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AGRICULTURE IN FOREIGN TRADE POLICY, 2005

The dynamics of global trade and the opportunities provided by the multilateral trading platform necessitate a continuous realignment of India's international trade strategies and priorities. With a view to incorporate additional policy initiatives and to simplify procedures, thereby facilitating and enhancing India's international trade, Shri Kamal Nath, Minister for Commerce & Industry, Government of India announced the annual supplement 2005 to the Foreign Trade Policy (FTP), 2004-09 on April 8, 2005. Policy measures announced to boost agricultural and food products exports are highlighted below:

- Reduction in bank guarantee threshold for units in Agri Export Zones (AEZ).
- To promote export of 'Minor Forest Produce' products, Shellac Export Promotion Council has been designated as a nodal export promotion council (EPC) for minor forest produce.
- In order to maintain quality and retain the brand equity of Indian teas, all teas, whether imported or exported, would be required to conform to specific quality norms. The new Order (Tea Distribution and Export Order, 2005) also prescribes a minimum value addition norm of 50% on export of all imported tea and stipulates a time period of 6 months from the date of import for the export of imported tea.
- On account of Tsunami Tragedy, Government of India has announced a special package for marine sector, which are as follows:
 - Duty free import of specified specialized inputs/chemicals, and flavoring oils (as ingredients for seafood processing) as per a defined list shall be allowed to the extent of 1% of FOB value of preceding financial years export.
 - To allow import of mono-filament long line system for tuna fishing at concessional duty, to encourage existing mechanized vessels and deep sea trawlers to adopt modern technology for scientific exploration of marine resources.
 - To establish a self-removal procedure for clearance of waste of perishable commodities, subject to prescribed wastage norms.
- Removal of export cess on export of all agricultural and plantation commodities levied under various Commodity Board Acts.
- Setting up of Inter-State Trade Council to engage State Governments in providing an enabling environment for promotion of international trade, including agricultural trade.
- Under the Export Promotion Capital Goods (EPCG) Scheme, the concessional duty imports made by agriculture-based units shall be allowed to fulfill export obligation over a longer period of time with a reduced export obligation i.e. 6 times the duty saved over a 12 year period instead of the normal window of 8 times the duty saved in 8 years.
- In order to give a boost to rural areas, benefits under the 'Vishesh Krishi Upaj Yojana' shall be extended to exports of poultry and dairy products in addition to export of flowers, fruits, vegetables, minor forest produce and their value added products.



EXPORT POTENTIAL OF FRESH FRUITS, VEGETABLES AND DAIRY SECTOR IN INDIA: AN EXIM BANK'S STUDY

Exim Bank's latest study titled 'Fresh Fruits, Vegetables and Dairy Products: India's Potential for Exports to Other Asian Countries' observed that export potential of fresh fruits, vegetables and dairy sector in India is not fully tapped, considering the size and diversity of these sectors. The study is of the view that it is time to bring in paradigm shift so that the future development in these sectors brings in better balance between production and other sub-systems.

Quoting FAO data, the study reported that world trade in fresh fruits and vegetable was estimated to be US \$ 40 billion in 2003. The study further remarked that Asian region accounted for nearly 15% share in global trade of fruits and vegetables imports. Growth in intra-regional trade was the main contributor of growth of trade in this region.

As regards India, the study noted that India is the second largest producer of both fruits and vegetables, next only to China. Major vegetables produced include potato, eggplants, tomatoes, cassava, cabbage, dry onions, cauliflower, pumpkin, okra and green peas. Major fruits produced include mangoes, oranges, apples, grapes, pineapples and papayas. The study highlighted that India's exports of fruits including edible nuts in the year 2003-04 amounted to US \$ 166 million. On the other hand, exports of vegetables were valued at US \$ 205 million in the same year.

The study drew attention to the direction of India's exports, which is oriented towards Asian region. The study estimated that Asia region accounted for about 75% of India's total fruits and vegetables exports in 2003-04. In addition, the study highlighted that, for many countries, India is one of the top five source partners for imports of fruits and vegetables. However, the study cited that India has a negligible share in imports of fruits and vegetables by countries like Australia, Hong Kong, Indonesia, Iran, Japan, Jordan, Republic of Korea, Lebanon, Mongolia, New Zealand, Pakistan, Philippines, Singapore, Syria and Thailand. Considering the level of imports in Asian countries, the study concluded that India holds lot of potential in many Asian markets.

Potential fruits identified by the study for increasing exports include apples, oranges, bananas, watermelons, mandarins, pineapples, and mangoes and guavas. Potential vegetables identified by the study include garlic, cauliflower, tomatoes, potatoes, cucumbers, peas, mushrooms, onions and eggplants.

The study is of the view that major problems that come across while exporting fresh fruits and vegetables from India include low productivity (cost competitiveness) as compared to global standards, prevalence of low level of pre-harvest / post-harvest technologies, international quality standards and existence of distortion in market channels.

The study suggested the need for gaining deeper understanding of the different kinds of technologies that are essential in the pre-harvest and post-harvest phase, to ensure retention of the quality of the produce. Research institutions could obtain details about the latest technology on storage of various agriculture products and then develop appropriate storage protocols to suit Indian fruits and vegetables.

Citing the model adopted by China, the study opined that India could attract FDI from Asian countries like Japan, Republic of Korea and Singapore, for creation of cold chain infrastructure and quality / testing facilities in the farmyard.

The study also highlighted the importance of R&D, especially with regard to development of new production varieties, identification of new applications / usage of fruits and vegetables, and innovation in supply chain management, for sustainable exports. To achieve this, the study suggests adoption of agricultural regions for undertaking R&D work that are region-specific by the research institutions.

Region specific export facilitation centers could be developed considering the concentration of production of various fruits and vegetables. The role of Agri-Export Zones (AEZs) could also be emphasized further in tandem with the market requirements, especially to give specific thrust on the quality and supply chain requirements of the target markets.

DUMPING BY THE USA ON WORLD AGRICULTURAL MARKETS: A CASE STUDY

Dumping may be defined as the selling of a commodity at less than its cost of production plus a reasonable profit margin. Dumping distorts the market prices of commodities because it supports production independent of the demand of the product in the region, leading to artificial depression of prices in international markets. Major reasons attributed for fall in prices are export subsidies and decoupled direct support payments to producers that allow production without controlling supply.

Since the inception of World Trade Organisation (WTO), widespread agricultural dumping by global agribusiness companies based in the United States and European Union has created havoc on global agricultural markets and hit the farmers in poor countries who are often pushed off the farm by dumped agricultural commodities. A decade after the WTO's agreement on agriculture (AoA), while global trade in agricultural products have increased, the benefits envisaged from more trade, greater access to markets and higher prices have gone to global food companies (owned by developed countries) instead of farmers around the world, including US farmers.

The structural price depression associated with agricultural dumping has two major effects on developing country farmers who raise competing products. First, below-cost imports drive developing country farmers out of their local markets. If the farmers do not have access to a safety net of subsidies and credit, they have to abandon their land. When this happens, the farm economy shrinks, in turn shrinking the rural economy as a whole and sending rural people into trade-related migration. Second, developing country farmers who sell their products to exporters find their global market share undermined by the policy of a depressed "global price." The cascading effects of dumping are felt around the world in places as far apart as Jamaica, Burkina Faso and the Philippines.

According to a recent study report of US-based non-governmental organization Institute for Agriculture and Trade Policy (IATP), the United States is dumping five primary farm commodities on international markets, in violation of World Trade Organization (WTO) agriculture rules, hurting farmers in the US and the developing countries. The dumping figures for five commodities namely wheat, corn (maize), soyabean, rice and cotton of the year 2003 are given below:

Crops	Farmer Production Costs (US\$/bushel)	Government Support Costs (PSE)	Transportation and Handling Cost (US\$/bushel)	Full Costs (US\$/bushel)	Export Price (US\$/bushel)	% of Export Dumping
Wheat	4.69	0.12	0.82	5.63	4.04	28%
Soyabean	6.62	0.26	0.54	7.42	6.7	10%
Maize	2.35	0.09	0.54	2.98	2.68	10%
Cotton	0.838	0.137	0.080	1.054	0.562	47%
Rice	8.65	0.28	9.49	18.43	13.68	26%

Source : USDA

As the report indicates, the levels of dumping decreased in 2003 from previous years for all five commodities. However, this decrease is widely recognized to be the result of reduced supply, caused by bad weather and pest infestation, which pushed up prices of commodities. The decrease was not the result of any changes in international trade rules or domestic farm programs.

The report also outlined that the disastrous impact of dumping is not limited to farmers of other countries, but the US farmers have also not been adequately compensated through support programmes. The bulk of subsidy payments are being received by big corporate farms trading into agricultural commodities. From 1997 to 2002, according to the US Department of Agriculture (USDA), the US lost over 90,000 farms of below 2,000 acres, while 3,600 farms grew to more than 2,000 acres. Despite the high levels of dumping by the US, the agricultural exports have decreased from \$80 billion in 1995 to \$76 billion in 2003 and similarly, the US share in world agriculture exports market declined from 14% in 1990 to 11.3% in 2003. Few of the experts expect that the US will turn net importer of agricultural commodities in future.

According to the report, the dumping of agricultural commodities by US-based corporations is possible because commodity production is badly managed. The US Farm Bills – 1996 and 2002 have produced a structural, price-depressing oversupply of most major agricultural commodities, leading to reduction in prices. The influence of the 1996 Farm Bill on dumping is significant. Each of the five major export commodities saw a significant jump in export dumping when comparing the seven years (1990-1996) prior to the 1996 Farm Bill to the subsequent seven years (1997-2003):

- Wheat dumping levels increased from an average of 27% per year pre-1996 Farm Bill to 37% per year post-1996 Farm Bill.
- Soybean dumping levels increased from an average of 2% per year pre-1996 Farm Bill to 11.8% post-1996 Farm Bill.
- Maize dumping levels increased from an average of 6.8% per year pre-1996 Farm Bill to 19.2% post-1996 Farm Bill.
- Cotton dumping levels increased from an average of 29.4% pre-1996 Farm Bill to an average of 48.4% post-1996 Farm Bill.
- Rice dumping levels increased from an average of 13.5% pre-1996 Farm Bill to an average of 19.2% post-1996 Farm Bill.

The US policies of over production and dumping have also been posing a threat to food security, higher incidence of poverty and rural employment amongst the farmers of developing and least developing countries. The IATP report has called for immediate action at international level to curb the dumping of agricultural commodities by the US. These actions include:

- Elimination of visible export subsidies, as well as the establishment of strong disciplines on export credits and program food aid, as quickly as possible.
- Commitment from exporting countries to keep products, which are priced below the cost of production out of world markets.
- Publication of detailed cost of production estimates for OECD countries and make the relevant data publicly available within six months of the close of the fiscal year.
- Agreement on strong international rules to prohibit restrictive business practices among the oligopolies (regional trade blocs) that dominate trade in most agricultural commodities.

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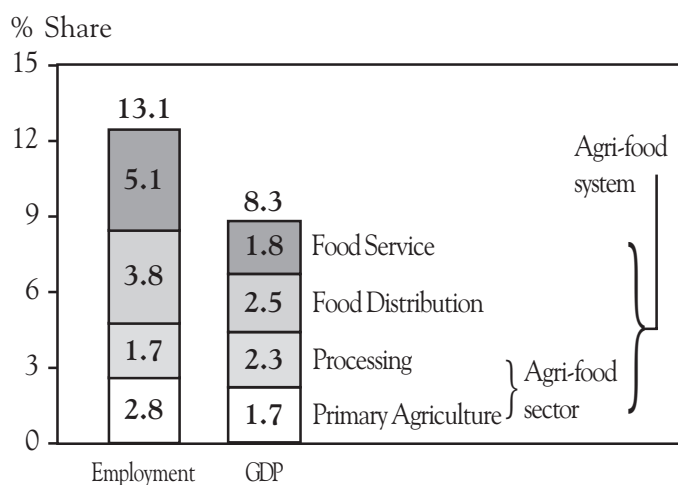
CANADA: AN AGRICULTURE ECONOMY

With the rising importance of industrial and services sectors, the contribution of agriculture in Canadian economy is not very substantial, although it is still considered as key driver of the economy. This is also evident from the fact that primary agricultural output accounts for less than 2% of total gross domestic products (GDP), whereas the agri-food sector including food processing contributes more than 8% to total country's GDP.

The share of agriculture in total employment has declined from about 15% in the early 1960s to 2.1% by mid-2004. Due to technology upgradation and increase in productivity, and agriculture in smaller family farms becoming detrimental, hence the size of the farms have been increasing and number of farms across the country has been declining. The 2001 census of Agriculture recorded 246,923 farms, a decline of more than 10% since the previous census in 1996, while the average size of farm rose from 246 hectares to 274 hectares during the same period.

The growth of the agri-food system, which includes primary agriculture sector, processing, food distribution and food services, is mainly driven by value added production. The overall system is estimated to be the size of Canadian \$ 65 billion and its share in GDP has been relatively stable.

Agri-Food's Contribution to the Canadian Economy



Note : GDP for 2000, Employment 1999.

Source : Statistics Canada, with AAFC Estimates

According to FAOSTAT, export of agriculture products from Canada is estimated to be US\$ 17.6 billion in 2003. Major export items are wheat and wheat products, barley and its products, beverages, coffee and its products, chocolates, cattle, beef & veal, pork and milk products. Canada is world's second largest wheat exporter; about 75% of Canada's wheat is exported in a normal production year.

Agricultural activity differs in type and size across the various regions of Canada. Although, Alberta region of Canada is known for cattle farming, the Prairies are mostly known for their vast grain crops such as high-grade spring wheat and canola (oilseed). Okanagan valley in British Columbia has fruits and vegetable industry, which is also prevalent in South-western tip of Ontario. Though, the farming is well diversified from Maritime provinces and across Quebec and Ontario along the St. Lawrence River, the region is mainly known as the centre of Canada's dairy industry. Prince Edward Island in the Maritimes is also famous for potato industry.

Livestock industry of Canada went into turmoil due to mad-cow disease diagnosed in May 2003. Exports of cattle products to the US, the largest market, stopped for almost four months. Farm revenue dipped by about 5.8%. Farm income in Alberta, the centre of beef industry, shrank by 72% in 2003. To support the farmers in 2003, Canadian Government has increased the payment under subsidy programmes by 42% to Canadian \$ 4.9 billion. Recently in March 2005, Canadian Government announced the release of Canadian \$ 1 billion as immediate federal assistance under the Farm Income Payment Programme for cash-strapped farmers facing record low income.

Reference:

- Ministry of Agriculture and Agri-Food, Government of Canada
- FAO

HYDROPONICS: SOIL LESS AGRICULTURE

Hydroponics, popularly referred to as “Soil-less agriculture” or “Soil-less culture” is a technology, whereby plants are grown in an inert sterile growing medium, such as rockwool, clay pebbles, perlite, vermiculite and are fed a mixture of water and nutrient. The basic principle of the technology is as follows. Plants that are grown in soil have to continuously develop their roots in search for water, nutrients and air, hence the majority of the plant’s energy is spent on the lower root development restricting its upper growth. With hydroponics, the water, nutrient and air is mainlined directly to the roots, freeing the plant to use its available energy on its upper leaf development and productive growth. Crops grown with this technology develop optimum levels of appearance and taste, because hydroponics plants are given exact doses of nutrients and the same is being completely absorbed by them. More plants could be grown in same area, as roots of plants grown in a soil-less medium do not need to constantly grow in search for nutrients. It is environment friendly and very little water is lost to evaporation in a hydroponics system, owing to its application in drought stricken areas. The hydroponics greenhouse is also known as “protected agriculture” or “controlled-environment agriculture,” which controls and modifies light reaching the plants.

Hydroponics is a very young science. It has been used on a commercial basis for only 40 years. However, even in this relatively short period of time, it has been adapted to many situations, from outdoor field culture and indoor greenhouse culture to highly specialized culture in atomic submarines and spacecrafts to grow fresh vegetable for crews. It is a space age science, but at the same time can be used in developing countries of the Third World to provide intensive food production in a limited area. Its only restraints are sources of fresh water and nutrients. In areas where fresh water is not available, hydroponics can use seawater through desalination. Therefore, it has potential application in providing food in areas having vast regions of non-arable land, such as deserts. Hydroponics complexes can be located along coastal regions in combination with petroleum-fueled or atomic desalination units, using the beach sand as the medium for growing the plants. In some cases, hydroponics produce is strictly considered a premium or gourmet product fetching high value in export markets. In others,

hydroponics technology is utilized for producing staple crops and grain. In arid regions, such as in Mexico, the Middle East, India and Israel, hydroponics culture is helping to feed growing populations. Apart from this, hydroponics promises to play an important role in the future to grow seedlings for reforestation, orchards, and ornamental shrubbery. It may be also used for growing fresh vegetables for smaller countries whose chief industry is tourism, where tourist facilities such as hotels, have often taken over by most arable areas of the country, forcing local agriculture out of existence, e.g., West Indies, Mauritius and Hawaii.

The Present

Today, approximately 90% of all fresh cut flowers and 65% of fruit and vegetables purchased in the UK are hydroponically grown. The commercial hydroponics industry has grown four- to five folds in the last 10 years, and is currently estimated at between 20,000 and 25,000 hectares with a farm gate value of US \$6 to US \$8 billion. Tomatoes, cucumbers, lettuce, capsicum and cut flowers are the most important commercial crops grown hydroponically. Production is focused in affluent countries with discerning consumers (The Netherlands, Spain, Canada, Japan, UK, USA, Italy, NZ and Australia), or countries which have access to these markets (Mexico and China). Hydroponics has embraced Integrated Pest Management and is moving away from run-to-waste systems with their potential for environmental problems. The fruits and vegetables grown hydroponically therefore have a high export market due to its organic and gourmet nature. The Netherlands is the world leader in commercial hydroponics, producing largely for export markets. Holland has a total hydroponic production area of some 10,000 hectares made up of 13,000 mostly family-based holdings that employ an estimated 40,000 people. Hydroponics accounts for 50% of the value of all fruit and vegetables produced in the country. The other leaders in commercial hydroponics are New Zealand, Canada, USA and Australia. Australia is the largest hydroponic lettuce producer in the world with over 240 hectares under production. Israel today produces 95% of its own food from its 60% of hyperarid, arid, and semiarid land using greenhouse hydroponics,

importing only grain, oil seeds, meat, coffee, cocoa, and sugar and is the largest producer of hydroponically grown tomatoes. Significant producers in Asia include Singapore, Taiwan and China, who export produce to Japan. Asian countries that import hydroponic produce include Hong Kong, Korea, and Malaysia. In Japan, hydroponic production is vertically integrated with the food processing sector and only a small percentage retails on supermarket. The industry in Japan is a major utiliser of Integrated Pest Management (IPM) systems and is largely chemical free and fetches 20-30% higher premiums than for conventionally grown produce.

In India, though the concept of hydroponics is as old as its independence, but is still under experimental trials. The first experiment in India commenced at the Government of West Bengal's Experimental Farm at Kalimpong in the Darjeeling District, which failed due to its complicated and cost intensive nature. But later with the developments in science and introduction of easier and cheaper infrastructure, today in India, thousands of households raise essential vegetables in simple hydroponic units on rooftops or in backyards. The Bengal System has far more than proved itself, as being useful in the most adverse conditions.

The Future

Reports on economic analysis on the hydroponics science show modest returns for entry-level investment, and that results are consistent with agricultural production for a mature product. Studies also summarize that improved industry profit is linked to large scale production, exploitation of niche markets, and on-farm value-addition. Some hydroponics products, including lettuce

and tomatoes, are branded as hydroponics at retail level, but a lot of hydroponics product is sold on the basis of quality and not by promoting its method of production. For instance, premium hydroponics tomatoes are often marketed as "vine-ripened" rather than hydroponics; and fancy hydroponics lettuce are marketed as "living lettuce" in a root-on form, rather than as hydroponically grown.

Majority of commercial hydroponics growers competes against conventional soil-based producers with mainstream commodity style products, such as tomatoes, lettuce and cucumbers. Given that hydroponics product is marketed through all channels, and some do not compete with soil grown produce, it is difficult to isolate price premiums for all the major hydroponics products. However, where hydroponics produce competes against conventional soil-grown products, the hydroponics product tends to occupy a higher price band due to its superior look and taste and also for its supply as reliable and virtually available year-round for many crops.

To build up more success on this science, hydroponics should be treated as commercial science and industry education and training at a grass roots level of production including education on climate control, crop environmental requirements, and IPM programs within greenhouses, must be imparted to make the science commercially viable.

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- Rural Industries Research and Development Corporation, Australia www.rirdc.gov.au
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- Economic Digest, www.aacb.com

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EXPORTS OF AGRICULTURAL PRODUCTS FROM DEVELOPING COUNTRIES: CHALLENGES POSED BY STANDARDS

International trade in high-value food products has expanded enormously over the last decades, fueled by changing consumer tastes and advances in production, transport, and other supply-chain technologies. Fresh and processed fruits and vegetables, fish, meat, nuts, and spices now collectively account for more than 50 percent of the total agri- food exports of developing countries. Their share in developing country trade continues to rise while that of traditional commodities - such as coffee, tea, cocoa, sugar, cotton, and tobacco - has declined. Patterns of consumer demand and commercial development in both industrial and middle-income countries will reinforce this trend and continue to provide outstanding opportunities for competitive suppliers of high-value foods. With these opportunities and expansion of global trade in perishable agricultural products and high-value foods has highlighted great divergence in national standards for food safety and animal and plant health by various importing countries to manage the risks associated with trade in these products. There is increasing attention and scrutiny on the risks associated with microbial pathogens, residues from pesticides, veterinary medicines, and other agricultural inputs and environmental or naturally occurring toxins.

There are two schools of thought regarding the stricter food safety and agricultural health standards. First, these increasing tough standards are seen as barriers in trade between trading nations. Second, these standards are continuously seen as catalyst for growth in safety of food standards in domestic as well as international markets. In both the cases, developing countries are facing immense challenges as well as opportunities to not only enhance the exports of agricultural commodities, but also to increase the food standards in domestic markets. Much has been written and talked about the first school of thought (as barrier of trade) related to increasing food standards. Hence focus could now be on food standards as catalyst in improvement of food safety.

There are several reasons why food safety and agricultural health standards, referred to as sanitary and phytosanitary measures (SPS) within the World Trade Organization (WTO), differ across countries. Differences

in tastes, diets, income levels, and perceptions influence people's tolerance of these risks. Differences in climate and available technology (from refrigeration to irradiation) affect the incidence of food safety and agricultural health hazards. Some food safety risks tend to be greater in developing countries because of weaknesses in physical infrastructure and the higher incidence of certain infectious diseases. Tropical and subtropical climates may be more conducive to the spread of certain pests and diseases that pose risks to health. Considering this viewpoint, food safety and agricultural health standards may provide a powerful incentive for modernizing developing country export supply chains. Further, there may be spillovers into domestic food safety and agricultural health, to the benefit of the local population and domestic producers.

Part of the costs of compliance to stricter food standards could be considered necessary investments, while an array of foreseeable and unforeseeable benefits might arise from the adoption of different upgraded technologies and management systems. Rather than degrading the comparative advantage of developing countries, enhancement of capacity to meet stricter standards could create new forms of competitive advantage, providing the basis for more sustainable and profitable trade over the long term.

Kenyan Fresh Produce Export: A Case Study

In mid-1950s, Kenya initiated exports of temperate-climate vegetables and tropical fruits to the European market in off-season. Later on, it became year-around supplier of green beans and other vegetables. Most of the trade was done by medium size traders, who were exporting through their relatives or small size companies. Most of the products were airfreighted. The industry had invested little in supply chain, infrastructure, product development and system management. The industry was remain competitive in some markets, but the Kenyan fresh produce export stagnated in the 1980s.

With the commercial pressures coming from saturated markets for certain products and increased competition from suppliers that were having cost advantage due to

sea transportation, the Kenyan fresh produce industries reshaped and transformed with the new environment of trade in 1990s, with stricter food standards. With the encouragement of several UK supermarkets, they began to experiment with new crops, new consumer packaging, and new combinations of vegetables. With renewed confidence in the future of the industry, several exporters invested heavily in new or upgraded pack-houses and related food safety management systems for packing

ready-to-eat and semi-prepared products. The efforts and success of the industry is evident from the trade figures; between 1991 and 2003 Kenya's fresh vegetable exports increased from US\$23 million to US\$140 million.

Reference

- Global Agricultural Trade and Developing Countries, A Study Paper of The World bank

GLOBAL FISHERIES SECTOR: IMPACT OF TSUNAMI

The earthquake of 26 December 2004, registering 9.0 on the Richter scale with its epicenter in the Indian Ocean off the coast of Sumatra was the fourth largest in the world since 1900 and the largest in nearly half a century. It triggered large tsunamis that surged with devastating force against at least 12 countries, reaching as far as the Horn of Africa and causing one of the world's worst natural disasters in modern times, and devastated the livelihoods of millions of coastal people, many of them poor fishers, fish farmers and their families. Fisheries sector in all these 12 countries is the worst hit.

Indonesia

Indonesia being the worst affected country, the tsunami devastated the coastal areas of two districts of North Sumatra province namely Banda Aceh and Nias Island. The fisheries sector has been heavily affected by the disaster. The annual output from the two provinces were around 158,578 MT in 2003, comprising 133,976 MT of fish from the marine capture fishery and 24,602 MT harvested from aquaculture. Total value of the produce was estimated at Rp1.59 trillion. The fisheries sector accounted 6.5% of Banda Aceh's GDP, which also played an important role in the economy of the Nias Island. It is estimated that around 60% of boats and fishing equipments and half of the fisheries and aquaculture infrastructure were destroyed or damaged killing around 15-20% of fishermen. Fisheries sector output in the affected districts is expected to decline by as much as 60% as a result of physical loss, fishermen killed and the post trauma fear to recommence fishing. Direct damage of fishing and aquaculture assets, excluding income losses due to lost production, has been estimated at about US\$ 140 million.

Maldives

The entire population of the Maldives was affected as the country's more than 1100 islands became inundated. Fisheries and tourism, which are the main economic

sectors of the Maldives, were severely impacted. The sector (fisheries and fish processing), which has experienced strong growth in recent years contributed about 9.3% to the Gross Domestic Product (GDP) in 2004. The sector is primarily rural based and is intimately integrated with rural livelihoods and income. The fishing industry is the second major source of foreign exchange after tourism. Fish exports currently account for almost half of the country's exports, which in 2003 amounted to US \$75.6 million (equivalent to \$250 per capita). The sector is a major provider of employment in the Maldivian economy, particularly in outlying atolls. With 14,955 fishermen, the sector employs 11% of labor force and about 20% of the total population is dependent on fisheries as the major income earning activity. The direct damage to fishing and fish processing implements and indirect income losses in the fishery sector have been estimated at US\$ 25 million.

Sri Lanka

In Sri Lanka, the devastating tsunami struck 12 of its 14 coastal districts, killed over 31,000 people, mostly fishermen and their families. Fishing has been an important employment of the country with 200,000 persons engaged in fishing activities. Export of high value fish and fishery products have been an important source of foreign exchange for the country. The pre-tsunami fish production was about 267,680 MT of marine and 36,700 MT of inland water fish and export of 19,567 MT of fishery products worth of US\$ 91 million. The tsunami has resulted in complete destruction of 50% of the marine fishing in the country. More than 20,000, or two-thirds, of the country's fishing fleet of about 28,000 vessels, were either fully destroyed or damaged to varying degrees, over 100,000 fishermen, 80,000 fish traders and 20,000 workers in ancillary services were reported jobless. The total damage to the fisheries sector, excluding the damage to housing and personnel assets of the affected fishing population, is estimated at US\$ 120 million.

India

The tsunami caused extensive damage in Southern regions of India and Andaman & Nicobar Islands affecting a total of 2,260 km of coastline. The worst-affected regions were the State of Tamil Nadu and the Andaman and Nicobar archipelago. The fisheries sector in Tamil Nadu, Andhra Pradesh and Andaman & Nicobar Islands has suffered major damages. The tsunami destroyed or damaged nearly 5,000 mechanized boats causing damage valued at Rs. 663.1 crore (US\$152.4 million); a total of 7,933 fiber-reinforced plastic boats/*vallams* valued at Rs. 50.1 crore (US\$11.5 million); about 24,580 boats of other categories, mainly motorized, valued at Rs. 121.0 crore (US\$27.8 million); and 35,483 wooden catamarans valued at Rs. 90.0 crore (US\$20.7 million). The fishing community is a significant contributor to the economy with marine fish landings estimated around 580,000 MT per annum prior to the disaster, which plummeted by at least 30%, as fishermen in 591 coastal villages could not venture into sea since the disaster. Around 58,000 MT of sea food valued at about US\$ 480 million is exported annually from the seafood processing units located in the states. The fall in marine catch has hit the export of marine products, especially shrimps, which accounts for Rs. 23,000 million a year (US\$ 511.2 million per year) according to the industry sources. Shrimp (prawn) export processing units have been without work since the event. Consequently, employment of thousands of workers has been affected. Nearly 600,000 fish workers in 591 coastal villages face unemployment and around 200,000 fish process workers and allied industry workers face similar unemployment, since the whole sector is unorganized with temporary workers, marginal workers and seasonal workers.

Many hatchery facilities in the region were severely affected. While the second harvest had been completed, farm infrastructure has been badly damaged and this is likely to impact future production. Brood stock availability has declined and is likely to decline further due to damages to fishing vessels, further reducing the likelihood to have a crop in the next season. Total loss is estimated around Rs 600 million (US\$ 16.8 million) for 14 shrimp hatcheries damaged in Kerala, 120 hectares shrimp farms in Tamil Nadu and 400 fish ponds and aquaculture farms in Andhra Pradesh. The Andhra Pradesh seafood industry, which exports nearly 25 to 30% of the country's export, suffered heavily.

Thailand

Six provinces facing the Andaman Sea, which were hit hard by the tsunamis are Ranong, Phang-gna, Krabi,

Phuket, Trang and Satun. The damages on fisheries and aquaculture are estimated at around 2.0 billion baht (US\$ 440 million). In the 400 fishing villages affected, some 27,409 floating cages and 4500 fishing boats were damaged or totally lost.

Other countries worst affected were the north eastern coastline of Somalia with a loss of more than 2600 fishing boats. As the tsunami coincided with the height of the fishing season in the country, the impact was exacerbated on fishing livelihoods and fish consumers. In Seychelles archipelago, the overall damage has been estimated at about 4% of the country's GDP, while the estimated loss in fishing infrastructure is US \$ 6.8 million.

Issues and Constraints facing Fisheries and Aquaculture Post-Tsunami

The most important issue facing medium and long-term rehabilitation measures and a possible constraint to the long term sustainable rehabilitation of the fisheries and aquaculture sectors of the tsunami affected countries is the danger of the re-institutionalization factors of vulnerability and unsustainability. This concerns first and foremost the risk of developing fishing capacity in excess of the productivity capacity of the fisheries resources – a risk that is high if fishing capacity rebuilding is not monitored and managed. It also includes the danger of introducing fishing craft and gear or indirectly promoting fishing practices and methods, that are not appropriate and that may contribute to over exploitation of fisheries resources or have a negative impact on the coastal and aquatic environment. The same is true for aquaculture technology and practices.

A related issue is to account for the impact of the tsunami on fisheries and aquaculture production potentials. Specific research is required to assess the extent of environmental damage to fisheries/aquaculture habitats and sites and its effect on production potential and to advise on measures that may be required to rehabilitate these habitat/sites and productivity.

In some instances, rebuilding fishing capacity to past level may not be compatible with the guiding principles of sustainable fisheries – some communities may not be able to return to areas they were previously inhabited. In this case attention is needed to be paid to the difficulty of building alternative livelihoods, as well as to the possibility of doing so through improvements in fisheries and aquaculture production, processing and marketing.

References:

- FAO
- The World bank

BIO-PIRACY: A BRIEF NOTE

India, with diverse genetic resources (around 7000 species of medicinal plants) and large pool of traditional knowledge available in public domain, is always vulnerable to 'Bio-piracy' and 'Patenting' of these indigenous resources outside the country. To understand the seriousness of the issues, we can take the example of granting patent of Turmeric and Basmati in the USA. In 1995, two US based Indians were granted US patent (no. 5,401,504) on use of Turmeric on its wound healing properties. It is a well known fact that, in India, Turmeric, apart from essential ingredient for cooking, has traditionally been used for its properties such as wound healing, blood purifier and anti-parasitic for skin infections. The Centre for Scientific and Industrial Research (CSIR) filed the re-examination of the patent and got it revoked from patenting authority in the USA, which stated that the claims made in the patent were obvious and anticipated, and agreeing that the use of turmeric was an old art of healing wounds.

Turmeric is one of the many examples of such cases, where traditional knowledge and indigenous biological resources have been patented in some or other forms by individual or organization with profit motive. This process of copying or reproducing the genetic resources and traditional knowledge & technologies of developing countries by individual or corporation of developed countries by patenting without offering due credit or benefits to the real owner of resources may be termed as "Bio-piracy".

List of indigenous plants of India which were patented in the US:

Common Name	Botanical Name	US Patent No.	Patentee	Purpose
Kumari	<i>Aloe barbadensis</i>	5652265	Michael Collins	Medicine
Amaltas	<i>Cassia fistula</i>	5411733	Toyoharu, Japan	Antiviral
Kala Jeera	<i>Cuminum cyminum</i>	5653981	Hilton, USA	Activates immune system
Pomegranate	<i>Punica granatum</i>	5411733	Toyoharu, Japan	Antiviral agent
Harad	<i>Terminalia chebula</i>	5529778	Surendra Rastogi, India	Ayurvedic importance
Aswagandha	<i>Withania somnifera</i>	5466452	Whittle, USA	Skin disorder

Source: FAO

Taking a cue from the dictionary meaning of 'Pirates', Bio-pirates are those individuals or companies which are accused of one or both of the following acts:

- The theft, misappropriation of, or unfair free-riding on, genetic resources and/or traditional knowledge through the patent system; and
- The unauthorized and uncompensated collection for commercial ends of genetic resources and/or traditional knowledge.

Another form of bio-piracy is developing new improved varieties by biotechnology companies using the genetic resources of traditional varieties. The biotech company, usually genetically engineers a close substitute from the original natural variety by adding an improvement (such as pest resistance gene) and thus keeping the desired characters of natural varieties. Most of these genetic resources of natural varieties of crops are taken from developing countries. Once a new variety is developed, it is patented by the company and the same modified traditional crops (patented) are being sold in developing countries.

Globally, two major regulations such as "Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs)" and "Convention on Biological Diversity (CBD)" covers various aspects of traditional knowledge and patents. TRIPS, under World Trade Organization (WTO), deals with detailed standards for domestic enforcement of IPRs, both within as well as across the border of a country. On the contrary, CBD deals with conservation of biological diversity, traditional knowledge and innovation and practices of indigenous and local communities. CBD also provides appropriate access to the biological resources for utilization.

To avoid bio-piracy, developing countries such as India, which have large pool of natural resources and traditional knowledge, should document such resources and knowledge in electronic format. This documentation in electronic format would not only serve as a databank for searching for information before grant of patent but also would register the traditional use pattern.

Reference:

- International Expert Workshop on Access to Genetic Resources and Benefit Sharing
- FAO

NEWS FOCUS

EU Increases Export Subsidies for Wheat

The European Commission has raised wheat export subsidies from 4 to 6 to 8 to 10 euros in the past four weeks on licenses now covering about 1.2 million tons against the 2 million ton open tender. On the contrary, Argentina's wheat prices, which had been very competitive in Mediterranean markets, have jumped by more than \$20. Most of the Argentina's exportable surplus has been sold out and the remaining is likely to be sold to Brazil. Even with higher subsidies and less competition, the EU-25 export estimate is reduced this month as buying by Mediterranean markets is seasonally limited and the pace of exports has been slow.

Global ending stocks are expected to grow over 10% this year, reversing a 4 year decline which had pushed stocks to a 21-year low. This month, global stocks were raised another 1.4 million tons mostly in key exporters such as the EU-25, Canada, and Argentina.

Source: Grain: World Market and Trade, USDA, March 2005

Ultrasound and Electrolyzed Water are Promising Technologies for Food Safety: University of Illinois, USA

Food scientist of University of Illinois, Mr. Hao Feng is investigating ultrasound's proficiency in killing foodborne pathogens on the surface of fresh produce. He is also combining ultrasound with electrolyzed water and other sanitizers to penetrate and destroy such pathogens as *Listeria monocytogenes* and *Escherichia coli* in the narrow and deep crevices of certain fruits and vegetables.

Electrolyzed water is created when electrolysis is used to split salt water into two streams, one acidic, the other alkaline. Acidic water is very powerful in killing microorganisms on food surfaces, on everything from fruits and vegetables to eggs, poultry, beef and seafood.

In addition to killing microbes, ultrasound holds promise as a tool for extending the shelf life of juices and enhancing the quality of other food products.

Source: www.sciencedaily.com & University of Illinois, USA, April 04, 2005

China's Largest Soybean Producing Province To Plant Fewer Beans In 2005

Farmers in northeastern China's Heilongjiang province are expected to reduce their soybean planting while increasing corn and rice planting in 2005, according to a Chinese government survey. Soybean acreage in China's largest soybean producing province is expected to decrease 3.1% on year to 2.77 million hectares this year. The report did not provide any explanation for the expected changes.

The total acreage of agricultural crops is expected to inch up 0.2% to 7.73 million hectares this year in Heilongjiang, while grain acreage is expected to be flat with last year's 6.47 million hectares. These estimates are based on a survey of 1,890 farmers in 25 cities and counties within the province, said the report.

Source: The American Soybean Association Weekly Update, April 25, 2005

The news items and information published herein have been collected from various sources, which are considered to be reliable. While every care has been taken for authenticity of the material published, Exim Bank accepts no responsibility for authenticity or accuracy of such items.

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