Strengthening Research and Policy-Making Capacity on
Trade and Environment in Developing Countries

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Environmental Services and Developing Countries
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1. Historically outside the scope of most trade agreements which have tended to focus on "goods", trade in "services" became a significant issue in the negotiations of the 1994 World Trade Organisation (WTO) agreements. While WTO rules governing trade in goods are relatively well developed, the global commerce in services is subject to an evolving framework of international controls under the General Agreement on Trade in Services (GATS). Promising new financial opportunities and linked closely to investment liberalisation, the review of trade in services has gained momentum in the lead up to the Fourth WTO Ministerial in Qatar.

2. Yet, to speak of "trade in services" in the WTO recalls a troubled negotiating history, and to mention "developing countries" in the same sentence intensifies the discourse. Add "the environment" to a discussion on trade in services and developing countries and you introduce further complexity to what is already a confusing matrix of concerns and interests. Developing country reservations about the liberalisation of trade in services as a vehicle for domestic deregulation must be weighed against environmental and economic benefits that might be derived from international trade in environmental services. It is also important to note that although the GATS limits sovereign power to discriminate against foreign services or restrict foreign access to markets, it does recognise that there may be legitimate policy reasons – such as environmental protection – that justify regulatory distinctions between foreign and domestic goods.

3. The promotion of environmental protection under GATS is, therefore, twofold. On the one hand, trade in environmental services and other services sectors can improve environmental conditions while, on the other, regulatory limitations on trade in services can also serve to protect the environment. It is in the context of environmental measures that inhibit trade in services that tensions between GATS and the environment arise. Developing country Members working to protect their natural environments must explore the most appropriate ways for them to use both trade in environmental services and environmentally related restrictions on trade to promote environmental protection.

4. This paper examines the relationship between trade in services, developing countries and the environment. The discussion is limited to one services sector – environmental services. Environmental concerns that arise in other sectors or under specific provisions in the GATS will be investigated in the context of environmental services. Part I describes the GATS. Part II examines environmental services and environmental issues in the GATS. Part III considers the relevance of environmental services for developing countries and identifies issues that could be explored by developing countries in GATS negotiations on environmental services.

I. The General Agreement on Trade in Services (GATS)

5. Negotiated as part of the package of WTO agreements that entered into force in 1995, the GATS creates a framework for the gradual liberalisation of trade in services. It requires WTO Members to regulate foreign services and service suppliers in a non-discriminatory manner (Most-Favoured-Nation (MFN) treatment). Members must also provide market access (remove quantitative restrictions) and equal treatment of foreign and domestic

services and service suppliers (National Treatment) for services identified in each Member's commitment Schedules. The GATS comprises six Parts and must be read together with its Annexes, Decisions and Schedules of Members' commitments.

Description of Services: Modes of Supply and Sectoral Classification

6. The term "services" is not defined in the GATS. "Services" might be best understood, in contrast to "goods", as actions that have an effect or impact as opposed to objects that can be touched. However, with many services contributing to the production of goods and goods being employed in the delivery of services, the distinction between goods and services is not always apparent in any particular commercial relationship.[1]

7. Rather than defining "services", the GATS identifies the means by which services are delivered to consumers (Article I). The means of service delivery are known as the "modes of supply". Under GATS, there are four modes of supply: (1) services supplied from one country to another (known as "cross-border" supply); (2) consumption of services in another country (known as "consumption abroad"); (3) establishment of a business in another country (known as "commercial presence"); and (4) individuals travelling to another country to supply services (known as "presence of natural persons"). International telecommunication services or money transfers from one country to another are examples of cross-border supply. Consumption abroad would apply to services such as tourism, when travel is arranged from one country but takes place in other. Establishing a business office in another country would be a form of commercial presence, and often involves "foreign direct investment" or "FDI". People travelling to countries to provide consultancy or labour services are providing services through the presence of natural persons.

8. The GATS general obligations and disciplines, such as MFN, cover all sectors of the services industry but do not include services supplied under government authority which do not generate a profit or compete with other service suppliers (Article I:3). The application of the GATS specific commitments on market access and National Treatment is limited to services negotiated and bound in Members' Schedules of commitments (Part III and Article XX). Government procurement of services not intended for commercial sale is excluded from the GATS Articles on MFN, market access and National Treatment (Article XIII).

9. Having described "services" in terms of the modes of supply, the GATS leaves it to Members to identify in the Annexes and Schedules which of their service sectors will be covered by the GATS. Members may make specific commitments with respect to the sectors of their choice as described in their Schedules and existing restrictions on trade in those services may be preserved if disclosed and "locked-in" under the Schedules (Part III and Article XX). In identifying the service sectors, Members are guided by the classification system developed by the former General Agreement on Tariffs and Trade (GATT) Secretariat which was based on the United Nations Provisional Central Product Classification (CPC).[2]

10. The GATT classification of service sectors is divided into twelve broad sectors: (1) Business; (2) Communication; (3) Construction and Engineering; (4) Distribution; (5) Education; (6) Environmental; (7) Financial; (8) Health; (9) Tourism and Travel; (10)

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[1] *See* Michael J. Trebilcock and Robert Howse THE REGULATION OF INTERNATIONAL TRADE (2nd Ed.) (1999) at 271-3 ("Trebilcock and Howse").
[2] Services Sectoral Classification List, MTN.GNS/W/120, www.wto.org.

Recreation, Cultural and Sporting; (11) Transport; and (12) Other. Sub-sectors described under the headings of the broad sectors are arranged around the CPC system.

Guiding Principles: Non-Discrimination, Transparency and Developing Countries

11. Consistent with other WTO agreements, one of the guiding principles of the GATS is non-discrimination. Non-discrimination informs the GATS provisions concerning "Most-Favoured-Nation" (MFN) treatment and "National Treatment". Market access requirements under GATS are coupled with National Treatment.

12. With respect to all services covered by the GATS, each Member must treat the services and service suppliers of other Members on equal terms (MFN - Article II). Limited exceptions to the MFN principle allowing preferential treatment of another Member's services were listed by Members in an Annex to GATS and expire by 2005 (Annex on Article II Exemptions).

13. Members must also extend equal treatment to domestic and foreign services and service suppliers for those sectors identified in Members' commitment Schedules (National Treatment - Article XVII). Exceptions to the National Treatment requirement, which permit differential treatment of services based on country of origin, are noted in the Members' Schedules.

14. Finally, each Member must provide to other Members access to national markets in the services sectors identified in its commitment Schedule on terms "no less favourable" than those specified in the Schedule (Market Access - Article XVI). Unless expressly exempted in the Members' Schedules, the types of limitations on market access that are prohibited by GATS include restrictions on the number of service suppliers, the total value of services, the number of employees or the extent of foreign ownership (Article XVI:2).

15. A further guiding principle under GATS is transparency. Subject to emergencies or confidentiality, Members are required to publish measures – such as laws and regulations – that are relevant to the operation of GATS (Article III).

16. The need for participation by developing country Members – especially least-developed country Members – is also recognised in the GATS (Article IV). In negotiating commitments in the Schedules, Members should aim to strengthen developing country capacity in domestic services (including access to technology), improve developing country access to information networks and liberalise market access in sectors and modes of supply of export interest to developing countries (Articles IV:1 and XIX:2). The GATS also requires the WTO Secretariat to provide technical assistance to developing countries (Article XXV).

Modification, Withdrawal and Exceptions

17. There are limited circumstances in which Members can modify or withdraw from their obligations and commitments under the GATS. Exceptions to MFN treatment that were not included in the Annex on Article II Exemptions are permitted only by waiver of three-fourths of the Members in accordance with Article IX:3 of the Marrakesh Agreement Establishing the WTO (Annex on Article II Exemptions). Modification or withdrawal from commitments in Members' Schedules are permitted only three years after the commitment was made and the Member may be liable to pay compensation (Article XXI).

18. Despite the entrenchment of obligations and commitments under the GATS, there are a number of provisions that provide some flexibility in complying with the GATS obligations and commitments. In addition to the specific exceptions identified in the Annex on Article II Exemptions and the Schedules of Members' commitments, the GATS sets out general exceptions to its provisions (Article XIV). For example, provided it does not amount to arbitrary or unjustifiable discrimination or a disguised restriction on trade, Members are permitted to take measures necessary to protect human, animal or plant life or health (Article XIV(b)). Members may also take measures necessary for the protection of their essential security interests (Article XIV *bis*). Restrictions on trade in services are allowed in the event of serious balance-of-payments and external financial difficulties (Article XII). Disputes concerning the application of the GATS provisions, including the exceptions, would be resolved by the WTO's Dispute Settlement Body (Article XXIII).

Progressive Liberalisation of Services

19. The process of liberalisation of services under GATS is a gradual one. All liberalised services are covered by the MFN principle but only those services sectors that are submitted by Members will be subject to the market access and National Treatment rules. Members "opt-in" to the market access and National Treatment provisions only when they make commitments for nominated sectors in their Schedules. The GATS contemplates that commitments will be made in stages in accordance with its framework for gradual or "progressive" liberalisation of services (Article XIX). To this end, the GATS requires Members to conduct successive rounds of negotiations on services liberalisation, with the first round commencing no later than 2000 (Article XIX:1). As noted above, the special interests of developing countries and least-developed countries are to be taken into account in the negotiation of commitments (Article XIX:2).

20. The GATS also contains a number of provisions that require further negotiations on potential exceptions or barriers to trade in services. For example, MFN exemptions will be subject to review (Annex on Article II Exemptions). Members are required to negotiate on the question of emergency safeguard measures which would allow restrictions on trade in services in emergency situations (Article X). Negotiations on government procurement are also mandated by the GATS (Article XIII). Recognising the distortive effects that subsidies may have on trade in services, the GATS also requires Members to negotiate subsidy disciplines (Article XV).

Negotiating Perspectives

21. The nature of the GATS as an evolving framework agreement rather than a static set of rules is due in part to the opposing positions and unresolved issues that emerged when it was negotiated during the Uruguay Round. The United States, perceived to have a comparative advantage in knowledge and technology-based services such as finance and telecommunications, insisted on including services in the Uruguay Round of negotiations. Other Members, including developing countries, were concerned that America's strength in the area of services would overwhelm infant industries in their own services sectors. Developing country Members were additionally troubled by the importance placed on market access in the discussions on services. With only limited information about the potential benefits of services liberalisation, it was difficult for Members to assess the returns that would be gained in exchange for removing restrictions on foreign services provisions.[3] Ultimately, compromises were reached and the GATS came into force but principally as a framework for further negotiations under a "built-in" agenda.

[3] *See* Trebilcock and Howse, p.278ff.

22. The negotiations required by the GATS' "built-in" agenda have been on-going since it came into force in 1995 and have been conducted under the auspices of the WTO Council for Trade in Services. In 2000, a new round of negotiations on the liberalisation of services commenced and a stock-take of the progress of the services negotiations took place at the end of March 2001. Of particular importance for the March stock-take meeting was the need for agreement on guidelines for how the negotiations will proceed in the next phase. Developing country concerns that had not been addressed in prior drafts were, for the most part, reflected in the final text of the guidelines and procedures for the negotiations on trade in services which was agreed by the Members on 28 March 2001 (the "Negotiating Guidelines").

23. The Negotiating Guidelines have three parts: I. Objectives and Principles, II. Scope and III. Modalities and Procedures. The GATS objectives with respect to developing countries are reinforced in the Negotiating Guidelines and it is recognised that developing country Members' commitments may be subject to access conditions. Assessments of trade in services are to continue and the Negotiating Guidelines confirm that technical assistance is available to developing countries for the purposes of assessments. As far as progress on the substantive issues is concerned, it should be noted that of the 70 proposals on issues to be negotiated under the built-in agenda, very few have been submitted by developing countries. It remains to be seen what part, if any, the services negotiations will play in the Fourth Ministerial in November 2001.

II. Environmental Services and Environmental Issues in the GATS

24. The relationship between trade and the environment under the GATS is apparent in the types of services covered and the permitted exceptions. "Environmental services" – ranging from those related to pollution abatement to those associated with the delivery of clean water and hygienic sanitation – is a services sector that may be governed by the GATS. Environmental issues might also arise in the context of other sectors such as financial or tourism services. The general exception that permits derogations from the GATS disciplines where necessary to protect human, animal and plant life or health is another avenue through which environmental considerations can impact trade in services. Both trade in environmental services and reliance on the environmental exception have the potential to facilitate environmental protection. Efforts to protect the environment through trade in environmental services uses GATS in an active manner while national measures to protect the environment that fall under the environmental exception to GATS have the potential to limit trade in services.

Classification of Environmental Services

25. "Environmental services" is one of the twelve sectors identified in the GATT classification system. If a Member has liberalised its environmental services sector, trade in environmental services by that country will be subject to the MFN principle. If included in a Members' commitment Schedule, environmental services will also be subject to the GATS market access and National Treatment provisions. Certainty in the classification of sectors is crucial where Members are "opting-in" to market access and National Treatment coverage. It is important that only those services intended to be subject to the commitments are covered by the classification and that association with other sectors or sub-sectors is limited. If the classification is cast too broadly, it is possible that Members could find themselves being held to commitments for services that are incorporated "by analogy" to those specifically listed in their Schedules.[4]

[4] *See* Mina Mashayekhi, "GATS 2000 Negotiations Options for Developing Countries" *Trade Related Agenda, Development and Equity (T.R.A.D.E.) Working Paper 9,* South Centre, December 2000, p.39 ("South Centre").

26. In the same way that "services" are not defined in the GATS, the meanings of service sectors such as "environmental services" are not described in the accord. Nevertheless, there are four sub-sectors of environmental services that facilitate an understanding of what services are covered in this sector: (1) Sewage services; (2) Refuse disposal services; (3) Sanitation and similar services; and (4) Other environmental services. "Other" environmental services would presumably include the other CPC environmental services: cleaning of exhaust gases, noise abatement services, nature and landscape protection services and other environmental protection services not included elsewhere.[5]

27. Alternative frameworks for classifying environmental services have been developed in other inter-governmental fora such as the Organisation for Economic Co-operation and Development (OECD). The OECD's Joint Working Party on Trade and Environment has criticised the GATT-derived classification of environmental services currently in use by WTO Members as being too narrow and has proposed a "framework" approach to classifying environmental services. The OECD has pointed out that the GATT classification focuses only on "end-of-pipe" services that deal with environmental conditions after-the-fact rather than services that promote cleaner technologies and production.[6] The WTO Secretariat has indicated that modern environmental services that do not fit within the specific environmental services sub-sectors would be covered by the final sub-sector – "other environmental services".[7]

28. One of the problems encountered by those proposing to restructure the environmental services classifications is in the area of inter-sectoral services. Many modern environmental services could fall within the scope of the other GATT classification sectors, such as business, construction and engineering, education and tourism services. One of the features of the GATT classification system is that each sector is mutually exclusive so that services under one category should not also be covered by another category. This classification ignores the reality of integrated services, particularly in the area of environmental protection. However, recognising that Members have made commitments based on the current classification system, advocates for modernising the GATT classification for environmental services have sought to develop frameworks that avoid confusion of sectors and maintain the integrity of the other sectoral classifications.[8]

29. A further problem associated with the classification of environmental services is the relationship with environmental goods. Many suppliers of environmental services integrate their services with environmental goods, such as the manufacture, installation and maintenance of pollution control equipment.[9] Accordingly, it could be difficult to distinguish between environmental goods and environmental services. It is possible that the goods and services confusion in the environment industry will complicate the application of the GATS and, if it cannot be addressed through the sectoral classification, it might be left to Members to resolve on a case-by-case basis.

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[5] World Trade Organisation, Council for Trade in Services*, Environmental Services – Background Note*, 6 July 1998, S/C/W/46, para.6 ("WTO (1998)").
[6] Organisation for Economic Co-operation and Development, Joint Working Party on Trade and Environment, *Environmental Goods and Services: An Assessment of the Environmental, Economic and Development Benefits of Further Global Trade Liberalisation,* 5 October 2000, COM/TD/ENV(2000)86/FINAL, para.39 ("OECD (2000)").
[7] WTO (1998), para.9.
[8] OECD (2000), paras.51-2.
[9] United Nations Conference on Trade and Development, Commission on Trade in Goods and Services and Commodities, *Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector – Background Note*, 12 May 1998, TD/B/COM.1/EM.7/2, para.30 ("UNCTAD (1998)").

30. Environmental services can contribute to a cleaner environment. To the extent that GATS drives greater volume in the trade in these services, and access to new and more effective products and techniques, there would seem to be a positive correlation between the GATS and environmental protection. Environmental services include: environmental infrastructure services for water supply and waste management; controls on the pollution of air, water and soil; clean-up activities for soil and ground-water contamination; and support services such as data analysis.[10] The initial phase of environmental protection tends to favour end-of-pipe environmental services that deal with air, water and soil pollution after it has occurred. As laws and practices dealing with environmental pollution develop, the emphasis shifts to preventing environmental pollution and developing cleaner technologies that mean products can be made and consumed with fewer emissions and wasteful by-products. So-called "command and control" regulatory regimes that support end-of-pipe environmental protection play a lesser role as markets and economic incentives drive development of cleaner technologies.

31. Where related to essential public services such as water supply and sanitation, environmental services have typically been supplied by governments. These services generally require significant investments in equipment and infrastructure that cannot be recovered from individual consumers so costs are absorbed by the governments. The public orientation of environmental services has resulted in the emergence of “natural monopolies” operated by governments in the environmental industries of most countries.[11] As other traditionally government-dominated sectors such as telecommunications, health, education and transport have been opened to competitive markets, several governments have also explored ways in which the private sector can participate in the supply of environmental services. It is suggested that private sector participation will inject more innovation and efficiency into the environmental services industry. Where the environmental services sector has been liberalised, governments and local authorities are then the principal purchasers of the services.[12] In OECD countries, current environmental expenditure is split equally between the public and private sectors compared with developing countries where the public sector accounts for 70 per cent.[13]

32. In 1998, the world market for the environmental industry as a whole was calculated at US$484 billion, just over half of which was generated by environmental services.[14] Most of the operations providing environmental services were based in industrialised countries and approximately half of the suppliers are large companies, with the remainder comprising small operations servicing local markets.[15] Only one of the top fifty companies providing environmental services is from a developing country - a state-owned company in Brazil that specialises in water supply and wastewater treatment.[16] Although demand for environmental services in industrialised countries with established environmental laws and regulations is believed to have reached its peak, short-term growth forecasts for environmental services in the African, Asian and Latin American regions have ranged from 10 to 12 per cent.[17]

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[10] UNCTAD (1998), para.25.
[11] WTO (1998), para.3.
[12] UNCTAD (1998), para.14.
[13] WTO (1998), para.32; UNCTAD (1998), para.14.
[14] OECD (2000), Table 2, p. 8.
[15] UNCTAD (1998), para.17.
[16] UNCTAD (1998), para.17.
[17] UNCTAD (1998), para.15 and WTO (1998), Table 3.

33. These financial statistics for the global environmental industry market are based on models developed by the OECD and the Statistical Office of the European Communities (Eurostat) and might not be comprehensive.[18] However, the current financial analysis for the environmental services sector suggests that liberalisation and trade in services could generate significant economic returns for suppliers and consumers of the services.

Fostering the Environmental Services Industry

34. There are a number of conditions that are conducive to growth in the environmental services sector. These are known as "demand-generating" or "demand-side" factors.[19] Factors that foster environmental services include regulatory regimes initiated by governments, demands from the general public and industry initiatives designed to reduce operation and production costs.

35. Demand-side factors are largely a product of domestic environmental regulation and policy. Where environmental laws and regulations are created that set environmental standards and other requirements that are subject to monitoring, fines and penalties (known as "command and control" environmental mechanisms), services that facilitate compliance with those laws and regulations will be in demand. Market instruments, such as charges or taxes, might also be used by governments to promote clean production and environmental protection.[20] Again, environmental services that would assist in reducing charges or taxes through cleaner production would be in demand.

36. Other demand-generating factors include education about environmental impacts that creates demand for information – such as eco-labelling – about the environmental impacts. Public awareness of environmental effects generates consumer pressure to employ environmentally responsible "best practice" in accordance with voluntary industry-wide standards. There will be environmental services associated with education, information and consumer demands to comply with appropriate environmental standards.[21]

37. For the industry itself, operation and production practices that improve economic efficiency might be another demand-side factor for environmental services. Businesses might be motivated to explore ways to avoid or reuse waste if it will reduce operation and production costs. Environmental services that facilitate economic efficiency will be used by businesses.

38. Finally, it should be noted that liberalisation in other services sectors could also foster the development of environmental services. For example, tourism services might create a demand for environmental services in eco-tourism development. Construction and engineering services might also make use of environmentally sound technologies, creating demand in the area of environmental services.

Limitations to Trade in Environmental Services

39. As noted earlier, potential limitations to trade in environmental services – or "supply-side" barriers – are permitted under GATS with respect to MFN, market access and National Treatment if tabled in the Annex on Article II Exemptions or Members'

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[18] OECD (2000), paras.5ff; see also general discussion on inadequacy of services statistics in South Centre p17ff and Chakravarthi Raghavan, "Third World Still Terra Incognito on Services Data", *SUNS No.4617*, 1 March 2000, www.twnside.org.sg/title/incognito.html.
[19] UNCTAD (1998), paras.31ff; OECD (2000), paras.56ff.
[20] UNCTAD (1998), para.35.
[21] UNCTAD (1998), paras.38ff.

commitment Schedules. Trade limitations are also allowed under GATS to the extent that they fall within one of the GATS exceptions.

40. The principal modes of supply for environmental services – commercial presence and presence of natural persons – are vulnerable to a number of potential barriers to trade. These barriers are closely related to issues of foreign investment. Limitations applied at a general level to the establishment of businesses or movement of persons will have an impact on trade in services. For example, rules that require a business operating in a country to be locally owned or to partner with a local entity might restrict the supply of environmental services. Higher taxation of foreign entities or government subsidisation of local companies might inhibit trade in environmental services. Registration and licensing requirements for businesses or individuals might also constitute a barrier to trade in environmental services under GATS. Requirements on businesses to employ local people or immigration policies that restrict entry of non-citizens might impede the movement of consultants supplying environmental services. In connection with other modes of supply, restrictions on cross-border supply such as limited access to telecommunication networks required for Internet use would affect the supply of environmental services.

41. As noted above, the supply of core environmental services is dominated by government involvement in most countries. This makes the environmental services sector especially susceptible to the creation of monopolies that prevent participation from other suppliers. Even where there is scope for the supply of environmental services from non-governmental entities, the immediate purchasers of those services are likely to be government authorities and contracts might be awarded on an exclusive supplier basis. It should be noted that non-discrimination in the purchase of services by governments – or public procurement – is the subject of ongoing negotiations under GATS.

42. Some of the potential limitations to trade in environmental services might be desirable and justified in a broader context. For example, requirements to work with local partners might facilitate exchange of information and technology and use of local labour could ensure employment and training for local people. Regulations aimed at pollution control, licensing requirements based on safety or environmental standards and rules about the use and disposal of waste could all be justified on the basis of health and environmental protection. Subsidies for research and development of new environmental technologies or for upgrades to modern environmentally-friendly equipment might also be a means of environmental protection. Indeed, as noted earlier, domestic regulation itself can encourage growth in the environmental services industry.

43. If domestic regulations that have the effect of inhibiting trade in environmental services are nonetheless designed in a transparent and non-discriminatory manner, they need not fall foul of the GATS provisions. If Members have legitimate policy reasons for discriminatory measures, they can maintain those measures if they disclose them in the Annex on Article II Exemptions or in their Schedules. If a Member takes a measure that is discriminatory and it has not been carved-out of the GATS provisions in the Annex or the Schedules, then it might be possible to rely on one of the GATS exceptions, such as the protection of human, animal or plant life or health.

44. Where a Member has reasons to adopt a discriminatory measure that is not disclosed in the Annex or the Schedules and would not fall under a GATS exception, it will be difficult to implement the measure and it might be liable to pay compensation. Accordingly, before making a decision to liberalise and make commitments for the environmental services sector, Members should be confident that they are well-informed

of the risks and benefits and that any encroachment on their right to regulate is justified by the rewards.

III. Environmental Services and Developing Countries

45. The combined environmental and economic benefits to be gained from environmental services are perceived as promoting a so-called "win-win" outcome that should encourage governments to liberalise environmental services.[22] However, a decision by developing countries to pursue liberalisation of environmental services depends on a detailed assessment of individual country needs and the likelihood of benefits accruing to that country. The liberalisation of environmental services must also be placed in the context of services liberalisation as a whole and strategies developed with respect to environmental services must be consistent with the objectives being pursued at a broader level.

Potential Benefits from Trade in Environmental Services for Developing Countries

46. Environmental services that facilitate environmental protection are likely to be desirable in all countries, including developing countries. For those developing countries with significant environmental problems and inadequate resources to manage them, environmental services that can be supplied at a low cost would benefit their natural and human environments. Improved methods for water purification and sanitation services might be much needed in some developing countries, especially the least-developed among them. Where modern environmental services have not been developed on a domestic scale, health and environmental conditions in developing countries might improve with imports of environmental services from foreign countries.

47. If foreign environmental services are more developed than a developing country's domestic services industry, imported services could save the developing country money through more efficient and cleaner technologies. If knowledge and expertise in the provision of efficient environmental technologies were simultaneously transferred to the developing country population, the developing country could become self-sufficient in the conduct of the environmental services and develop its own industry and capacity for export to other countries.

48. At least one success story for the international trade of environmental services for a developing country can be found in Brazil. A public company in Sao Paulo, Companhia de Tecnologia de Saneamento Ambiental (CETESB), specialised in the import of environmentally sound technologies that it then adapted to local needs and conditions. The imported technologies were associated with the reduction of air pollution, clean-up of contaminated land, water-resource management and waste incineration. CETESB conducts environmental impact assessments of large construction projects and it has started a pilot project with a group of local private firms that is investigating means of progressing from end-of-pipe technology to clean technology. CETESB provides consultancy services in the Latin American region, profiting from its local adaptation of the imported technologies, and provides technical training courses for foreigners.[23]

49. Partnerships between industrialised and developing country firms have also generated opportunities for trade in environmental services. For example, joint ventures between foreign and local firms in Indonesia and Korea have been successful in attracting

[22] OECD (2000).
[23] UNCTAD (1998), Box 4.

lucrative contracts in water and waste management.[24] A series of OECD case studies on foreign participation in the provision of water and waste management services in developing countries attest to significant environmental and economic benefits for the host country.[25]

Survey of Commitments on Environmental Services

50. GATS commitments for environmental services have been made by 38 WTO Members, the majority of which are developed or East European countries.[26] In the Asian region, Japan, Korea and Thailand have made GATS commitments. In Central and South America, Colombia, Ecuador, El Salvador and Panama have made GATS commitments. African countries that have made GATS commitments are Central African Republic, Gambia, Guinea, Lesotho, Morocco, Rwanda, Sierra Leone and South Africa.[27] The sub-sectors in which commitments have been made vary from country to country. The modes of supply typically relevant to environmental services are commercial presence and presence of natural persons, although there is some scope for cross-border supply and consumption abroad for environmental support services such as data analysis.[28]

51. There is no comprehensive data available that would provide a basis for assessing the impact of commitments made with respect to environmental services. It is therefore not known whether the costs represented by limitations on domestic regulatory control are outweighed by the benefits in terms of environmental protection and economic efficiency.[29]

Developing Country Assessments of Conditions

52. The threshold question for developing countries that have not made commitments in the environmental services sector under GATS is whether they would benefit from the liberalisation and trade of environmental services. Developing countries are not a homogenous group and each operates under different conditions and needs. Each WTO developing country Member should assess its environmental conditions and the current status of the environmental services sector on a national level to determine whether its environmental conditions could be improved through commercial participation in the provision of environmental services. The extent of government involvement in supplying the existing environmental services will be a significant factor in the assessment. The greater the public involvement, the more complex the transition is likely to be.

53. If a need for better environmental services is identified, it must then be considered whether imports of environmental services would improve the developing country's capacity to increase the quality of environmental protection and decrease the costs associated with it. Here, the experience of other like-situated countries that have imported environmental services could be helpful. An assessment of the impact of liberalisation in the environmental services sector in those countries that have made commitments under GATS might provide guidance for other countries contemplating

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[24] UNCTAD (1998), para.53.
[25] OECD Joint Working Party on Trade and Environment, *Environmental Services: The "Win-Win" Role of Trade Liberalisation in Promoting Environmental Protection and Economic Development,* 11 September 2000, COM/TD/ENV(99)93/FINAL.
[26] WTO (1998), para.46; UNCTAD (1998), para.46.
[27] WTO (1998), Table 8.
[28] UNCTAD (1998), para.45.
[29] See general discussion on statistical inadequacies in South Centre and Raghavan.

liberalisation of environmental services. Technical assistance for assessments is available to developing countries and should be requested from the WTO.[30]

54. Each developing country Member would also need to determine whether liberalisation and trade in environmental services should be a priority in the broader context of its domestic policy framework and how liberalisation in the environmental services sector would relate to its wider policies on services liberalisation under GATS. In deciding whether to liberalise environmental services, each developing country Member would need to take account of any resulting limitation on its ability to regulate on broader public policy grounds or any inconsistencies with its general position on services liberalisation.

55. If developing countries are tending towards disengagement from the services negotiations out of concern that they have nothing to gain from the process, the potential benefits of trade in environmental services could be cause for reflection. Where private participation in the environmental services sector is likely to improve the quality of the existing environmental services and facilitate environmental protection, developing countries might be receptive to liberalisation of the sector. If the environmental services sector could grow into an export industry, developing countries might be encouraged by the potential revenues that export could generate. To the extent any developing country has reservations about the broader consequences of liberalising environmental services, it might be able to accommodate its concerns through the negotiation of protections in its commitments. In negotiating commitments, developing countries should make full use of the requirement that their needs must be taken into account in the negotiations (Article XIX:2).

56. It is also possible that, as a strategic matter, liberalisation of the environmental services sector could be offered in exchange for other concessions sought by developing countries. For example, developing countries might insist on broader commitments in all sectors with respect to the movement of natural persons. Current agreement and commitments for this mode of supply are limited to professionals and senior management, excluding a large trade labour workforce from developing countries.[31]

57. A further consideration is that there are degrees of liberalisation and developing country Members might want to explore options for partial liberalisation. If governments continue to be involved in the provision of environmental services in a limited capacity, such as through ownership of infrastructure, or arrange for public ownership of the assets to revest after a period of private ownership, they could maintain a level of control that might be undermined by full liberalisation.

58. Developing countries should also bear in mind that the issue of liberalisation of environmental services is being discussed in a number of international fora and it might be appropriate to explore the question of environmental services liberalisation in fora outside the WTO, particularly where those fora can bring an additional development dimension and are open to the full participation of developing countries. In addition to the WTO's Council on Trade in Services, UNCTAD's Commission on Trade in Goods and Services and Commodities and the OECD's Joint Working Party on Trade and Environment together with its Trade Committee projects on services barriers, are also investigating the issues surrounding the liberalisation of environmental services.

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[30] GATS, Article XXV and the Guidelines and procedures for the negotiations on trade in services, 28 March 2001 ("Negotiating Guidelines").

[31] South Centre, p19-21; see also South Asia Watch on Trade, Economics and Environment, "Services Trade Liberalisation in South Asia", *Briefing Paper No. 1*, January, 2001.

59. If a developing country determines that the benefits of liberalisation of the environmental services sector are greater than any negative consequences, it would then be necessary to determine what should be done to foster the growth of the environmental services sector and promote private participation in the sector. It will be necessary to develop "demand-side" factors and try to address the "supply-side" limitations. While the initial phase of a liberalisation strategy should focus on building domestic capacity in the environmental services sector, Members should be mindful of ultimate export opportunities when negotiating their commitments.

60. A comprehensive environmental regulatory regime with adequate enforcement mechanisms is most likely to encourage growth in the environmental services sector. Public participation and transparency in the establishment and enforcement of the regulatory regime will make it more legitimate and reliable. There might also be market conditions and incentives that could encourage import of environmentally sound technologies ahead of end-of-pipe solutions. For example, adequate protection of intellectual property rights will facilitate the import of technologies. Information, training and workforce capacity will need to be made available to support the import of environmental services.

61. Developing countries will also need to consider what kinds of conditions might attach to trade in environmental services and make sure that these are taken into account in the negotiations in accordance with the Negotiating Guidelines.[32] For example, if it will facilitate transfer of technology and the growth of domestic capacity, requirements that foreign firms partner with local companies might be an important "limiting" measure to be included in a Member's commitment Schedule. It might also be necessary to provide public sector funding in the early stages of any new environmental regime and this will need to be considered in the context of the subsidies negotiations under GATS. Mandatory percentages of local labour employment and reinvestment of a percentage of profits might be additional limitations on trade in environmental services that could be justified on broader social policy grounds and might need to be factored into the commitments.

62. Not all of the requirements that might attach to trade in services will offend the GATS provisions and it is important to design them so that they do not or else seek specific exemptions. Ultimately, the goal should be one of regulated liberalisation that finds an appropriate balance between factors that will facilitate trade in services and those that will ensure that such trade is conducted in accordance with domestic policies and priorities.

[32] Negotiating Guidelines, Part III.

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