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RIS Discussion Papers

Environment Issues in Free Trade Agreements in Asia and the Post-Cancun Challenges: Issues and Policy Options

Sachin Chaturvedi

RIS-DP # 67/2003



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Environment Issues in Free Trade Agreements in Asia and the Post-Cancun Challenges: Issues and Policy Options

Sachin Chaturvedi*

I. Introduction

In international trade, consideration of environmental issues is no more a matter of choice. The linkage is also widely being recognized at the normative level as well. There are several economic studies, which acknowledge the possibility of adverse impact of trade liberalization on environment. The studies from WTO Secretariat have also identified these linkages.¹ In this regard, the emergence of the preferential trade agreements (PTAs) and its variants as an instrument of trade liberalization and economic integration needs to be carefully analyzed. This becomes necessary more so as environmental concerns are largely of transboundary in nature and incidentally are being addressed with some seriousness at the multilateral fora. As any country that sets out unilaterally or at best at the level of two countries to address a transboundary problem will find that these limited efforts cannot resolve the issue.² Therefore developments at multilateral forums would have to be taken into account while free trade agreements (FTAs) are signed. FTAs are often perceived as quicker mechanisms for bypassing the complicated multilateral negotiations that occur in WTO and such other multilateral fora.³

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In the last decade or so, environmental concerns have proliferated encompassing a large section of trade. These concerns emanate from different international commitments called Multilateral Environmental Agreements (MEAs) such as Cartagena Biosafety Protocol and Kyoto Protocol. In the wide ranging commentaries on these protocols one finds a huge list of possible areas of conflict with the provisions made in various agreements in WTO.⁴ These environmental concerns are affecting trade prospects of both developed and developing countries depending on situations and only Dispute Settlement Panel at the WTO can indicate the course policy making in this area should take in the future because MEAs lack enforcing mechanisms as available to the WTO.

The Doha Development Agenda (DDA) has contributed in advancing the trade and environment debate further. It categorically calls for examination of relationship between the existing WTO rules and specific trade obligations set out in the MEAs. The DDA also aims at elimination of tariff and non-tariff barriers on environmental goods and services. Several developing countries have submitted their papers to broaden the definition of environmental goods to cover products from developing countries like organic products so that within the WTO special and differential treatment may be extended to cover such products. Some clarity on the issues like subsidies on fisheries, which may have contributed in the depletion of fishery stock, would help in making forum of the WTO more supportive of environmental sustainability.

This discussion paper looks into some of these broad issues. Section II of the paper attempts to bring out intentions and contents of Cancun Ministerial Draft while Section III puts together trade and environment issues from the point of view of developing countries. Section IV gives an overview of FTAs, particularly in Asia and its linkage with environmental issues, and the necessary conclusions are drawn in the last section.

II. Draft Cancun Declaration

There is an emerging view that the threads be reconnected after the collapse of the WTO talks at Cancun. However, before that, it may be useful to re-examine the developments at Cancun so as to identify possible entry points for a renewed dialogue though it is not clear whether that would be the basis of negotiation when talks are restarted. The WTO secretariat had constituted five Working Groups to facilitate negotiations at Cancun. These groups were focused at agriculture, non-agricultural market access, development, Singapore issues and

miscellaneous issues (including environment). The WTO Director-General kept with himself the issue of cotton subsidy so as to further facilitate the negotiations on the proposal put forward by four West and Central African (WCA) countries. It was on the September 13, 2003 that the discussions at these Working Groups and bilateral consultations led to a revised draft Ministerial Text. This Text had some important provisions which are being discussed herewith. There is a prevailing idea that this draft text may be taken as a starting point for WTO discussions.

Among the environment issues, this draft covered the proposal of observership at the Committee on Trade and Environment (CTE) for Secretariats of Multilateral Environmental Agreements (MEAs). It also covered references to environmental goods dealing with non-agriculture market access (NAMA). This may lead to the ultimate inclusion of products like organic goods as environment goods, which developing countries have been demanding for long.

The Cancun Draft Text also covered Doha paragraph 19, which deals with issues related to the review of Article 27.3 (b) on patentability of life, biodiversity and traditional knowledge. The draft simply instructs the Council for Trade-related Aspects of Intellectual Property Rights (TRIPs) to continue its work and requests the General Council to report to the next session of the Ministerial meeting. This raises the question whether paragraph 19, which includes implementation issues related to the TRIPs-CBD relationship and the protection of traditional knowledge, would be de-linked from the other implementation issues and the mandate in Cancun paragraph 13, which instructs the General Council to “review progress and take any appropriate action”.

The Cancun Ministerial Draft of September 13 calls for further work on the Doha Ministerial Declaration. The Paragraph 18 stops just before the adoption of a multilateral system of notification and registration of Geographical Indications (GIs) for wines and spirits. This becomes important from the point of view of protection of basmati and jasmine rice and things like Darjeeling tea. The debate under TRIPs agreement on GIs protection has three major components. First, a higher level of protection extended for goods other than wines and spirits; second, strong protection for GIs especially in the category of agriculture products; and finally, a new international system of notification and registration of GIs so as to have higher level of legal obligation for their protection. This would be binding on all WTO members. However, it is still not very clear whether the multilateral registration system would be mandatory or optional. In the Para 13 on the implementation issues of the Third Draft, it is

stated that the DG should continue consultations on issues related to the extension of the protection of geographical indications provided in the Article 23 of the TRIPs to products other than wine and spirits.

After Cancun, apart from the TRIPs and trade and environment issues on which conclusions could not be reached, needs to be further followed up to strengthen the environmental perspectives at various committees within and outside WTO.

III. Environment-related Trade Issues

The trade and environment issues have become more interesting and exhaustive as various stakeholders and civil society organizations have contributed further to this debate. In this Section, we are trying to flag some of the important dimensions of this debate from the perspective of developing countries. They include environment related non-tariff barriers; trade in environmentally sensitive goods; and shifting of dirty industries and finally trade in GMOs. This, of course, is not an exhaustive list. Discussion on some of the issues, like definition of environment goods and services, is beyond the scope of this paper. However, it is important to mention that after the initial discussion on the basis of the lists from the OECD/APEC developing countries have decided to come out with their own lists. The definition of environmental goods in the OECD list largely covered products from the developed countries perspective only. Later, Kenya, India and Colombia announced working on their own lists. Some African countries too raised their demand on inclusion of agriculture based environmental goods while convergence of opinion on inclusion of so-called Process and Production Methods (PPM) criteria in defining environmental goods is visible among most of the developing countries. The organic goods, in this Section, are discussed from the same perspective.

III.1 Non-Tariff Barriers

Among the various concerns of the developing countries related to trade and environment, the one that has generated lot of debate is the usage of stringent environmental standards as non-tariff barriers against trade with South. There are several developing countries in Asia, which have experienced losses in exports because of difficulties to comply with certain sanitary and phyto-sanitary (SPS) measures in the import markets. Though the WTO Agreements on SPS measures and TBT aim to ensure that these standards and regulations do not have adverse implications for the trade but somehow trade of developing countries has been affected.

The technical standards such as food safety regulations, labelling requirements and quality and compositional standards have proliferated, particularly in the developed countries. Environmental and health related standards and regulations in the developed country markets have the potential to create barriers to trade. Another issue of concern is that the distinction between environmental, health and quality standards is gradually becoming very blurred. For instance, in the food sector what may be described as quality standard for food may also fall in the category of environmental standards. Exports of a number of agricultural products are facing SPS related problems because of pesticide usage. In case of products like peanuts, other nuts and milk, the EC has set higher standard for imports by reducing the maximum level of presence of aflatoxin in these products. The standard proposed by the EU is substantially higher than that provided under the Codex recommendations. For instance, EU based its judgment on aflatoxin on the basis of a medical survey which suggests that aflatoxin may cause cancer to one person in a population of one billion. The EU population is less than one-third of a billion so the level of SPS protection is not in relation to the extent of risk involved. Other than that even the quarantine restrictions for fresh fruits and vegetables imposed by many countries are not based on scientific justification. Some of the countries are not even acknowledging the statistics in terms of pest and disease prevalent in various parts of the world as submitted by various international organizations. This happened in case of India when China imposed a ban on the grapes for a Mediterranean fruit fly that does not exist in India.

Similarly, in a study Cato (1998) assessed the cost of upgrading sanitary conditions in the Bangladesh frozen shrimp industry to satisfy the EU and the US hygiene requirements. It is estimated that \$ 17.6 million was spent to upgrade plants over 1997-98. The total industry cost that is required to maintain Hazard Analysis Critical Control Points (HACCP) is estimated to be \$2.2 million per annum. The European standards are more stringent than HACCP methods. In the case of marine products, the EU regulations concerning implementation of food safety systems, additive requirements and other process controls are of very high order. A number of companies were also forced to close their factories for a long duration to enable them to upgrade their facilities with heavy investments. In India also only 90 out of 404 plants are approved for fishery exports to the EC. Due to this, many of the Indian companies were required to upgrade their facilities, which amount to a huge expenditure. The sea food industry of India had to spend US \$ 25 million to upgrade facilities to meet the regulations. A study by the United Nations Development Programme has found

that the capital costs of complying with the existing effluent charges in Sri Lanka are more than US \$69 million.⁵ Out of this the capital cost that textile industry has to face is the highest.

It is now widely believed that these technical measures impede trade of the developing countries, either implicitly or explicitly. The trade impacts of SPS measures can be grouped into three categories. First, they can prohibit trade by imposing trade ban on the product or on the inputs used for its production. Second, they can divert trade from one trading partner to another by laying down regulations that discriminate across potential supplies. Third, they can reduce overall trade flows by increasing costs or raising barriers for all potential suppliers. In certain cases, stricter SPS measures are applied to imports than domestic supplies. Hence, the exports from developing countries lose their competitiveness due to escalation of their production costs.

A broader indication of impact of SPS requirements on South Asian exports of agricultural and food products is provided by data on rejections of exports from this region. At present such a data is available only for the United States. Table 1 shows that, over the period (August 2000 to July 2001), there were significant rejections of imports from South Asia due to microbiological contamination and some of the consignments were also classified filth. This shows considerable problems that South Asian countries have been facing in meeting basic food hygiene requirements.

The table also shows that these countries have also faced problems in meeting the stringent labeling requirements of the US. More than 15 per cent of total agricultural imports from India and Sri Lanka were rejected because of their failure to meet these requirements. Other than that, rejection on pretext of food additives, presence of pesticide residual and heavy metals and low acid canned foods are common. On the top of that, the cost of rejection at the border itself can be considerable, as it includes loss of product value, transport and other export costs and product re-export or destruction.

III.2 Trade in Environmentally Sensitive Goods

In the last decade, the debate on trade liberalization and its impact on environment intensified in different fora. The linkages between trade and environmental measures in promoting sustainable development have been a matter of concern for the developing countries especially in the context of WTO. The issue, whether to link trade agreements with environmental standards, is all set to be closely followed further in the Post-Ministerial Cancun meetings

Table 1: Number of Contravention cited for US Food and Drug Administration Import Detention (August 2000-July2001)

Reasons for contravention	India	Pakistan	Sri Lanka	Bangladesh	Nepal
Food Additives	159 (7.4)	12 (1.3)		1 (3.0)	
Pesticide Residues	41 (1.9)				
Heavy Metals	13 (0.6)	4 (0.4)			
Mould	9 (0.4)				
Microbiological contamination	329 (15.3)	49 (5.5)		12 (36.4)	
Decomposition	7(0.3)				
Filth	568 (26.4)	12 (1.3)	2 (11.1)	12 (36.4)	
Low acid canned foods	87 (4.1)	25 (2.8)	9 (50.0)	3 (9.1)	
Labeling	338 (15.7)	50 (5.6)	3 (16.7)	1 (3.0)	
Others	597 (27.8)	744 (83.0)	4 (22.2)	4 (12.1)	1
Total	2148	896	18	33	1

Source: RIS based on US Food and Drug Administration import detention report, 2001.**Note:** Parenthesis gives the percentage share Food Additives implies the presence of unsafe food additives, unsafe colour or other substance, which feared to cause food adulteration; Pesticide residue: presence pesticide residue to the limits that is unsafe; Heavy metals: Presence of poisonous metals which is injurious to health; *Mould: presence of mould in the article.; *Microbiological contamination refers to presence of poisonous bacteria such as Salmonella and Shigella. *Decomposition refers to decomposition of the article because of being prepared packed or held in sanitary conditions.*Filth implies that the article appears to consist in whole or in part of filthy, putrid, or decomposed substance.*A low acid canned food implies that food may be injurious to health due to inadequate acidification.*Labeling implies violation of labeling requirements because of its placement, form, and/or content statement.

at the WTO. However, the growing evidence of inconsistent approaches for environment management has actually given fillip to the widely raised issue, questioning the very usage of trade, as a tool for environment management (Roberts *et al.* 1999). Actually, at the base of this problem, one finds a contradiction, in the sense that on the one hand there is a proliferation of environmental and other standards while on the other hand trade in environmentally sensitive goods (ESGs) has also gone up many times.

The trade in ESGs has been analyzed by Low and Yeats (1992); Xu (1999) and Henson and Loader (2001) among others. Low and Yeast (1992) have shown that the developed countries have specialized in the ESGs emanating from manufacturing sector while share of developing countries have largely remained in agricultural sector. These studies have given overall global trends in the trade of ESGs. It is important to analyze the share of environmentally sensitive goods in international trade and its trend over a period of time. For our analysis we take five most commonly used 'dirty products', viz. manufactured metal products, industrial chemicals, iron and steel, pulp and paper, and non-ferrous metals. Table 2 examines the relative importance of the dirty goods in global trade. The table shows trade in environmentally sensitive product for selected years.

In 1980, the environmentally sensitive goods accounted for about 17 per cent of the total world trade. The relative importance of these goods declined marginally in the period 1997-98. The ferrous and non-ferrous metal accounted for about 36 per cent of trade in these goods and is also a source of over three-quarters of total decline in the world trade.

The share of manufactured metal products rose marginally from 10 per cent in 1980s to 11 per cent in 1998. The share of paper and pulp manufactures in total trade remained virtually static in the period 1980-1998. Table 3 attempts to determine if there are important changes in the geographic origins of these goods in the period 1980-90. It shows the origin of dirty industry from developed and developing countries. It also provides a further breakdown for developing countries into South America, Eastern Europe and South Asia and the breakdown for developed countries into US and EEC.

In case of all environmentally sensitive commodities that we have selected, the share of exports in developed countries has fallen but the share of total exports by developing countries has risen. The share of developed nations in value of exports of metalliferous ores accounted for \$19.5 billion in 1980, whereas that of developing countries accounted for \$10.6 billion. By 1998, the developing countries' share increased sharply by 12 per cent and the developed countries' share reduced by 8 points. The manufactured metal products are largely exported from the developed countries. They account for approximately 90 per cent of total exports in 1980 and by 1998 the shares of exports have fallen to 73 per cent. In case of chemicals, iron and steel and non-ferrous metals, there has been sharp fall in share of developed nation, over 1980-98. Meanwhile the share of developing countries has increased greatly in these environmentally

Table 2: The relative Importance of Environmentally Dirty Products in World Trade

(Value of exports expressed in US\$ billions)

Year	Total trade	Metalliferous Ores	Manufactured metal products	Chemicals	Pulp & Paper	Iron & Steel	Non-ferrous metals
1980	2001.9	31.8	37.4	141.3	8.79	75.6	49.9
1985	2103.5	23.8	41.6	177.8	9.61	74.0	36.5
1990	3427.9	36.1	66.1	300.4	14.39	108.0	67.5
1995	5228.4	45.5	104.8	487.5	17.9	145.7	106.1
1998	5400.3	45.6	110.7	512.3	16.6	145.1	108.0

Source: Chaturvedi, Sachin and Gunjan Nagpal (2003).

Metalliferous Ores							
Year	Developed economies	EEC	USA	Developing economies	South America	Eastern Europe	South Asia
1980-82	-26.2			-20.8	-8.9	257.6	
1982-84	7.6			-8.3	-15.2	-18.6	33.3
1984-86	-9.0			1.3	5.1	-82.3	25.0
1986-88	30.5	80.0	55.6	39.7	29.3	158.8	60.0
1988-90	17.4	14.3	16.7	12.8	24.5	150.0	-9.4
1990-92	-12.0	-9.7	-30.6	-4.1	-3.0	-87.3	6.9
1992-94	10.5	10.8	8.8	7.6	6.2	-19.0	9.7
1994-96	31.9	25.0	13.5	33.1	29.4	138.2	47.1
1996-98	-12.6	-7.8	-16.7		8.0	-19.8	-12.0
Annual Average Growth	2.1	3.4	4.2	26.5	8.9
Manufactured Metal products							
1980-82	6.8			923.1			
1982-84	-4.4			33.6			
1984-86	0.6			-87.7			
1986-88	21.4	24.8	46.2	51.5	45.7	26.2	59.1
1988-90	30.5	33.7	41.0	17.9	38.7	-24.5	17.1
1990-92	10.8	10.4	20.4	26.9	70.0	-2.5	25.6
1992-94	2.8	-4.8	24.6	28.0	29.4	-7.7	32.0
1994-96	25.8	43.7	30.9	30.2	36.4	-16.7	21.3
1996-98	4.3	1.5	14.2	10.5	30.0	30.0	6.1
Average Growth	5.5	9.1	9.8	57.4	20.8	0.4	13.4
Chemicals							
1980-82	-9.2			3.4			
1982-84	10.4			21.7			
1984-86	21.7			50.0			
1986-88	41.6	40.3	41.6	56.0	42.9	0.0	85.3
1988-90	18.8	18.4	24.3	35.9	34.0	27.3	33.6
1990-92	11.1	9.0	12.9	23.9	16.4	0.0	41.7
1992-94	38.8	11.5	17.3	34.9	26.9	-7.1	41.1
1994-96	3.6	32.2	20.0	32.9	28.3	30.8	34.7
1996-98	1.9	4.2	10.0	5.6	11.8	5.9	4.4
Average Growth	7.7	9.6	7.0	14.7	13.4	4.7	20.1

Year	Developed economies	EEC	USA	Developing economies	South America	Eastern Europe	South Asia
Paper and Pulp							
1980-82	-10.1			14.0	36.0	-42.9	-12.7
1982-84	30.6			4.1	14.7	175.0	23.2
1984-86	4.9			3.9	17.9	36.4	-3.1
1986-88	12.9	-2.6	16.3	6.6	26.1	6.7	4.9
1988-90	2.1	-4.6	-8.0	5.3	10.3	18.8	-5.3
1990-92	-1.0	0.0	-2.2	4.2	4.7	-36.8	5.9
1992-94	4.1	9.5	8.9	14.5	23.9	225.0	17.6
1994-96	10.9	11.3	13.9	13.0	1.2	66.7	24.4
1996-98	-2.7	-8.0	-0.7	-0.2	9.5	3.1	-5.5
Average Growth	2.9	0.5	1.6	3.6	6.3	23.6	3.5
Iron & Steel							
1980-82	-13.6			27.9			
1982-84	-7.0			36.4			
1984-86	10.1			14.7			
1986-88	29.6	30.7	110.0	76.7	67.1	102.6	94.6
1988-90	10.9	18.5	57.1	16.4	20.5	9.1	9.7
1990-92	-3.1	-7.7	12.1	11.3	0.0	-36.9	29.1
1992-94	6.6	2.5	0.0	22.8	9.5	-34.0	31.4
1994-96	12.8	33.7	59.5	38.0	29.0	54.3	48.5
1996-98	-0.6	-1.5	-3.4	0.3	-5.6	27.8	2.0
Average Growth	2.5	6.3	13.1	13.6	10.0	10.2	17.9
Non-ferrous metals							
1980-82	-37.8			-29.9			
1982-84	17.2			8.0			
1984-86	0.0			-3.7			
1986-88	60.7	47.8	125.0	91.0	93.9	80.0	123.8
1988-90	11.4	20.6	41.7	12.1	26.6	13.6	-10.6
1990-92	-5.7	-8.1	-3.9	1.2	-8.6	-35.9	33.3
1992-94	7.0	4.9	4.1	23.1	6.8	-33.9	51.8
1994-96	24.4	36.7	33.3	64.4	26.6	20.5	48.2
1996-98	0.0	-1.9	0.0	0.3	-10.0	31.9	1.6
Average Growth	4.3	8.3	11.1	9.2	11.3	6.4	20.7

Source: Chaturvedi Sachin and Gunjan Nagpal (2003).

sensitive goods. The paper and pulp goods are the only dirty product that has shown marginal rise in the share of exports of developing countries.

Over the year 1980-1998, the annual average growth rate of all selected environmentally sensitive products is higher in the developing countries than in the developed countries. In case of manufactured metal products, for instance, the annual average growth rate is 5.5 per cent in the developed countries and the developing countries have an annual average growth rate of 57.4 per cent. Among the developing countries this high annual growth rate in export of manufactured metal products is attributed to South America and South Asia. The export of chemicals, which is one of the most pollution intensive products, has also increased in the developing countries over time. The annual average growth of the developing countries in the export of chemicals is about double the annual growth rate of exports by the developed countries. Most of this growth is attributed to South Asia, which has an annual growth rate of 20.1 per cent. Iron and steel and non-ferrous products are also considered to be highly pollution intensive as well. In the period 1980-1998, the annual growth rate of exports in iron and steel products in developing countries was 13.6 per cent, whereas the annual growth rate of developed countries was 2.5 per cent. Similarly, the annual growth rate of exports in non-ferrous products was 4.3 per cent in the developed countries and 9.2 in the developing countries.

The trends provide a clear evidence of relative decline in importance of environmentally sensitive products in industrial countries' exports, while there has been increase in the relative importance of these products in the case of developing countries, especially South America and South Asia. It should be borne in mind that these increases in the relative importance of dirty industry trade have taken place against a marginal reduction in the share of environmentally dirty goods in total trade. This brings us to the whole issue of transfer of dirty industries to developing countries.

III.3 Have Pollution Heavens Gone!

Since late 1980s several studies have attempted to establish linkages between stringent regulations in the developed countries leading to industrial flight to developing nations.⁶ At this point it is worth taking up again to analyze the whole issue afresh. More empirical work would have to be attempted on these lines. There are perceptions that pollution heavens may not always be the destination of business from the North to the South. Environmental costs, which usually form a relatively small part of total production costs, seldom affect the location decision of the plant. In fact, there are many other factors, such as

infrastructure, supply of natural resources, availability of cheap labour, etc. that influence the choice of a certain location or investment. The justification behind this view is that strong environmental regulations increase the production costs. As a result, it is in the interest of a firm to locate its production facilities in a country with lower production costs, that is, with relatively lax regulations.

This argument focuses solely on the cost effect of environmental regulations on polluting industries, and presumes that the production cost differentials are sufficient inducement for a firm to relocate its production site. If there is a strong incentive to relocate pollution intensive production from countries with strict regulations to countries with lax regulations, this will result in a shift of composition of production in developing countries towards more polluting industries. The flight of polluting industries may also cause economic problems such as unemployment in the short run for the country exporting capital and may also expedite environmental degradation of host countries.

There is a persistent argument in the literature on trade and environment that differential environmental standards result in relocation of 'dirty' industries in developing countries and expedite environmental degradation in these countries. It is believed that transnational locations blatantly by-pass the more stringent environmental regulations in the North by setting up their production plants in the third world countries.

III.4 Trade in GMOs

The Cartagena Biosafety Protocol negotiated under the auspices of Convention on Biological Diversity (CBD) has come into force from the September 11, 2003. The forthcoming meeting of the COP in February 2004 would define the broad working contours of the protocol. This protocol provides rules for safe transfer, handling, use of and disposal of, living modified organisms (LMOs). The wide objective of the protocol is to address the threats posed by LMOs to biological diversity along with human health.

There are three major areas of concerns which are generally found to be conflicting with the spirit and provisions of the SPS /TBT agreement under the WTO. In terms of its spirit, SPS agreement seems to be restrictive in nature while the Biosafety Protocol empowers for even taking grand measures for protection. Though the SPS agreement covers a wide spectrum of issues concerning human health, which may affect trade of GMOs, the Biosafety Protocol, apart from being GMO specific, talks of biodiversity and health in general. The whole understanding of precautionary principle under the article 5.7 of the SPS and

the article 11.8 of the Biosafety Protocol is contradictory in nature. Another area of concern is the acceptable level of risk, which may be allowed while trading GMOs. On the areas of risk assessment and management, SPS broadly sets the tone for acceptable level of risk at the international level being endorsed by any international institution while the Biosafety Protocol refers to an exclusivist approach that may be adopted at national level.⁷

It is fairly possible that a conflict between the SPS agreement and the biosafety protocol may not come up in the distant future. Though they have emerged in a two different settings, they address similar issues in contradictory terms. The SPS is to address health issues in a wider context while biosafety protocol addresses health in a narrow context of trade in GMOs. The SPS imposes a restrictive regime emanating from international product standard setting institutions while biosafety protocol allows member countries to evolve their own necessary measures to protect their health and environment. Therefore, the protocol has not laid down any provisions for addressing disputes while SPS, being mandatory, has a backing from a strong Dispute Settlement Provision (DSP) at the WTO.

Though in the last decade the trade in biotechnology products went up by many folds, due to lack of adequate classification of such products there is hardly any evidence from the Asian region to substantiate this perception.⁸ The product range from biotechnology related instruments, drugs and even agricultural and food products containing transgenic traces, commercial field trials of which have not been permitted in many Asian countries.⁹

III.5 Emergence of Organic Goods

Among the environmental goods developing countries have been insisting on inclusion of organic products so that they are considered for special and differential treatment. However, in this regard, some constraints have come up which need to be addressed on priority.¹⁰ These problems range from industrial processing to export of these products. These impediments are in the area of production, marketing and infrastructure. They include certification which is seen as a barrier to small growers due to its costs. Similarly, standards are too high and are creating unfair barriers to production and trade. In countries like India, there is no internationally acceptable local certification system for organic products, and producers have to depend on foreign certification agencies like IFOAM and SKAL. This is very expensive and is feasible for large exporters only.

The organic food market itself has grown very high. The United States is the largest single-country market for organic foods, with \$4.2 billion in sales

Table 4: Market Size for Organic Products

Country	Approx. Retail Value(US \$)	Year ^a	Organic Share of Total Food Sales	Import Share of Organic Sales	Average Retail Price Premium
Austria	\$270 million	1997	2.5%	30%	20%-30%
Belgium	\$75 million	1997	1.0%	50%	20%
Denmark	\$190 million	1997	<3.0%	25%	15%-40%
France	\$508 million	1996	0.4%	10%	25%-35%
Germany	\$1.6 billion	1997	1.5%	60%	30%
Netherlands	\$230 million	1997	1.5%	60%	15%-20%
Sweden	\$200 million	1997	2.0%	30%	15%-50%
United Kingdom	\$445 million	1997	2.0%	70%	0%-30%
Canada	\$68 million	1995	1.0%	80%	30%
Australia	\$60 million	1995	0.2%	0%-13% ^b	12%-65% ^b
China ^c	\$1.2 billion	1995	6.0% ^d	0%	30%
Japan ^e	\$1.7 billion	1997	1.0%	1%	20%-30%

^a Year given is for retail value data; ^b varies by state; ^c in this country, organic includes "low chemical"; ^d based on production value, not retail sales. **Source:** RIS based on American Journal for Agriculture Economics, Vol. 80 No. 5, 1998, pp. 1125-1129.

for 1997 (Table 4). The organic food market in the EU is estimated to be worth \$4.5 billion. In Europe, Germany (\$1.6 billion), France (\$508 million), and the United Kingdom (\$445 million) have large organic retail sales. The consumer preference for organics is strong throughout the EU, with 20 per cent to 38 per cent regularly or occasionally purchasing organic foods. Retail price premiums in Europe vary between 10 per cent to 50 per cent above conventional products. Import shares are highest in Germany and the United Kingdom, which are major food processors, in the Europe. The Netherlands is a primary re-exporter of such products. Retail sales are low in Canada (\$68 million) and Australia (\$60 million), although both countries are active in exporting organics to different regions. While Australia has been exporting GMOs to Asia, Canada has preferred to access the market of the US for the same product.

IV. Free Trade Agreements

Since the Tokyo Round of GATT negotiation, two different trends have been discernible in the global trade regime – on the one hand many developing countries were keen to be part of the multilateral trade governance mechanisms while on the other hand the developed economies were getting into the bilateral free trade agreements (Bergsten 2000). At that point the European Union was also strengthening the unification process, as a response to proposed Free Trade Agreement of the United States with Israel and Canada.¹¹ As a response to this the EC blocked the launching of a new round at GATT. Latter in the 1980s, this led to the launching of the NAFTA in the North American region and the APEC in the Asian region. These trends, however, were not exclusivist but were supportive of each other as regional agreements themselves also positively supported trade facilitation. The Bogor Declaration of APEC led to the Miami Summit.¹² This encouraged bilateral and plurilateral agreements throughout the Western Hemisphere and also influenced emergence of AFTA and its linkages with other neighbouring countries. Thus, the trend was not confined to developed countries alone but incorporated several developing countries as well. In fact, AFTA and MERCOSUR also proposed free trade agreement establishing South-South linkages for free trade.

The deadlock at Cancun, as discussed earlier, has raised several questions about the future of multilateral system. The statement at Cancun by the United State Trade Representative (USTR) Robert Zoellick about the proposed preference for FTAs has been very widely commented upon.¹³ However, expectation in Asia in the meantime seems to have gone up. In a recent statement in the meeting at ESCAP the Director General wondered whether a Pan-Asian FTA involving ASEAN+3+India may facilitate conclusion of Doha round of

WTO negotiations as NAFTA at some point led to the conclusion of Uruguay Round of GATT negotiations.¹⁴ The key issue comes back to remind the famous statement by Bhagwati (1991) whether trade blocks through PTAs serve as ‘building blocks’ or ‘stumbling blocks’ for the worldwide liberalization of trade.

The Free Trade Agreements are those PTAs in which tariffs are eliminated entirely on the goods produced in the member countries but countries maintain their own tariff structure with non-members. There are several types of PTAs depending upon their level of trade and economic integration.¹⁵ If they are at the regional level they are called Regional Trading Arrangements (RTAs); for instance, APEC, etc. Then, are the custom unions which are PTAs in which all members adopt a common external tariff structure. As part of the common trade policy, the custom unions negotiate on trade issues as a single body with non-members.

The recent spate of FTAs has been described by Bhagwati (1995) as creation of ‘spaghetti bowl’ of tariffs, whereby countries subject the same product to different tariff rates depending on the source of origin. At the theoretical level, Pangaraiya (2000) suggests that this is reflection on existing gaps in the understanding of trade theory. The proliferation of FTAs are described as recreation of chaos of earlier years. However, it is suggested that the best option is to bring in the MFN liberalization. Once external tariffs drop to zero, the maneuvering space for preferential arrangements would disappear.¹⁶

IV.1 FTAs in Asia

The recent developments in the international trade regime have placed Asia at the centre stage of global trade discussions. In Asia, as in the other parts of the world, there is a growing urge to tap the regional and bilateral trade opportunities and work towards increased economic cooperation and integration (Table 5). There are various variants of regional trading arrangements, number of which has gone up in the Asian region. They include concepts like Closer Economic Partnerships (CEPs) and Close Economic Relation (CER). There may be several reasons behind this trend but the major one is generally attributed to the growing difficulties at multilateral forum such as the WTO.

There are currently nearly 190 FTAs worldwide. Since the early 1990s, both Europe and the US have begun to move toward integrating their markets-Europe with the expansion of the European Union, and the US with the formation of the North American Free Trade Area with Canada and Mexico. However, Asia

somehow remained out of the scene. Australia, New Zealand and US have increasingly pursued some of their trade objectives on a bilateral basis with select countries in the Asiatic region like Singapore, Hong Kong and Thailand, among others. Southeast and Far Eastern Asian countries have already concluded seven agreements, and another 18 proposals are under study or negotiation. Many more have been in the pipeline. Importantly from a regional perspective, ASEAN and China have agreed to have an FTA within a period of less than a decade from now, and the latter has offered a unilateral 'early harvest' trade concession to the farmer in order to initiate the process of close economic cooperation. The Association of Southeast Asian Nations (ASEAN) is also considering FTAs with Japan, China, India and South Korea to form a single market with no tariffs in years to come. India has recently signed FTA with Thailand and Sri Lanka. In India, studies and discussions are on to finalize FTAs with Singapore, China, South Korea among others.

However, among the Asian economies there is some apprehension about effects of FTAs in the region. In the recently held APEC, Summit members felt concerned about the increasing strength of bilateral FTAs which may threaten the poorer economies. The members felt that FTAs are being signed at the expense of WTO trade talks.¹⁷ Some studies like Scollay and Gilbert (2001) indicate that bilateral preferential trading arrangements between pairs of small Asia-Pacific economies have negligible effect on economic welfare as quantum of trade involved is very small. However, if such agreements are between a small and a bigger country, for instance, Singapore and USA, then the estimated welfare gains are higher for Singapore.

IV.2 Environmental Analysis in FTAs

There are growing apprehensions that the environmental concerns being raised at various multilateral fora are likely to be marginalized by adopting the free trade agreements at bilateral levels called FTAs. As in many of the FTAs environmental provision are not being included. This happening with developing countries is a matter of grave concern. This is particularly troublesome when empirical evidences have established the fact that expanded economic activity in countries where governments have weak or non-existent environmental protection policies may be harmful to the environment and to the long-term development goals.

Some of the FTAs are all set to legitimize what developed countries are not able to establish at multilateral fora. For instance, US-Singapore FTA concludes

Table 5: Emergence of Free Trade Agreements in Asia

Regional Agreement	Type of Agreement	Current Situation	Agreement Expected by
Arab League, The	FTA	Under consideration	Summit in Jordan in March 2001 to launch a FTA by 2005
ASEAN	FTA	Under negotiation	AFTA to be realized by 2003
ASEAN-China	FTA	Under negotiation	Signed on 4.11.2002, framework of the final draft of agreement is to be endorsed by 2011
ASEAN-India	FTA	Under consideration	Agreed to set up an Economic Linkages Task Force to submit recommendations including the draft of a framework agreement
ASEAN-Japan	FTA	Under consideration	Agreed to start negotiations starting 2003 as the Japan-ASEAN Closer Economic Partnership (CEP) Experts Group submits its report
Australia-Thailand	FTA	Under negotiation	First round in August 2002
China-Hong Kong, China-Macao, China	FTA	Under negotiation	By end of 2003
East Asia Free Trade Area including ASEAN, China, Japan and Rep of Korea	FTA	Under consideration	Agreed to initiate a feasibility study by 2003
EU-Iran	Trade	Under consideration June 2002	
EU-India	FTA	Under consideration	Group of experts for a viability study
India-Thailand	FTA	Negotiations concluded	Signed on October 9, 2003

Table 5 continued

Table 5 continued

Regional Agreement	Type of Agreement	Current Situation	Agreement Expected by
India-Sri Lanka	FTA	Negotiations concluded	Now moving for Comprehensive Economic Partnership Agreement (CEPA) by March 2004 Signed in December 1998
India-Singapore	FTA	Negotiating Comprehensive Economic Cooperation Agreement (CECA)	Likely to be signed in 2004
EFTA-Singapore	FTA	Negotiation concluded	Concluded June 2002
Japan-Australia	FTA	Agreed to engage in high-level talks, April 2002	
Japan-Indonesia	FTA	Under consideration	
Japan-Philippines	FTA	Under consideration	
Japan-Rep. of Korea	FTA	Under negotiation	To be signed by 2004 after a study conducted by a Joint Committee on the feasibility of an FTA
Rep. of Korea-Chile	FTA	Negotiation concluded	Agreement reached in November 2002, expected to take effect in the first half of 2003
Singapore-Australia	FTA	Negotiation concluded	Signed in Feb.2003
Singapore-ASEAN and PR of China	FTA	Under negotiation	Framework agreement signed Nov. 2002
Singapore-Rep. of Korea	FTA	Under negotiation	Launched Nov.2002
Sri Lanka-Pakistan	FTA	Under negotiation	October 2002, failed to be finalized

Source: RIS based on WTO, *World Trade Report*, 2003; RIS *South Asia Development and Cooperation Report 2001/02*.

that, “WTO and MEAs are not in conflict with each other”. Now, having said this, the whole demand by civil society organizations and several developing countries about the relationship between MEAs and WTO is overlooked. It was precisely because of lack of agreement that in the initial drafts at Cancun there was no mention of negotiations on inviting MEA Secretariats to Committee of Trade and Environment (CTE) special sessions.

There are limited studies attempting analysis of environmental implications of FTAs. However, several NGOs and groups of concerned citizens have constantly contributed towards sensitization of trade community in this respect. As a result, some of the trade groupings have shown more concern on this aspect of international trade. The NAFTA has a special agreement to take into account environmental issues. This is called the ‘North American Agreement on Environmental Cooperation’ (NAAEC). Under NAAEC each country has to maintain and enforce its own environmental laws to work towards sustainable development. It also very categorically states that environmental concerns would prevail over trade rules in case of a conflict. The NAAEC imposes a general obligation in terms of reporting of emergency environmental measures and promotion of environmental education, science and technology. At the level of FTAs, the USA-Jordan bilateral agreement of 2000 is the first agreement to have taken note of enforcing provisions for environmental protection (Audley 2003). Most of the FTA agreements involving Mexico, Canada and US are largely in the spirit of the NAFTA provisions. The Canada-Costa Rica agreement is modelled on NAFTA and allows both the countries to develop their own environmental laws for sustainable development. Similarly, Chile-Canada agreement is also based on the NAFTA. Table 6 provides a comparative profile of various FTAs in environment related issues.

The Chile-Mexico FTA takes a different and interesting position in regard to environmental issues. In case of incompatibility between the FTA and specific obligations under trade matters included in the Convention on International Trade in Endangered Species of Flora and Fauna, the Montreal Protocol on substances responsible for depletion of the ozone layer, and the Basel Convention on the Control of Transborder Movements of Hazardous Wastes and their Disposal, are some of them. However the party should chose a course of action which shows the least incompatibility with the regulations included in the FTA. The bilateral FTAs involving US have been analyzed from the environmental perspective. The US-Chile FTA proposes to strengthen cooperation projects including capacity building for wildlife protection and

resource management. The agreement has a provision for elimination of methyl bromide use and the development of Pollutant Release and Transfer Register (PRTR) in Chile. Similarly, in the US-Chile FTA the agreement refers to only cooperative projects for capacity building in order to eliminate usage of methyl bromide.¹⁸ According to the Montreal Protocol, one of the core MEAs, this has to be phased out by January 1, 2005. Incidentally, US in a recent Meeting of Parties of the Protocol demanded a two year extension of the deadline. According to some studies, illegal trade of CFCs has reached at the level of 15 per cent of its total production.¹⁹

There are some studies which bring out adverse implications of the US-Mexico FTA.²⁰ It was being expected that the increased demographic and economic growth along both sides of the US-Mexico border as well as increased economic integration between the US and Mexico have led to severe natural resource and environmental problems which often spill across the political boundary (Quiroga and Ozuna, 1991). The realization of the US-Mexico Free Trade Agreement would not only increase these problems, but also give the expected additional investment that could flow into Mexico. This may be having potentials to create environmental problems in non-border areas as well.

In Asia, the content of environmental provisions in the FTA texts is generally not very clear. The proposed study on possible FTA among the far eastern economies including Japan, China and South Korea and ASEAN has some brief mention of environment related issues.²¹ It talks about joint monitoring of dust and sand storms and monitoring of water-marine pollution. Similarly, the Indo-Thailand FTA has just briefly referred to the need for exploring possible cooperation in the environment sector.²² This *per se* does not refer to the precautionary management of environment related issues. In the Singapore-Japan FTA, there is no reference to environmental agreements.

The most commented bilateral FTA in Asia from the environmental point of view is probably the US-Singapore FTA. Singapore has long been a major entrepot for importing and exporting wildlife to and from Asia, including illegal items as tiger bones and tiger bone medicines.²³ As a major stopping point on Asian trade routes, Singapore provides a key link to understanding illegal wildlife trade in that region. Unfortunately, re-export of trade is perceived as the lifeblood of Singapore, and it has shown unwillingness to disclose information or statistics on wildlife trade.²⁴ Singapore's restriction on public access to trade statistics, however, act as a roadblock to the study of Singapore's role in global wildlife trade.

As a major entrepot for both legal and illegal wildlife trade, Singapore's enforcement of CITES and its prosecution of traffickers are essential to stemming illegal wildlife trade in the region. For example, there have been numerous examples of Singapore being used to launder wild-caught birds, particularly parrots, as birds that are captive bred in Singapore. Singapore's penalties, however, are too low to act as a sufficient deterrent to such a lucrative industry. The penalties for wildlife trafficking include a fine not to exceed US \$ 3000 or US \$ 6250 for repeat offenses and/or one year imprisonment. Given that one whole ivory tusk can sell for over US \$ 9000 and just one kilogram of tiger bone can sell for almost US \$ 800²⁵, Singapore will not be in a position to deter illegal trade until existing penalties are increased substantially. In addition, Singapore needs to better monitor operations within the country to ensure that their claimed activities, such as captive breeding, are verified.

Singapore-US FTA is also extremely stringent about intellectual property protection in favour of patent holders at the expense of broader community interest such as community health.²⁶ Oxfam, America has pointed out some of related features in a study which suggests that US-Singapore FTA limits the use of "compulsory licensing" which is an important mechanism for governments to make available medicines at affordable prices. The provisions of the agreement also restricts parallel importation of medicines. Another implication could be a possible delays in the introduction of generic drugs.

At this point, the Asian countries must look with seriousness the possibility of incorporating environmental issues in FTAs. There are three different approaches being adopted in the US for ensuring inclusion of environmental agenda in the trade agreements.²⁷ Some of them should be considered from the perspective of evolving a standing policy on environmental issues. One is to have a detail section on environment in the agreement itself, for instance, in the US-Jordan Agreement; secondly developing a parallel agreements of environmental cooperation for instance, NAAEC in the NAFTA agreement, and thirdly as part of technical assistance in and capacity building packages with the trade partner countries.

The free trade agreements would become meaningful from the environmental perspective once they are supplemented by the Environment Support Programmes (ESPs). These programmes may choose to support the positive environment agenda as outlined in various multilateral environmental agreements. The US-Asia Environment Partnership programme supplements US -Singapore FTA. Similarly, USDA launched a major programme to protect

Table 6: Environment and Sanitary and Phyto-Sanitary Measures in various FTAs

Sector	Singapore - NZ	Singapore-US	Singapore-Japan	Chile-US	Chile-Mexico	India-Thailand	India-Sri Lanka
Environmental Issues	*No specific environmental provisions	*The parties will maintain their own environmental laws, but will cooperate on environmental issues and ensure that environmental standards are not lowered in pursuit of trade. Each party is obliged to effectively enforce their domestic environmental laws. *Environmental disputes are subject to the core disputes settlement provisions of the FTA. The enforcement mechanism includes monetary penalties.	*No specific environmental provisions	*Environmental obligation are part of the core text of the agreement. Parties keep their own laws, but agree to strive to provide high levels of environmental protection. *Cooperative project will be undertaken, including building capacity for wildlife protection and resource management through collaboration efforts, working towards the elimination of methyl bromide use and the development of Pollutant Release and Transfer Register (PRTR) in Chile. *Monetary penalties for breaching the agreement	*No particular environmental agreement, except to recognise some other international agreements and say measures should be in keeping with these. *In a case of incompatibility between the FTA and specific obligations in trade matters included in the Convention on International Trade in Endangered Species of Flora and Fauna; the Montreal Protocol on Substances that Deplete the Ozone Layer and the Basel Convention on the Control of Transborder Movements of Hazardous Wastes and their Disposal, these obligations will prevail as far as the party involved chooses, however the party should chose a course of action which shows the least incompatibility with the regulations included in the FTA.	No specific details but proposes to cover environment as in IPP, SMEs, forestry and forestry products, energy, industrial cooperation and others.	No mention

Table 6 continued

Table 6 continued

Sector	Singapore - NZ	Singapore-US	Singapore-Japan	Chile-US	Chile-Mexico	India-Thailand	India-Sri Lanka
Quarantine and SPS	*Each Party shall, consistent with the relevant provisions of the WTO Agreement on Technical Barriers to Trade and the WTO Agreement on the Application of Sanitary and Phytosanitary Measures, use international standards, or the relevant parts of international standards, or the relevant parts of international standards, as a basis for its mandatory requirements. *There will be mutual recognition of equivalence of mandatory requirements.	No mention	*There is no specific chapter covering sanitary and phytosanitary measures, however they are included in the mutual recognition agreement for standards and conformance.	No mention	No mention	No mention	No mention

Source: RIS based on Scollay, Robert (2003). The Proliferation of RTAs and the Future of Asia-Pacific Economic Integration, University of Auckland and text of various agreements.

Illegal, unregulated and unreported (IUU) fishing activities.²⁸ The IUU is not only to protect \$ 50 billion US commercial fishing industry but also to penalize those who violate code of conduct for responsible fisheries. As part of this initiative, USDA in East Africa also sponsored a workshop.²⁹

The US Trade Promotion Authority (TPA) Article 2101 (b) (11) (D) instructs the negotiators to pursue “strengthening the capacity of US trading partners to protect the environment.”³⁰ FTA Article 18.6 (1) indicates that the parties “shall, as appropriate, pursue cooperative environmental activities, including those pertinent to trade and investment and to strengthening environmental performance, such as information reporting, enforcement capacity, and environmental management systems, under a Memorandum of Intent on Cooperation in Environmental Matters.

It is also important for Asian countries to look into the various aspects of Rules of Origin from the environmental perspective as in the context of the US-Singapore FTA; this has been overlooked (Polaski 2003). This FTA may enable Singapore to export products made in the Indonesian islands of Bintan and Batam into the US market. The Integrated Sourcing Initiative (ISI) allows products from other countries and other sectors, as mentioned in FTA text, also to be included in the trade.

V. By Way of Conclusion

The emergence of FTAs as an instrument of trade cooperation and economic development in Asia is a rather recent development. This trend assumes importance in light of the failure of WTO talks at Cancun. More so as some of the recent FTAs, signed in the region, overlook the environmental concerns as enshrined in the several multilateral environmental agreements. This may adversely affect the critical balance between trade and environment being attempted at multilateral organizations like WTO.

The WTO Committee on Trade and Environment (CTE) has attempted to do so in last few years. It is thus important that the exercise for FTAs formulates in Asia is made environment sensitive. It is essential from the perspective of sustainable development that partnerships among governments, research institutions and industry are encouraged for environmental and biodiversity protection, including protection of marine life and other important areas of environment management. Some of the specific steps that may be considered in this regard are suggested below:

Need of a watchdog on trade and environment issues

There is an urgent need in Asia to establish an inter-disciplinary group to keep an eye on various trade agreements and inclusion of environmental issues therein. As has been mentioned earlier, Asian countries in their FTAs have virtually overlooked the environmental implications of trade agreements. In this regard, necessary lessons should be drawn from other regional groupings like NAFTA, etc. So far the Free Trade Agreement of the America (FTAA) is most advanced international discussion of these issues in the context of a trade agreement.³¹ In addition, some of the states involved in these negotiations have adopted advanced national legislation on ensuring that IPRs are supportive of biodiversity and protect traditional knowledge. Both these factors represent an important opportunity to ensure that the final results of the FTAA negotiations also support the global regime to conserve biodiversity, the sustainable use of biological resources, and the equitable sharing of benefits arising from access to genetic resources. In this context, the civil society organizations, academic community and other concerned sections of the society would have to come forward to make it a meaningful exercise.

Asian commission for environment cooperation (ACEC)

The emerging Asian Economic Community especially when countries like Japan, China, South Korea and ASEAN have decided for joint cooperation at their recent summit in Bali may consider establishing a Commission in order to create more awareness among policy makers on environmental issues. It may be called as Asian Commission for Environment Cooperation (ACEC). This may facilitate the institutionalization of such frameworks as the Tripartite Environment Ministers Meeting (TEMM) at the wider Asia level.

Among developing countries the environmental issues also tend to cover protection of traditional knowledge and other issues such as access and benefit sharing which are extremely alive at multilateral forum but are marginalized when PTAs and more specifically FTAs are being agreed upon.

Asian efforts to deal with emerging environmental standards

The regional cooperation could be effective in sharing costs of compliance with the emerging environmental standards. The regional cooperation could also cover creation of regional institutional infrastructure such as test laboratories where the costs are high. The geographical contiguity in the region would facilitate the optimal utilization of such infrastructure. Joint training programmes and other measures to build local capacity would also be fruitful. The regional

cooperation could cover joint development of products which meet the new regulations and hence sharing the costs. In this context, a case in point is a highly successful project for development of Aflatoxin risk free groundnut jointly conducted by the Indian Council of Agricultural Research and the UNDP. This project successfully brought down the Aflatoxin levels to 0-5 PPB in 80 percent of the samples at the end of three-year term project in a high risk area of Andhra Pradesh, India the permissible limit of 15 to 20 PPB in developed countries such as Australia, Canada, USA.³² Such projects could be fruitfully undertaken at the regional level.

Evolving Asian approach to biosafety

In recent past, the initiative taken by various countries for setting up a legal framework for conservation of biodiversity has further complicated the canvass rather than propounding a clear roadmap for evolving a workable agenda. The contradictions among the multi-dimensional international treaties have adversely affected the policy maneuvering space hitherto available with the governments of developing countries. The lack of institutional preparedness to cope with new technologies and fast evolving international trade regime has also contributed to this confusion. The enforcement of the Cartagena Biosafety Protocol and its relations with national biosafety legislations also needs to be looked into. The Inter-government Committee on the Convention on Biological Diversity (ICCBD) has also recognized urgency of addressing these issues. Thus, what is coming under the sharp focus is a future role of the CBD, WIPO, and WTO. The WSSD has made some noises in the interest of indigenous knowledge system and biosafety. But it is yet to be seen how trade would be made to work for interests of developing countries.

Endnotes

- ¹ Nordstrom, Hakan, and Scott Vaughan 1999.
- ² Esty 2000.
- ³ ADO2002.
- ⁴ For details see Zarrilli, 2000, Nielson et. al, 2000.
- ⁵ Chaturvedi and Nagpal 2003.
- ⁶ Kevin Gallagher and Frank Ackerman 2000; Raman Letchumanan 1998; Low & Yeats 1992; The World Bank 1998.
- ⁷ Chaturvedi, Sachin 2003a.
- ⁸ For details see Chaturvedi, Sachin (2003b)
- ⁹ In fact Sri Lanka had to withdraw an official order banning imports of all food items containing GMOs. See *Asian Biotechnology and Development Review* Vol. 4 No. 1 for more details.
- ¹⁰ Saqib and Kaushik 2001.

- ¹¹ Bergsten 2000.
- ¹² *ibid.*
- ¹³ *Foreign Policy* in focus, November 2003
- ¹⁴ Hak-Su, Kim 2003.
- ¹⁵ ADO, 2002.
- ¹⁶ Pangariya 2000.
- ¹⁷ *Bridges Weekly Trade News Digest*, October 23, 2003.
- ¹⁸ Audley 2003
- ¹⁹ *Bridges Weekly Trade News Digest*, November 19, 2003.
- ²⁰ Quiroga and Ozuna, 1991.
- ²¹ KIEP 2003.
- ²² GOI 2003.
- ²³ Nowell, 2000.
- ²⁴ Nash, 1997.
- ²⁵ *ibid.*
- ²⁶ *Oxfam America*, May 6, 2003
- ²⁷ Audley 2003.
- ²⁸ USDA, Annual Report, 2003.
- ²⁹ *ibid*
- ³⁰ Audley, John 2003.
- ³¹ IUCN, TIELP, CEDA (2003).
- ³² Basu and Radhakrishnan 2001.

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