

An Asian Perspective on a World Environmental Organization¹

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ABSTRACT

This paper analyzes the possible response from Asian developing countries (ADC) to the proposal for the formation of an international legal entity called World Environmental Organization (WEO) designed to facilitate the internalization of global environmental externalities. We argue that the WEO must recognize the fundamental indivisibility of the economic growth-environment agenda in these countries. If suitable side payments in the shape of tariff concessions, relaxation of non tariff barriers and transfers of technology and cash are made and the WEO is seen to be relevant to the environmental problems of ADC, they may well participate in such a venture.

Keywords: Global Environment, issue linkage.

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1. Introduction:

This paper analyzes the possible response from Asian developing countries (ADC) to the proposal for the formation of an international legal entity called World Environmental Organization (WEO). WEO has found mention in various forums². We conceive of a WEO based on the principle of internalization of global external effects (Whalley and Zissimos (2000)), not the adoption of standards³, as was the case in efforts like Agenda 21. Consonant with this, we focus on the twin issues of demarcation of property rights and side payments in order to facilitate Coasian deals.

ADC response to WEO would be based on their priorities. They rank economic growth above domestic environmental problems (DEP), followed by global environmental problems (GEP) and consider an uncritical emphasis on GEP as imposition of a "Northern Agenda". ADC view with suspicion Northern claims about global rights over a clean atmosphere as undermining ADC's "natural sovereign" rights over their resources. To succeed, any potential WEO needs the support of ADC. However, because of the immense diversity of ADC, a non-differentiated ADC view on environmental problems is unlikely. It is possible, however, to sketch the broad contours of an ADC perspective, some of which may apply more generally among LDCs, and constitute what may be termed the "southern agenda".

Growing concern about GEP has led to a patchwork quilt of some 200 multilateral environmental agreements (MEA) ranging from non-binding ones to those with binding

² The WTO Director-General while inaugurating the WTO High-Level Symposium on Trade and the Environment on 15 March 1999, called for the creation of a World Environmental Organization as an institutional and legal counterpart to the WTO.

³ Whalley and Zissimos (2000) examine various forms of the WEO proposals ranging from merely a meeting place and a clearinghouse (WEO-I) to a strong body, which formulates and enforces rules and policies, (WEO-III).

commitments on instruments and emission levels, cover transnational pollutants, process and product standards and bio-diversity through regional to global agreements, and encompass property rights type agreements to joint emission reduction. Most involve narrow area negotiation without side payments and reflect environmental concerns of developed countries (DC) with few, if any, inter developing country treaties. Some admit positive and negative sanctions. Sovereign states sign MEA, although GEP often apply to undefined jurisdictions (such as international waters or airspace).

There are four problems with existing MEA: (i) cross-MEA interdependencies are ignored; (ii) bargaining opportunities, wherein side payments to some parties could be used in exchange for enhanced bargaining opportunities and greater compliance, are not admitted; (iii) issue linkages⁴ are ruled out; and (iv) many MEA directly or indirectly contradict existing international agreements on trade and capital flows. (WTO (1999)). There is a “prisoners’ dilemma” type problem since those paying and beneficiaries may not coincide. There may be a role for an international institution to address these shortcomings.

Institutions addressing the global nature of trade and capital flows (such as the World Bank, the IMF and now the WTO) evolved when environmental interdependencies were seen as unimportant. Recent rounds of GATT negotiations have permitted environmental and other concerns⁵ as basis for departure from free trade. In ADC these provisions are viewed as another way of imposing non-tariff barriers (NTB) on their exports.

⁴ Article XX of GATT, in force through WTO is an exception.

⁵ These include social clauses on labor standards, use of child labor, protection, health and safety of plant, animal and human life.

The bulk of the environmental assets of the world (forest cover (sinks for CO₂ emissions) and biodiversity) lie in LDCs (including ADC), whereas concern for a global treaty comes from DC. ADC can demand side payments in terms of better deals in trade arrangements and cash to compensate them for environmental restraint. There might even be leverage for other concessions, e.g., tackling domestic environmental problems of ADC.

ADC response to the idea of WEO would be determined by how WEO fits in with their current environmental and growth priorities; perceived costs and benefits of joining; and expectations from WEO in light of experience with MEA and the evolving path of WEO credibility⁶. Section 3 addresses these issues. Section 2 examines socioeconomic characteristics and environmental concerns of ADC. Section 4 concludes.

2. Socioeconomic and Environmental Profile of ADC

ADC have about half the world's population 35 % of whom live in urban areas. Asia contains 13 of the 25 largest cities in the world. China and India together have a third of world population with per capita income of about one-tenth the world average. A majority of the world's estimated 1.2 billion poor (income less than US \$1 per day) live in ADC. ADC economies are heavily dependent upon agriculture, forestry and other primary activities and have low HDI⁷. (Table 1).

⁶ If a developing country is to be compensated (through the WEO mechanism) in the future for slowing down deforestation, it should believe in the fairness both of the process of compensation as well as the amount.

⁷ The East Asian Tigers, have outperformed the rest of the world in terms of economic growth but account for only about 10 per cent of ADC population. During 1997-98 some of these economies faced the Asian currency contagion, which led to negative growth rates.

Pressing environmental concerns of ADC are largely consequences of rapid economic growth, urbanization and population growth. (Table 2 and Box 1). Even DC turned to GEP after addressing their own DEP⁸. In the absence of easy availability of technologies to address their DEP, ADC face the dilemma of having to choose between environmental preservation and economic development (poverty alleviation).

The ADC are signatories to several MEA. (Table 3). These MEA do not obstruct ADC development strategies, have low compliance costs and, as in the case of the Montreal Protocol, DC offered adequate incentives for joining and enough penalties for not joining.

Box 1	
Ranking of Environmental Priorities of ADC	
(i)	Water pollution and fresh water depletion, (ii) Air pollution, (iii) Deforestation,
(iv)	Solid waste, (v) Soil erosion, (vi) Biodiversity loss, (vii) Wildlife loss
(viii)	Fish depletion, (ix) Desertification, (x) Climate Change
Source: ADB (1997)	

GEP could become a serious concern for ADC. Global warming leading to rising sea levels, may submerge many islands in the Asia Pacific, or increase flooding in Bangladesh. Many ADC are dependent upon their biodiversity for agricultural operations. Even CO₂ emissions could become important for ADC. There is a need to effectively articulate this potential importance.

We present three indicators of ADC contribution GEP. First, average annual rates of deforestation are high, leading to land degradation. (Table 4). Some countries with high forest cover (Indonesia, Thailand) are under pressure from large external debts to export more (including timber). Of the 1.9 billion hectares affected by soil degradation worldwide, the

⁸ The fact that WEO would primarily be concerned with GEP does not mean that it should completely ignore

largest area (850 million hectares) is in Asia. (WRI/UNEP/UNDP/WB (1996)). Deforestation induced water run-off erosion of soil accounts for over 61 % of the land degradation in the region (FAO/UNDP/UNEP (1994)). This is ominous for the future of food security in the area.

Second, ADC biodiversity is threatened (Table 5)⁹ -principally from increased agricultural production leading to a loss of genetic diversity. During 1960-70 ADC area under rice rose by 25 % but production by over 77 % due to the replacement of traditional varieties with higher-yielding varieties. India is expected to produce 75 per cent of its rice from just 10 varieties in 2005 compared to more than 30,000 traditionally cultivated. Habitat losses have been most acute in the Indian sub-continent, China, Vietnam and Thailand (ESCAP (1995)), the major contributors being deforestation, population growth (implying accelerated rates of land use change), poverty (implying unsustainable use of "common" access resources), introduction of non-native species (leading to destruction of predator/prey equilibrium) and the improper use of agrochemicals (leading to loss of aquatic species)¹⁰.

Third, DC account for more than half the CO₂ emissions. China and India have low per capita but high absolute CO₂ emissions, which are expected to rise sharply. During 1990-97

DEP.

⁹ Asia contains three of the world's eight biogeographic realms including the highest (and longest) mountain system, the second largest rainforest complex, and more than 1/2 the coral reefs. Five of the twelve "mega diversity" countries are in this region (McNeeley et. al. (1990)). Asia encompasses 2/3 of the world's flora and more than 10 % of the world's fauna. ADC depend heavily on direct harvesting from nature. Destruction of biodiversity will adversely affect employment.

¹⁰ Fertilizer use rose 74 per cent during 1982-92 from 33.3 million tons to 57.8 million tons (ESCAP (1995)). Pesticide use has increased sharply. 1,800 tons of pesticides enter the Bay of Bengal every year, contaminating shell and fin fish. Holmgren (1994)

ADC CO₂ emission growth (total as well as per capita) have been above world average¹¹ (Table 6).

3. An ADC response to WEO

ADC would not object to a weak version of WEO (WEO-I). However, this may not be enough to make a serious dent on GEP. Many ADC might *initially* be unenthusiastic about a more effective stronger version. Public support within the ADC¹² for WEO would be forthcoming if WEO also addressed (even indirectly) some specific ADC problems. (Jha and Whalley (2000)).

Many DEP of ADC are really policy failures in other sectors. Subsidized fertilizers and pesticides lead to their excessive use, increasing soil degradation and salinity. Water subsidies result in depletion of water table and desertification and fuel subsidies to overuse of vehicles and traffic-related problems. Many laws have a colonial legacy, wherein the government had the sole rights to the produce of the forests and fisheries, with management suffering from inadequate personnel, lax implementation of laws, and a generally anti-people stance. For the WEO to be relevant¹³ to these problems it would need to facilitate (i) harmonization of tax and subsidy policies, and (ii) urban planning so that relative prices of goods reflect environmental priorities and relative scarcities through, say, full marginal cost pricing. Since tampering with the price mechanism is a common redistributive measure in many ADC, such policy might entail some short-run hardships for the poor, to address which

¹¹ Transboundary air pollution – burning of poor quality coal, accumulation of fly ash and slash-and-burn agriculture- is common in many ADC.

¹² Trade policies immediately affect certain groups (exporters, for example), thus there are predictable lobbying efforts. Reducing deforestation has more diffused benefits and hence needs wide-based support.

¹³ To quote WTO (1999) "Distorted prices obscure the abundance of underutilized environmental resources, contribute to the excessive depletion of exhaustible resources, generate new environmental problems, and contribute to the excessive use of environmentally damaging inputs".

ADC may need technology and expertise, credit on easy terms and help in the design and targeting of subsidies to the poor. Transfers could be tied to price/tax reforms thus lowering GEP and DEP and increasing efficiency and effective redistribution in favor of the poor¹⁴.

Many ADC perceive the environmentally motivated exceptions accepted in the Uruguay round (UR), which earlier GATT rulings had either declared illegal or outside its jurisdictions as amounting to *de facto* NTB¹⁵. A case in point is Article XX, although this has not been applied substantially against ADC. Ambiguities in interpretation have led DC to (i) argue for discrimination against products that harm the environment, (ii) label export under low environmental standards as eco-dumping¹⁶. The Trade Related Intellectual Property Rights (TRIPS) Agreement increases the difficulty of obtaining new technologies required either because of changes agreed under certain MEA or to meet environmental requirements in export markets. Rapid progress in the area of biotechnology has led to DC soliciting access to genetic resources, some of which are found in ADC. DC-initiated patenting agreements on genetic processes are viewed in Asian developing countries as infringement on their natural resources.

Past experience with MEA encourages skepticism of WEO. Although the Montreal Protocol bound more than 70 countries to a timetable for phasing out the production and consumption of CFCs and promised transfer of needed technology to LDCs, such transfer was limited. ADC, have little incentive to reduce CFC. India, for instance, exports 75% of its CFC output and domestic demand is rising because of the use of refrigeration by a large middle class.

¹⁴ Direct and targeted subsidies reach the poor more effectively than does generalized tampering with the price mechanism. (van Stuijvenberg (1996)).

¹⁵ Examples include GATT agreement on intellectual property rights, labor standards and the social clause.

There is little domestic pressure to switch to “greener” technologies. Hence, ADC will be wary of WEO.

Costs to ADC of reducing CO₂ emissions are high. Parikh, et. al. (1995) for India and Zhang (1998) for China compute the costs of a 20 to 30 % reduction in CO₂ to be between 2 to 3 percent of respective potential GDPs. Expecting such large sacrifices from such poor countries seems not only wrong but also impractical.

However, not joining a coalition aimed at controlling CO₂ also has costs. China and India would gain by joining a coalition controlling carbon emission at 1990 level over a 100-year horizon. (Xepapadeas and Yiannaka (1997)). Earlier participation would require appropriate compensation mechanisms.

For signatories, adhering to the terms of WEO would become an international commitment. WEO could align itself with NGOs within ADC to help assess progress made in adhering to international agreements and ameliorating DEP and thus monitoring the progress made by recalcitrant ADC governments¹⁷. WEO members can apply pressure through trade and hold dissenting countries responsible for GEP. A viable WEO may not require the participation of *all* or even *most* ADC. For instance, if any two of China, India and ASEAN join, it is hard to see how the rest of ADC can stay out - particularly if ADC obligations within the WEO are interpreted liberally and appropriate compensation mechanisms are in place.

¹⁶ In three cases under Article XX involving developing countries, the appellate has ruled in their favor. Only in the case of Thai cigarettes did the appellate rule against a developing country. Article XX is viewed with suspicion because the US unilaterally took action in all cases, bypassing the WTO.

¹⁷ The CTE of the WTO has not favored NGO participation arguing that the role of NGOs is mainly at the national level. In the case of trade agreements, there are well known pressure groups but environmental agreements would require much broader support, thus admitting a role for NGOs.

The case for environmental agreements among sovereign countries has been debated widely, particularly during the 1990s. Any announced standards (e.g. the Kyoto Protocol) could run the risk of becoming incentive incompatible¹⁸. The net benefit from an ADC participating in an agreement like WEO could be enhanced by suitably designed transfer mechanisms. Thus tariff and NTB reduction by DC tied to favorable ADC response on GEP and the threat¹⁹ by ADC to increase deforestation unless tariff concessions are made could be useful. Side payments in cash as well as transfer of technology under favorable terms would enhance the attraction of WEO to ADC. Debt reduction and enhanced capital flows would, however, have limited value. Of relevance here is the scale of inducement that can be given over and above what is already promised in other international agreements.

Even after the full implementation of all UR concessions a substantial number of high tariffs on imports from ADC will remain (Table 7) with peaks reaching 350 to 900 % although the majority range from 12 to 30 %. One-fifth of the peak tariffs of the US and about 30% of those in the EU and Japan will exceed 30 %. In contrast, developing countries apply rates above 12 per cent *ad valorem* more frequently than DC but have fewer extremely high rates²⁰.

Tariff reductions²¹ on ADC exports would facilitate favorable ADC response. Textile exports as a proportion of GDP are about 7-8 per cent in ADC and developed market economies

¹⁸ Gains are possible when the government's objective function is separable in various targets since the slack in one policy objective can be transferred to another and when policy objectives are substitutes in the government's objective function (say trade and environment policies) but not when policy objectives are complementary (e.g. monetary and fiscal policies). (Spagnolo (1996))

¹⁹ This threat would be even more effective if coordinated across LDC.

²⁰ Focusing exclusively on MFN tariff rates is misleading since import duties are lower once account is taken of the preferences received by LDCs via GSP, CBI, Lome Convention and other schemes.

²¹ Abrego et. al. (1997) show that this linkage is improved if bargaining is accompanied by cash side payments.

account for about half of ADC textile exports. Thus, the potential ADC gain from textile import liberalization in DC and other developed market economies (keeping in view the fact that the MFA will terminate in 2004) could be substantial. Large gainers would include Bangladesh, China, Hong Kong, India, Indonesia, Korea, and Pakistan. If leather products are liberalized Myanmar gets included though Hong Kong would get excluded. Tariff reduction on fish and fish preparation could help several ADC.

Table 8 proposes a set of countries that could (hypothetically) join WEO if tariff concessions by DC were made for their major exports. Bangladesh and Maldives could participate without any inducement. Other ADC will need incentives.

Another potential area of concessions is NTB. NTB are pervasive in almost all countries and take many forms from import quotas, licensing of import/export, antidumping and countervailing duties, sanctions and voluntary export restraints to preference procurement of domestic goods, customs valuation and clearance procedures, copyrights and intellectual property rights. Particularly in the US and EU, NTB are large (Table 9, particularly items 3a to 3d). WEO could increase its acceptability by defining what could be construed as NTB and when they can be used and how tradeoffs between reductions in NTB and in CO₂ emissions could be exploited.

Debt reductions represent another potential issue linkage. However, debt problems of the most severely indebted ADC are being addressed in other international forums. Also, debt reduction could involve moral hazard as countries that can count on debt reductions may

pursue imprudent monetary and fiscal policies. It is hard to see how FDI flows can be regulated to encourage compliance with international environmental agreements.

Cash and technologies transfer could make joining WEO attractive for ADC. Incentives to free ride must be offset to make the agreement stable. Commitments would need to be made binding, even in the absence of conflicts.

4.Conclusions

GEP are pressing concerns and call for innovative institutional design to address them. Rich countries consider GEP as an emergent issue; even ADC will soon become major contributors. Whereas DC value the international environment highly, the ADC rank economic growth and DEP above GEP, although not addressing GEP could hurt in specific areas. But, the fundamental indivisibility of the growth and environmental agendas in the ADC has to be faced.

Given global concern over GEP, the global community should have the foresight to conclude a treaty at an early date. This would necessitate incentive design to persuade ADC to join WEO negotiations and remain committed to this process.

Since ADC have considerable environmental assets, they should look for coupling restraint in the area of GEP to other areas of their linkage with DC, including tariff and NTB concessions, transfer of technology and direct transfers. Given the wide range of such linkages it would be necessary to exploit associated positive externalities.

A weak version of WEO would be innocuous enough and, therefore, acceptable but not very effective. Stronger versions would be unacceptable to ADC unless issue linkage is permitted. Given past experience of ADC with MEA, WEO would have to build credibility as an organization that is truly interested in GEP, is sensitive to the needs of the ADC and is not acting as a conduit for imposing the will of the DC on the ADC.

This is a challenging task. But there seems scope for achieving it.

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Table 1:

Economic and Social Indicators of ADC

	Population (mil)	Human Dev. Index (HDI)	GNP per capita*	GNP/c PPP adjusted*	Exports (USD bn)‡	Imports (USD bn)‡
Bangladesh	120	0.371	240	1380	3.9	6.9
Cambodia	10	0.422	270	.		
China	1200	0.65	620	2920	182.7	142.4
Hong Kong	6	0.909	22990	22950	180.7	198.6
India	929	0.451	340	1400	33.9	39.7
Indonesia	193	0.679	980	3800	53.4	41.6
South Korea	45	0.894	9700	11450	129.8	150.2
Lao PDR	5	0.465	350	.		
Malaysia	20	0.834	3890	9020	78.2	78.4
Mongolia	2	0.669	310	1950		
Nepal	21	0.351	200	1170	0.42	1.6
Pakistan	130	0.453	460	2230	8.2	11.4
Philippines	69	0.677	1050	2850	25	34
Singapore	3	0.896	26730	22770	125.6	133.9
Sri Lanka	18	0.716	700	3250	4.1	5.4
Thailand	58	0.838	2740	7540	51.6	73.5
Vietnam	73	0.56	240	.	7.1	11.1

Key: ** growth rate 1980-1985; * in 1995 USD; † expressed as percentage of population;

Source: World Bank

Table 2:

Environmental Concerns of ADC

Afghanistan	Soil degradation; overgrazing; deforestation; desertification.
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India	Deforestation; soil erosion; overgrazing; desertification; air pollution from industrial effluents and vehicle emissions; water pollution from raw sewage and runoff of agricultural pesticides; tap water is not potable throughout the country; huge and rapidly growing population is overstraining natural resources.
Iran	Air pollution in urban areas, from vehicle emissions, refinery operations, and industrial effluents; deforestation; overgrazing; desertification; oil pollution in the Persian Gulf; inadequate supplies of potable water natural hazards: periodic droughts, floods; dust storms, sandstorms; earthquakes along the Western border.
Pakistan	Water pollution from raw sewage, industrial wastes, and agricultural runoff; limited natural fresh water resources; poor access to potable water; deforestation; soil erosion; desertification, natural hazards: frequent earthquakes, occasionally severe especially in north and west; flooding of Indus after heavy rains (July and August).
Bangladesh	Landless people forced to live on and cultivate flood-prone land; limited access to potable water; water-borne diseases prevalent; water pollution especially of fishing areas from the use of commercial pesticides; intermittent water shortages because of falling water tables in the northern and central parts of the country; soil degradation; deforestation; severe overpopulation.
Bhutan	Soil erosion; limited access to potable water.
Sri Lanka	Deforestation; soil erosion; wildlife populations threatened by poaching; coastal degradation from mining activities and increased pollution; freshwater resources being polluted by industrial wastes and sewage runoff natural hazards: occasional cyclones and tornadoes.
Nepal	Almost total dependence on wood for fuel and cutting down trees to expand agricultural land resulting in widespread deforestation; soil erosion; water pollution (use of contaminated water presents human health risks).
Hong Kong	Air and water pollution from rapid urbanization.
Singapore	Industrial pollution; limited natural fresh water resources; limited land availability, waste disposal problems; seasonal smoke/haze resulting from forest fires in Indonesia.
Taiwan	Air pollution; water pollution from industrial emissions, raw sewage; contamination of drinking water supplies; trade in endangered species; low-level radioactive waste disposal.
South Korea	Air pollution in large cities; water pollution from the discharge of sewage and industrial effluents; drift net fishing.
North Korea	Localized air pollution attributable to inadequate industrial controls; water pollution; inadequate supplies of potable water.
Thailand	Air pollution from vehicle emissions; water pollution from organic and factory wastes; deforestation; soil erosion; wildlife populations threatened by illegal hunting.
Malaysia	Air pollution from industrial and vehicular emissions; water pollution from raw sewage; deforestation; smoke/haze from Indonesian forest fires.
Indonesia	Deforestation; water pollution from industrial wastes, sewage; air pollution in urban areas.
Vietnam	Logging and slash-and-burn agricultural practices contribute to deforestation and soil degradation; water pollution and overfishing threaten marine life populations; groundwater contamination limits potable water supply; growing urban industrialization and population migration are rapidly degrading environment in Hanoi and Ho Chi Min City.
Philippines	Uncontrolled deforestation in watershed areas; soil erosion; air and water pollution in Manila; increasing pollution of coastal mangrove swamps which are important fish breeding grounds.
China	Air pollution (greenhouse gases, particulates) from the overwhelming use of high-sulfur coal as a fuel, produces acid rain which is damaging forests; water shortages experienced throughout the country, particularly in urban areas and in the north; future growth in water usage threatens to outpace supplies; water pollution from industrial effluents; much of the population does not have access to potable water; less than 10% of sewage receives treatment; deforestation; estimated loss of one-fifth of agricultural land since 1949 to soil erosion and economic development; desertification; trade in endangered species.

Source: World Factbook 1997, CIA

Table 3
MEA Signed by ADC

Antarctic-Environmental Protocol, Antarctic Treaty, Biodiversity, Climate Change, Desertification, Endangered Species (CITES), Environmental Modification, Hazardous Wastes, Law of the Sea, Marine Dumping, Nuclear Test Ban, Ozone Layer Protection (Montreal Protocol), Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetlands

Table 4:
Forestry Characteristics of ADC

	Total Forest (2000) 000 ha	Annual Forest Cover change 000 ha	Annual Forest Cover change %	Land Area 000 ha	Forests As % of Land area in (2000)	Forest area per capita ha in (2000)	Population density n/km ² (1999)
Bangladesh	1334	17	1.3	13017	10.2	NA	975.2
Bhutan	3016	0		4701	64.2	1.5	43.9
Cambodia	9335	-56	-0.6	17652	52.9	0.9	62
China	163480	1806	1.2	932743	17.5	0.1	136.6
India	64113	38	0.1	297319	21.6	0.1	335.7
Indonesia	104986	-1312	-1.2	181157	58.0	0.5	115.5
Lao, PDR	12561	-53	-0.4	23080	54.4	2.4	23
Malaysia	19292	-237	-1.2	32855	58.7	0.9	66.4
Myanmar	34419	-517	-1.4	65755	52.3	0.8	68.5
Nepal	3900	-78	-1.8	14300	27.3	0.2	163.5
Pakistan	2361	-39	-1.5	77087	3.1	NA	197.6
Philippines	5789	-89	-1.4	29817	19.4	0.1	249.7
Sri Lanka	1940	-35	-1.6	6463	30.0	0.1	288.4
Thailand	14762	-112	-0.7	51089	28.9	0.2	119.1
Vietnam	9818	52	0.5	32550	30.2	0.1	241.8
Total Asia	547793	-364	-0.07	3084746	17.8	0.15	117.8
United States	225993	388	0.2	915895	24.7	0.8	30.2
Total North and Central America	549304	-570	-0.10	2136966	25.7	1.15	22.4
Total South America	885618	-3711	-0.41	1754741	50.5	2.60	19.4
Total Europe	1039251	881	0.08	2259957	46.0	1.43	32.2
Total Africa	649866	-5262	-0.78	2978394	21.8	0.85	25.9
Total World	3869455	-9391	-0.22	13063900	29.6	0.65	45.8

Source: FAO (2001)

Table 5:
Biodiversity in ADC

	Mammals		Birds		Higher Plants		Nationally Protected Areas	
	Species in 1996	Threatened Species 2000	Species in 1996	Threatened Species 2000	Species in 1997	Threatened Species 1997	Thousand Sq. km. 1999	% of total land area 1999
Bangladesh	109	21	295	23	5000	24	1.0	0.8
China	394	76	1100	73	32200	312	598.1	6.4
India	316	86	923	70	16000	1236	142.9	4.8
Indonesia	436	140	1519	113	29375	264	192.3	10.6
Lao PDR	172	27	487	19		2	0	0
Malaysia	286	47	501	37	15500	490	14.8	4.5
Myanmar	251	36	867	35	7000	32	1.7	0.3
Nepal	167	27	611	26	6973	20	11.1	7.8
Pakistan	151	18	375	17	4950	14	37.2	4.8
Philippines	153	50	395	67	8931	360	14.5	4.9
Sri Lanka	88	20	250	14	3314	455	8.6	13.3
Thailand	265	34	616	37	11625	385	70.7	13.8
Vietnam	213	37	535	35	10500	341	9.9	3.0

Source: The World Bank

Table 6: CO2 Emissions

	Total CO2 Emissions			CO2/GDP			CO2/Population		
	(million tonnes of CO2)			(Kg./US\$ (1990PPP))			(tonnes per capita)		
Country	1990	1997	%change	1990	1997	%change	1990	1997	%change
			90-97			90-97			90-97
Bangladesh	14.58	20.91	43.4	0.14	0.15	7.1	0.13	0.17	30.8
China	2398.29	3161.95	31.8	1.14	0.73	-36.0	2.1	2.56	21.9
India	599.78	880.71	46.8	0.66	0.66	0	0.71	0.92	29.6
Indonesia	155.21	256.52	65.3	0.33	0.33	0	0.87	1.28	47.1
Japan	1061.8	1172.6	10.4	0.46	0.45	-2.2	8.72	9.29	8.1
Korea, Rep.	233	422.1	81.1	0.66	0.74	12.1	5.73	9.18	68.8
Malaysia	60.22	123.71	105.4	0.56	0.64	14.3	3.31	5.71	72.5
Myanmar	3.69	6.94	88.1	0.04	0.06	50	0.09	0.16	77.8
Nepal	0.58	1.85	219	0.04	0.08	100	0.03	0.08	166.7
Pakistan	62.67	89.45	42.7	0.32	0.34	6.3	0.58	0.7	20.7
Philippines	40.84	68.74	68.3	0.3	0.41	36.7	0.65	0.93	43.1
Singapore	34.76	72.86	109.6	0.67	0.81	20.9	12.85	23.47	82.6
Sri Lanka	3.85	8.48	120.3	0.1	0.15	50	0.23	0.46	100
Thailand	86.29	175.36	103.2	0.34	0.44	29.4	1.55	2.89	86.5
Vietnam	17.27	48.37	180.1	0.26	0.41	57.7	0.26	0.63	142.3
World	21245.9	22981.1	8.2	0.79	0.69	-12.7	4.07	3.97	-2.5
DC	11175.9	12235	9.5	0.68	0.64	-5.9	10.77	11.18	3.8
NON-DC	9694.1	10326.4	6.5	0.94	0.74	-21.3	2.31	2.2	-4.8

Source: International Energy Agency (1999): CO2 Emissions from Fuel Combustion

Table 7:

Tariff Peaks by Product Group

Post UR

	EU							
	Number of Items							
Product group	Total	12-19%	20-29%	30-99%	100-299%	>= 300%	No. of peaks	Share in Total (%)
Agricultural and Fishery Products	2779	544	331	313	31	2	1221	97.7
Mineral products, fuels	257						0	0
Leather, Textiles, clothing	1565	6					6	0.5
Industrial Products	7771	27	7	8			42	3.3
All Products	10807	571	338	341	31	2	1263	100.0
	Japan							
Product group	Total	12-19%	20-29%	30-99%	100-299%	>= 300%	No. of peaks	Share in Total (%)
Agricultural and Fishery Products	1897	204	299	111	81	65	760	85.1
Mineral products, fuels	194						0	0
Leather, Textiles, clothing	2410	42	39	15	28	7	131	14.7
Industrial Products	6880	44	39	15	28	7	133	14.9
All Products	8971	248	338	126	109	72	893	100.0
	USA							
Product group	Total	12-19%	20-29%	30-99%	100-299%	>= 300%	No. of peaks	Share in Total (%)
Agricultural and Fishery Products	1779	138	70	99	15	11	333	36.6
Mineral products, fuels	183						0	0
Leather, Textiles, clothing	1814	374	110	40			524	57.4
Industrial Products	8123	407	127	45			579	63.4

All Products	10085	545	197	144	15	11	912	100.0
Leather, Textiles, clothing	1209	320	27				347	60.1
Industrial Products	6791	374	39				413	71.6
All Products	8407	444	49	16	68		577	100.0

Source: Compiled from UNCTAD website: www.unctad.org

Table 8:

ADC Participation in WEO under alternative Tariff concessions

Tariff Concessions	Countries likely to gain/participate
No concessions	Maldives, Bangladesh
Textiles	China, Hong Kong, Korea, India, Fiji, Bangladesh, Indonesia, Maldives and Pakistan
Leather products	China, Korea, India, Myanmar, Bangladesh, Maldives, Indonesia, Pakistan, Thailand
Fish and fish preparation	Fiji, India, Indonesia, Maldives, Myanmar, Bangladesh, Thailand
Rice	Thailand, Vietnam, India, Bangladesh, Maldives.

Table 9:

Frequency Ratio of NTB by commodity groups 1993

(Product categories subject to NTB expressed as a percentage of total number of product categories in corresponding group)

	<i>USA</i>	<i>EU</i>	<i>Japan</i>
1.Agriculture and allied products	3.6	14.9	5.2
2.Mining and quarrying	2.3	3.5	0.4
3.Manufacturing	24.7	22.8	7.4
3a.Food, beverage & tobacco	12.1	44.2	6.7
3b.Textiles and apparel	69.9	76.8	21.4
3c.Wood & wood products	0.6	0.0	0.0
3d.Paper & paper products	1.3	0.4	0.0
3e.Chemicals	5.8	5.1	0.7
3f.Non-metallic mineral products	5.3	0.2	0.0
3g.Basic-metal industries	57.1	19.0	0.9
3h.Fabricated metal products	13.8	2.3	0.0
3i.Other manufacturing	1.1	2.0	0.0
All products	23.0	22.1	7.1

Source: Deardorff and Stern (1998).