fruits and vegetables.

Local tractor production in India started in 1961, but domestic production sources could not meet demand, and imports quickly filled in the supply gaps. Over the last three decades, tractor manufacturers in India have developed indigenous technologies and have built successful models in the low horsepower (HP) segments. However, in terms of features and functionalities, these models could not match what John Deere had been offering to its customers elsewhere in the world during the same time. Recognizing this opportunity, John Deere introduced its 55 HP tractor in 2000 with advanced features, such as power steering and oil-based coolant systems, and brought many new product features to India, which have now been replicated by most competitors (http://www.deere.com/en_IN/index.html).

John Deere, founded in 1837 is a world leader in providing advanced products and services for agriculture, forestry, construction, lawn and turf care, landscaping and irrigation. Beginning its joint venture operations in India with the Larsen and Turbo in 1999, the company continues to bring new technologies to the Indian markets that are relevant to the local agricultural and rural population. With a range of advanced products and solutions innovated and adapted to serve the varied needs of those who work the land, John Deere always strives to fulfil its commitment of enabling Indian customers to derive greater value from their investments and ensure an improved quality of life.

Agriculture sits at the intersection of the planet's most difficult challenges, and innovation in agriculture provides the greatest hope for solutions. As the world's largest investor in agricultural research, Monsanto is uniquely positioned to help meet these global challenges by increasing crop yields while preserving natural resources. Founded in 1901 in Missouri, Monsanto believes that the best way to meet these growing food, feed, and fibre needs is to enhance farm productivity on existing agricultural land with the use of high-yielding seeds and advanced technologies. The Company is committed to innovating and partnering in India

to help improve productivity for Indian farmers, and helping make India a self-sufficient global contributor in agriculture. Over four decades of partnership with Indian farmers, Monsanto has delivered high-yielding seeds and biotech traits in corn, cotton, and vegetables; as well as agricultural herbicide products. Monsanto applies innovation and technology to help farmers produce more, conserve more, and increase yields sustainably so that they can successfully produce healthier foods, better animal feeds, and more fibre, while reducing agriculture's impact on the environment. Monsanto leverages its global library of seed germplasm and advanced tools of genomics, crop analytics, and marker-assisted breeding to develop higher-yielding seeds for farmers. As Monsanto brings new products and technologies to Indian farmers, it focuses on stewardship by ensuring fulfilment of environmental, ethical, and legal obligations.

Monsanto leads the development of high-yielding seeds and traits, and contributes significantly to increases in agricultural productivity. With a presence in India for over four decades, the company works closely with Indian farmers to provide them with quality seeds and biotech traits in cotton, high-yielding seeds in corn and vegetables, and a broad spectrum herbicide called Roundup. Through its products and commitments, and a team of more than 800 employees across the country, many of whom are from rural backgrounds, Monsanto touches the lives of more than 5 million farmers with more than a million direct farmer contacts annually—thus, helping farmers in India produce more, conserve more resources, and lead better lives.

Since the launch of Monsanto's Bollgard BT cotton in 2002, productivity of cotton has doubled in six years, making India the world's second-largest producer and second-largest exporter of cotton, a matter of pride for all Indians.

The farmer is at the core of Monsanto's business. Understanding farmers' needs and what they need to succeed helps the company align its objectives to improve farmers' lives. As the world confronts a growing demand for food, fibre, and energy, a changing climate, and limited natural resources, it is possible to produce more, conserve more, and improve farmers' lives. As the company put it, this is the heart of Monsanto's commitment to creating a more sustainable world (<http://www.monsantoindia.com/>).

Paramount Farms International Private Limited, located in New Delhi, India, is an affiliate of Paramount Farms Corporation and established for the purposes of importing, processing,

selling and promoting pistachios in India. Paramount Farms claims to be the world's largest vertically integrated supplier of pistachios and almonds. Since 2007, Paramount Farms claims to have delivered healthy snacks to Indian consumers. Pistachios have long been favoured by Indians, but cannot be grown indigenously. Paramount Farms' California-grown pistachios according to the company represent the highest-quality product currently grown abroad, and, with a new roasting facility in Vadodara, Gujarat, also signify the company's commitment to serving the Indian market. As India revamps its own food safety regulations, Paramount Farms argues that it has positioned itself as a leader in the application of best practices so that Indian consumers can be certain that this healthy snack is provided with the utmost consideration for consumer safety (<http://paramountfarms.com/>).

PepsiCo founded in 1898 in North Carolina, and headquartered in New York, entered India in 1989 and in a short period of 20 years has grown into the largest and one of the fastest growing food & beverage business in the country. PepsiCo India's growth has been guided by PepsiCo's global vision of "Performance with Purpose. True to its stated principle, the company's achievements under this banner have raised the technical capabilities of Indian farmers, granted access to fair prices and markets, and contributed to sustainable rural development wherever the company works. Its involvement in India spans a number of product categories, with active participation in every stage of production and selling, from farm to market. Over time, PepsiCo has continued to carry out contract farming for various crops, including oats, basmati rice, peanuts, chillies, and barley.

PepsiCo also employs certain crops to improve sustainability in agriculture by carrying out contract farming for malting grade barley on lands that have poor water availability. The company ensures a minimum procurement price for the malting grade barley that is far higher than what the government offers as minimum support price, thereby boosting farmer incomes. PepsiCo is also planning to introduce oats cultivation in India for its Quaker Oats brand. This would be yet another crop that would improve the sustainability of farmers' incomes in marginal and water-scarce lands (US-India Business Council: 2009; <http://www.pepsico.com/>).

The US agri-business view of India as an important consumer of its agricultural exports and crop science has been projected in India by the US-India Business Council. Thus, it can be

argued that the role played by the USBIC was critical in the conclusion of an agreement of cooperation between the US and India on the agricultural sector.

In the six decades since India gained independence, the country has undergone changes in virtually every aspect of its economy, governance, and global outlook. More often than not, these changes have improved the lives and livelihoods of its citizens and its standing in global affairs.

As the country now assumes its rightful position as a leader in technology, manufacturing, and services, India will also need to adopt a new approach to agriculture and allied industries. The first Green Revolution in the 1960s depended heavily on government resources and intervention to feed a population of less than 500 million. Today, with the same amount of land and amidst climate change and diminishing availability of water, India must feed a population of nearly 1.2 billion.

The technologies, expertise, resources, and leadership for ensuring food security for this growing population cannot be fully supported and provided by the government alone. The business sector, which has spent decades investing in all aspects of the agricultural supply chain, stands ready to partner on efforts to support India's goal of achieving food security through an Evergreen Revolution.

While cotton production has doubled in six years owing to seed biotechnology aimed at mitigating the effect of pests, other crops unsupported by innovations will continue to suffer the vagaries of the monsoon, pest attacks, and low productivity due to soil degradation and misapplication of fertilizer. A lack of protection of innovation and technology disincentivises investments into value-added inputs. As a result, the Indian farmer remains dependent on antiquated technology and is unable to reap the benefits in the marketplace. The US India Business Council has recommended Biotechnology supported seeds, which have consistently proven resilient to difficult farming conditions and safe for consumption, which will elevate Indian farmers' abilities to ensure the country's food security. Further, they stress the point that a science-based and predictable regulatory environment will incentivize investment in biotech seed production, as will the strict enforcement of intellectual property rights. Passage of the Seed Bill will bolster an environment that allows major research

entities to invest further in India-specific technologies, boosting productivity and rural incomes.

Though crafted to do the opposite, the Mandi system often precludes India's farmers from receiving fair and remunerative prices for an array and quantity of products. Government fixed prices and corruption obstruct price transparency, while many Agricultural Produce Marketing Committee (APMC) Acts (to provide for regulation of agricultural produce markets) restrict access to more lucrative farming practices, such as contract farming, participation in public-private partnerships, and direct marketing to end users that can eliminate the costs of relying on middlemen for marketing of crops.

The US India Business Council has also recommended the adoption by all states of the central government's Model APMC Act of 2003, that establishes market-based policies while protecting farmers' interests, would support their ability to receive fair and remunerative prices for their crops. Contract Farming, promoted in the Model Act, would further link farmers to markets and to technical assistance and extension services, enhancing their ability to produce high-quality and adequate quantities of food for domestic consumption and export. Removing controls on the movement and marketing of commodities by repealing the Essential Commodities Act will add stability to the market, attract private investment to the efficient marketing of commodity crops, and support farmers' ability to receive remunerative prices. While promoting the alternative marketing structure, however, Government needs to put in place adequate safeguards to avoid any exploitation of farmers by the private trade and industries.

Removing unnecessary intermediaries from agricultural supply chains and allowing distributors and retailers to freely purchase from producers would reduce instability in the market, and it would also minimize prices for consumers and hold inflation at lower rates. By welcoming foreign investment into multi-brand retail, global retailers would bring expertise to farming and food safety practices, investments in supply chains, and a wider variety of products to consumers. Permanently reducing market access barriers to agricultural and horticultural goods, particularly those not produced within India would reduce prices for Indian consumers. In addition, increased market access would stabilize prices if poor farming conditions within India lead to inadequate food supplies.

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Food price inflation over the last year has nearly doubled the cost of essential commodities, hampering India's economic growth and threatening the food security of millions. The need for greater farm productivity, strengthened and efficient supply chains, value-added food processing, and the development of more direct linkages between producers and consumers have become priorities for Indian policymakers.

USIBC's Food & Agriculture Executive Committee members have continued to advocate for the removal of market access barriers that impede India's ability to establish an integrated farm-to-market supply chain. Opening India's multi brand retail sector to foreign direct investment is the highest priority, as this intervention would spur investment into India's agricultural infrastructure, including cold chain storage facilities, warehousing, logistics, and distribution. The committee is focusing on elevating outreach to a broader list of policymaking stakeholders and various political constituencies.

The Food & Agriculture Executive Committee is made up of companies representing the entire cross-section of the farm-to-market supply chain. As such, an overarching objective of the committee is to foster a business-led Evergreen Revolution in India. Collective know-how and technologies would be leveraged to support productive farming, greater efficiency in supply chains, value-added food processing, expanded consumer choice, and better water-use management, leading to a safe and affordable supply of food for all Indians.

The advocacy priorities of the Food & Agriculture Executive Committee of the USIBC are:

1. The committee will promote the opening of India's multi brand retail sector to support greater linkages between farmers and markets, thus eliminating intermediaries in the supply chain while bringing technology and know-how to improve supply chains. Such reforms will ensure that productivity and efficiency are enhanced, leakages are stemmed, and distribution networks are improved.
2. A level playing field is crucial for facilitating bilateral trade and investment. USIBC seeks the reduction of tariff and nontariff barriers for agricultural goods such as fruits and vegetables, poultry, dairy, and horticulture products, in addition to processing and restaurant equipment and farming implements. Permanently reducing market access barriers for these goods, particularly those not produced in India, will ease food price inflation and can mitigate a food shortfall in the Indian market in the event of a weak monsoon or poor harvest.
3. India's food safety, measurement, regulatory, and additive standards, such as those outlined in the Food Safety and Standards Act, 2006, should be harmonized with globally adopted CODEX Alimentarius standards⁵. Indian-specific regulations that are replaced with globally accepted norms will help food exporters reach new markets while ensuring a safe food supply for Indian consumers. Shifting regulations from a punitive approach to self-regulation and audit by food producers and marketers will create an environment welcoming new investments and technologies, further supporting the cause of food security.
4. India's rapidly growing population requires increased farm productivity. Advocating for a science-based regulatory environment will incentivize biotech companies to explore investment opportunities to meet these demands. Encouraging passage of the Seed Bill will ensure that steps are taken to address India's increasingly urgent need to bolster food production.

⁵The Codex Alimentarius Commission was created in 1963 by FAO and WHO to develop food standards, guidelines and related texts such as codes of practice under the Joint FAO/WHO Food Standards Programme. The main purposes of this Programme are protecting health of the consumers and ensuring fair trade practices in the food trade, and promoting coordination of all food standards work undertaken by international governmental and non-governmental organizations.

5. Advocating for sustainable water usage practices in areas such as irrigation, bottling, and waste water treatment will help preserve India's food security and natural resources (U.S.-India Business Council: 2011).

The Obama Administration has sought India's partnership that would leverage India's expertise with African farmers and US expertise with technology to address an urgent global challenge by taking up the leadership in the Feed the Future Initiative, which would, not only usher in the Second Generation Green Revolution that promises a sustainable agriculture in India that would feed India's future populations, but would also address food security issues in South Asia and Africa and ensure the welfare and development of the populations at the grass roots (Roemer: 2010).

A well-known diplomat stated that, *“Both countries should take advantage of the bonds created by the growing understanding and sensitivity and the apparent positive change in the Congressional attitudes towards the India, along with the flourishing Indian-American community and the wealth of organizations that are active in the private sectors to forward the thriving strategic collaboration in the agricultural sector”* (Schaffer: 2002).

CHAPTER V: CONCLUSIONS

This study focuses on the strategic partnership between USA and India in the field of agriculture. The basic human requirement for subsistence calls for adequate nourishment of the human body, the needs of which is only fulfilled by a food diet. The Universal Declaration of Human Rights provides everyone the right to food to all in order to ensure a satisfactory standard of living to maintain the health and well-being of oneself and one's family. Hence, it is the responsibility of every nation to guarantee enough supply of food and food grains to its each and every citizens at reasonable prices, and arrange special provisions for its allocation to the vulnerable sections of the society if the need arise.

It was when India was reeling under severe famine in India in the 1950s, and human life was at risk that the US came as a saviour with its PL-480 food grains export to India. In order to have a sustained growth in the agricultural production and productivity and also to become self-sufficient in food grains, India embarked on the process of transforming its agricultural sector with the help of the US to usher in the Green Revolution in India, so much so that India became a food-grain exporting nation by the turn of the century. However it may also be mentioned that critical analysis by experts in the field of agricultural cooperation of that period has also pointed out that the politics of aid disbursal from the US to India as well as the severe problems (both in health and in economy) that India faces due to the practices born out of the Green Revolution. It is widely accepted that while cooperation has had several positive outcomes, US-India Agricultural Cooperative framework also needed to be restarted in the subsequent years from the 1960s.

While evidence shows that the period of seventies recorded Indian self-sufficiency in food grains, it also revealed that by the eighties, India became a net exporter of food grains. The economic downturn faced by India in 1990, though affected the country badly in the short run, the reforms that it forced in the economy led to several positive outcomes in the years to follow. One of the positive impacts was in the field of agriculture, where India set on the pace of high trade and commerce in agricultural products, thereby setting in a momentum for high domestic agricultural production and productivity. The US was once again a willing partner in India's efforts to liberalise and expand trade, especially in agriculture. The Bill Clinton administration tactfully helped India overcome the sanctions placed on it after its Pokhran II nuclear tests in 1998. This paved the way for greater economic cooperation between US and India, and in agriculture.

The long and rich history of US-India agricultural cooperation came to the fore once again in the 21st century in the strategic dialogues of the two nations during high profile visits of dignitaries from both sides. But this time it concentrated on the drawbacks of the Green Revolution and noted the criticisms against it, and determined to launch a new, refreshed, sustainable and an Evergreen Revolution. It was pledged to spread the programme to dry land areas of the country with an emphasis on the small and marginal farmers.

The expertise of America in land farming techniques has generated considerable interest in India ever since the US helped it avert a major food crisis besides enabling the Green Revolution in the 1960s. The first chapter provided a snapshot into the study “US-India Agricultural Cooperation, 1991-2010”, with the rationale behind undertaking it. It laid down the specific questions that the research would seek to find, by critically examining the paradigm shift in perceptions reshaping US- India relations and to relate the overall strategy of agricultural cooperation to political alignments, with references to the major factors that contributed to greater focus on reciprocity in agricultural partnership.

The second chapter dwelled into the US-India Agricultural Cooperation in a detailed and comprehensive study, looking at the historical background of the nature of the cooperation from the Truman administration through the current Obama administration. The chapter thoroughly scrutinised the factors that caused the relationship to transform Washington’s view of India from that of a “strategic backwater” to one that necessitated a “strategic partnership”.

In main, evidence revealed that while there have been extensive cooperative agreements between US and India on the bilateral front, at the multilateral fora like the WTO, the two countries have faced the toughest discord. In these settings both USA and India have a great deal at stake. Some of the interests coincide, but others clash. The US still remains greatly concerned about the pace and scope of India’s economic reforms. A few US scholars along with some government officials argued that excessive regulatory and bureaucratic structures may hinder the full realisation of India’s economic potential. As a result of such regulatory attitudes, there was a hindrance in the technology transfers, which affected the pace of technology transfers which could have benefitted Indian agriculture. In addition, it was found that the negative political environment (created by India’s commitment to Non-

Aligned Movement and closeness to the erstwhile Soviet Union), also impacted the US perspective on technology transfers.

Chapter three of the dissertation sought to look into the most vital issues of contention that has often come in the way of a harmonious cooperation in agriculture between the two, namely, the fine lines at the Doha Development Round negotiations, where the key outstanding issues for the Doha Round have centred around trade in agricultural goods, non agricultural market access (or NAMA), trade in services, and trade remedies and at present, differences on trade in agricultural goods are foremost among the four remaining issues, and are generally viewed as the lynchpin for the successful completion of the Doha Round. The U.S. farm subsidy program was found to be a source of India's concern about agricultural imports from the United States. Critics of subsidies argued that even though developing countries have a distinct cost advantage in the production of agricultural products, given the large subsidies given to competitors in advanced nations, they are unable to compete on an even playing field. India, along with a number of other nations, views the current U.S. farm support program as a form of trade distorting export subsidy and has called on the United States to significantly reduce the annual limit on farm assistance. Thus the elimination of domestic subsidies has been the key issue dominating international negotiations on US agricultural policy.

Issues of tariff and non-tariff barriers and protection of Intellectual Property Rights (IPRs) were other contentious issues, where, U.S. products, such as coffee, tea and most grains have been effectively kept out of India by tariff rates as high as 100%. The United States requested WTO dispute settlement consultations with India over the customs duties it has imposed on imports of wine and distilled spirits, claiming that charges for "additional duty" and "extra additional duty" increased the imposed tariff rate to 150% to 550%. The rationale for the establishment of a legal framework on IPRs is that it is a signal to society that creative and inventive ideas will be rewarded. The inadequate intellectual property rights (IPRs) protection has been a longstanding issue between India and the US. In May 2004, the US Trade Representative (USTR) inducted India in the Special 301 Priority Watch List for its "weak" protection and enforcement of IPRs.

Among other contentious issues were India's application of its sanitary and phyto-sanitary (SPS) regulations on certain U.S. exports which has raised concerns in the US for genetically modified foods, in almond exports and others at the WTO committee on technical barriers to

trade. The US has urged India to rather resolve the issue through a dialogue between the regulatory specialists of both the countries. It said that both the countries believe in biotechnology as an important tool for enhancing farm growth and hinted at the recent US India accord on agricultural research and education. Thus the main emphasis on the contentious issues has revealed that multilateral forums find India and the US disagreeing with each other based on their nationalistic approach.

Chapter four of the dissertation examined the scope for a positive improvement of US- India Agricultural relations. In the first instance, it was found that the American Congress and the Indian Diaspora in the USA reignited a positive interest on India. The early attitude of neglect of India among the members of the Congress in USA was dramatically transformed to one of great attention after the liberalization of the Indian economy in 1991, as its burgeoning middle class was seen as potential customers of US' private ventures in India that could yield domestic dividends. Besides this, the growing profile of India on the international arena, its activism for justice and against terrorism, nuclear proliferation, its economic prosperity, high growth rates, its near- immunity to the impacts of the global meltdown, its rapidly increasing and affluent Diaspora in the USA, have drawn the attention of the US policy makers towards the country in particular and the South-Asian region in general. India- based lobbies provide continuity and a balanced perspective when conflict develops in other areas and function towards the betterment of US-India ties.

The chapter also included a brief description and analysis of certain relevant American lobbies in agriculture and strategic affair. In the course of the research it was found that there are several broad based agricultural groups, such as the American Farm Bureau Federation, but equally important are the commodity associations formed of peanut farmers, potato growers, dairy farmers and other producers. The US Department of Agriculture and the agricultural sub committees in the Congress are organised along commodity lines, such as dairy or wheat.

Influential think tanks like the Carnegie Endowment for International Peace, the Heritage Foundation, International Trade Administration a think-tank within the Department of Commerce, USA, has several Indian scholars, academics and business persons who seek to advance the development of national and international economic policies including agriculture, maximize U.S. gains in trade negotiations and support the enforcement of U.S. trade laws, seeking to bring about balanced gains to both USA and India, in matters of

economic and agricultural cooperation. That said, much more detailed work needs to be done with the impact of these lobbies on the issues at hand.

Evidence shows that with a high rate of growth in population, and the consequent demand for food, India now places high priority on reinvigorating growth in the agricultural sector, and has begun to make a number of changes in agricultural policy in order to stimulate both research and investment. This Indian priority, together with U.S. interests in supporting the long term growth of the Indian economy, creates a renewed opportunity for US-India cooperation under the US-India Agricultural Knowledge Initiative that recognises the efforts of Dr. M. S. Swaminathan, and Dr. Norman Borlaug, the two planted the metaphorical seed that brought sustainable sources of food to a newly independent India, unleashing what would ultimately become known as the Green Revolution. Since the advent of this joint achievement, India is now looking forward to the Evergreen Revolution in India, where the future would be without fear of famine and with the bright prospect of plentiful sustenance.

The thesis assessed the recent successes and failures and incorporates an evaluation of both American and Indian efforts to reinforce greater economic cooperation while concurrently addressing shortcomings and possible steps to strengthen this cooperation. The urgent need for strengthening of Indian agriculture needs strengthening at technical, financial and management levels. Farmer-centric agricultural development requires the basic enlightenment of farmers. The entire study was conducted on the backdrop of US – India relations as a whole to bring into perspective the nature of bilateral political relations between the two nations which will enable better comprehension of the nuances in the cooperation or contestation between them on the economic issues. The US help to India in achieving long-term agricultural development will be critical to sustaining the country's economic modernization and to addressing global food security concerns. With so many of India's poor relying on farming for their livelihood, improvements in agricultural efficiency would have far-reaching socio-economic benefit. A strengthened economic synergy between the two countries were permanent considerations during the research undertaken to understand the fact that by pursuing economic relationship and close agricultural collaboration, both countries can progressively build up their own institutional capacity to develop and execute a grander strategy internationally, while simultaneously attending better to their key internal security challenges.

Thus from the literature reviewed and the major findings of the study suggest an affirmative response to the stated hypotheses that US cooperation for 'second generation' Green revolution is at the centre of bilateral strategic relationship and that Congressional support to agricultural technology transfers in India is aimed at furthering the transformation of US-India relations. It would not only usher the 'Second- Generation Green Revolution' in India but would also help to boost agriculture and food-security for the benefit of the entire humanity that would cut-across distinctions of boundaries on the world map.

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