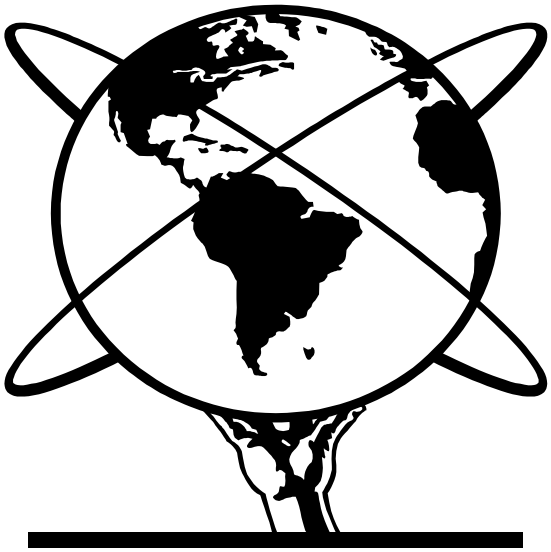
The International Experts' Meeting on Sustainability Assessments of Trade Liberalisation

Quito, Ecuador,
6-8 March 2000
FFLA & WWF

Full Meeting Report



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Foreword

The collapse of the WTO Ministerial Conference in Seattle can be attributed to a multitude of causes, which range from real and deep divisions about the scope of the negotiations to public protest against globalisation, and the failure to effectively address developing countries' concerns and priorities. Some argue that the conflicts of positions that arose around 'non-trade' issues resulted in a large setback for sustainable development. On the other hand, the slow pace of the negotiations in Geneva provide time and opportunity to identify innovative approaches and solutions to key concerns on trade and sustainable development. One of these possible approaches is the assessment of the developmental and environmental effects of trade agreements

Such assessment, referred to as environmental or sustainability assessment, is emerging as a useful tool to improve understanding of the linkages between trade policy and environmental and social change. In this context, the International Experts' Meeting on Sustainability Assessment of Trade Liberalisation, co-organised by WWF and Fundación Futuro Latinoamericano, 6-8 March 2000, provided a unique and timely opportunity for more than 100 representatives of governments, intergovernmental bodies and NGOs to discuss the purpose, utility and policy relevance of sustainability assessments.

The Experts' Meeting, chaired by the governments of Ecuador and the Netherlands, proved that constructive, multisectoral dialogue is possible on such a complex issue. Participants made clear that there is interest in sustainability assessments as tools to facilitate the consideration of economic growth and social and environmental variables in trade-policy making. However, concerns were also expressed about their potential use as instruments of 'green conditionality' in international economic relations. It was therefore emphasised that the building of trust is essential for the further development of sustainability assessments.

While the meeting provided a real and much needed assessment of the ‘political temperature’ around the issue of sustainability assessment, it went beyond a mere exchange of views: a number of concrete recommendations, including areas for future work, were identified as a result of this collective exercise. These include, among others, the need for enhanced information exchange and continued dialogue at all levels; further development of assessment methodologies; building experience and partnerships at the national and sectoral levels; and involvement of all interested stakeholders in the assessment process.

The results of the Experts Meeting were presented by the host Government -Ecuador- in cooperation with the Government of The Netherlands, at the Eighth session of Commission on Sustainable Development in April 2000 in New York, with the support of several government delegations who participated in the meeting. If negotiations proved to be difficult in a charged political context such as the one experienced during CSD-8, they also clearly pointed out the need for dialogue within and between countries to ensure that their respective trade decisions are fair and equitable to all. By informing policy-makers about the potential economic, social and environmental implications of the trade agreements they become party to, environmental and/or sustainability assessments are precisely intended to help them identify where their country's interests lie and how different negotiating outcomes will affect their domestic economies, in environmental and developmental terms. As a result, assessment processes will help national governments develop coherent policy responses that integrate environment and development objectives, and are conducive to a more sustainable global trade context.

The human and environmental stakes are simply too high to move ahead with liberalisation without taking full account of the impacts on the ground. The Experts' Meeting on Sustainability Assessment of Trade Liberalisation constituted a first step towards laying the foundations of trust between developed and developing countries on these issues. The process of establishing a workable relationship and constructive dialogue needs to continue. We hope the Experts' Meeting and its follow-up activities have made a real contribution in launching it.

FFLA and WWF
November 2000

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1.1. Conclusions of the Chair

1.1.1 Introduction

An International Experts' Meeting on Sustainability Assessment of Trade Liberalisation was held from 6 to 8 March 2000 in Quito, Ecuador. The meeting was co-organised by the World Wide Fund for Nature (WWF) and Fundación Futuro Latinoamericano (FFLA).

The meeting was held as part of the response to decisions made in 1994 at the Commission on Sustainable Development (CSD) on the importance of developing a framework to facilitate the assessment of the environmental impacts of trade policies within the overall framework of promoting sustainable development. Given that trade, environment and sustainable development are being discussed at CSD-8 in the context of Agenda 21 and the Programme for the Further Implementation for Agenda 21, it was felt that this meeting could provide a valuable input to the CSD deliberations.

The objective of the meeting was to explore and discuss the purpose, characteristics, policy relevance and effectiveness of sustainability assessments (SAs). It was structured as a three-day meeting divided into plenary sessions with formal presentations and sessions in working groups. The document - *Background Material Prepared for the International Experts' Meeting on Sustainability Assessments of Trade Liberalisation, 6-8 March 2000, Quito, Ecuador* - produced by WWF and FFLA, was provided to participants beforehand.

On Monday 6 March, participants were divided into six working groups to consider general approaches to methodologies. The discussions in these groups have been summarised in the Report from Breakout Group #1. On Tuesday 7 March, the working groups focused on economic, environmental and social perspectives of sustainability assessments. The Report from Breakout Group #2 provides a synthesis, and suggests constructive evolution in the discussions.

Close to 100 individuals from 30 countries attended the meeting including governments, international organisations, NGOs and academia, and from the trade, environment and development communities (Annexes 4.2).

The meeting was a unique opportunity for an open exchange of views and experiences among such a wide range of stakeholders. The discussions addressed the role and utility of SAs, concerns and potential obstacles (notably the need for trust among countries, purpose and value added of SAs compared with Environmental Impact Statements), as well as practicable steps that would facilitate the application of SAs.

This summary and its annexes do not constitute a consensus document and may not reflect the views and positions of all participating governments and organisations. However, the discussions produced the following results in terms of areas of emerging common interest and need for further exploration.

1.1.2 Results

Main General Conclusions

- ♦ There was a general recognition that SAs can be important tools to improve the quality of political decision making by enhancing the understanding of the complex relationships between trade and sustainable development;
- ♦ It was concluded that SAs should not be limited to *trade liberalisation* but extended more broadly to *trade policy;*
- ♦ It was also agreed that the development of SAs are still at an early stage and that there is a need to further elaborate the definition, purpose and scope of such assessments. The meeting stressed the need for international cooperation in this field;
- ♦ In addition, this elaboration requires the building of trust, which critically depends upon SAs not being used as a prerequisite for countries to participate in trade liberalisation and countries being free to choose their own (tailor made) approach to assessments.

Purpose of Sustainability Assessments

- ♦ SAs should be designed so as to ensure their policy relevance and their ability to inform policy-making. The purposes of SAs can include, but are not necessarily limited to, the following:
- ⇒ To identify critical environmental, social or economic impacts of trade policy (including improved market access or, conversely, impediments to market access);
- ⇒ To incorporate environmental and social considerations into trade-related political decision-making, *inter alia*, by identifying and possibly quantifying trade-offs between economic, social and environmental objectives;
- ⇒ To inform decision-makers on the various consequences of joining trade agreements, and help develop national negotiating positions;
- ⇒ To contribute, at the national level, to the identification of appropriate domestic (flanking) policies that mitigate potential negative impacts or enhance positive ones, such as ensuring additional availability of finance, technology transfer and/or considering other avenues that can facilitate the

achievement of sustainable development, like income policy, education, emancipation, capacity building;

⇒ To facilitate coordinated decision-making, for example, between trade, environment, fiscal, economic and development officials at the national level;

⇒ To identify how trade and economic growth can promote sustainable development.

♦ It is up to each country, before undertaking a SA, to clearly specify the purpose of such an assessment. The purpose and availability of means determine the definition and scope of SA.

Definition and Scope

♦ Individual countries are responsible for defining and interpreting sustainability assessment based on their own context. Priorities and specific aspects to be included depend on the circumstances of each country, including their differing degrees of development and the issues under assessment. Therefore, countries may choose to limit or broaden the scope of an SA based on the need to effectively manage the exercise, on capacity and/ or on national political priorities.

♦ However, since many (trade related and non-related) factors may reinforce each other, SAs must include the broadest range of relevant economic (including fiscal), environmental and social considerations that is achievable, without losing the required depth for identifying the fate of vulnerable groups in society;

♦ In cases of regional trade or environmental interdependence, the national analyses may be merged to the regional level, as appropriate.

Building on Experiences and Existing Tools

In several areas of analysis that may contribute to SAs, much experience has been gained and important progress is being made. These areas include environmental impact assessments (EIAs), cost benefit analysis (CBA), economic and bio-economic models, sensitivity analysis, including scenario building, survey techniques and case study methodologies. In addition, there are a number of approaches in developing countries related to assessment, such as the Extended Domestic Resource Cost Approach (EDRC) that can contribute to the further development of SAs. It is essential to build on these developments, as well as on their application, and share among countries the methodologies and experiences in applying them.

Stakeholders Involvement

♦ The involvement of stakeholders, including governments, NGOs, the private sector, academia and affected groups, is important in the design and application of SAs. Much of the relevant quantitative and qualitative information, as well as skills to undertake assessments, are in the hands of business, civil society and academia;

♦ The early involvement of stakeholders in SAs will contribute to their ownership of the process and will ensure that the conclusions of the assessment are as well informed as possible. In addition, the inclusion of stakeholders and their participation in assessments will enhance the applicability and effectiveness of policy measures, and contribute to capacity building.

Capacity Building

Sustainability assessments cover a wide range of issues and can be very complex. Therefore, a high level of capacity is required to develop, implement and interpret SAs. The need to build or strengthen capacity was emphasised. International organisations or other forms of international cooperation might appropriately contribute to building such capacity at the national level.

Areas for Further Work

Several areas for further work on SAs were identified by the participants. They include:

a. Continuing the International Dialogue

♦ To build trust in the development and use of SAs through further discussion and dialogue, research, case-studies, information and experience sharing and, in particular, the inclusion of all interested countries and organisations in assessment processes;

♦ To further explore how SAs, as one of many analytical tools, can best offer opportunities to promote sustainable development, particularly in developing countries

b. International Information Exchange:

♦ To develop inventories / libraries that are easily accessible by all interested parties, e.g., by electronic means, of:

⇒ Approaches to quantitative and qualitative assessments, which can include check-lists of key elements to be considered and procedural guidelines;

⇒ Applicable methodologies and their relative strengths and weaknesses, highlighting which methodologies are particularly suitable for what policy questions;

⇒ Important (case) studies that can serve as reference material;

⇒ Definitions and time series of indicators for economic, social and environmental development, in particular those that help provide information on possible trade-offs between these aspects;

⇒ Relevant resource materials such as data(bases) and forecasts of variables that determine important underlying assumptions, in particular regarding various aspects/factors of world trade and economic, social and environ-mental conditions.

c. Development of Assessment Methodologies

♦ To build upon the information and key findings of inventories of approaches to assessment as well as relevant case studies;

♦ To strengthen the social dimension of SAs by developing appropriate methodologies to assess social impacts in their own right, in particular with

respect to people and communities living and working at subsistence levels. This includes the further development of methodologies that allow for sufficient sectoral as well as spatial (local) details;

- To further examine the potential utility of SAs with respect to addressing transboundary effects.
- To develop, where relevant and on a voluntary basis, regional and/or international cooperation in under-taking assessments.

d. Stakeholders Involvement

- To promote better participation of the private business sector;
- To identify key entities and institutions that are working on assessment issues world wide with a view to establishing networks;
- To encourage collaborative work between developed and developing countries on SAs.

On the first day of the meeting, the participants broke into six groups to discuss general issues related to sustainability assessment and methodologies. Even though some areas of emerging consensus were identified, the following are not necessarily points of agreement but a recollection of the main ideas discussed.

1.2.1 Purpose of Sustainability Assessment

- There is a consensus on the need for improved understanding of the links between trade and sustainable development. However, there are still doubts about the role and utility of sustainability assessments (SAs);
- A fundamental question addressed by all groups related to the purposes of SA and the need to spell them out clearly. Some participants were sceptical of the value of sustainability assessments; others were not convinced that the need for sustainability assessments has been fully established, particularly in developing countries, and others supported the development of SAs at the national level;
- Several participants raised the question of the value of going beyond environmental impact assessments (EIA), given that many developing countries are just beginning to assimilate EIA processes. In addition, two groups made the point that if an SA cannot be fully comprehensive, it is preferable to concentrate on further developing existing approaches such as EIA. By bringing into the analysis the different aspects of the particular context in which the EIA is conducted, it was said, an EIA would more or less naturally evolve into a full-fledged SA;
- While recognising that SAs are complex, some suggested that this should not prevent exploring the concept and practice of SA and its potential as a tool for management.

1.2.2 Definition of Sustainability Assessment

- Recognising that SA is a new concept to many, it was pointed out that before discussing the necessity of such assessments, one needs to define what an SA is and what “sustainability” means in this context. In doing so, it was said, the definitions of environmental impact assessments (EIAs) and strategic environmental assessments (SEA) should also be considered. Some emphasised that language could be a problem exacerbating differences and disagreements;
- Several groups emphasised that each country should define and interpret SAs within its own context – development and sustainable development are relative and do not mean the same to everyone;
- There was disagreement as to whether SAs could really encompass all three components of sustainable development, i.e., economic, social and environmental impacts. One group suggested that trade-offs should be made explicit in the application of SA. Some participants felt that it would be useful to have some guiding principles, including common denominators, setting out definitional parameters on SA. Others emphasised the voluntary nature of this tool;
- The view was expressed that clear definitions are not necessary, as the definition of SA should be adapted to the purpose and the specific exercise

1.2. Report from Breakout Groups # 1

conducted, which will vary from country to country. However, one group attempted to produce a definition of SA as follows: *the purpose is to make sure that countries do not leave things out of the decision-making process and fill in the gaps where typical market analysis fails*.

1.2.3 Trust

- The issue of trust was raised in all the groups. One group suggested that there exists a large credibility gap and that the debate might still be premature. Others noted that it is necessary to build trust around the development of SA to address, among other things, the concern that SAs may be used as barriers to trade. It was observed that classifying countries' trading behaviour using SA criteria could influence market access and possibly access to credit by developing countries;
- One group suggested the following elements to help build trust:
  - ⇒ Adopt a process that ensures that all countries are equally represented in the discussion;
  - ⇒ Adopt a process for developing SA that is very transparent;
  - ⇒ Clarify the definition of SA;
  - ⇒ Develop SA through a step by step process that takes into account different conditions in countries;
  - ⇒ Adopt an ex-post approach (e.g. assessment of the Uruguay Round Agreements).
- Another group noted that one way to build trust would be to undertake assessments of the absence of trade liberalisation in developed countries. It was also said that trust is important to build capacity.

1.2.4 Level of Assessment

National Level

- There seems to be broad consensus among the groups that SA should be undertaken at the national level as a tool for developing domestic policies, and some suggested as a tool to encourage coordination among different ministries. SA could also be useful to develop national negotiating positions for future trade negotiations, and to provide transparency in the analysis and development of those positions.

International Level

- The international level gave rise to a wider divergence of views. In some groups, there was little support for international processes of assessment. One group suggested that a general common framework for SA could be developed, but the feasibility and desirability of this was questioned, especially from the perspective of developing countries.
- Another group suggested that international processes could be used for sharing information about SA. Other participants noted that in order to consider trade issues, one has to go beyond the national level. There may also be value in undertaking SAs at the global level to guide global environmental governance, particularly regarding transboundary and global pollution concerns. Others extended this value to bridging the gap between rich and poor within and between countries. However, the question was raised as to what the methodology would be, who would develop it, and who would implement it to ensure trust and objectivity.
- Other arguments in support of international approaches to assessment included:
  - ⇒ Sustainable development can be understood as the "space" where the concerns of developed and developing countries meet and are reconciled or negotiated; SA could be a useful tool to inform the construction of this space (sustainable development) and find the appropriate points of reconciliation of the different concerns;
  - ⇒ The notion of sustainable development addresses issues of concern to the people, such as poverty, and SA could be used to indicate how to address these problems; the demand for SA could therefore be considered to come from "bottom-up";
  - ⇒ SA can improve the transparency of international negotiating processes and generate useful information.
- While not endorsing a multilateral approach, one group suggested that SA might be useful at the regional/subregional level as part of the process of working together and building trust among like-minded countries. One group discussed the possibility of developing a framework from which national governments could select the tools needed for national assessments;
- Participants discussed the question of linking SA to multilateral trade talks. Many participants felt that SA should be "de-linked" from WTO or any new round of trade negotiations. Others felt that it was necessary to keep some linkages to trade talks. The content of such SA should be clarified and, above all, multilateral assessments should not take place at the expense of national assessments. It was also said that WTO members who wish to do their own assessment of WTO-led trade liberalisation have the right to do so.

1.2.5 Participation

- All groups noted that SAs should be conducted with the benefit of broad participation from relevant stakeholders. Some added that this participation should come at an early stage in the design of SA. Others emphasised the need for participation of government officials at the national level. The importance of clarifying who would conduct SA was pointed out;
- It was also mentioned that participation should imply the involvement of developing countries in engineering SA, should they agree to develop such assessment processes.

1.2.6 Methodology

- In general there was agreement that there is no single method for conducting assessments. SA methodologies should be adapted to the situation of each country;
- With respect to the scope of SA, several groups mentioned that SAs should be broadened to include issues such as debt relief, changes in macroeconomic policy, technology transfer, governance and institutional setting, poverty, health and education. In this regard, one group noted that a fundamental weakness of SAs is that they are developed from the narrow perspective of trade liberalisation focusing, for example, on commodities, and not taking into account constraints to development, institutional weaknesses and structural problems in general. One group noted that since there needs to be a starting point in the assessment process, trade may be that point. In this regard, it was said that if the focus is on trade, an extended EIA might be sufficient;
- Mention was made of the importance of examining the impacts of a broad range of policies (including trade policies) on the objectives of national strategies for sustainable development;
- Longer-term sustainability effects should also be considered. Doubts were raised on what indicators would be used to assess impacts on the three elements of sustainable development. It was said that indicators should be both quantitative and qualitative and that flawed indicators would provide distorted pictures;
- There is a need to develop an inventory of approaches, methodologies, data requirements at national and international levels, and identify gaps in analysis and data, as well as address government and market failures, which contribute to unsustainability.

1.2.7 Capacity Building

- The need to build capacity in developing countries was emphasised. It was noted, however, that human capital is often available in these countries, but financial resources to undertake the necessary research is scarce. One group raised the question of how to build capacity in an area that developing countries have not worked on, and concern was raised about efforts to build capacity to implement a concept in the elaboration of which they did not participate;
- One group suggested that the role of international organisations in assessments might be to compile national experiences, provide access to technology, information and financial resources, and enhance human capital. Another group noted the importance of the need for capacity building at the national level, both in terms of implementing a methodology but, more importantly, for managing the links between trade and environment.

1.2.8 Policy Relevance

Two groups identified the need for monitoring, follow up and evaluation of the outputs of SAs. At least with regard to national level assessments, one group suggested that SA must go beyond documents that provide theoretical recom-mendations to providing a practical strategy or action plan. The group suggested selecting appropriate champions or key supporters, the coordination of various agencies and sectors, effective mechanisms for information sharing and for communication of the SA results.

On the second day of the meeting, participants were asked to look at economic, social and environmental processes that are important to consider in sustainability assessments. Six groups (two on each type of process) were formed. Even though some areas of merging consensus were identified, the following are not necessarily points of agreement but a recollection of the main ideas discussed.

1.3.1 Economic Perspective

General Considerations

- Some participants emphasised the issue of trust, saying that there seemed to be a certain perception by developing countries that there is a hidden agenda behind SA methodology. This distrust can be overcome if SA is thought of as a predominantly analytical tool, as opposed to a potentially standard setting one;
- No value judgement can be made on the merits of SA since it has not been sufficiently developed yet;
- SA methodologies need to be further improved, with the participation of developing countries and the assistance of international organisations, to incorporate priorities specific to developing countries, particularly on the social dimension. There are many possible definitions for the term sustainability in this context. Therefore, it has to be flexible and leave enough degrees of freedom according to the needs of its users;
- No scope of application of SA should be predetermined. It could be local, national, or even regional;
- The implementation of this tool should be undertaken on a voluntary basis.

Specific Considerations

- Pluralistic approach – each country has the right to choose the economic approach most suitable to its economic, social and environmental conditions.
- Level – Assessments generally will be performed for the national level, but within a framework that permits the analysis of spatial variation relevant to local economic, environmental and social effects, and that uses micro-level experiences. In cases of regional trade or environmental interdependence, the national analyses can be merged to the regional level. Global economic factors, such as world price shifts, that affect the national and regional analyses should be incorporated. Incremental/ marginal analyses are preferred.
- Linkages – Economic analyses should include interdependencies over time and space and other linked components. SA is not a three-legged stool, but should portray a continuum of trade-offs.
- Baseline – Specify initial economic, environmental and social conditions from which to estimate the effects of trade liberalisation, including regulatory institutions and distributional context.
- Trade liberalisation policy versus broader macro policy analyses – A focus on the effects of trade liberalisation helps to keep the analysis focused and manageable. Where other macro policies are directly linked with trade liberalisation as a package of policy change, the analysis needs to capture those cause-effect feedback linkages.
- Policy interface – account for domestic policy and global economic governance as appropriate.
- End variables – Define the economic variables that are of interest as economic measures, e.g., income, employment, poverty changes, output and factor, labour changes, and that drive environmental and social processes.
- Industrial organisation – The nature of competitiveness of the domestic and trade markets, e.g., oligopoly, should be specified to condition the estimates of the economic end variables.
- Dynamic framework and analysis – The assessment should be framed dynamically to capture intertemporal feedback effects, such as for economic-environment linkages, and for intergenerational economic and social effects. Where data and analytical methods permit, the analysis should incorporate the dynamic effects.
- Valuation – The economic variables should be assigned non-distorted market values. There was disagreement about assigning economic values to non-market environmental variables, such as water quality changes.
- Policy response – The analysis should be cast and conducted in such a manner that it will give information relevant to policy decisions.
- *Ex-ante* versus *ex-post* – The SA should where possible be conducted to inform the trade and other policy processes. *Ex-post* analyses can be useful, however, in understanding the economic, environmental and social processes at work to inform future SA.
- Uncertainty – All economic, environmental and social processes and effects are subject to uncertainty. Point estimates of variables are rarely desirable in describing the potential effects. Where processes are subject to significant uncertainty, sensitivity analyses should be incorporated into the SA.

1.3.2 Social Perspective

General considerations

- There was general consensus on the importance of assessing the social impacts of trade liberalisation. Any SA must have a substantial social impact component. The potential for the greatest variability between countries lies here. Moreover, the threats to peace and security that can result from failure to address social impacts make them an important area for assessment. Social impacts should be considered in their own right, not simply in relation to other areas such as environmental impacts.
- Perceptions on which social impacts are the most important to address, and corresponding policy priorities, vary greatly between countries, and a differentiated, country by country approach should be taken.
- A general difficulty lies in the need to connect social impacts with trade liberalisation. Identifying "transmission chains" between trade liberalisation and social impacts is one way to make the links. Similarly, a socially defined notion of "risk" in relation to adjustment to trade liberalisation is a concept that can help to isolate trade-related impacts.

Impact Parameters

- *Poverty* -Poverty needs to be addressed as an overriding parameter;
- *Employment effects*, e.g., changes in the composition and location of jobs, the impacts of jobless growth;
- *Cultural changes,* e.g., resulting from increased numbers of women farmers;
- *Income distribution* - Distributional effects, including trade-offs between different social groups;
- *Food security*;
- *Access to natural resources* - Parameters relating to access to and relationship with natural resources, e.g., biodiversity, land use;
- *Migration* - including migration from countries of the South to the North as a result of liberalisation, and security impacts consequent upon migration;
- *Access to basic services* - Access to basic services such as water, energy, transport and

1.3. Report from Breakout Groups # 2

communication;

- *Sustainable development* - Four parameters of "(un)sustainable development", namely values and lifestyles, socio-economic structure, knowledge, and population; and, to some extent, education and health, though these parameters also reflect potential policy responses.

Things to Focus on

These are likely to differ from country to country, as will perceptions of which impacts are the most nationally significant, but include the following:

- Impacts on communities and people living and working at subsistence level;
- Reduction in self reliance of communities or social groups;
- "Vulnerable groups" including indigenous peoples, and children;
- The "informal sector" or "popular economy", which can in many countries be very significant both socially and economically;
- Finally, there is also a need to integrate a gender specific perspective at every level of analysis.

How to do it

- An appropriate starting point would be to consider the particular economic sectors that will grow or contract as a result of liberalisation, in each case gathering sectoral data. There is a need to make the most of already existing information here, though it also needs to be recognised that in some cases, a creative, "data generating" rather than "data driven" approach will need to be taken.
- Identify the particularly vulnerable groups to be a focus for the analysis under the various "impact categories".
- As a next step, consider what are likely to be the "transmission links" between trade and social impacts – examples might include the fiscal system, the degree of sectoral specialisation, and property rights. Alternatively, a creative approach to development of indicators could help to identify the links between impacts and trade liberalisation.
- In many cases, e.g., employment, food security and migration, data and analytical methods are well established. However, a qualitative assessment approach is also important, particularly in relation to the "newer" parameters, such as cultural and lifestyle changes.
- It is important to proceed with the participation of the full range of stakeholders in potentially affected sectors, e.g., through use of interdisciplinary "expert panels", and a wide range of approaches such as field level assessment, ethnographic studies etc. In short, a mixture of qualitative and quantitative approaches is important.
- If assessment is to move beyond the country level to the international arena, it will be important to select indicators that mean the same to everyone. Regional cooperation bodies may play a valuable role here.
- A potential distinct stage in the analysis is to consider the effect of trade liberalisation on the tools available to government to effectively address social impacts.
- Finally, consider and evaluate potential policy responses. One participant suggested that consideration should also be given to developing an accountability mechanism applicable to government failure to respond to identified social impacts.

Next Steps

- Begin with some case studies;
- Start generic work to identify "transmission factors" that form the bridge between social impacts and trade liberalisation.

Trust

- The conditions of trust necessary to carry out a social impacts assessment at national level are generally present. The difficulties begin when the assessment proposed is to be carried out at international level under a rule-making organisation.

1.3.3 Environmental Perspective

Purpose

- There is no consensus on whether EIAs or SAs are preferable as an approach. The definition of EIAs can include social and economic impacts. Each country has to make its decisions regarding what to include, but the definition of EIA or SA has to be clear in each application.
- Assessments are a planning tool for coordinated decision-making in the context of trade policies and are directed at enhancing positive impacts and mitigating negative impacts (rather than mere impact assessments). SAs are dynamic and ongoing processes.

Participation

- There is a need to improve the level of participation – cross-sectoral and North-South. Sustainability is about consensus building. All relevant actors should be involved from the beginning. There is a need for appropriate tools and mechanisms. People need to know what their rights and obligations are.

Trust

- Credibility in the institutions involved in assessments is crucial. Cooperation between countries and institutions should start from the beginning to build confidence.
- It is possible to develop a set of general guidelines on which to build SA. These guidelines must be acceptable to developing countries. General guidelines for assessment developed at the international level could help in the development of SA at the national and sub-regional levels. These guidelines would not reflect mandatory requirements and should be used on a voluntary basis. Procedural guidelines (related to participation, credibility, trust etc.) would help to do a SA. Other aspects, including for example a checklist of indicators that might be taken from the CSD report on indicators could be useful. These guidelines should be developed by UN institutions.
- A sample of such guidelines required for good assessment might include the following:

a. Objective
There should be a clear definition of the objective and the context of the assessment.

b. Responsibilities
The roles of different ministries and other actors should be identified. There is no one single institution that is appropriate for all assessments. Responsibility depends on the country and issues involved. The initiative should come from the government although other institutions can assume this responsibility during an interim phase, especially in developing countries.

c. Participation
Stakeholder participation has to be assured at an early stage in order to

⇒ Ensure ownership;
⇒ Ensure trust;
⇒ Ensure policy relevance;
⇒ Clear rules for participation should be established in each case.

d. Policy integration
Policy integration is important between different ministries and in order to ensure that the assessment feeds into the negotiating process.

e. Cooperation
Looking for cooperation is important especially given that assessments are in their initial phase. Cooperation should be assured taking into account the experience from other countries, as well as including main trading partners. Within trade agreements there should be cooperation and coordination between countries.

f. Approach
The approach can be to start from the agreement or to start from sectors, depending on the different contexts. Assessment approaches can involve sectoral approaches, ecosystem approaches, or issue approaches. There is no one approach that is the best; however, it should be pointed out that there is a lot of existing experience with sectoral assessments.

g.Qualitative or quantitative assessments
There is no one best approach. There should be an inventory of available approaches, systematised according to criteria such as data requirements, limitations, etc. The approaches should be as detailed as possible and necessary. Quantitative approaches can provide a tool for trade-offs, but issues that cannot be quantified should not be left out. Aspects that have to be followed-up upon have to be identified (for example where there is a lack of data or uncertainty).

Several constraints were identified
- Data availability;
- Human capacity;
  - ⇒ The level of local expertise in countries varies. In some instances, there will be a need to expand local technical capacity on assessment-related issues. In other instances, the intellectual and technical foundation may be there. The constraints in such instances may have more to do with time constraints, financial constraints and the priorities that government's accord to assessment versus other activities.
  - ⇒ Capacity building could involve a "learning by doing" approach.
  - ⇒ Capacity building may also involve experience sharing (see checklist).
- Institutional constraints;
- Financial resources;
- Lack of "buy-in" by government.

Level of Assessment
- The effects on other countries should be linked not only to trade talks. But SAs are important for trade negotiations. SA should take into account the environmental impacts in other countries, especially in the area of global environmental concerns such as climate change.
- The results of an SA might also be used to meet other commitments such as those that exist in Multilateral Environmental Agreements (MEAs) or, alternatively, to improve the negotiating capacities of small nations in MEA negotiations.

Capacity Building and Technology Transfer
SAs are very complex and broad. In order to build capacity and effectively transfer technology, it is important to build trust. Private sector participation is key. There is also a need to improve the capacity of civil society.

Additional Subjects
Microeconomic linkages between trade and environment will be important to be included in SAs, especially in case

studies.

This International Experts Meeting on Sustainability Assessment of Trade Liberalisation aims to take advantage of the momentum that exists in the development of approaches to assess the environmental and social impacts of trade liberalisation, and to build on that work. It is expected that presenters and participants will identify emerging areas, issues and questions that are central for both the methodology and practice of sustainability assessments (SAs) of trade liberalisation. In this respect, the workshop seeks to address the following broad question:

- How can sustainability assessments be developed and used by governments and relevant stakeholders at the national level, and through cooperation among international organisations at the international level, in order to promote effective and integrated policy-making?

In order to begin to address this question, the workshop has three overarching goals:

1. To identify a number of useful approaches in existing methodologies to undertake sustainability assessments of trade agreements, with a view to promoting their practical application.
2. To identify the "policy effectiveness" of sustainability assessment.
3. To identify and clarify the role that a range of organisations can play to increase international coordination in the development of further work in this field.

Recognising that the development of an integrated methodology for sustainability assessments is still at a relatively early stage, the first goal of the workshop is to identify emerging analytical approaches to assessments. It is intended to take advantage of the momentum created by previous developments and to build upon it. It may even be possible to develop a common set of guidelines or approaches for assessment methodologies to help frame ongoing work. Progress should be guided by what is feasible in terms of sustainability assessments and their practical application. Among the questions that might be considered are the following:

- How are assessment methodologies focused with respect to rationale and assumptions (and why)?
- What are the strengths and weaknesses of individual approaches?
- To what extent do existing methodologies address the needs of stakeholders, national governments and international organisations?
- Are these methodologies user-friendly and accessible to a broad range of stakeholders?
- Are there additional or alternative approaches that might be useful to enhance the scope of existing work—where might additional work be focused?

From a policy perspective, the advantage of sustainability assessments conducted in conjunction with trade liberalisation, is that they can help countries and organisations design a full package of domestic and international policies, which will produce the optimal outcome both for trade liberalisation and economic growth and also environmental protection and social well-being over the long term. This begins by promoting policy integration at the national level, and then extends, through cooperation and coordination with trading partners and regional and international organisations, to identifying the parallel or "flanking" policies at the international level. The second goal of this workshop is therefore to determine how best to design and subsequently implement a sustainability assessment in order to maximise its influence on trade negotiations and to produce an integrated policy package. Among the broad questions that might be raised at the workshop are the following:

- What should be the purpose/policy relevance of sustainability assessments?
- How might sustainability assessments be conducted so as to most effectively influence policy-making within national governments, and at the international level in conjunction with trade negotiations?
- Where are the opportunities for international organisations (IGOs) to use sustainability assessments in their own policy-making processes?
- Are sustainability assessments a useful tool to promote the integration of trade and sustainable development objectives?

In light of the range of work that is being undertaken at the national, regional and international levels, this workshop will seek to encourage discussion on how to enhance cooperation and co-ordination between and among various international organisations (IGOs), such as the CSD, UNCTAD, UNEP, UNDP, FAO, OECD, WTO and the World Bank, as well as regional organisations (such as the EU or the CEC), and other stakeholders including non governmental organisations (NGOs) and local communities. The CSD has recognised and reiterated the need for cooperation between the relevant international institutions to promote the use of comprehensive environmental and sustainable development assessments. (CSD 1994)

The vast majority of work in the field of assessment has been developed and conducted by industrialised countries and often by governments or government-led institutions. In contrast, this workshop, with a significant number of stakeholders from developing countries, as well as industrialised countries and participants from governments, academia, and NGOs, will provide valuable insight on cooperation from a multitude of perspectives. It is hoped that discussions will contribute to strengthening the institutional capacity of stakeholders to participate effectively in the further development of sustainability assessments at local, national and international levels.

Among the questions that might be raised are the following:

- Where are there opportunities for increased cooperation and coordination between and among IGOs and other relevant stakeholders?

- To what extent do IGOs have a role in compiling and disseminating information, as well as providing technical and financial assistance, to build capacity at the national level for conducting assessments?
- What, if any, are the associated institutional implications of increased cooperation and co-ordination?
- Are there appropriate avenues for participation, or new approaches and/or variables that would encourage developing country participation in assessments?

This paper provides background for the workshop and presents information to encourage discussion and dialogue among the participants. Part I examines key components of selected methodologies chosen from a wide range of work in this field. These methodologies were selected based on the application of the following criteria:

- They represent serious and formal efforts to develop a comprehensive analytical approach to environment or sustainability assessments of trade agreements or trade measures;
- They represent regional or international attempts to examine the links between trade and the environment or trade and sustainability;
- They have been developed by major institutions with the assistance of stakeholders including governments;
- They have been the subject of public consultation and public scrutiny;
- Taken together, they balance environmental assessment approaches with sustainability assessment approaches.

The methodologies examined in this paper are as follows:

- Organisation for Economic Co-operation and Development. 1994. Methodologies for Environmental and Trade Reviews. OCDE/GD(94) 103. Paris: OECD. (available at www.oecd.org)
- Commission for Environmental Cooperation. 1999. *Final Analytic Framework for Assessing the Environmental Effects of the North American Free Trade Agreement (NAFTA)*. Montreal. June. (available at www.cec.org)
- Kirkpatrick, Colin and Norman Lee. 1999. WTO New Round: Sustainability Impact Assessment Study. Phase Two Main Report. Institute for Development Policy and Management and Environmental Impact Assessment Centre, University of Manchester. 18 November. (available at http://fs2.idpm.man.ac.uk/sia) (undertaken for the European Commission)
- World Wide Fund for Nature. 1999a. Initiating an Environmental Assessment of Trade Liberalisation in the WTO (Vol. II). A WWF International Discussion Paper. Gland: WWF International. March.

In addition, this document considers, where appropriate, the reviews undertaken at the national levels by the governments of the United States and Canada. (GOC 1992, GOC 1994, DFAIT 1999, USG 1993, USG 1994) While not attempting to develop methodologies for assessment, these reviews are nonetheless useful to consider.

It is important to note that the methodologies reviewed in this paper are indicative of the work done on sustainability assessment of trade and trade liberalisation. However, this review is not comprehensive, and it is hoped that in the course of the workshop, additional and emerging assessment approaches/methodologies will be identified.

There are a number of elements that are important to examine in designing a methodology for assessment. In particular, the following ten items have been identified for further consideration. A number of these elements appear in common among the various methodologies. They are presented here to encourage a discussion on emerging approaches to assessment, and are not intended to limit discussion in areas that fall outside of these issues.

1. Environmental vs. Sustainability Assessment
2. Trade First vs. Sustainability First
3. Causality and Correlation
4. Subject/Scope
5. Timing
6. Participation
7. Sectoral Approaches
8. Quantitative vs. Qualitative Assessment
9. Indicators for Assessment
10. Monitoring, Follow-up & Policy Prescription

A summary of the methodologies according to the elements presented above is presented in annex 1 of this paper.

Part II of this paper considers various case studies. The case studies selected were identified to provide a balance for consideration based on the following general questions:

- Do they apply an existing general assessment methodology?
- Do they relate to one of the priority sectors identified by this workshop: Agriculture, Forestry or Services?
- Do they illustrate a range of approaches including qualitative and quantitative approaches?
- Are they timely, thereby building on or illustrating the value of existing approaches?

The information in Part II is offered to assist participants (i) to evaluate what the case studies reveal; (ii) to assess the range of questions that the case studies address and what they do not address; (iii) to identify whether existing methodologies are useful from the standpoint of practical application; and (iv) to consider what additional elements could be incorporated into future frameworks for sustainability assessment to enhance their practical application and further their policy influence.

2.2.1 Environmental vs. Sustainability Assessments

The idea of conducting environmental or sustainability assessments of economic policies is not new. Principle 17 of UNCED's Rio Declaration on Environment and Development provides that, "environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have significant

2. Background Material

2.1. Introduction

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impacts on the environment and are subject to a decision of a competent national authority." Consistent with this, many international organisations (such as the World Bank) or environmental agreements (such as the UN Convention on Biological Diversity) now require some form of environmental impact assessment (EIA) on proposed projects and activities.

Environmental reviews are increasingly recognised further as important tools to facilitate the integration of trade and environmental policy objectives and to measure the non-trade impacts of trade liberalisation, as well as its economic impacts. (WWF 1999a) An EIA examines, analyses and assesses proposed trade liberalisation policies in order to minimise environmental degradation and maximise the potential synergies between trade and environment. It is used both at the national level and at the international level by governments and by international institutions. Prior to both NAFTA and the Uruguay Round, the Canadian and US governments undertook environmental assessments of trade agreements. (GOC 1992, GOC 1994, USG 1993, USG 1994) Such reviews extend the traditional project-related EIA into the realm of policies and programmes, with the additional complexities commensurate with such an extension. Canada's report on NAFTA notes that the "nature and character of policies differ substantially from those of projects," thereby rendering quantitative and predictive analysis difficult. (GOC 1992) Similarly, Canada's Uruguay Round review states that "policies can rarely be subjected to the same type of quantitative and predictive analysis that can be undertaken when undertaking an environmental impact assessment of individual projects, such as dams, mines, or factories." (GOC 1994)

More recently, EIAs have been extended further to include impacts on social well-being and development in sustainability assessments (SAs). SAs signal the inclusion of social issues, as well as environmental issues, with a view to addressing a broader and more complete definition of sustainable development. In addition to core environmental issues, an SA would also consider other variables including employment, the mobility and quality of the labour force, migratory flows, living standards including income level and distribution, and cultural and gender issues. It is expected that assessments that consider how trade liberalisation affects both the environment and social development may encourage approaches to trade liberalisation that bring about the greatest welfare gains, and thus promote sustainable development.

There is currently no overall consensus among stakeholders, governments or within international organisations that sustainability assessments are either necessary or feasible. Neither is there any clear and precise definition of "sustainability" associated with the various reviews. Reference is often made to the Brundtland Report's definition of sustainable development, which includes the core components of economic growth, environmental protection and enhancement and social equity—development that "meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED 1988)

The sustainability impact study of the EU acknowledges the multi-dimensional nature of sustainability. Without adopting a concrete definition, it refers to a UN definition of sustainability as follows: "Development is a multidimensional undertaking to achieve a higher quality of life for all people. Economic development, social development and environmental protection are interdependent and mutually reinforcing components of sustainable development." (Kirkpatrick et al 1999) The definition notes that sustained economic growth should be broadly based so as to benefit all people and allow countries to improve living standards. It also points to the importance of democracy, respect for human rights and the effective participation of civil society as fundamental for the realisation of sustainable development.

Of the reviews being conducted in anticipation of a new round of trade negotiations, only those of the European Commission and WWF adopt approaches that include indicators of "sustainability" in the measurement of impacts of trade liberalisation. The Commission's aim was to develop a sustainability impact assessment methodology, based on the EU's trade negotiating objectives for the proposed WTO round. As such, the assessment would be a tool to help the Commission identify areas of the negotiations where potential impacts on sustainability are likely to be significant. Similarly, underlying the work of WWF, is the premise that an assessment of trade liberalisation agreements should identify all the potential economic, environmental, social and developmental linkages as a first step towards

ensuring the full integration of these different policy objectives. (WWF 1999a)

Unlike the EU and WWF methodologies, the OECD methodology is designed for conducting environmental review of trade policies and agreements, the general purpose of which is "to inform policy-makers in advance of the environmental consequences of different trade policy measures." On the other hand, the CEC framework is something of a hybrid. While its mandate is to assess the environmental effects of NAFTA (not the social impacts), the approach also includes a component examining how economic forces unleashed by trade affect the way society behaves (insofar as that changed behaviour might impact the environment). This approach is based on the premise that environmental conditions will be affected by social organisation and social change. For example, a large relocation of workers to areas without the adequate social infrastructure to absorb those workers, such as proper sewage treatment facilities, can have important impacts on the environment. Nevertheless, the framework is ultimately designed to consider environmental change associated with trade liberalisation.

Similarly, neither the new US executive order nor the Canadian Strategic Environmental Assessment are designed to assess social or developmental impacts. The US executive order refers to "careful assessment and consideration" of the environmental impacts of trade agreements and does not encompass the range of social and developmental issues that would constitute a sustainability assessment. (The White House 1999) Likewise, Canada's Strategic Environmental Assessment is to "evaluate the environmental consequences of policies, plans, programmes or proposals to ensure that they are addressed on par with economic and social considerations and early in the decision-making process."(GOC 1999) While it mentions social considerations, the evaluation is nevertheless limited to environmental consequences.

Given the range of approaches to assessment, the following questions may be among those that are raised at the workshop:

- What are the pros and cons of adopting a broader sustainability assessment approach (as opposed to an environmental assessment)?
- To what extent is it desirable and possible to approach assessment of trade rules and policies in an integrated fashion, including economic, environmental and social impacts?
- Is there a distinct role for both environmental and sustainability assessments depending on the issues being considered?

2.2.2 Trade First vs. Sustainability First

Assessment methodologies developed to-date begin by assessing the economic changes likely to be induced by trade liberalisation at a product, sectoral or economy-wide level. (CEC 1999a, OECD 1994, WWF 1999a) This consistency among approaches rests on the assumption that if one is examining the effects of trade on sustainable development, then it makes sense to start with the economic changes that flow most directly from implementation of trade policies. Depending on the level of analysis, economic effects should be examined at the macro, micro and meso levels to encompass macroeconomic, sectoral and household/firm level data. The following reasons may, *inter alia*, further support such an approach:

- *Data Availability*. Available economic data are generally more robust than environmental or social data/indicators.
- *Connection to Trade*. By beginning with an economic analysis and then moving to the environmental and social effects, one can most likely establish a clear connection to the trade agreement or trade measure that is subject to assessment.
- *Positive and Negative Impacts*. By beginning with a *prima facie* environmental or social "problem" one is less likely to establish the full range of environmental or social effects, both positive and negative, that stem from the trade measure or liberalisation agreement.
- *Resources*. An analysis that begins with an environmental or social "concern" may not be linked to a trade liberalisation agreement and thus valuable resources might be spent to establish that there is no linkage.

The OECD methodology emphasises the importance of the economic assessment of the trade measure or agreement. Such an analysis is necessary in the first instance as predictions of the impacts of trade flows on patterns of production, consumption and investment will be needed to assess potential environmental impacts. Environmental reviews are thus contingent on the early or "prior" economic assessment. (OECD 1994)

The CEC methodology, on the other hand, begins by setting a broad context for the sector or issue under consideration. This is designed to catalogue the range of forces that determine environmental quality and the impact of an activity, many of them unrelated to trade. The framework focuses on environmental, economic, social, geographic and political factors that may be a factor in any analysis. It then moves directly into examining the ways in which NAFTA is likely to affect changes to the issue under examination, using the trade agreement as the key referent for isolating economic and other changes. (CEC 1999a)

The methodology specifies that an accurate assessment of the economic impacts stemming from a trade measure or agreement should also take into account other economic factors that affect economic performance and change. These factors include (i) domestic macroeconomic factors such as growth, production, demand, consumption, income, prices, inflation, credit, savings rates and fiscal policy; (ii) domestic microeconomic factors such as systems for banking and credit, the size and concentration of firms in an industry, labour market dynamics, and

changes in factor prices; (iii) international macroeconomic factors such as exchange rates, current account balances and consumption levels. (CEC 1999a)

The EU methodology takes a different track and focuses on a list of possible measures that might be included in a new round of multilateral trade negotiations. This list is based on the European Commission's Communication to the Council and European Parliament (July 1999) and reflects the Commission's support for a broad trade negotiating agenda. It includes such items as the Uruguay Round Agreement on Agriculture (AoA), services, investment, competition, trade facilitation, tariffs on non-agricultural products, trade and environment, trade related intellectual property rights (TRIPS), government procurement measures, technical barriers to trade, consumer health, trade defence instruments, and trade and core labour standards. It is not necessarily restrictive of the types of measures that could be included in an assessment. (Kirkpatrick and Lee 1999)

The WWF methodology suggests that the review process should start with the analysis of the economic changes resulting from trade liberalisation, since the social and environmental effects of trade liberalisation are usually more indirect than economic impacts. At the country level, governments should therefore: (i) identify the economic effects of major proposed trade measures in the trade agreement; and (ii) concentrate on one or two economic sectors which are of importance for the country's overall economic development, and where trade liberalisation is likely to have significant implications in terms of economic growth and reallocation of resources. (WWF 1999a)

An alternative approach to assessments of trade that has been the subject of discussion rather than application, is to construct a framework that begins with an environmental or social issue of concern, and then proceeds to explore those factors prior to correlating any impacts with trade rules or trade flows embedded in a particular trade liberalisation agreement. Such an "environment/social or sustainable development-first" approach offers the following advantages:

- *User Confidence and Accessibility*. It provides users with the confidence that the exercise has as its central objective a goal related to environmental enhancement and socio-developmental improvement, and that the analytical apparatus of the methodology is tailored to meet these objectives;
- *Focus on Policy Priorities*. It allows users to select the specific environmental/social issue of greatest concern and direct the application of the framework to the solution of that issue or problem. On the other hand, the application of "trade-first" approaches may ultimately yield the conclusion that trade is of no or little relevance to the environmental/social priority in question.
- *Policy Intervention*. "Environment/society"-first approaches may identify a range of economic and other factors that do affect the issue under consideration, even if these are not ultimately linked to trade. As many of these non-trade factors may be open to short-term policy intervention and effective influence by civil society groups, that can yield environmental and developmental improvements through domestic policy.
- *Precaution*. Such an approach places a premium on monitoring, collecting, comparing and generating data on critical environmental and social dimensions, and associated pressures and responses. This is particularly valuable given the paucity of reliable and over-time data in this sphere, relative to that of trade. Early environmental and social monitoring can provide a rapid indication of change on key "early-warning" environmental/social indicators, and thus offer the maximum amount of time to make modifications in the internationally codified trade system.

One attempt at designing an environment-first approach has recently been undertaken using an Extended Domestic Resource Cost (EDRC) analysis. (Borregaard and Bradley 1999) It is designed to offer "an effective tool to identify, systematise and quantify welfare gains from exporting, net of environmental impacts, and to formulate domestic policy recommendations for trade and environmental issues based on this analysis." It suggests that this method is particularly useful for developing countries, where there is little baseline data, where an

empirically-based understanding of the types and costs of environmental damages are needed, and where a stronger environmental policy emphasis is required.

Trade-first approaches are overwhelmingly used by national governments and international organisations dealing with sustainability assessments. This may be due to the fact that virtually all countries are moving towards an economic structure in which trade is ever more important to their national economies and societies, and thus is a strong determinant of other areas of their economy and policy-making. More generally, the rapid changes in the trade system itself (the rising importance of services, the speed, global integration and dematerialisation of trade, the number of countries more tightly integrated into the system and the interrelationships between trade, investment and finance) and the move of trade to engage "behind-the-border" regulations once regarded as part of domestic policy alone, could suggest a need to develop a new generation of "trade-first" approaches building upon the foundations of the past decade.

In considering the points of departure of the sustainability assessment, questions that might be raised at the workshop include the following:

- To what extent is the "trade-first"approach the most efficient and relevant starting point for SAs?
- Is there value in beginning with environmental and/or socio-developmental issues and, if so, are existing methodologies flexible enough to undertake such an analysis?
- Should assessment methodologies strive to meet a test of intellectual "reversibility", that is, allow users to locate their pressing problem at some point in the framework, and move forward or backwards from this point to uncover trade-related linkages and develop the necessary policy intervention?
- How can different approaches be integrated?

2.2.3 Correlation and Causality

Various attempts have been made in studies to isolate, quantify and explain why trade liberalisation contributes to economic growth and how it affects sustainable development. Causality links remain difficult to establish with certainty for a number of reasons. First, countries that reform trade policy generally do so concurrently with other reforms such as the adoption of new monetary and fiscal policies and other free-market policies such as privatisation, the removal of some subsidies and the introduction of market-facilitating measures (such as private-property rights). Given the simultaneous introduction of non-trade policies, it can be very difficult to isolate the specific contribution that trade liberalisation policies make to economic growth. Second, it may be very difficult in some cases to settle the causality issue between a specific trade liberalisation measure and the potential impacts on the environment or societies. Or, where causality is established, linking the actual measure of that change to a specific trade-induced force might minimise reaction to the environmental effect unduly. Despite these difficulties, methodologies attempt to show the ways in which trade liberalisation exerts an influence on subsequent economic and ecological activity. In all cases, it is acknowledged that such impacts can be felt both directly and indirectly.

The OECD methodology suggests that relevant processes through which trade-related effects may be transmitted to economic and subsequently ecological activity are primarily the following:

- Product Effects
- Scale Effects
- Structural Effects
- Technology Effects
- Regulatory Effects

Product effects are associated with trade in specific products that can enhance or harm the environment. Trade rules in specific sectors and products can lead to the greater use of imported environmentally superior products as substitutes for less-clean domestic alternatives. Positive results may also stem from increased trade in environmental goods and technologies themselves, such as equipment for water treatment, waste management and air quality.

Scale effects relate to economic activity and growth induced by trade liberalisation. Negative scale effects may occur when higher levels of economic growth, trade and/or transport bring increased pollution and faster consumption of resources due to the absence of appropriate environmental policies. Trade may also be a magnifier of existing environmental pressures and, in the absence of sound environmental management and internalisation of environmental costs, trade-induced economic growth can lead to unsustainable patterns of production and consumption causing environmental degradation.

Structural effects are brought about by changes in the relative importance of economic sectors and patterns of economic activity. Positive structural effects may result when trade measures and agreements promote an efficient allocation of resources and patterns of production/ consumption. At an economy-wide level, substitution can lead to a shift of production and consumption to those sectors and products with lower tariffs that generate fewer environmental stresses, and production can concentrate in geographic locations which are relatively better suited to absorb increased concentration. Negative structural effects may occur when appropriate environmental policies do not accompany changes in patterns of economic activity, and when environmental costs and benefits are not reflected in the prices of traded goods.

Technology effects are associated with changes in the way products are made depending on the technology used. Positive technology effects may result when the output of pollution per unit of economic product is reduced. Foreign producers may transfer cleaner technologies abroad when a trade measure or agreement results in a more open market and a business climate more conducive to investment. Trade-induced growth and competitive market pressures generated by liberalisation can hasten processes of capital and technological modernisation for all firms. Newly opened markets can provide the revenue and the income to allow firms to accelerate capital turnover and invest in cleaner, more efficient plants, technologies and processes. In doing so, however, this new marketplace may harm even more environmentally friendly and socially valuable traditional methods.

Regulatory effects are associated with the effects of a trade measure or agreement on environmental regulations, social and health regulations, standards and other measures. Positive regulatory effects result when trade measures and agreements do not constrain the ability of governments to pursue appropriate and effective environmental policies. Negative regulatory effects may occur when the ability of governments to enact and implement appropriate environmental regulations is undermined by the provisions of the trade measure or agreements. (OECD 1994)

As barriers to trade are lowered at the border, trade liberalisation increasingly impacts on domestic regulations. (OECD 1999a) There are no agreed methodologies for assessing regulatory effects from the legal point of view. In some cases there is a concern that economy-wide liberalisation could intensify competitive pressures leading firms to lower their environmental regulatory burden. In other words, competitive pressures may lead firms to lower input costs, in part by reducing environmental protection or by pressuring governments to lower costly environmental standards. Some firms might move production to jurisdictions with lower standards, or shift to less costly and less environmentally friendly sources of supply. The resulting “race-to-the-bottom” can create incentives to more highly polluting production throughout the region, especially in the absence of appropriate “flanking” policies. Alternatively, firms can be induced to engage in cost-reducing environmental innovation, and to urge their governments to introduce new, more stringent environmental regulation that supports the new production methods. A discussion of the regulatory effects of trade liberalisation can usefully consider the impact of trade rules on a country’s capacity to initiate and enforce environmental regulations. Government policy and political processes committed to maximising the environmental benefits of trade liberalisation can be instrumental in ensuring that this occurs to the greatest extent possible.

The CEC methodology begins with an initial assessment of a broader context in which the activity or sector under consideration exists. It acknowledges that the environmental impact of an activity will often be determined by a range of forces, many unconnected to NAFTA. Therefore, it is necessary to identify and account for, throughout the analysis, environmental, economic, social, geographic and political factors that have an important effect on a particular issue or sector. In addition to direct effects brought about by institutions and linked to trade agreements, the CEC methodology suggests four ways to link trade-related economic effects with potential environmental impacts:

Production, Management and Technology. This includes the technology and management systems employed by the production unit (usually a firm) that carries out NAFTA-related trade and investment, and consists of the following variables: inputs, production technology, physical technology, management standards, product characteristics and prices, sectoral and geographic concentration. In addition, negative effects might occur if production is concentrated in sectors that lack adequate technology, management, physical infrastructure or the institutional capacity to handle trade-induced growth.

Physical Infrastructure. This relates to the character and environmental impact of the physical infrastructure that supports site-specific production units and connects them to their inputs, customers and stakeholders. In examining the environmental impacts of infrastructure, the following variables should be considered: existing infrastructure capacity, correlation of capacity with concentrated activity, choke points, competitive corridors, transportation/transmission scale, inter-modal shifts, the distancing effect.

Social Organisation. This includes the way stakeholders operate collectively in networks of social organisations. Environmental enhancement flows from well-developed networks of social organisations that can add important environmental, cultural and public values to economic and market logic. Key variables to be considered when assessing the environmental impacts of social organisations include: civil society groups, property rights, culture, migration, transnational coalitions and community formation.

Government Policy. Government policy plays a major role in forwarding programmes that can reinforce, offset or otherwise alter the potential impacts of liberalisation. Governments also impose and enforce environmental regulations that respond to—or prompt—new developments in production and technology. (CEC 1999a)

The EU methodology links identified trade measures with environmental and social impacts through a preliminary assessment process. The preliminary assessment is intended to provide limited appraisal information (in this case relevant to the pre-negotiation phase of a new WTO round) in order to inform trade negotiators and other interested parties about the potentially significant sustainability consequences of the multilateral

negotiations. As such, it has two principal purposes:

1. To resolve any remaining uncertainties, from the scoping stage, concerning which impacts are to be recorded as potentially significant and non-significant; and
2. To differentiate, so far as the available information will allow and on the basis of stated criteria, between impacts of lesser and greater significance. (Kirkpatrick and Lee 1999)

The WWF methodology divides the appraisal of trade agreements into four types of effects:

1. Economic impacts consist of scale effects – the impact of trade agreements on the level of economic activity; structural effects – looking at how the pattern of economic activity is affected; and product/technological effects – how the production of products or technologies might change. This is key, as the social and environmental effects of trade liberalisation are usually more indirect than economic impacts. (Perrin 1999)
2. Economic changes have social effects, which can be assessed using socio-economic indicators such as employment, income levels/distribution and migratory patterns.
3. Environmental effects should be assessed by analysing how socio-economic changes feed through to the environment. The main areas of concern are health, pollution, natural resources (including biodiversity) and safety.
4. Regulatory effects are associated with the enforcement of trade agreements and environmental and social standards.

The assessment of these types of effects should also take into consideration the fact that there are no fixed sequences or patterns among them. Sometimes, trade liberalisation can result in immediate environmental impacts, which then lead to further economic and social change. In other circumstances, trade liberalisation will affect the environment through its effects on regulation, production and consumption factors. (WWF 1999a) In addition, the assessment of the net scale effects of trade should also take into consideration the existence of "ecological limits" (such as the carrying capacity of ecosystems, and irreversible changes such as species loss and climate change). (WWF 1999a)

The nature and existence of the causality links is a challenge that all assessment methodologies face. Among the questions that might be raised at the workshop are:

- What are the direct and indirect impacts of trade liberalisation on economics, society and the environment?
- What is the nature of the link between trade liberalisation and subsequent environmental and social change?
- Given the difficulty to specify trade-environment-development linkages, how should sustainability assessments address the issue of correlation/causality?
- To what extent would it be useful to focus broadly on the general impacts of trade, taking into account the full range of policies that make up the interface between trade and sustainable development, in order to design integrated and parallel policy packages for all relevant areas simultaneously?

2.2.4 Subject/Scope

The scope of the assessment exercise ranges from analysing specific trade measures, such as the impact of a subsidy or tariff, to comprehensive multilateral agreements or regional trade agreements (such as NAFTA, URA), which extend to investment and institutional issues that affect global or regional governance. As a first step, a number of methodologies attempt to isolate the subject of the assessment and indicate the scope of the analysis.

The OECD methodology applies to national trade measures and trade agreements between two or more countries. National trade measures or instruments include tariffs and related measures, non-tariff measures, trade related subsidies, Trade Related Intellectual Property Rights (TRIPS) or Trade Related Investment Measures (TRIMS). Reviews can also be applied to trade liberalisation agreements, commodity agreements, preferential trade agreements or sectoral trade agreements. (OECD 1994) The extent and complexity of environmental reviews will differ according to the type of trade measure or agreement under consideration, as well as the legal or administrative structure of the country concerned. They may range from full-fledged EIAs to brief statements. Finally, the scope of the review will also vary according to the type, extent and significance of the potential environmental impacts associated with the trade policy or agreement. (OECD 1994)

The OECD suggests the following questions for a preliminary screening to select trade measures and agreements to be reviewed:

- What is the type of national trade measure (e.g. tariff, non-tariff measure, trade-related subsidy) or trade agreement (e.g. preferential trade agreement, trade liberalisation agreement)?
- What are the principle types of environmental effects predicted (e.g. pollution, health and safety, resource degradation)?
- What is the potential magnitude of the environmental effects predicted?
- What is the potential scope of the environmental effects predicted (e.g. national, transboundary, global)?
- What products, processes, sectors and/or regions may be affected by the trade measure or agreement? (OECD 1994)

The subject and scope of the CEC framework is very specific, flowing directly from its mandate to assess the effects of NAFTA on the environment. Its subject matter therefore is NAFTA, and the scope depends on the definition of NAFTA adopted. The CEC framework

defines NAFTA broadly to include the principles, norms, rules and decision-making procedures specified in the agreements, and the institutions created by them. NAFTA covers a broad range of subjects, dealing not only with trade, but also with investment and other aspects of economic life and regional governance. These are presented below and constitute the assessment framework:

- *NAFTA rule changes*: including, *inter alia,* tariff reductions and other border measures and changes affecting goods/services once imported or changes affecting "like products."
- *NAFTA's institutions*: including intergovernmental commissions, committees or working groups created directly by NAFTA and its related agreements.
- *Trade flows:* key variables for examination include value and volume of exports/imports, market share, structure and composition, creation and diversion.
- *Transborder investment flows*: including variables such as regional concentration of investment, investment differentiation and migration, technology transfer and diffusion, intra-corporate integration in production, corporate concentration, and foreign portfolio investment.
- *Other economic conditioning forces:* to demonstrate the presence of a NAFTA connection in trade and transborder investment, it is important to take into account the other macroeconomic and microeconomic conditions that affect trade and FDI flows. Among the most important variables to consider are: domestic macroeconomic forces, microeconomic changes in each economy, major fluctuations from international forces, and even, changes in weather and climate. (CEC 1999a)

The definition of NAFTA is also extended both backward and forward to take into account what the framework calls "anticipatory" and "confirmation" effects.

- Anticipatory Effects—these include strategic adjustment on the part of actors before NAFTA came into force.
- Confirmation Effects—these include confirmation and consolidation of changes already underway, as well as codifying existing practices and legitimising and stabilising current economic and corporate activity.

The framework indicates that, at a minimum, trade flows among NAFTA members and with outsiders should be assessed beginning in 1991 and using the pre-NAFTA period (1985–1990) as a baseline for the consideration of an individual product, its major inputs, and the good for which it is itself an important input. The scope of the CEC's assessment is broad as it also includes investment—an important part of NAFTA. Indeed, NAFTA was in many respects an investment agreement as well as a trade agreement. Transborder flows of foreign direct investment (FDI) are closely associated with trade. FDI, particularly that of highly integrated transnational corporations (TNCs), brings capital, management, technology, distribution systems, reputation, markets, and other business assets. Attention is given to both "greenfield" [new] investment, and acquisitions or expansions, including fully owned investments, joint ventures and North American business alliances.

In contrast, the EU methodology focuses on specific trade measures. It implements a screening phase to determine which measures, if any, may be excluded from appraisal because they are unlikely to give rise to significant sustainability impacts. The methodology suggests using the following criteria to undertake the screening:

- Whether the types of areas likely to be affected by a measure are already under economic, social or environmental stress;
- Whether the characteristics of the measure are likely to cause it to have significant economic, social or environmental consequences (positive or negative);
- Whether the measure is likely to make a significant contribution to the cumulative impacts of the new agreement as a whole; and
- Whether the existing regulatory, institutional and financial capacities in the affected areas are sufficient to implement appropriate mitigating measures, using their own resources. (Kirkpatrick and Lee 1999)

The purpose of the scoping phase of the methodology is to identify:

- The specific scenarios to be investigated;
- The specific features or components of each measure that should be examined in the preliminary assessment, either individually or cumulatively, because of their potentially significant impacts;
- The cause-effect routes through which these significant impacts are transmitted;
- The country groups to be investigated;
- The time horizons over which the assessment should be constructed; and,
- The methods, data and indicators to be used, and consultations to be undertaken, in the assessment. (Kirkpatrick and Lee 1999)

The WWF methodology contains a mix of procedural/ institutional and substantive elements. While it specifically aims to consider social and environmental impacts of trade liberalisation, both positive and negative, it recognises the lack of mechanisms to effectively consider environmental and social impacts of trade liberalisation. It is comprised of three main components: (i) procedural analysis, (ii) substantive/sectoral analysis, and (iii) prescriptive analysis. The WWF methodology applies to different types of trade policies, changes in trade policy and trade measures. It intends to examine trade-related effects including economic impacts (scale, structural, product and technology), social, environmental and regulatory effects.

In considering issues of scope, some questions that might

be raised at the workshop include the following:

- What should be the scope of a sustainability assessment framework and what determines it, including, for example, the types of trade-related effects under review and/or the level of assessment (e.g. local or national)?
- Are there fundamental differences in establishing the scope of SAs conducted prior to, during or after the actual implementation of trade measures/ agreements?
- Are there differences in prioritisation of subject and scope between developed and developing countries and regions?
- To what extent should the scope of an assessment framework depend on the availability of good baseline information?
- How do different national conditions affect the feasibility and scope of assessments?

2.2.5 Timing

Important procedural questions for the application of an assessment methodology are: a) when the assessment is conducted, and b) how long-range the effects examined should be considered? A key starting point is whether the assessment considers the effects of a trade agreement prior to its negotiation (*ex-ante*), throughout the process of negotiation, or following its final ratification (*ex-post*).

The application of an *ex-ante* analysis has the advantage of allowing all relevant environmental and social issues to be brought forward at an early enough stage for consideration by negotiators and other practitioners before negotiating priorities are set. However, such issues are often subject to data limitations coupled with uncertainty since the final outcome of the negotiations is unknown. In effect, an *ex-ante* analysis follows a "moving target" and scarce resources may be expended to identify concerns which ultimately may not be directly relevant to the final agreement.

An *ex-post* review is applied after an agreement has been implemented. *Ex-post* reviews are critical for understanding the linkages, based on empirical evidence, between trade liberalisation, development and the environment since they identify the concrete impacts of trade liberalisation as opposed to projected ones. At their best, such reviews can only identify relevant policy measures to mitigate negative impacts, instead of contributing to the development of preventative measures which would avoid such impacts altogether. Nevertheless, the results and lessons drawn from *ex-post* assessments help define the content and methodological frameworks of an *ex-ante* review and inform preparations for future trade liberalisation agreements. *Ex-post* assessments can be the basis for future *ex-ante* assessments.

Clearly the timing of a sustainability assessment will impact its policy influence or "effectiveness." If the purpose of the assessment is to inform the negotiations, it should occur early enough in the process so that it can influence policy makers, help countries identify their priorities, set their domestic agendas for the negotiations and determine their negotiating positions. (OECD 1999)

The OECD methodology states that the timing of the review will vary depending on the type of trade measure or agreement. It also adds that as a general rule reviews should be conducted as early in the policy-making process as possible so that the results of the review can be integrated into the process. (OECD 1994) This is more practical for national trade policies and measures where the options for structuring and implementing the policy are usually known in advance. It is more problematic for trade liberalisation agreements where the parameters of the final product are not necessarily clearly set. In both cases, the methodology emphasises the utility of refining or updating the review as the details are worked out in the negotiations.

The CEC's NAFTA framework was designed as a backward looking (*ex-post*) tool to examine the specific characteristics of the North American Free Trade Agreement and analyse both positive and negative impacts on the North American environment. However, the CEC report notes that even five years may be insufficient time to prepare an *ex-post* assessment of observed environmental effects, for two reasons: (i) the full implementation of NAFTA obligations are on-going, so that economic effects are not fully realised, and (ii) the lag-time in observed environmental impacts arising from trade policy reform may take longer than a five year period. (CEC 1999)

The EU methodology is applied in an *ex-ante* fashion—prior to the beginning of the negotiations on the new WTO round. Given the uncertainty over the final outcome of the negotiation, it employs a "scenario based" approach, introducing three scenarios for each measure under consideration.

- *Scenario A—Base*: Implies that no new agreement is reached on the measures concerned and that existing provisions continue;
- *Scenario B—Intermediate*: To be defined, taking into consideration information provided by the EC – constructed for appraisal purposes only;
- *Scenario C—Trade liberalisation*: This scenario assumes general acceptance of greater and faster trade liberalisation and of supporting measures to remove discriminating market practices – however no changes are assumed to mitigate resulting adverse environmental and social impacts.

To the extent that this is feasible, Scenario A can generate base line data and provide a counter-factual record of the state of affairs with respect to a specific issue without further liberalisation. The use of scenarios can also compensate for the uncertainty brought about by the fact that the state of play can change during the course of any negotiations.

The WWF methodology suggests that sustainability assessments be initiated early in the negotiation process so that environmental and social considerations form an integral part of governments' negotiating positions from

the outset. The earlier the assessment is conducted in the process, the greater the likelihood it has of influencing decisions. (WWF 1999a, Perrin 1999) The WWF methodology also suggests that an *ex-post* assessment of the WTO's Uruguay Round Agreements should be undertaken to identify concrete impacts of trade liberalisation. The results and lessons drawn from this assessment will help define the context and methodological framework of an *ex-ante* review and inform preparations for future trade liberalisation in the WTO. Both reviews should be seen as part of the same process. (WWF 1999a)

The US Executive Order also requires that the review of trade proposals be done early enough for use during relevant trade negotiations. It is designed to feed into the domestic policy-making process early in any negotiations. Similarly, the Canadian SEA suggests that a process for evaluating the environmental consequences of policy, plan, or programme proposals should be undertaken in order to ensure that they are included and addressed at the earliest stage of decision making thereby enabling decision-makers to:

- optimise positive environmental effects and minimise the negative environmental effects of a proposal;
- consider potential cumulative environmental effects of a proposal;
- implement sustainable development strategies; and,
- save time and money by identifying potential environmental problems early in the development stages of a policy, plan or programme. (GOC 1999)

Given the issues of timing involved in SAs and their direct bearing on the policy outcomes of the assessment, the following questions might be raised in discussion at the workshop:

- When should an SA be conducted and are there differences that should be built into the assessment methodology depending on whether it is designed to apply in an *ex-ante or ex-post* fashion, or both?
- How can frameworks for assessment ensure meaningful and timely access to trade negotiators? Is a parallel schedule for assessment in conjunction with trade liberalisation or a coordinated approach feasible?
- To what extent is scenario building in an *ex-ante* assessment useful to compensate for uncertainties in trade negotiations?

2.2.6 Participation

Ultimately, the success of any assessment process depends on the political will to work with stakeholders and balance the competing interests that emerge. Strong public policy is based on adequate regard for the views of multiple stakeholders. To help stakeholders participate more fully in the process, the first step must be access to information. However, access is simply the beginning. The process must also be open, inclusive and transparent. Consequently, an important component of any assessment is a willingness to adopt an integrated and interdisciplinary approach, a commitment to active participation and meaningful consultation with a full range of stakeholders including environmental NGOs, consumer groups, trade unions, farmers and other affected groups. In addition, at the international level, this implies coordination and adequate consultations with the range of organisations contributing to the assessment so that they also feel ownership in the process.

It is therefore crucial in conducting an *ex-ante* review to design a process that allows for co-ordination and dialogue at key points in the negotiations to encourage the development of integrated policies and to allow for their serious consideration. Alternatively, an *ex-post* assessment should engage various groups to ensure that complementary policies do address the wide range of issues, both positive and negative, that might emerge in the wake of a trade liberalisation agreement.

How participation and consultation is coordinated and conducted is an important element in the design of any methodology. It ranges from multistakeholder participation in the actual design of an assessment, to assessments undertaken in consultation with relevant stakeholders. Such consultation may proceed in the form of face-to-face meetings which, while providing direct access to those undertaking the assessment, are expensive to hold and are subject to limited participation. Consultations can take the form of written comments, which may provide a broader range of input over a longer period of time, but are less direct. In recent years, consultation has been encouraged using the Internet, around documents posted for general consumption. This method of consultation promises to enhance access to information and opportunities to comment on work underway well beyond traditional consultative methods.

There is a clear role for national governments to assess the effects of trade liberalisation domestically. However, some effects will be transboundary or global and will involve co-operation either with trading partners or others at the international level. Given this critical role for governments, a balance must be found in the process to ensure the political independence of an assessment in order to retain its credibility. (OECD 1999a)

The OECD methodology explains that the exact nature of participation in any review will vary depending on the circumstances of that review. However, it points to three general categories of participation: (i) national and sub-national participants, (ii) private sector participants, and (iii) international participants. (OECD 1994) The methodology envisions that the environmental reviews be carried out by government officials. These might include representatives from both the environment and trade ministries, as well as other relevant government agencies. However, in order to provide for transparency and to contribute expertise to the review, the methodology also recommends consultation with private sector

representatives including environmentalists, industry representatives, trade unions, consumer groups and academics. Where trade measures have transboundary or global environmental impacts, the methodology indicates that governments may want to consult with other countries during the review process. To assist in this process, mechanisms for bilateral or multilateral cooperation in conducting environmental reviews of trade agreements could be established.

The WWF methodology recommends that SAs should be transparent and participatory as well. They should be structured to make the best use of NGOs and civil society. Relevant actors in the process include trade, environment and development departments at the national level, and relevant international organisations whose analysis should be combined with regular input and participation by civil society at all levels. In this regard, it is emphasised that participation of civil society goes beyond a better access to information. Clear mechanisms should be established to secure the direct involvement of civil society in the different phases of the assessment process, from design to implementation.

The CEC methodology was developed by a multidisciplinary team of North American experts, with a strong oversight by the CEC Secretariat. It was developed with the input of stakeholders from one major workshop and numerous public meetings held under the auspices of the CEC's institutional mechanism for consultation, the Joint Public Advisory Committee (JPAC). In addition, a number of smaller meetings were held with a select group of government officials from Canada, Mexico and the United States. The case studies implemented to test the methodology were each subject to an "experts" meeting, but were not the subject of broad consultation beyond input provided by the North American governments. The methodological framework is offered to governments, institutions and civil society for its ultimate application. While there are no specific provisions requiring broad stakeholder participation, further implementation by the CEC subjects the methodology to, at the very least, the institutional avenues built into the North American Agreement for Environmental Co-operation (NAAEC) that commit the CEC to public outreach in its projects and, similarly, to the requirements of the JPAC, which solicits input from the North American public on a regular basis.

In designing the EU methodologies, the contractors solicited comments over the Internet on a dedicated e-mail address to provide input to the study team. All information was posted on the Internet. A number of meetings were held with a steering group made up of members of the European Commission, as well as more informal working meetings at an individual level. In addition, the study team presented and discussed its Phase One and screening findings at a meeting of Member State representatives and representatives of civil society in Brussels on 20 October 1999, and at an OECD Workshop on Methodologies for Environmental Assessment of Trade Liberalisation Agreements, 26-27 October 1999.

Both the Canadian and the US governments followed an approach consistent with the OECD methodology in their respective reviews of NAFTA and the Uruguay Round. The US reports were prepared by an interagency task force, coordinated by the Office of the United States Trade Representative (USTR), that included representatives from the Departments of State, Treasury, Commerce, Transportation, Agriculture, Justice, Interior, Health and Human Services, Energy and Labour, the Environmental Protection Agency, the Council of Economic Advisors and the Office of Management and Budget. The environmental review of NAFTA built on an earlier (February 1992) report on US-Mexican environmental issues. Following the release of a first draft of that report, USTR received comments and revised the report to include a general discussion on the comments. (USG 1993) In preparing its report on the Uruguay Round Agreement, USTR solicited comments from the public regarding environmental concerns raised in the agreements. It published a notice in the Federal Register inviting public comments on possible environmental effects. Comments from seven organisations were received and the responses to these were included in the final report. (USG 1994)

In Canada, the report on NAFTA was undertaken by an Environmental Review Committee. In addition to reviewing the relevant literature, the Committee was asked to do the following, by way of consultation:

- Meet with representatives of the Canadian negotiating groups for the purpose of discussing the scope and content of the negotiations in each group, and to ensure that the negotiators are aware of the potential environmental effects of the various issues and options that are being considered;
- Consult with environmental and other members of the International Trade Advisory Committee (ITAC) and Sectoral Advisory Groups on International Trade (SAGITs);
- Consult with the provinces from the Federal-Provincial Committee on NAFTA;
- Establish contact and exchange information with the US and Mexican officials responsible for the environmental reviews being conducted by those countries.

Consultations included provincial representatives, and representatives from industry, environmental organisations, labour and academia were consulted through the Department's International Trade Advisory Committee (ITAC) and sectoral groups. In addition, the Committee met with officials from the NAFTA negotiating team, as well as officials responsible for drafting the Review of US-Mexico Environmental Issues, and Mexico's Deputy Minister of the environment. Canada's 1994 review of the Uruguay Round was also coordinated by the Department of Foreign Affairs and International Trade. The Review was conducted by the Environmental Review Committee, comprising representatives of the departments of Foreign Affairs and

International Trade, Agriculture, Environment and Finance. Written submissions were received from a number of environmental and other groups. Canada's prospective Strategic Environmental Assessment of future multilateral trade talks will also be conducted by an Environmental Review Committee, coordinated by the Department of Foreign Affairs and International Trade. The Committee is comprised of representatives from all relevant government departments. In its 1999/2000 SEA, the Canadian government is posting work on the website hosted by the Department of Foreign Affairs and International Trade. This use of the Internet promises to encourage more active participation of civil society in the process.

Given the importance of participation and consultation and the range of avenues available for undertaking such processes, the following questions might be raised at the workshop:

- Who should be involved in the assessment process at local, national and international levels?
- How should responsibilities of the different players/actors in the assessment be allocated and by whom?
- Based on experience, and from the perspective of governments and stakeholders, what is the most effective way to consult with civil society—at what stage of the process and for what purpose?
- What avenues are available to support inter-country or regional consultations in developing countries?
- How can credibility in the process be assured, how formal should the procedures be, what are the trade-offs involved?

2.2.7 Quantitative vs. Qualitative Approaches

There has been a good deal of discussion within and among those institutions that have approached the issue of the merits of quantitative versus qualitative analysis. In some respects, this is dictated by the timing of an assessment. An *ex-ante* approach faces the difficulties presented by uncertainty over the direction of the negotiations itself and a lack of future data. An *ex-post* review might have the benefits of some limited data, but in many cases the full effects of trade liberalisation agreements will be felt in the longer term. This raises questions of both capacity to implement a model and uncertainty in the availability of reliable data.

A number of assessment approaches refer to the utility of the application of econometric modelling for generating quantitative findings in specific areas. A model is a simplification designed to represent a system. Models are considered useful because they try to take into account the impacts on several countries arising from different sources of environmental damage.

Broadly speaking, economic trade models are divided into computable general equilibrium models (CGE) and partial equilibrium models (PE). In CGE models, supply and demand for all goods is treated simultaneously in all sectors and countries under analysis. Each has limitations. CGE models are attractive in principle for their ability to account for a number of factors and impacts. However, because computable models are supported by statistical data, there are inevitably data and cost limitations. PE models, by contrast, are often more feasible as they focus on a single industry or sector. However, connections with other sectors are omitted in the interest of more detailed analysis, thus analysis of economy-wide effects is lost.

In some instances, economic assessment models have been extended to include a consideration of environmental effects. In particular, two detailed modelling efforts have shown promise in linking trade to environmental impacts. (CEC 1999) The first uses the OECD Development Centre's prototype CGE model, adapted to Mexico to create the Trade and Environment Equilibrium Analysis (TEQUILA) model. It is a dynamic, multi-sectoral model focusing on the environmental effects of trade liberalisation and induced changes in production processes. The model can derive pollution emissions from intermediate as well as final consumption, and links consumption to pollution using thirteen core indicators.

A second model linking trade and environmental impacts is the Global Trade Analysis Project (GTAP). Under GTAP, a CGE model is used for sectoral evaluations of trade liberalisation in agriculture, forestry, fisheries, mining, processed food and beverages, textiles and wood products. GTAP models the impacts of trade on production patterns at country and sectoral levels, and can be used to model environmental impacts. It accounts for interactions between countries when looking at impacts on production patterns.

The science of modelling is evolving and, therefore, in all cases, data collection and valuation methods need to be improved. CGE models require a number of simplifications and assumptions. There is also difficulty in calibrating data, and the necessary over-time data are often not available. In particular, drawbacks with modelling are encountered when looking at non-economic factors. There is no consensus on appropriate indicators for environmental and social variables like those used in economics. In addition, environmental and social variables are subject to problems in their valuation. This has hampered theoretical and empirical efforts to marry economics, environmental and/or social indicators into a synthetic model incorporating multiple effects.

The OECD methodology acknowledges that the general approach to environmental reviews of trade measures or trade agreements may well require a mix of methodologies, and in general the approach adopted should be flexible and practical. (OECD 1994) To review the environmental impacts, it suggests borrowing methodologies from traditional environmental impact assessments (EIAs), although concedes that their application to policies, as opposed to specific projects, might mean that a detailed assessment is difficult. Proposed methodological approaches suggested by the

OECD include the following:

- *Base line environmental conditions* could be established using existing data.
- *Models and other forecasting techniques* could be used to predict broad changes in resource use, pollution or environmental quality resulting directly or indirectly from the trade measure or agreement.
- *Scenarios* could be used to test certain hypotheses or predictions of environmental impacts.
- *Case studies* of particular types of environmental impacts, economic sectors or geographical regions could be conducted.
- *Assessment of regulatory effects* could be undertaken to determine the legal and policy implications of using different environmental policy approaches or regulations with reference to the trade agreement concerned. (OECD 1994)

Following a like-minded approach, the CEC framework is designed to apply using qualitative or quantitative evidence, through case studies or formal economic and/or ecological modelling techniques. It uses both qualitative (even anecdotal) and quantitative methods, including partial and general equilibrium, economic and ecological modelling. In all cases, assessors should integrate the major variables that appear in the framework, including legal, economic, institutional, social, political and environmental factors. The framework can be most readily applied using qualitative and selected quantitative methods. The former, based largely on specialised interviewing techniques, are particularly useful for examining legal, institutional, technological and social factors, as well as components relating to management, production, and policy. A reliance on existing quantitative material is most useful to identify trade and investment flows, physical infrastructure and changes in the ambient environment.

The framework concedes that partial or general equilibrium models of the economy, based only on quantitative methods, are still of limited use for assessing NAFTA's environmental effects—that is, relating economic change to environmental factors. While some work is available correlating sectoral changes in trade and investment with the pollution intensities of those sectors, such analyses do not incorporate important differences in production and technology among the three NAFTA countries.

Nevertheless, the framework notes that some partial equilibrium models show promise as having important application for specific variables in the analysis. For example, such models have been particularly successful in showing how changes in agricultural trade are affected by macroeconomic forces. The assessment of trade flows can readily be ascertained by using available quantitative data. Here, the framework suggests that one might employ one of the existing formal methodologies that demonstrate and quantify the existence of an independent NAFTA effect, both on trade at the general, economy-wide level, and also in specific sectors. Combined with other variables in the framework, these models can trace and produce a relatively accurate account of NAFTA-induced changes in trade flows, to begin to generate the economic effects of the trade agreement from which the remaining analytical elements of the framework will follow. To this end, the study notes that efforts to realise the potential of quantitative models should focus on generating required data from all NAFTA countries, linking trade with environmental indicators, and identifying how the different processes unleashed by NAFTA-associated trade liberalisation affect the environment in distinct ways. It concludes that the existing, limited state of such modelling efforts should not deter or delay efforts to build new models or applications relying on other quantitative or qualitative techniques. (CEC 1999a)

The EU methodology also suggests the use of a number of tools, including computable general equilibrium (CGE) and applied general equilibrium (AGE) models, regression analysis and cost-benefit analysis, combined with case studies. The methodology suggests the potential utility of the following models and other forecasting techniques in the appraisal of both economic and environmental impacts.

(1) Economic:

- computable general equilibrium models (CGE);
- applied general equilibrium models (AGE);
- regression analysis;
- cost-benefit analysis.

(2) Environmental:

- General Equilibrium Environmental model (GREEN);
- Trade and Environment Equilibrium Analysis (TEQUILA);
- Global Trade Analysis Project (GTAP);
- environmental assessment models that establish relationships between certain economic variables and their environmental effects;
- simultaneous-equation models;
- cause-effect diagrams;
- networks;
- policy evaluation techniques such as extended Cost Benefit Analysis (CBA) and Multi-Criteria Analysis (MCA);
- scenario analysis.

In each case, for economic, environmental and social analysis, the methodology suggests the additional use of case studies. It also recommends a number of social science techniques such as checklists, surveys, matrices, scoring, consultative and participatory approaches, stakeholder analysis, social survey and interviewing methods, cross-country regression analysis and case studies. It also suggests the possibility of extending CGE/ AGE economic models by including, for example, a social accounting matrix. For the regulatory appraisal, methods used will include socio-economic impact analysis, distributional analysis, cost-benefit analysis or

regulatory competition effects, fiscal analysis, budget-cost analysis, rule-specific analysis and checklists.

The WWF methodology relies principally on a qualitative evaluation of impacts based on questions and checklists. For example, for each trade-related effect, the methodology suggests the following variables be assessed at both the product and the sectoral level: (i) export/import patterns, (ii) production/consumption patterns, and (iii) technological patterns. The methodology also acknowledges that economic modelling is one of a number of tools available to assess likely economic impacts of trade liberalisation. However, it warns that greater research is needed to improve the applicability and relevance of models in terms of providing decision-makers at the national and international levels with early and clear indications of possible environmental and social effects. In particular, the framework suggests caution for the following reasons:

- Methodological uncertainty surrounding efforts to isolate the impacts of trade on the environment from other variables.
- Models are constructed on the basis of a number of macro-economic assumptions, such as perfect competition, substitutability of productive factors and commodities, and production based on constant returns to scale technology, which do not necessarily reflect present day economic realities.
- Models remain "macro-economic" models and they are, therefore, insufficient to capture more specific/local environmental impacts, which may be less obvious than standard pollution effects.
- Lack of data on developing countries renders the modelling exercise difficult and incomplete. (WWF 1999a)

Similarly, the Canadian Review of NAFTA indicates that since the interrelationships between economic activity, trade and the environment are not precise, a quantitative determination of the potential environmental effects of a trade agreement is difficult. It suggests a qualitative approach for the following specific reasons: (i) the nature of the relationship between increased trade and economic activity and associated environmental effects is uncertain; (ii) NAFTA-induced economic effects on Canada could be modest in comparison to Canada's total GDP; and (iii) necessary baseline data on the environment are often unavailable. The Canadian review is directional or qualitative rather than quantitative. (GOC 1993) The US government's reviews follow a similar approach.

Building on its recent workshop, the OECD also acknowledges the utility of a diversity of approaches. It notes that CGE models, including the GTAP, with an environment sub-mode, partial equilibrium models, and the extended domestic resource cost approach—are comprehensive models for policy assessment. Nevertheless, it points to the need to consider incorporating additional variables, such as costs of abatement, technology transfer, feedback, transition costs, regulatory policy impacts (technology and pricing), and the public sector's potential to raise revenue. It suggests that models that allow for bottom-up (focusing on domestic circumstances and firm level data) are considered particularly valuable. (OECD 1999a) Such an approach would also encourage local community involvement in the analysis and capture local impacts.

Among the questions that might be raised at the workshop are the following:

- To what extent are models accessible to a wide range of potential users wishing to engage in the development and the practical application of sustainability assessment?
- At what point in a sustainability assessment, and to generate what information, are current modelling techniques most effective and reliable? Can they reliably move beyond economic assessment to consider environmental and social issues at a sufficiently disaggregated level?
- How should assessment methodologies deal with both quantitative and qualitative data in an effort to provide an overall result/picture?
- To what extent can the application of CGE models be useful to develop a "counter- factual" scenario (what would have happened without trade liberalisation), and is this a useful component of a sustainability assessment?

2.2.8 Sectoral Approaches

A second level of analysis that is proposed by a number of methodologies is to adopt a sectoral approach to assessment. (WWF, EU, CEC) That is, as opposed to focusing on economy-wide impacts, the methodology examines trade-related effects on a specific priority sector, issue or product within that sector. Indeed, at a recent OECD workshop, a number of participants were of the view that sectoral approaches to assessment are the most feasible at this time. (OECD 1999a)

The WWF methodology suggests that a sectoral approach—an analysis of a specific sector in a given country—should be used to establish a base-line understanding of the linkages between trade, environment and development, and to lay the foundation for successful policy integration. A sectoral analysis would allow for collection of empirical data, a better understanding of the various trade-development and environment linkages, further development of the assessment methodology, as well as identifying potentially negative and positive effects of trade liberalisation.

While a sectoral approach is more practical and makes the assessment more feasible, it runs the risk of ignoring important impacts between sectors (i.e., cross-sectoral impacts). This shortcoming was acknowledged at the recent OECD workshop on environmental assessment. (OECD 1999a) In this regard, the WWF methodology notes the importance of assessing cross-sectoral effects and suggests that cross-sectoral analysis is the next stage, following the completion of studies conducted sector by sector. In addition, the further development of the assessment framework at the international level will

complement and facilitate the review of the global, transboundary and cross-sectoral effects of trade liberalisation. (WWF 1999a) The framework developed by the CEC has attempted to address this issue by allowing for upstream and downstream impacts, within the parameters of criteria. For example, in its recent study on cattle feedlots, the CEC's analysis extended back to the feed-grain sector, and forward to the beef-processing sector. (CEC 1999)

Approaching the analysis from a sectoral perspective necessitates the development of clear criteria for the selection of sectors to investigate. The OECD methodology simply states that case studies "of particular types of environmental impacts or of particular economic sectors or geographical regions might be conducted." (OECD 1994)

The CEC framework is most developed in this regard. It is designed to apply both generally to trade and environmental issues in North America, and specifically to issues or sectors. However, it suggests that it can be applied most readily by examining NAFTA-associated change in specific sectors of North American industry.

In order to guide the selection of sectors, the framework proposes applying the following criteria:

- The sector relates directly to major environmental media and natural resources;
- The sector has been the subject of changes in the economic rules set by NAFTA;
- The sector has experienced changes in trade during the post-NAFTA period;
- The sector has involved new, direct foreign investment among NAFTA parties since 1994;
- The sector is one where one might expect, *a priori*, that there are important effects, attributable to NAFTA. (CEC 1999a)

In order to select a specific issue for study within or across sectors, the framework suggests applying the following criteria:

- The issue relates directly to major environmental media and natural resources;
- The issue is significant from an environmental perspective;
- The issue bears some significant relationship to the integration of the North American economy through NAFTA rule changes, government policy changes, institutional changes, investment changes or direct trade impacts;
- An analysis of the issue contributes to an understanding of other issues of importance in North America;
- An analysis of the issue contributes to tracing linkages between NAFTA and its relative impact on the ambient environment. (CEC 1999a)

In exploring specific sectors and issues, the framework sets clear boundaries on the field of analysis. In some cases, it notes the utility of tracing the entire production and value chain of a specific sector or issue, in a "cradle-to-grave" sequence, to develop a full life-cycle analysis that includes consideration of elements such as drains on ecological capital—through to ultimate use and disposal. At a minimum, the boundaries should be able to expand to include changes in the major upstream (inputs) or downstream (products) sectors or issues with which they are linked. Such expansions of the field of analysis should be guided by the following criteria:

- Is there a related sector or issue that is a major input into and/or consumer of the sector or issue under consideration?
- Are there related economic or environmental dynamics from other issues or sectors that are necessary to the operation of the sector under consideration?
- Is there a related sector or issue that has proliferating ecological impact on the sector or issue under consideration? (CEC 1999a)

The WWF methodology suggests that the selection of sectors be based on the following criteria:

- Significance of trade flows in both volume and financial terms;
- Possibility that products/sectors will be liberalised/further liberalised; and,
- Links/implications for the environment and sustainable development. (WWF 1999a)

Given the importance of sectoral analysis and/or case studies in the development and implementation of sustainability assessments, participants may wish to consider the following questions at the workshop:

- What are the key criteria for selecting a sector for analysis? Are there any missing from the existing checklists?
- Is an analysis of upstream and downstream effects generated within a sector study sufficient to capture related effects that might extend into other economic sectors? What might the parameters of such an extended analysis be?
- To what extent is it possible to aggregate different sectoral studies to arrive at an overall assessment at the national level, or even international level?

2.2.9 Indicators for Assessment

Ultimately, a sustainability assessment will need to examine environmental and social impacts of trade related economic activity and behaviour. A number of methodologies point to a range of categories of environmental impacts, or a series of core indicators for measurement, which vary in breadth among the existing methodologies. In some cases, key areas of concern are identified. For example, WWF notes that key categories of concern include health, pollution, natural resources and biodiversity.

There is a stated need to improve the development of indicators of environmental impacts, particularly as they relate to biodiversity and land-use. Limitations of data will continue to be a challenge for those seeking to

identify and quantify environmental and social impacts. Consequently, the OECD workshop on environmental assessment made the following observations on the state of knowledge on indicators/criteria:

- Environmental data are most credible when they relate to the local or micro-level;
- There is a general lack of environmental methodologies available to specifically measure certain kinds of impacts. In particular, there is a dearth of biodiversity and land-use-related data and indicators, thereby hampering assessment in these areas;
- There is a need to optimise precautionary and preventative approaches so as to make them applicable to the purposes of assessments. (OECD 1999a)

The social impacts of trade liberalisation will be felt in the changes brought about by the conditions under which individuals live and earn their livelihoods, and as a result of the economic forces unleashed by trade. This in turn changes the way individuals and groups rely on, and interact with, the environment. Although data limitations might hamper assessment in this area, a sustainability assessment should attempt to capture the effects of trade liberalisation on a wide range of social indicators. These variables might include the quantity, quality and mobility of the labour force, the role and strength of labour unions, environmental and development groups, migratory flows, the presence and strength of cooperatives, community groups and civil society organisations including environmental, consumer and other NGOs, the role of women, and cultural diversity and values. The paucity of reliable data on such social issues will continue to hamper the full development and implementation of sustainability assessments.

The OECD framework offers guidance on the selection of environmental indicators by dividing the types of environmental effects into three broad categories: pollution effects, health and safety effects and resource effects. Pollution effects are primarily increased or decreased emissions of harmful substances into the air, water and/or land, including disposal of solid waste. Health and safety effects refer to increased or decreased protection of human, animal or plant life or health. Resource effects include increased or decreased use of energy and other natural resources, destruction of wildlife habitats, depletion of species and changes in land-use patterns. Beyond these three categories, no specific indicators are suggested. In addition, the OECD methodology notes that effects can be national, transboundary or global. (OECD 1994)

The CEC framework includes environmental indicators drawn from the major environmental media: air, land, water and biota (living things). It recognises that there are a great number of environmental indicators that could be used to assess the effects of NAFTA on the environment at both a general or sector/issue level. However, it has included in the framework a preliminary list based on the following criteria:

1. Include all pollutants for which there are national ambient standards, objectives or guidelines in Canada, Mexico or the United States
2. Include a number of the environmental indicators currently recommended by the OECD and employed in that organisation's environmental performance reviews of the three NAFTA countries.
3. Include indicators that are best able to meet the core methodological criteria of scientific validity, representativeness, data availability, accuracy, comparability with indicators developed in other jurisdictions, cost effectiveness and clarity.
4. Include some indicators that move toward an aggregate analysis by encompassing more than one specific indicator within a single media of the ambient environment.

The list provided by the CEC concentrates ultimately on those indicators where reliable cross-national data is currently available, so that application of the framework can proceed. (CEC 1999a)

The EU study recognises that the literature on social assessments is more limited than for economic and environmental assessments. The appraisal methods used in social impact studies traditionally place a strong emphasis on the process by which the appraisals are carried out. They stress the importance of consultative and participatory approaches, stakeholder analysis, social survey and interviewing methods, rather than on the use of modelling and more technically sophisticated methods of analysis and evaluation. (Kirkpatrick et al 1999)

The EU study has constructed a small core of sustainability indicators and a short list of significance criteria to assist in their interpretation:

- Economic: average real income; employment; net fixed capital formation.
- Social: Equity and poverty, health and education, net fixed capital formation.
- Environment: environmental quality (air, water, land), biological diversity, other natural resource stocks (including minerals).

In its Phase I report, the EU authors indicate that qualitative assessments are important in assessing social impacts, particularly in relation to what cannot be modelled and what cannot necessarily be captured by indicators. Therefore, a question and checklist approach is appropriate. It further acknowledges the value of case studies.

The WWF study includes a provision for the assessment of social impacts, along with economic, environmental and regulatory impacts. It proposes examining a number of areas such as employment patterns, income level and distribution, mobility and quality of labour, migratory flows, rate of urbanisation, cultural issues and general issues. The study does not propose a set of indicators for measuring change and relies on a set of qualitative judgements rather than quantitative indicators to assess social impacts.

The WWF methodology also lists criteria for prioritising effects as follows:

- significance/magnitude
- outcome (positive or negative)
- likelihood (evident, probable, possible)

Priority should be given to potentially significant impacts on the domestic environment, although the analysis should then be extended to transboundary and global environmental effects.

Among the questions that might be raised at the workshop are the following:

- To what extent is it possible to establish a list of criteria that could be shared by all assessment methodologies dealing with economic, environmental and social impacts of trade?
- What parameters/elements should guide the selection, development and elaboration of criteria for the different types of trade-related effects?
- Is there an optimum number of criteria to be considered in any assessment methodology, particularly in view of the large number of indicators currently used to measure sustainable development?

2.2.10 Monitoring, Follow-up and Policy Prescription

If the purpose of the assessment is to identify effects so that the positive ones can be enhanced and negative effects can be mitigated, through appropriate policy action, it is useful to consider whether methodologies include allowance for recommendations of such policies, and whether they include follow-up mechanisms.

The OECD methodology acknowledges that it is important to monitor how the results are used both during and after the decision-making process. (OECD 1994) It suggests that environmental reviews should include provisions for follow-up and monitoring, including mechanisms to enhance positive environmental effects and address potential negative effects. Suggested policy responses include:

- Modification of some aspects of the trade measure or agreement;
- Inclusion of environmental safeguards in the trade measure or agreement; or
- Implementation of a complementary environmental mechanism to accompany the trade measure or agreement. (OECD 1994)

The methodology also indicates that in the case of trade agreement, changes or modification would imply keeping the negotiated balance of commitments in the agreement and would necessitate a cooperative approach. Complementary mechanisms might include development and/or enforcement of environmental regulations, levying taxes or charges to contribute to an environment fund, or financial or technical assistance for environmental clean-up. (OECD 1994) The OECD methodology also provides for a follow-up process where subsequent environmental review may be warranted to reflect long-term effects of economic activities induced by broad trade measures and agreements.

The CEC methodology includes no explicit provision for the development of policy recommendations. However, it does indicate that methodologies should allow for the generation of results that permit effective intervention in order to mitigate adverse effects and maximise positive ones. This suggests a short-term focus on sectoral and geographical environmental priorities (such as the most polluting economic sectors and the most affected ecosystems).
It is anticipated that the results of the EU analysis will reveal where the potential need for mitigating measures to reduce or eliminate significant negative impacts is most likely to arise. This includes “flanking” measures, which may enhance the impact on sustainable development of the various trade-related measures that are subject to preliminary assessment.

The methodology defines mitigating and enhancing measures as those that can enhance the overall impact of a new round on sustainable development by “reducing the significant negative impacts and by increasing the positive impacts associated with particular measures in the New Round.” (Phase II) The methodology offers a number of general guiding principles, which might guide the use of mitigating and enhancing policy measures. They include (i) sustainable development, (ii) regulatory harmonisation, (iii) development interests, and (iv) policy co-ordination and coherence.

The methodology also offers criteria for the selection of mitigating and enhancing measures as follows:

- Relevance: suitable to address specific deficiencies identified in the appraisal;
- Workable: the measures are practical in legal, organisational and technical terms;
- Cost-effective: they are likely to be a least cost way of achieving the desired improvement;
- WTO compatible but not necessarily WTO led: they should be consistent with WTO rules but not necessarily organised, financed or implemented by WTO;
- Coherent: the measures should be consistent with each other, with measures already proposed under the scenario, and with the goals of sustainable development;
- Complementary to other sustainable development initiatives: measures should not duplicate other measures more appropriately taken by others.

Finally, the methodology offers a method for selecting mitigating measures:

- Identify for each measure the main types of impacts to be mitigated or enhanced;
- Draw up a list of potential mitigating and enhancing measures;
- Apply the selection criteria as a test to this list and remove any that do not pass the test;

- Present the findings in a matrix or checklist of measures classified by trade agreement measure;
- Consolidate these findings in an overall mitigation/enhancement strategy. (Kirkpatrick and Lee 1999)

The WWF methodology includes "prescriptive analysis" as a key component of an effective assessment. This includes policy recommendations as an important element of a sustainability assessment. The policy recommendations should be designed to address negative environmental and social effects, and to enhance positive effects. The methodology emphasises that appropriate policy recommendations will be derived from the findings of the preliminary review process, as well as from inputs from a wide range of stakeholders at both the national and international levels.

In considering the design of a methodology that will include effective policy making and follow-up measures to accompany sustainability assessments, participants might consider the following questions:

- Is it possible to identify a set of procedural elements in assessment methodologies that are likely to influence the "policy effectiveness" of such assessments?
- What is the range of policy options that should be considered in SAs?
- How can the results and findings of SAs most effectively feed into the policy-making process at national, regional and international levels?

This section considers the practical application of methodologies to specific sectors or issues. In doing so, it considers a number of recent studies that have been undertaken—some in conjunction with a formal methodological approach, some with a view to developing new approaches, and others which are more descriptive, but are nevertheless useful in the linkages they highlight between trade liberalisation and environmental and social impacts. The range of work that has been undertaken in this field makes it impossible to cover all studies that have been produced in recent years, so this overview is not comprehensive. Yet it attempts to illustrates a number of different approaches from which general lessons in the application of methodologies can be drawn, or where important linkages are noted or reaffirmed for the refinement of existing approaches or the development of new ones. In considering these case studies, participants might want to address the following broad questions:

- What can we learn from the practical application of assessment methodologies?
- What are the main differences between the theory and the practice of sustainability assessments? Are the general methodologies useful in practice? What are the major challenges and where are the gaps?
- What do these case studies reveal in terms of meeting the goals for sustainability assessments?

2.3.1 Some Preliminary General Observations

The case studies examined in this background paper are suggestive of what individual case studies can contribute to the task of conducting environmental and sustainability assessments of trade liberalisation. However, as previously mentioned, they do not comprehensively reflect the large body of work in this field. In this respect, it is hoped that the workshop will identify other relevant studies and research that could be included in discussions on assessment of trade rules and policies, as well as point to key research gaps and thus future areas of empirical work.

Some general observations may be drawn from the case studies that follow. Participants should bear in mind that these are preliminary remarks and observations, which may actually be supported or refuted by the actual outputs of the workshop. In this respect, it may be relevant to consider the extent to which (1) the present studies confirm the relevance of general methodologies for conducting policy-relevant assessments; (2) other case studies conducted for purposes other than applying a general methodology, or conducted without the explicit use of any methodology, may suggest avenues for building a modified or new generation of methodologies for sustainability assessment. Both contributions are considered in the summary of preliminary general observations.

2.3.2 Environmental vs. Sustainability Assessment

Taken together, the case studies discussed in this background report confirm the applicability and value of some of the methodologies developed over the past decade. For example, the application of methodologies to environmental issues underscores the utility of the initial OECD framework, the categories of which conform closely to the standard analyses conducted by economists, and which are used to varying degrees in many of the individual case studies. From a qualitative perspective, this application has proceeded to identify a number of important links between economic change induced by trade and the environment. More recently, this approach has been built on by efforts such as that of the CEC to include infrastructure, social organisation, and institutional impacts, all variables that are borne out in case studies as having potentially important impacts on the environment.

Nevertheless, the most recent work examined in this study, that of the EU, the WWF and case studies conducted by UNEP, suggests that there is a trend towards broadening assessments to include variables that reflect the wider range of indicators included in sustainability—notably social impacts. Recent case studies by UNEP, WWF and even the CEC (through consideration of social issues as a conduit for environmental effects) have illustrated that some important social issues are raised by such assessments, including labour displacement, migration, and poverty, all of which should be subsumed in a sustainability assessment.

Given the trend towards considering impacts at a broader level, methodologies based on the OECD work and grounded in mainstream economics may well devote insufficient attention to key factors and relationships. The methodologies and the case studies also suggest that the analytical techniques for incorporating social variables are not well developed relative to the processes that have been identified to connect economic change to environmental change. This presents problems for qualitative analysis and, coupled with the difficulties in data availability, suggests even more critical problems in applying any credible quantitative approach to such an analysis. However, case studies, such as those included in this background report, do begin to identify key linkages for connecting economic impacts of trade liberalisation to environmental, and in some cases social impacts, holding out the prospect for qualitative analysis. In order to build on the foundation of existing work, methodological approaches need to be developed that clearly articulate these linkages to facilitate solid, credible qualitative analysis. In addition, data needs should be identified and developed if one strives for the ultimate quantification of sustainability impacts.

2.3.3 Trade First vs. Sustainability First

There is a considerable commonality in the approach of the methodologies and the case studies supporting an analysis that begins with trade data first, or with specific provisions of trade liberalisation agreements. Most studies focus on the multilateral Uruguay Round GATT/ WTO Agreements, and the regional-plurilateral APEC and NAFTA. In all cases, these include both developing and developed countries. Yet in some cases these expand to include, very tentatively, unilateral policy changes in favour of liberalisation, and three additional extensions which warrant further attention.

One such extension is to consider the domestic policies of privatisation and deregulation, which are often closely integrated with policies of external trade liberalisation. The second is the realm of investment, both direct and portfolio, which is often liberalised in law and practice, along with trade, and which is also becoming more important than trade in a globalised world economy. Investment is increasingly recognised as the transmission vector for the key mechanisms of production, management and technology. There is an important issue as to whether and how these trade-environment-sustainability methodologies could be adapted to encompass the emerging and related issues of investment and finance, and associated environmental and social impacts. In the years ahead, and particularly for developing countries, it may be more appropriate to treat trade, direct investment, and finance, as an integrated cluster from which environmental and sustainability changes flow.

A third issue is the value of building on the UNEP studies to construct a general methodology appropriate for the specific case of trade liberalisation induced by the Structural Adjustment Programmes (SAPs) of multilateral and regional development banks, by the “neo-liberal consensus” that often accompanies them and associated support programmes, and by any conditionality that comes with new innovations (such as the IMF’s codes of good practice and Contingent Credit Lines). This form of trade liberalisation is often the key concern of developing countries. From a policy perspective, with the suspended launch of the new round of multilateral trade negotiations, trade policy changes flowing from the institutions at the heart of the international financial system could well become the drivers of developments in trade policy (and environmental and social impacts) for some developing countries.

The issue of the policies and operations of international institutions points to an area which most studies, driven by the discipline of mainstream economics, do not incorporate. That is, how particular trade rules and the operation of the institutions created or catalysed by trade agreements, exert an important and variable effect over time. The CEC studies point to the possible relevance of a broad array of rules (beyond border liberalisation) and of international institutions in shaping outcomes. These rules and institutions, subject to the influence of governments and, in some cases, civil society actors, can offer important instruments for policy intervention, including the provision of the capacity that developing economies need. The current tendency in these case studies and the general methodologies to treat trade liberalisation as an international process, the domestic environmental downsides of which can be corrected by domestic policy reform within the affected country, may overlook the advantages of building environmental and sustainability protections properly at the core of the international regime.

This also suggests that expanding the analysis to the broader market functioning and economic, financial and investment policies (as opposed to a narrow focus on trade-specific liberalisation measures) may also open new and little explored avenues on the impacts on the environment and society of trade rules and policies. Trade is only a conduit for economic growth. A sustainability analysis could encompass a broader reflection of the extent to which a specific sector is functioning in a sustainable way, could consider the contributions of trade liberalisation on that sector (both positive and negative), and could examine the extent to which changes within and apart from the trade liberalisation processes and policies can encourage moves towards a more sustainable path for development.

2.3.4 Causality and Correlation

The case studies examined in this background paper demonstrate that it is feasible, albeit highly complex, to establish some causal relationships between trade, broadly defined, and associated economic change, intervening processes of a microeconomic social and political nature, and environmental changes, with a loop back to economic and trade alterations. This prospect arises from several advances made in the various case

studies.

First, the OECD categories of trade-related impacts are used explicitly or implicitly by several case studies. In particular, the case studies reveal the value of examining issues of scale, structure and technology. The CEC's addition of firm level production and management strategies, physical infrastructure, a much broader array of government policies (beyond regulatory harmonisation), and international institutions has received some support and would be of considerable use. Second, there is evidence that in specific circumstances, such as in the CEC cattle study, the analysis of specific at-the-border trade liberalisation measures does permit a linear, causal tracing of related economic and associated environmental change. Third, related to II.1.b, there is some agreement on the value of moving toward an expanded conception of trade liberalisation, despite the additional complexity this brings, and on what such an expanded conception should include (notably investment, domestic privatisation/deregulation, behind-the-border rules changes such as standards, and even capital liberalisation). Fourth, there is some evidence that a range of methods, from CGE and PE models to other quantitative and qualitative approaches, can work together to generate causal relationships at acceptable levels of confidence for the purpose of generating practical, policy-relevant conclusions.

At the same time, there is work to be done to develop the analytical links required to create a comprehensive causal model that treats both environmental and broader sustainability impacts, is able to identify short and long term effects, and to isolate local and even site-specific impacts. One key challenge is to understand the complex character of and relationships between these interrelated factors, notably social organisation and government policy. At present, as the Latin American and Caribbean economy-wide studies indicate, often the best that can be done is to move directly, at the sectoral level, from trade changes to associated pollution effects, through correlational exercises. Similarly, modelling studies could increasingly incorporate environmental sub-models, and consider how social and governmental variables might be reliably specified and integrated.

There is a further need (i) to identify the interactions between social and environmental changes, and to treat the former as ultimate concerns in their own right in an overall sustainability assessment model; and (ii) to move from linear to more interactive models by tracing the relationships variables in a model have with one another, including an improved understanding of how environmental and social factors affect trade and economic factors. An additional challenge is to specify how intergovernmental institutions and their rules affect economic, social, environmental and domestic political actions. Perhaps the greatest challenge is to understand how economic, social and political changes affect environmental and social well-being, but can also produce cumulative or catalytic changes that move ecosystems over critical stability thresholds.

2.3.5 Subject/Scope

Considering subject and scope of an assessment, the case studies seem to indicate that trade or trade measures, classically conceived, are the usual place to start. However, they also indicate that there are a number of issues associated with trade that should be included in the consideration of scope, as they are shown to have important effects on economic and other activity, with social and environmental impacts.

The case studies affirm the importance of actual at-the-border trade liberalisation, such as tariff reduction, elimination of quotas, and tariff rate quota systems, where changes are relatively easy to understand and even quantify. Incorporated into this, there are a number of issues raised by the case studies implicitly or explicitly that could lead to a broader scope than that indicated in existing methodologies, but where effects might be more difficult to readily identify, and certainly more difficult to measure. One such issue is the introduction of border measures such as labelling. A second is considering the overall export mix, particularly in developing countries, and identifying any bias toward tariff escalation and the export of primary products. A third is the need to identify the multiple sources of trade liberalisation. In some instances it is mandated by trade agreements, in others it is unilateral, and in others it is mandated by SAPs. One might expand an analysis to look at the unique properties of each. A fourth issue is the importance of foreign direct investment. Relatively few case studies begin with trade and investment, yet a number point to the direct impacts of FDI and the scale, structural and technological effects that flow from it. In addition, the removal of restrictions on foreign exchange and the liberalisation of capital flows points to the need to consider finance and portfolio investment in a broader scoping exercise.

These case studies reveal that the general methodologies, and studies based on other approaches, are applicable to the particular conditions and concerns of developing countries. Indeed, developing countries, from all major regions, form the explicit unit of analysis for a number of these studies. They also deal with a broad range of such countries, from large developing countries with "emerging markets" (such as Mexico) through to some of the least developed countries.

Looking ahead to a future research agenda, particularly one that supports increased work in the manufacturing and services sectors, the studies indicate the importance of developing an expanded scope that includes international capital and labour mobility. While broadening the scope of assessments will increase their complexity and may make tracing causality even more important, the UNEP studies, among others, suggest that these issues can probably be dealt with in a manageable way.

2.3.6 Timing

In all cases, the country-specific, sectoral case studies have been carried out in an *ex-post* fashion, that is, following the implementation of a trade liberalisation agreement, such as NAFTA. Broader, economy wide studies have relied on *ex-post* analysis in some cases, while employing various techniques to conduct *ex-ante* analyses in others. In general, studies conducted in an *ex-ante* fashion (Sizer *et al*, Strutt and Anderson) point to broad sectoral impacts that allow for the articulation of general policy options, including early liberalisation in specific sectors, as opposed to across the board liberalisation. It is more difficult in such studies to identify a range of specific "flanking" policies within sectors given the reliance of these studies on standard economic instruments and the level of generality in the findings of the studies.

The studies conducted *ex-post* examine data generated over a range of years. For those studies that use NAFTA as a strict point of reference, data extends back five years. For studies that consider the impacts of broader SAPs data extends back ten, and in some cases twenty years, allowing for the illustration of clear, over-time economic trends. From an environmental perspective, the CEC cattle study suggests that even after only five years there is sufficient economic and environmental data to conduct a sound environmental assessment. Sufficient economic and trade data exists to credibly model environmental impacts, taking into account related macroeconomic policies, such as the Mexican peso devaluation. That study, however, relied on a very limited and carefully chosen indicators, and was focused primarily on the United States, where existing environmental data is among the best and most readily available in the world. The application of similar techniques after such a short period of time to other countries may not be undertaken as effectively.

Despite data limitations, however, the case studies contribute to an understanding of the linkages, based on empirical evidence, between trade liberalisation, development and the environment, since they identify the concrete impacts of trade liberalisation as opposed to projected ones. And in some cases, such as in the studies conducted for UNEP, the reviews are able to proceed to suggest policy measures that might mitigate any negative effects. In some cases, such as in the CEC's study on electricity, the full effect of liberalisation depends upon government policy decisions yet to be made. This dynamic interaction among variables suggests that the widest impacts of liberalisation are not quantifiable in the relatively short-term in some instances.

2.3.7 Participation

The breadth of the case studies examined in these background materials indicates the multisectoral nature of the work and the need for a comprehensive team approach in order to effectively carry out a credible assessment. In addition, the use of teams representing a diverse set of expertise and interests is critical for the long-term acceptance of findings, buy-in, and implementation of policy recommendations stemming from an assessment. Indeed, a number of the studies noted that their country or sectoral assessments should be undertaken in cooperation or partnership with local institutions, non-governmental organisations, the private sector and other relevant civil society actors, including local communities in the geographic locale under investigation.

2.3.8 Sectoral Approaches

The studies examined in these background materials include a range of individual sectors, from the primary and secondary sectors to tertiary domains of the economy. They include studies focused on fisheries and fish products, cattle and maize within the agricultural sector, forest products, mining, automobiles, electricity, services and three economy-wide general studies (focused on goods rather than services). Despite the broad range, and a broader literature review, the studies suggest that there is an imbalance in the specific economic sectors selected for analysis. Most studies deal with the environmentally intensive primary natural resource sectors. This may well be due to the fact that in these sectors, environmental effects are relatively direct, immediate and widespread. Given the traditional focus on environmental effects, such an approach would make sense. In addition, secondary and tertiary sectors could also be perceived as the domain of industrialised countries with sophisticated manufacturing sectors. Nevertheless, the study of autos in India, for example, reveals the growing importance of manufacturing for developing countries and for other rapidly emerging economies and urban populations. To date, however, relatively few studies have been undertaken that address the manufacturing sectors and even fewer that focus on the still poorly conceptualised, measured and understood services sector.

Nevertheless, the sectoral approach has proved useful in identifying specific impacts within sectors, and broader linkages in methodologies. The economy-wide studies examined in this background material were undertaken using quantitative techniques (see below). They usefully show interactions and changes across sectors, but do so at the expense of a detailed treatment of sectors and indicators (beyond air and water) making site-specific, sustainability impacts difficult to identify and specific policy options difficult to derive.

2.3.9 Quantitative vs. Qualitative Assessment

The studies suggest that there are continuing advances being made in quantitative modelling as a technique, although the majority of case studies continue to rely on qualitative methods supplemented by partial quantitative techniques and limited correlational associations. The current state of CGE and other quantitative models to date underscores the urgent need to develop reliable over time cross-national data on environmental and social indicators of key concern to developing countries, for incorporation into such models. Such comprehensive models could assist more qualitatively-based studies in (following the CEC cases studies and the Strutt analysis) closing the feedback loop to underscore the way environmental and

social change affects economic change (including trade) in a dynamic interaction. They might, in future, with the relevant indicators specified and data generated, show more clearly how social and environmental changes are dynamically interrelated.

2.3.10 Criteria/Indicators for Assessment

The case studies further reveal a limitation in breadth in the kinds of environmental and sustainability impacts on which they focus. These are largely environmental, rather than social/socio-developmental or "sustainability" studies. Although social dimensions are often incorporated into the analysis, they are done so primarily as a means to explore how economic changes are transmitted into environmental ones (through social changes), rather than as end-point impacts at the centre of the analysis. Moreover there is a restricted range of social dimensions considered (employment, income, worker mobility) with a heavy reliance on standard economic categories. Less prominent are the softer, more sociological dimensions of gender, race, culture, religion, values, and overall "social capital" for which standard indicators may not exist.

Within the environmental domain, the *de facto* reliance on the economics-OECD based methodology, and the quest in some cases for quantitative analysis, has led to a concentration on air and water effects/indicators, and on often-limited indicators therein. In this regard, land, resource use and biodiversity data/criteria remain under-represented. There is also limited attention to the admittedly difficult but central question of cumulative impacts, interactions among media, and how overall ecosystems move toward or away from sustainability and sustainability thresholds.

The CEC methodology pointed to a number of criteria for the selection of appropriate environmental indicators (see Section 1.9). It provides a basic list that concentrates on indicators where reliable cross-country data is available, from which a selection can be made based on the nature of the study. In the cattle study, only three such indicators were applied. However, they were chosen to represent important environmental impacts. The analysis was useful in that case, in part because the indicators selected, although limited, were well documented and allowed for a highly credible analysis and related to early warning indicators of environmental change. It may therefore be useful to establish criteria for selection that allows for a trade-off between quality and quantity of indicators, appropriate to the selected area for study.

2.3.11 Monitoring, Follow-up and Policy Prescription

A central issue is how these case studies and the various methodologies they apply and develop, can be practically applied in ways that assist stakeholders in taking timely remedial and preventative action toward environmental and sustainability enhancement in a trade policy context. These case studies point to a broad array of interventions, at different levels, that can be made. Yet several areas of additional promise stand out as priorities for developing stronger methodologies. A first may be to integrate more clearly a discussion of government regulations and voluntary standardisation, particularly given concerns with the dynamics of upward and downward harmonisation that trade liberalisation is thought to bring. A second might be to identify more clearly which of the central causes of environmental and social change are open to relatively easy and short-term policy intervention and to explicitly explore the potential of those interventions. And a third could be to incorporate changes, in both policy and daily activities that individual citizens and those in civil society can employ, in addition to those which local, sub-federal and national governments and international institutions can undertake. A number of issues/lessons and points for further discussion are outlined below for the sectors identified as priority areas for this workshop.

2.4.1 Agriculture

At a general level a recent paper prepared for the OECD's workshop in October 1999 on Environmental Assessments of Trade Agreements, summarises a number of methodologies for estimating the environmental effects of liberalised agricultural trade. (Ervin 1999) The paper presents an overview of various approaches to the assessment of the environmental effects of liberalised trade in agriculture. It is divided into a discussion of:

- Elements of a complete analysis of the environmental effects of agricultural trade liberalisation;
- Evaluating methodologies for estimating the environmental effects of agricultural trade liberalisation;
- Summary and conclusions: progress, pitfalls and needed work.

The first section proposes a methodological framework which, to be "complete," must provide a set of trade-environment effects. The paper, in an adaptation of the general OECD methodology, uses the following elements to link trade and environmental effects: (i) scale effects; (ii) mix effects; (iii) externality effects; (iv) policy effects; and (v) technology effects. (Ervin 1999) Mix effects are those that come about as a result of changes in the mix of agricultural and non-agricultural goods produced and consumed, holding constant the scale of economic activity, such as a decrease in the share of food production and land in production, and an increase in manufacturing.

The second section provides a number of listings of various approaches differentiated by (a) the scale or "resolution" of analysis (from global to national to regional to local); (b) the types of environmental value estimated to be affected by trade, including direct and indirect use values, option, bequest and existence values; and (c) the types of economic methods used to estimate these values (household models, hedonic price models and experimental methods). An additional box

summarises the main differences between partial and general equilibrium models and mathematical programming and simulation models. (Ervin 1999)

The concluding section is organised into the same categories as presented in the first section. Scale effects are argued to be negligible in agriculture. Mix effects are argued to be small in developed countries, but emphasis is needed on shifts in mix at the extensive margin (e.g., deforestation) and due to agricultural non-tariff barriers (e.g., GMO bans). Externality effects are argued to loom most important, with a need to link trade and economic models to more disaggregated health and environmental impacts. Policy effects are considered fairly well taken care of. Technology effects are said to be understudied, in part due to the difficulties of capturing complex and dynamic innovation processes. (Ervin 1999)

An overriding point emphasised in this review is that economic analyses of trade impacts are best undertaken at the macro-level, but that environmental impacts are best studied at the local level, specific to particular watersheds or ecosystems. Many economic assessments of trade are too micro-oriented, whilst many environmental assessments are too aggregated to be of much use. Hence, the paper concludes, "the scales required for sound environmental and economic analyses are reversed."

In addition, five key issues are noted for future methodological consideration:

1. Many earlier assessments of Uruguay Round effects assumed too rapid a pace of liberalisation; the slow pace of reform suggests a moderated set of assessments for the agricultural sector.
2. The earlier focus on land use, pesticides and fertiliser use (for which data were available) should expand to include biodiversity, GMOs, landscape values, transport and concentrated livestock operations.
3. Policy-induced shifts resulting in environmental effects require a better inventory and analysis of OECD agri-environmental policies, in part as a guide to LDCs.
4. Business-led environmental strategies and "green" technologies merit more attention and analysis.
5. Public/private strategies (such as for GMOs), and their environmental effects, require more analysis.

The country-specific case studies in the agriculture sector reviewed in this paper focus on the way NAFTA-induced liberalisation has affected the cattle and related grains industry in the United States and Canada, and the corn (maize) sector in Mexico. (CEC 1999, Nadal 1999) These studies highlight the impact of NAFTA's border liberalisation in unleashing processes of economic, environmental and social change, particularly as accompanied by liberalisation of foreign direct investment and domestic policy reform (notably privatisation, deregulation, subsidy reduction and property rights reform).

The cattle study in particular points to the importance of considering specialisation based on comparative advantage, and the potential for environmental protection that flows from such efficiencies. Taken together, the studies suggest that evaluating the environmental and social impacts in this sector, requires a close analysis of how production, management and technology are adapted as producers, at the household and firm level, and pursue different strategies to adjust to trade liberalisation.

In addition, there are important social impacts associated with this sector that should be subsumed in a sustainability assessment. The maize study in particular suggests that there are bonds of culture, family ties, and local community traditions that are impacted by the way rational economic calculations operate, even as the latter can generate widespread social dislocation. In particular, the depth of the liberalisation in Mexico has created severe pressures of rural poverty, loss of local social and ecological infrastructure, threats to the rich store of local landraces and biodiversity, water quality and quantity and the integrity of Mexico's traditional rural society and culture.

2.4.2 Forestry

In general, it can be difficult to link changes in this sector directly to trade liberalisation because most production and consumption of forest products occurs domestically in the countries responsible for extracting the resource. In addition, the majority of global deforestation has little to do with trade and more to do with other factors such as expanding demand for food and the expansion of subsistence agriculture, demand for fuel wood to meet energy needs, and land tenure patterns. Thus, in this sector, it is particularly important to take an approach to assessment that incorporates important variables, including land use, from other sectors such as agriculture.

A sustainability assessment of forestry requires a wide range of both environmental and social indicators. Of particular importance is biodiversity, an area where data and linkages in existing assessments have heretofore been relatively weak. In addition, there are important linkages between the forestry sector and local and indigenous communities (Sizer et al 1999), and strong cross-sectoral dynamics are created through shared land use with other sectors, such as agriculture.

Changes in land use brought about by agricultural activity have significant impacts on the forest sector. This is consistent with additional studies looking at land use that suggest that the principal instigators of deforestation are developing-country farm households—particularly those that practice shifting cultivation. One study suggests that the quantitative modelling of this sector is difficult at present because of the relatively naïve, or non-existent, representations of land use and forests. CGE models with forest sub-models appear to be a promising class of models for the analysis of trade liberalisation effects on land use—provided they incorporate household agricultural data. (Ferrantino 1999)

A recent OECD workshop singled out forestry as a sector for further work, confirming the following as potential areas for exploration:

- Incorporate the insights from the household agricultural literature into CGE models, e.g., joint production of agricultural goods and fuel-wood by the household, the wide variety of prices affected by trade liberalisation that impact on land clearing, and the effect of land tenure on land clearing.
- Further evaluate the effect of off-farm wages on deforestation. (OECD 1999a)

2.4.3 Services

Virtually all of the work in developing and applying frameworks to assess the sustainability impacts of trade has been based on trade in goods. However, the current global economy is one in which services rather than goods dominate many national economies, and in which trade in services is growing at a much greater rate than trade in goods. This dynamic is likely to accelerate as the electronic-internet revolution takes hold more fully on a global basis. And while trade in some services, such as construction or tourism, can involve direct environmental and social costs, many of the impacts of overall services trade liberalisation could have environmental effects that are, as yet, little understood. For example, as the electronic revolution decreases the transportation and manufacturing of material goods, economy-wide dematerialisation may have positive impacts on the environment.

Transborder traded services include a wide variety of activities. Given the virtual absence of empirical conclusions or conceptual work in this field, it is useful to begin with the standard trade-based conception of these services, from the General Agreement on Trade in Services (GATS), as items in which human capital intensive activities, or the individuals which produce, transport or consume them, travel from one country to another. According to the GATS, trade in services includes the following: (i) cross-border movement of service products, (ii) movement of consumers to the country of importation, (iii) the establishment of a commercial presence in the country where the service is to be provided, and (iv) temporary movement of natural persons to another country in order to provide the service there. Services categorised in the GATS cover 12 sectors: business (including professional and computer); communication; construction and engineering; environmental; financial; health; tourism and travel; recreational, cultural and sporting; transport; and other. These in turn are divided into 155 sub-sectors. Additionally, it may be important to consider the emergence of new service categories (such as e-commerce), and the overall impacts of the move toward the electronic economy and society.

A recent paper reviews the existing literature relevant to understanding the environmental effects of trade in services. Services now constitute 70 per cent of developed countries' employment and output, 60 per cent of the employment from global FDI, and the most rapidly growing area of world trade, expanding at an annual average rate of 8 per cent from 1990 to 1997. (Andrew 1999) The importance of this trade in the global economy, and in the current multilateral and regional trade liberalisation negotiations now underway, stands in sharp contrast to the paucity of current knowledge, or even scrutiny of, the environmental impacts of such trade. To begin the process of developing the needed methodology, the paper reviews the Canadian and US assessment of the Uruguay Round General Agreement on Trade in Services (GATS), and then applies the 1994 OECD methodologies to the services sector to make judgements and raise questions about the potential environmental impacts.

The paper concludes that understanding of these important links is still in its infancy, that further work is needed, and that "recourse to a slightly adjusted and extended set of questions in the checklists to the 1994 OECD methodologies provides a way of organising an environmental review of the liberalisation of trade in services." It recommends a focus on specific sectors, given the current inability to measure the overall economic and environmental effects of service trade liberalisation by aggregate quantitative methods.

This review reveals that the liberalisation of services trade is likely to have a broad range of important beneficial environmental effects, as well as a lesser number of negative effects in specific sectors such as construction and tourism. These net positive effects can be further enhanced by designing the hitherto restricted liberalisation agreements, which engage domestic regulatory issues, in ways that build in an environmental impact assessment of further moves to services trade liberalisation. Although the use of the OECD framework provides a useful orienting point of departure, and highlights the critical regulatory domain, it may move attention away from the larger question of environmental impacts, as trade in services is substituted for trade in goods on an economy-wide basis, as a result of the electronic revolution and resulting de-materialisation of economic activity. The paper also references, but does not develop, the critical role as a carrier of services trade, of FDI and labour mobility for temporary and more permanent personnel. These latter items raise important issues about the scope of new trade liberalisation agreements, and suggest the need to include social dimensions alongside environmental ones, as part of an overall sustainability assessment of the comprehensive liberalisation agreements for services that may come. Although this currently appears to be an ambitious requirement, given the lack of knowledge and data, the ongoing revolution in services trade, the potentially large net environmental effects that flow from it, and its potentially extensive domestic impacts suggest the need for a major analytical investment in this area. (Andrew 1999)

The study recently prepared for the European Commission and designed to conduct a sustainability

assessment of a new round of multilateral trade negotiations, included trade in services in its analysis. (Kirkpatrick and Lee, 1999) Its specific focus was the resumption of negotiations on services (the GATS 2000 negotiations) which members were already committed to undertake regardless of the progress of an overall round. The analysis was based on the GATS definition of services, and the 12 sectors, 155 sub-sectors, and four modes into which services under the GATS were organised (see above). Similarly, it followed the GATS formula of focusing on the commitments members made in specific sectors, their impact on the existing domestic regulatory regime, and the limitations members declared. In accordance with the overall EU approach to the prospective round, it began with three scenarios of ever more ambitious liberalisation, and assessed impacts on the EU members, the developing and least developed countries, and the global system as a whole. It concluded that the social and environmental impacts were likely to be highly differentiated, by region and sector, with modest but positive economic impacts for EU members under a scenario of intermediate liberalisation.

While this study did little to advance the internal analysis of developing a trade-environment-social framework for the services sector, it did point in several promising directions. As with the CEC framework, it began explicitly with the provisions of a specific trade liberalisation agreement (in this case the GATS), even with the uncertainty attendant on estimating what the mandate of a new round might be, or what the result was likely to be. It included social dimensions, with specific references to culture and migration (in relation to tourism). It dealt with pressure points and impacts on local geographic areas. It also, as with the CEC cattle feedlot study, drew on general equilibrium modelling, in this case from an Australian study, to estimate the economic effects of services liberalisation. Given these contributions, it is possible that progress could be made in developing a general framework to explore sustainability impacts of services trade, by taking the specific features of regional trade agreements containing extensive services provisions, such as NAFTA and the EU itself, and subjecting them to review.

The following case studies are reviewed in order to provide participants with additional background information and references. They are intended to illustrate a range of approaches to assessment and are not intended to limit the discussion at the workshop.

2.5.1 North American Commission for Environmental Cooperation (CEC)

The CEC case studies were conducted in an *ex-post* fashion, in conjunction with the methodology set out in the CEC Framework. (CEC 1999a) They considered only environmental effects and their focus was NAFTA, broadly defined. (see section I.4) They were undertaken during the development of the methodology to test and enhance it. Studies were undertaken in the following areas:

- Electricity Restructuring in Canada, Mexico and the United States;
- Intensive Cattle Feedlots in the United States and Canada;
- Maize in Mexico.

Although the studies were designed and conducted for the purpose of testing and improving the general analytic framework, rather than generating conclusive findings about effects, the results were suggestive of directions to take in the overall task of trade-environment assessment. The full text of the studies is available in English and Spanish on the CEC web page (www.cec.org). The results of these sector study applications are described below.

Electricity Restructuring in Canada, Mexico and the

2.3. Case Studies

United States

This study of electricity restructuring in North America suggested that NAFTA-induced regulatory and tariff changes could have a catalytic effect on existing processes of deregulation and moves toward an open grid, but that the ultimate environmental impacts depended largely on government policy decisions that were yet to be made at the national level. This was most evident in the case of older generation US coal-fired electricity generators which could, in the absence of appropriate environmental policies, secure a decisive economic advantage in the newly deregulated, region-wide market, and have a major negative impact on air quality as a result.

The study highlighted the fact that small changes in trade rules could have a major catalytic effect, when taking effect in conjunction with other economic and policy moves such as deregulation and the move to an open grid. It showed how firms and governments anticipate the implementation of trade agreement and liberalisation, and begin to adjust in advance well before an agreement formally comes into force. The study highlighted the importance of technology transfer following tariff and foreign direct investment changes. Indeed, it suggested that the shift to new generation technologies such as dual cycle turbines and imported low sulphur coal could, if widely adopted, yield major environmental benefits.

The study also emphasised the dynamics of inter-industry substitution, in particular, how electricity, gas, coal, wind and geothermal generation could serve as substitutes for each other depending on pricing, regulatory policies and the physical infrastructure of the grids. As electricity is a necessary input for virtually all other industries and end-use consumers, the ecological effects of its generation impact the economy in ways that are important but sometimes difficult to trace. Attention was also given to a particular aspect of social organisation, notably the ability of otherwise dispersed customers to organise themselves in cooperatives to ensure that, with the right information and incentives, they could act on their preference to purchase electricity generated through relatively environmentally benign means.

One challenge encountered in the electricity study was the importance, but difficulty, of adequately taking into account the demand side-effects of trade related economic growth. The CEC framework was a supply-side based model which acknowledged the importance of, but did not develop methods to explore, the way NAFTA-induced economic growth generated a new scale of demand for electricity among different income groups and in different regions, and the aggregate environmental effects such growing scale might have. A further challenge was tracing the autonomous, feedback effects of environmental change on economic activity itself. Such changes as decreased rainfall and drought, could have an important effect in decreasing hydroelectric generation dam reservoirs. While the framework acknowledged the importance of this link and identified some of its major elements, more analytic development is required.

Intensive Cattle Feedlots in the United States and Canada

This study examined the fed-beef sector in Canada and the United States. The sector links various parts of agriculture: cattle are fed on grains and oil seeds, which account for a large store of North American crop acreage. After leaving the feedlot, they are processed into beef products. Much of this activity occurs in, on or close to soil, water, and biota and therefore has important environmental impacts.

The feedlot production of beef has displayed considerable structural change, much of which is linked to economies of scale, fewer farms, larger feedlots and a small number of large processing firms. The study suggests that the main dynamic of the trade liberalisation initiated by NAFTA, was to reinforce an existing pattern of comparative advantage, and concentrate feedlot activity in large firms and locations in the United States allowing for more effective government oversight of environmental regulation. The study demonstrates that the particular trade liberalisation provisions of NAFTA could be directly traced, through modelling and other quantitative and qualitative techniques, into subsequent trade and investment patterns. It further demonstrates the importance of physical infrastructure in shaping outcomes, given that the well developed US interstate highway system concentrated the US feedlot industry on an epicentre in Garden City, Kansas, where the surrounding high plains could sustain beef-raising and feedlot activity with minimal environmental stress.

The study further highlighted the centrality of foreign direct investment and sector organisation, as the concentration of the industry in the United States and Canada in three large US owned firms, allowed for the most modern and environmentally friendly techniques to be used. Although not designed for this purpose, the case study proved to be quite policy relevant. It highlighted a limited number of critical environmental and ecological indicators and pointed to places where further data-gathering efforts should be concentrated. Without considering social effects, the study indicates that the increasing concentration of production may well have social consequences that, in some cases, ultimately affect the environment. First, small, family owned firms and farms and rural communities become less sustainable. Second, there are human health arguments against beef, revolving around cardiovascular health and fat. Third, there are changes in the pattern of employment in the meat processing industry, with a reduced demand for skilled labour and an increasing demand (often met by migrants) for lower-skilled workers. The study also identified the major national government policies that were affecting environmental quality in the sector, and that could be implemented to enhance the trade-related

environmental effects.

More generally, the cattle feedlot study demonstrated that in the four years after NAFTA took formal force, there was sufficient, reliable, high quality data, both economic and environmental, to conduct an analysis of a wide variety of linkage processes and environmental effects from air, water, land and biota. To this end, the study focused on a limited number of indicators that lend themselves to ongoing monitoring and evaluation: nitrates, atrazine, phosphorous loadings, biological oxygen demand, and total suspended solids. It further demonstrated that while economic modelling techniques were useful, they were best used in conjunction with other techniques, including firm-level interview research, given the absence within them of components such as foreign direct investment and technology transfer. It suggested the need, in future studies, to develop focus on the social impacts of trade liberalisation, notably, the dynamics in the sector of a work force which is composed of recent immigrants who are poorly educated and often from minority groups.

The study addressed the issue of how much effort to invest in exploring upstream and downstream dynamics and effects, in an attempt to capture a "cradle-to-grave" exploration of activities in a sector. It included the major upstream sector of cattle raising and grain production in the analysis, and the major downstream sector of beef slaughtering, packing and processing. It proposed that in order to maintain manageability in such analysis, future studies could include the one major upstream and downstream sector that is the major input into and customer for the sector under consideration.

Maize in Mexico

The case study on maize in Mexico identified the complexity in transmitting the effects of trade liberalisation into environmental impacts, given the critical intervening role of producers' strategies and culturally bound social organisation. The NAFTA-defined reduction of barriers to imports of inexpensive US corn into Mexico, combined with the lessening of Mexican government financial support for the production of indigenous maize, especially in the *ejido* sector, was expected to increase US imports, at the cost of decreased Mexican production. It was envisaged that this would lead to job loss and rural-to-urban migration among Mexican maize-producers. In the first few years after NAFTA, however, while US imports increased, fuelled in part by a drought in northern Mexico, Mexican production levels have been maintained.

One part of the solution to this apparent paradox is a result of the various production strategies employed by Mexican growers, as they have chosen either to: (i) rely on traditional rain-fed production methods and increase output in the face of falling prices to maintain overall income levels; (ii) move to high technology production through mechanisation and pesticide/fertiliser use in irrigated areas; or (iii) leave the sector and turn to export-oriented high value crops such as horticulture. A second part of the solution lies in culture and social organisation, as traditional maize production in the *ejido* sector, in particular, is not merely an economic activity but one embedded in deep national and community values, and integral to the social fabric that binds and sustains communities.

The force of these intervening factors appears to be decisive in determining the strength and direction of the widespread environmental impacts of NAFTA-induced change in this sector. More extensive production by traditional methods imposes greater stress on marginal lands. The choice of high technology adaptation puts further stress on already endangered water quantity and quality. Shifts in production away from corn into labour-intensive commodities, such as flowers, fruits and vegetables could reduce the corn-producing populations and erode the traditional social and community institutions responsible for resource management. A typical rural household supplies part of its corn production to the market to meet income needs and to purchase inputs. An additional source of income is the sale of labour in local markets. Consumer prices for corn have not dropped, while the reduction in producer prices of corn will adversely affect rural employment and income. Migration will increase as corn-producing households seek to sustain their household incomes. This can result in labour shortages at the household level and erode the ability to monitor and maintain agricultural practice, which ensures sustainable traditional agriculture. Lack of local employment opportunity and off-farm income and the associated outward migration weaken local institutions and relationships.

More farmers exiting the sector may destroy the fabric that binds communities together—which maintains the physical infrastructure for traditional maize production, and thus the wild-race genetic diversity that is a central contributor to Mexico's (and the world's) biodiversity. Indeed, the study reinforces the importance of social behaviour as both a cause and effect of environmental degradation. From the perspective of social organisation, the study focuses on social institutions, property rights regimes, subsistence production and the availability of labour force and migration. The social impact of the changes in corn production and trade will also have environmental consequences. Migration reduces households' and communities' capacity to maintain social conservation infrastructure and manage water resources, while the disruption of social organisation can affect their capacity to maintain adequate management of genetic resources. The dynamics that create the shifts in behaviour are driven by complex forces that include economic effects of trade, price and other macroeconomic forces, and government policy, all of which can be captured in the framework.

The Mexican maize study also demonstrated the dangers of relying on approaches that move directly from trade/economic changes to environmental impacts, without considering in full the range of intervening processes that mediate and often define these

relationships. The differing strategies and technologies producers employ affirm the importance of production, technology and management choices. Infrastructure for irrigation, product supply, and terracing in rain-fed areas, sets important constraints. Social organisation and, in particular, the autonomous impact of traditional culture, can offset and withstand the pressure of prices and rational economic incentives in society. In addition, government policies can play a powerful role in directing the strategies producers use to adapt, in one way or another, to the forces associated with liberalisation processes. Finally, NAFTA's intergovernmental, agriculturally-related institutions are playing an important role in determining how the NAFTA liberalisation is being implemented in practice, and thus the production strategies that can and should be employed.

The Mexican maize study relies on detailed data on production, prices, government supports and ecological impacts across the different geographic regions within Mexico. It thus highlights the need, as does the cattle feed lot study, to account for spatial effects and local impacts in the trade-environment relationship. It emphasised the importance of reliable, new data, particularly large-scale interviews with producers in the *ejido* sector. It points to the need to take a full ecosystem approach, that encompass impacts on soil, biota, air and water, that deals with long-term impacts on a precautionary basis and considers sustainability thresholds. Above all, it affirms the relationship between environmental and social impacts, with the latter conceived broadly to include the culture integral to indigenous peoples' and other communities' ways of life.

2.5.2 United Nations Environment Programme (UNEP)

For the past two years, UNEP has been working with six countries—Bangladesh, Chile, India, Philippines, Romania and Uganda—on a comprehensive project to identify the impacts of trade liberalisation on national environmental resources, and the use of economic instruments to manage these impacts in a way that supports sustainable development. The following four studies have been examined as most relevant to this paper:

- Shrimp Farming in Bangladesh.
- Fisheries in Uganda.
- Automotive Sector in India.
- Mining in Chile.

Shrimp Farming in Bangladesh

The point of departure for analysis in this study was not trade itself, but the policy reforms brought about by structural adjustment programmes (SAPs) that include important trade-related policy instruments. The report argues that these policy reforms, combined with domestic policy priorities to promote export-led growth, put in place an export-friendly environment for commercial shrimp farming. While the focus of this study is not a specific trade agreement or trade liberalisation regime, there are nevertheless some lessons that can be learned from the analysis, relevant to identifying important linkages that might be considered in a sustainability assessment.

The framework used for this study to examine the environmental impacts of trade-related SAP policies was as follows:

- to review the relevant literature on export-oriented shrimp culture with particular reference to its impact, in the context of SAPs, on the economy, environment and social fabric of the local community;
- to analyse the trend and structure of export-oriented shrimp culture in Bangladesh against the background of trade policy reforms in the country;
- to undertake a simple cost-benefit estimate to assess the environmental impact of export-oriented shrimp culture in Bangladesh; and,
- to develop a policy package for sustainable shrimp culture, integrating environmental concerns and trade expansion objectives.

The study begins by assessing the new economic policy regimes that drive the development agenda. It argues that the structural adjustment reforms of March 1986, under the Structural Adjustment Facilities of the IMF, and of June 1989, under the IMF Extended SAF, combined with sectoral reform packages provided by the World Bank, have been instrumental in defining the development strategies of developing countries during the last decade and a half. It identifies the main trade-related policy reforms as follows:

- Tariff rationalisation and overall trade liberalisation: average tariff rates for imported inputs were reduced from 88 per cent to 21 per cent;
- The substantial removal of an anti-export bias in the trade and investment regimes;
- The private sector was encouraged to invest in export-oriented activities.

The study suggests that the overarching goal of these reform measures in Bangladesh was to stimulate the country's growth performance through the creation of a market-based economic management structure reflecting the comparative advantage of the country. Results have been mixed from a macro and micro-economic perspective. The economy is more market driven, interest rates are largely market determined, the exchange rate is fixed, tariffs have been reduced, and a number of agricultural subsidies have been either withdrawn or significantly reduced. In addition, although investment rates have declined, the study notes that the country's exports have grown.

The study argues that as resources switch from non-tradable to tradable sectors of the economy, major shifts occur in production and cropping patterns in response to adjustment policies. Resulting export-oriented policies have resulted in resource degradation. In particular, following the SAPs, the commercial culture of shrimp expanded at a rapid rate, driven by the policy

environment within the country, and emerging opportunities in the global market. Trade related policies have encouraged the commercialisation of the industry, replacing subsistence and traditional farming practices.

The environmental impacts of shrimp cultivation were calculated using a cost-benefit analysis (CBA), using costs of land degradation, human health impacts, and mangrove destruction. Benefits were the income derived from export of processed shrimp. Land degradation causes a loss of 0.11 per cent of total GDP in forgone agricultural production, a reclamation of cost of 0.22 per cent of GDP, and a cost of cattle loss equivalent to 0.01 per cent of GDP. Water pollution from shrimp farming impacts on human health at a cost (adjusted to average income) equivalent to 0.09 per cent of GDP. Mangrove destruction causes annual income loss equivalent to 0.02 per cent of GDP, and a biodiversity loss of US$2.2 million. In 1998, the benefits of shrimp exports amounted to 1.1 per cent of GDP. The CBA ratio emerges as 0.21 on a production loss basis, and as 0.30 on a restoration costs basis. The cost is thus 21 percent to 30 percent of the total benefit. (UNEP 1999d) The use of a CBA in such an assessment can be a useful tool in that it forces the analyst to identify a range of causes and benefits, and to assign values to them. In some cases it even allows for the identification of trade-offs. Challenges associated with CBA are that it can render the analysis static, and sometimes arbitrary judgements can provide a false sense of security in cases where the complex relationships between and among key variables are essentially unknown.

Uganda's Fisheries Sector

This study focuses on assessing the impacts of investment promotion, trade liberalisation and privatisation. It takes as its starting point the Economic Recovery Programme and Structural Adjustment Programmes instituted after 1987 and encouraging reforms to promote investment, trade liberalisation and privatisation, and the impact on fisheries utilisation and sustainability.

The SAP opened Uganda's economy to foreign competition and technology inflow and resulted in steady growth – in particular in the manufacturing sector. The economic policies also encouraged the growth of export markets and growth in the fisheries sector. Investment promotion packages introduced in 1991 included tariff and tax incentives, profit repatriation and protection of private property. This activity stimulated investment in fish processing, resulting in higher quality standards in the industry, higher prices and earnings to fishers, an outlet for Nile Perch (for which there was initially a limited local market), and reduced use of wood for fuel. It also encouraged the rise of unplanned urbanisation on the shores of Lake Victoria, increased fish harvesting and the danger of pollution through inadequately treated wastes, and eliminated a role for middlemen in the industry – a traditional source of livelihood.

a. Market Liberalisation

Trade liberalisation policies have increased foreign exchange earnings, resulted in higher incomes to fishers and fish traders, and improved the supply of modern fishing gear to the industry. However, they have also threatened the sustainability of the fisheries, led to higher domestic prices for consumers, increased demand for juvenile fish in the domestic market, , and created a high degree of instability in the fisheries market due to over-dependence on a fragile export market subject to significant fluctuations.

After 1987 the Government of Uganda increasingly liberalised both the import and export markets through three key policy measures: liberalisation of trade and marketing of agricultural products and inputs, liberalisation of foreign exchange, and removal of price controls. Traditionally, Ugandan fish exports were regional, going through customs posts to neighbouring countries. Beginning in 1989, a few companies started exporting limited quantities to Europe. By 1991 exports to the EU were about 4,751 tonnes. In 1997 they were around 4,839 tonnes, after declining from 16,396 tonnes in 1996 following an export ban by the EU due to concerns over quality. Uganda's Ministry of Trade implemented a ban on the export of unprocessed whole fish in 1991, which led to an influx of investors to Uganda to set up fish processing factories. Previously, whole fish had been transported to neighbouring countries, such as Kenya, for processing. A number of important impacts are identified as a result of these policies.

From an economic perspective, there has been a change in export patterns. The expansion of the market for Uganda's fish beyond the neighbouring countries to overseas markets in Europe and the Middle East resulted in substantial foreign exchange earnings. There has been an increase in the supply of appropriate fishing gear (of type and size meeting regulations) to the market. Hitherto, the supply of fishnets was a monopoly held by Uganda Fishnet Manufacturers who could only meet 30 per cent of the overall demand for nets. The shortage led to illegal fishing practices.

This translates into social impacts, as increased cross-border trade has provided opportunities for fishers and traders from the region to earn higher prices from the export of their fish to neighbouring countries. In addition, higher export prices, while a welcome development for the fishers, deprived many domestic consumers of this food-source, as they could not afford the competitive prices set by the export demand. This is evidenced by the shift in consumption patterns of local consumers to relatively cheap sources including juvenile fish, which poses a threat to the sustainability of the resource. An over-dependence of the fisheries on the export market has exposed it to instability arising from external factors such as the 1998 ban on Lake Victoria fish by the EU, related to public health issues.

From an environmental perspective, the danger exists, due to the difficulties of monitoring trade, of exotic fish species entering the waters of Uganda. Sources of such

alien introductions included investments in farming of exotic fish species or the import of live fish for ornamental purposes. In addition, the introduction of Nile Perch (for export) into the lake has resulted in the decline, and in some cases the disappearance, of native fish species.

b. Privatisation

Privatisation has had a limited impact, as the role of government in production has been limited to providing subsidised inputs to the fisheries industry. In conjunction, the government initiated a massive privatisation campaign in 1991, aimed at transforming the ownership of business enterprises from the government to the private sector. The removal of trading monopolies has resulted in the payment of higher prices to producers in the agricultural sector. However, privatisation policies have had little impact on the fisheries sector because the role of the government has been traditionally less important here than in other sectors such as agriculture. In addition, since the government has ceased to provide subsidies for fisheries inputs, there has been an enhanced reliability in the supply of fishing materials as private companies have become involved in the import and distribution of these inputs.

c. Investment

Investment promotion began in 1987 with measures that stimulated rapid growth of the manufacturing sector and the fish-processing sub-sector. As a result, large increases in investment have been channelled into fish processing. Between 1990 and 1998 the number of fish processing firms increased from 3 to 10. The total maximum capacities established by the firms in this sector rose from 90 tonnes per day in 1990 to 295 tonnes per day in 1998. The processing plants produce chilled and frozen fish fillets for export to Europe, the Middle East, China, Japan and Korea.

Firms in the industry have governmentally allocated quotas that impose limits for industrial fish processing. Approved capacities of individual firms are based on applications by fish processing firms and the existing knowledge of fish stocks. Since 1990, the maximum capacity has been far greater than approved capacity.

The rapid expansion of the fish processing plants has important social and environmental impacts. From a social perspective, fish has been and remains the cheapest source of animal protein for much of the Ugandan population. As mentioned above, the demand by the fish processing plants has raised the price of fish to a level that cannot be afforded by the majority of the local people. The increased demand for fish increased the influx of workers into this fish sector. This has led to the unplanned development of urban centres on lakeshores, with resultant health and sanitation problems. In particular, the fish processing sector was transformed from an artisanal sub-sector, with little technological intervention and foreign capital investment, to one dominated by local and international capital, generating employment and income. This has deprived a large section of the artisanal middlemen of a source of livelihood.

The increased number of fish processing outlets created increased demand for high quality raw materials, which stimulated investment in infrastructure and landing facilities. The districts and other local authorities, which collect revenues from the fish production centres, have shown a willingness to allocate budgetary resources toward the development of improved facilities and infrastructure. On the positive side, the increased demand for raw materials implied higher prices and increased revenue to the fishers.

The increased investment in the industry has also had impacts on the environment through pollution, and impacts on the resource. The increased number of fishers has led to the opening of new settlements, often involving the clearing of wetland ecosystems and other shoreline vegetation, exposing the lake to greater pollution through erosion. Likewise, new industries located close to the lake pose a serious threat of water pollution. A great deal of water is used in the cleaning and processing of fish, which is then released as industrial wastewater containing scales, fish off-cuts, fat, and which also has a high level of biological oxygen demand (BOD) and suspended solids. In addition, a number of chemicals are used that eventually are disposed of in the water. Only two of the eleven fish processing plants in the Lake Victoria area have fair to good wastewater treatment facilities. The resulting impacts on the environment include the following:

- pollution and deterioration of water quality leading to fish poisoning, water hyacinth proliferation and algae blooms;
- degradation of coastal wetlands which diminished their wastewater filtering , fish breeding and habitat functions;
- depletion of tree and other vegetation cover causing soil erosion and hastened pollution and siltation of lakes and rivers.

Increased demand has resulted in increased fish catches, exerting pressure on fish stocks with the threat of over-fishing. The processing firms provided an outlet for the Nile Perch at a time when there was a recommendation by resource scientists and fisheries managers that the species be fished heavily to maintain ecological balance in the fisheries of Lake Victoria. The location of fish processing plants along the lakes, built to process Nile Perch for export, has fuelled a rapid increase in fishing, to the extent that fish catches have started to decline. In addition, fish processing plants have taken most of the large fish leaving less for local consumption. This demand by the fish processing plants is thought to have encouraged fishers to use illegal sizes of gill nets and seine nets to catch juvenile Nile Perch for local consumption.

On the positive side, the establishment of processing factories has diverted interest away from the traditional processing techniques of smoking using wood fuel, which has reduced pressure on forests. In addition, factory

demand for relatively large Nile Perch provided a disincentive to the harvest of immature fish.

In Uganda, a regulatory framework has been put in place aimed at meeting not only quality control requirements, but also satisfying requirements of major importers of fish products, notably, the EU. There is also an effort to improve sanitation throughout the processing chain.

Overall, the study concludes that the export of fish and fish products has grown steadily since 1991, encouraged by price increases in the international market, a general trend toward healthier fish-based diets, and the low cost of fish compared to beef as a source of dietary protein. Exports continued to grow in the 1995/6 period following short-term elasticities in the beef market due to fears of mad-cow disease in Europe. By 1996, over 20 Ugandan firms, four of which satisfied the minimum import product standards of the EU, were involved in fish and fish products export business in the country.

India's Automotive Sector

This study also takes as its point of departure structural adjustment programmes (SAPs) aimed at India, dating back to July 1991, and based on the premise that they should "reduce government intervention in the industrial sector and create a more export oriented trading economy." The new economic policy was focused at creating a more competitive environment, thereby improving productivity and efficiency in the economy. The primary goal of the SAP was to reduce the central government's fiscal deficit, to bring the currency account deficit into manageable proportions, and to raise GDP growth to around 6 percent by the mid 1990s. The policies chosen included: (i) liberalising exchange rates, (ii) reducing government budget deficits, (iii) promoting the role of the market, (iv) fostering globalisation, (v) enhancing the role of the private sector, and (vi) strengthening government and market institutions. Specific trade related goals were to create a liberalised trade regime with tariff rates comparable to industrialised countries, with little discretionary import licensing, phasing out of quantitative restrictions, easing of exchange control regulations, a more open policy regarding FDI, and rationalisation of export subsidies.

As a conceptual framework for examining the environmental effects of trade, the study suggests that trade leads to an expansion in the scale of economic activity as efficiency gains are realised. In addition, changes may occur in the composition of output, the production techniques used, and in the location of

economic activity—so-called "structural effects." The study identifies the following four components as drivers of change:

1. *Growth in output.* The study suggests that it can be positive as higher incomes lead to greater demand for environmental quality and more funds available for environmental protection. Nevertheless, it notes that growth may also lead to faster depletion of natural resources and increased pollution.
2. *Change in composition of output.* Countries may specialise in cleaner products, or the reverse.
3. *Changes in production techniques including inputs and/or technology.* This technology effect may lead to the diffusion of cleaner production technologies that reduce pollution intensity, and the use of alternative inputs that may be cleaner.

The study considers whether trade liberalisation is compatible with efforts to enhance environmental protection. It argues that, to the extent that trade reforms eliminate policy distortions and improve the efficiency of resource use, they are generally good for the environment. It also states that the removal of distortions through trade reform leads to higher incomes in both rich and poor countries, as well as relocation of production and consumption. The study is premised, in large part, on the hypothesis that higher incomes lead to environmental benefits. The study notes that it is not trade liberalisation *per se* that creates environmental damage, but the lack of appropriate domestic policies. When trade reforms are combined with appropriate domestic environmental policy measures, welfare gains and improved environmental quality can result. In addition, it points to policies that encourage the role of the private sector, to the implications of changes to FDI rules on attracting foreign investment to India, and to encouraging technology transfer agreements.

The broad results of these policies were then applied to the auto sector. First and foremost, the study notes that the liberalisation has led to an increase in domestic as well as foreign investment in the auto sector. It has also resulted in increased exports. In fact, Indian vehicles are reaching global standards both in terms of quality and emission standards. This change is encouraged by liberalised FDI, which is leading to a growth in the component industry, faster diffusion of technology, long-run gains in productivity as a result of technology, and increasing competitiveness. The study clearly illustrates a strong link between FDI and so-called technology effects. The study argues that specific changes brought about by the rapid growth in the auto sector, contributed to by the SAP, are as follows:

1. *An increase in vehicle pollution emissions.* The study suggests that domestic consumers have been beneficiaries of liberalisation, and since the partial liberalisation of the auto sector in 1983-84, there has been a tremendous growth in sales of motor vehicles. With the entry of new players into the auto sector, and accompanying FDI and increased competition, there has been a major improvement in the quality of, and consumer choice of, motor vehicles. Prices have fallen in real terms as real income has risen in Delhi, by 57 per cent between 1984-85 and 1996-97. A shift in the nature of employment (growth of private sector and multinationals with attractive salary packages) has contributed to this and fuelled the growth in demand for motor vehicles. This, in turn, leads to increased fuel consumption, increased vehicles on the road, and increased emissions contributing to an acute air pollution problem in Delhi associated with the use of energy in the transport sector.
2. *New technologies and replacement of old vehicles drastically reduced emissions per vehicle in all categories.* Since 1991, in the post SAP period, there has been a reduction in emission factors. The study suggests that a correlation between the two is likely as liberalisation has meant the entry onto the market of newer and cleaner technologies.
3. *Fuel quality is improving.* The study suggests that it will be some time before fuel quality increases to the levels of industrialised countries.
4. *Congestion has increased*. Between 1971 and 1991 the population of Delhi doubled and the numbers of cars on the road increased nine-fold, rising from 0.2 million to 1.8 million. There has been a shift primarily towards personalised transport, yet road space has not increased. Increased congestion leads to reduced vehicle speeds and idling, increased fuel consumption and increased pollution.

Chile's Mining Sector

A fourth study undertaken by UNEP that is relevant in this context is that of the mining sector in Chile. In this study, trade liberalisation is defined in the broadest sense. It relates to the overall process of opening the Chilean economy to world markets, the internal factors that caused and strengthened this, and the evolving ideas on the nature of the economy.

In identifying the links to trade, the study notes that the economic effects of trade liberalisation in Chile have been significant. The structure of the economy has changed with a move to greater diversification and shifts in products destined for export, including increases in scale. The transfer of technology has been facilitated by trade liberalisation, and regulatory/policy factors have both fostered the process of liberalisation and been influenced by liberalisation.

In this study, environmental effects are divided into the categories of scale effects, structural effects, technology effects, product-related effects, and regulatory/policy effects. Major findings are as follows:

a. Scale effects:
As mining activities expand, environmental impacts increase. This leads to a depletion of non-renewable mineral resources. From a regional perspective, export-led growth in mining activities has had effects in the regions of the country with the greatest number of mines – including serious and long-term damage to unique ecosystems.

b. Structural effects:
As a result of trade liberalisation, exports have diversified considerably, moving away from non-renewable minerals towards renewable natural resources.

The long-term viability of exporting renewables is not certain because of unsustainable patterns of production in sectors such as fisheries where the resource is under pressure. Structural changes within the mining industry itself include the increased presence of multinational companies with greater managerial and technological capacity, offset by the scale of operations.

c. Technology effects:
Trade has allowed the transfer of environmentally sound and "clean technology" – most applied to the exploitation and processing phases of mining. There has also been a transfer of environmental managerial methods. Evidence indicates that pollution originating in the mining sector is steadily decreasing in terms of loads per unit of output, efficiency is increasing and practices such as recycling are being adopted. These new technologies or practices have been adopted primarily by large operations, but increasingly are being embraced by medium sized operations.

d. Product related effects:
There has been a shift in products being exported with more emphasis on concentrates than refined copper in the mining sector. The degree of environmental impact of concentrates varies according to the nature of the ores and type of processing technology used, rather than being a fixed effect. It is therefore not possible to determine, in an unequivocal manner, the overall environmental effect of this shift in production. But, the study suggests that the focus on concentrates is more benign because it does not involve smelting.

e. Regulatory/Policy effects:
The process of economic and trade liberalisation has had a significant influence on the development of environmental regulations, management practices and policy in Chile. Environmental issues are becoming part of the political agenda and have even been the focus of agreements for international cooperation on environmental matters, as part of trade agreements. In particular, the presence of foreign companies has been a stimulus for development of national legislation on the environment. Companies, often subsidiaries of multinational companies, operate according to high environmental performance standards, which are often higher than those required by Chilean law. The mining industry is increasingly carrying out voluntary EIAs, the implementation of broad management plans is increasing, and the stricter environmental regulations are being seen to have some effect. In addition, increased social organisation and public opinion has led to indirect pressure on the government. The Canada-Chile Agreement on Environmental Co-operation which was signed in conjunction with Canada's bilateral trade liberalisation agreement with Chile, is likely to influence development of both environmental legislation and management plans.

The study concludes that mining activities have a significant impact on environmental problems at the national level. The effects on the environment of liberalisation are varied, the most serious ones arising in relation to air and water pollution. The study points to the following general effects:

- Large mining companies, because of the volume of production, are likely to cause more damage – but they tend to employ more advanced technologies and management practices, so that while overall impacts are significant, they produce a smaller degree of unit-impact.
- Medium-sized mining companies employing old technologies have higher unit/impacts, although many are beginning to adopt new technologies, which should reduce these impacts.
- Small companies, mostly gold mines, have not yet incorporated modern technologies and environmental management practices and have little managerial capacity or access to credit, which suggests that environmental problems arising from these operations are likely to continue for some time, although impacts are very localised.

However, the study acknowledges that the precise environmental effects of these impacts are hard to quantify. A lack of information, data and understanding of the causal relationships and other factors makes it impossible to precisely identify the net effects of trade on the various environmental media.

The study indicates that lessons for future assessments are as follows:

- Lack of relevant data makes it difficult to identify the magnitude of environmental effects;
- There is tremendous difficulty in singling out the results of trade liberalisation on the identified environmental media, separate from the overall effects of general economic activity.

It suggests the following avenues for further refinement of methodologies:

a. Focus on a qualitative, selective and in-depth analysis.
Given that the availability of data will always be a problem, a qualitative focus on selected and representative items, and in-depth analysis is probably the best option at present.

b. Application of analytical categories.

Various categories of effects should serve as a backdrop to assist consideration, rather than as obligatory steps in the analysis.

c. Focus on the interaction of systems:
Consider all the elements of the analysis together as interacting systems, rather than as separate elements to be reviewed in a sequential manner.

d. Focus on the dynamic nature of environmental impacts:
Environmental impacts are complex and should be viewed in terms of dynamic interactions between the various types of pressures—the manner in which environmental pressures act together and result in synergistic and cumulative effects over time and space.

e. Overall focus:
In order to overcome the difficulty of distinguishing between the effects of economic development and trade, the focus of the analysis might be modified to recognise that they are inextricably linked.
Cooperative approaches to the assessment process:
Assessments should have an interdisciplinary focus and involve all relevant stakeholders.

2.5.3 World Wide Fund for Nature / Oxfam
Zae Mays: The Effects of Trade Liberalisation for Mexico's Corn Producing Sector
(by Alejandro Nadal)

In this study (Nadal 1999), liberalisation under NAFTA is examined within a wider set of policies as one part of a general strategy for economic development pursued by the Mexican government that included a number of important macroeconomic policies. In addition, environmental and social issues are dealt with jointly as the study notes that the social impacts are heavily dependent on the households' capacities to manage their production and the natural resources they command.

The trade agreement is presented as the cornerstone of this strategy directed, in part, towards restructuring Mexico's agriculture sector. NAFTA established a fifteen-year transition period for full liberalisation of the corn sector and the alignment of domestic corn prices with international prices. At the beginning of the transition period, the previous tariff and import permit system was transformed into a tariff-rate quota (TRQ) regime that would gradually be phased out. A key finding of the study is that the fifteen-year transition period was compressed to roughly thirty months. Between January 1994 and August 1996 domestic corn prices fell by 48 per cent, thereby converging with the international market some 12 years earlier than provided for under NAFTA. This coincided with strong inflationary pressures in Mexico, declining state support for agriculture, reduced access to credit, and a drop in the value of policy mechanisms for direct income support (PROCAMPO). In addition, the price regulation agency, CONASUPO, which was to have been phased out gradually, was completely dismantled in late 1998.

This study highlights the importance of firm or household level data in the empirical study of impacts of trade liberalisation in a specific sector. Data on social and environmental impacts of the macroeconomic and policy changes, were generated through a series of interviews with corn producers over the course of two years (1997 and 1998). The interviews were designed to obtain indicators of the social and environmental consequences which resulted from the drop in corn prices caused by the NAFTA-related corn imports. The interviews covered such areas as property rights regimes, size, production accounts, technology, off-farm activities, community relations, and their position as consumers of corn and other products. Producers who sell their output in the market, as well as those producing mostly for household consumption, were studied. The study notes that "these regional perspectives proved invaluable in our analysis of the main social and economic trends in the regions, as well as of the emerging environmental problems."

The study points to three key levels of producers and their responses to the liberalisation that occurred as a result of NAFTA, with the corresponding social and environmental effects:

1. Competitive Producers.
- Require water, fertilisers, pesticides and mechanised traction. Water in particular may be used at unsustainable rates.
- On the other hand, new technologies in water management and irrigation, as well as in fertiliser application, may reduce these risks.
- Widespread use of transgenic seeds where there are reasons to believe the use of genetically modified seeds may pose serious threats to some wild relatives of corn which are important gene repositories for domesticated varieties.

2. Intermediate Producers.
- Normally operate under less favourable, rain-fed conditions on adequate soil.
- Falling corn prices are affecting profit margins. They have cut costs, including labour costs, leading to fewer employment opportunities and increased migration.
- Reduced labour may impact corn yields because key labour-intensive operations have to be scaled back – including capacity to maintain soil conservation structures and practices such as use of terracing, and beneficial tillage practices.

3. Subsistence Producers.
- Normally operate under difficult conditions in inferior soil, on sloping terrain, on small plots of land subject to irregular rainfall.
- Produce corn for household use and supplement income through off-farm employment.
- Maintaining and even expanding corn production is important for the survival of poorer farmers.
- Migration and the weakening of social institutions

have a direct impact on the loss of traditional knowledge about corn seeds, thus contributing to genetic erosion.

- Where labour intensive maintenance tasks are required, such as for the maintenance of terrace systems, migration contributes to accelerated erosion since these tasks can no longer be performed adequately.

The study highlights the linkages between poverty and environmental degradation. Poverty levels among rural farmers has increased dramatically in the past five years, leading to increased pressure on land, aquifers and forests. The most significant indicator in this regard is the expansion of surface area under cultivation for corn production, generating pressure on marginal land, and also on environmentally sensitive land.

The study considers the following three areas for policy recommendations as a result of the analysis:

- A macroeconomic programme to support Mexican agriculture in general and corn production in particular (including public investment in health, housing, education and communications, and a return to the original fifteen-year transition period for corn prices under NAFTA);
- Sustainable intensification of agricultural production through the incorporation of second cycles and measures to increase crop yields;
- Special subsidies to strengthen the capacity of producers to develop and conserve their genetic resources. In situ or dynamic conservation is considered to be a top-level priority, depending critically on the welfare of subsistence corn producers.

2.5.4 CIPMA / WRI
Towards Understanding Costs and Benefits of Trade Liberalisation—A Developing Country Perspective. (Nicola Borregaard & Theresa Bradley)

The approach suggested in this paper is called an Extended Domestic Resource Cost (EDRC) analysis. It is designed to offer "an effective tool to identify, systematise and quantify welfare gains from exporting, net of environmental impacts, and to formulate domestic policy recommendations for trade and environmental issues based on this analysis." It suggests that this method is particularly useful for developing countries, where there is little baseline data, where an empirically based understanding of the types and costs of environmental damages is needed, and where a stronger environmental policy emphasis is required.

To achieve these benefits, the study explores the production activities of firms in the three leading export dependent sectors of the Chilean economy (refined copper, pulp and fishmeal), and their environmental impacts (largely on air and soil), over a period of three years. In doing so, it applies the EDRC methodology which, based on pricing data, distinguishes between international and domestic prices (to isolate government policy distortions and opportunity costs in the domestic sector) and then, using pollution abatement costs, analyses whether the environmental damages of export-oriented production overwhelm the economic benefits of the foreign exchange earned from such production.

This analysis shows that while, in all sectors, exports have an overall net benefit, the net negative

environmental costs of production for such exports is taking a "significant chunk" out of the foreign exchange that is earned. Since most of these negative environmental costs arise from market failures (rather than active policy distortion), the study calls for stronger environmental policies targeted at key export industries, for "cradle-to-grave" monitoring, for proactive policies inducing technological diffusion, and for more data, research, government capacity, and co-ordination among government agencies.

This application of the EDRC framework demonstrates both the advantages and shortcomings of the environment-first approach. It does allow the analysts to focus heavily on the negative environmental costs, and thus to show how even those costs that can be measured can substantially erode and potentially overwhelm the economic gains from exports. Through its use of a firm-level focus and data, and a method which distinguishes among different types of firms, it highlights the critical role of technology, the leadership of foreign-owned, private sector firms in introducing economically and environmentally-enhancing new technologies, and the value of governments, industries and multi-stakeholder, voluntary standardisation (such as ISO 14,000) in domestic technology diffusion. In doing so, it demonstrates how the link between trade and the environment is affected by the intervening variables of production, technology, management, and government policy. It further allows resources in both analytic efforts and government policy reforms to be concentrated on key firms in key sectors.

Nevertheless, there are restrictions inherent in such an approach. The lack of environmental data and the reliance on quantitative methods means that the approach and set of conclusions are tilted *a priori* to negative environmental consequences, and confined largely to the air and water, as opposed to a broader range of potential environmental effects. The policy measures highlighted in the conclusion flow more from a qualitative assessment rather than the quantitative method at the heart of the analysis. The reliance on a quantitative method can lead to a neglect of the role that infrastructure and social organisation can play in shaping trade-environment linkages. The approach also avoids the question of cumulative impacts of stresses that test sustainability thresholds in the ambient environment.

However, the ERDC approach offers considerable promise, primarily because of its compatibility with some of the more developed trade-first approaches. In fact, it begins with a trade component, through the selection of those sectors which have the greatest export share. It combines both firm and sector-level analysis, and estimates at both levels the environmental impacts of export-oriented production activity. By highlighting many of the policy directions and need for data, it highlights the potential compatibility and synergy of trade-first and environment-first approaches.

2.5.5 Additional Case Studies

Tree Trade: Liberalisation of International Commerce Forests and Forest Products: Risks and Opportunities. (Nigel Sizer, David Downes & David Kaimowitz)

This study provides a "preliminary assessment of the possible impacts of the new trade policy proposals" advanced by the United States, Canada, New Zealand, Indonesia and others in a WTO and APEC context, for the reduction or elimination of border, non-tariff and regulatory barriers to free trade in forest products. The study "suggests ways in which social and environmental risks could be reduced if not entirely eliminated, while at the same time promoting long-term economic development." Focusing on three countries (Canada, Indonesia, and the United States) with large forests and forest products trade, the study examines whether the existing economic and legal systems ensure forest sustainability, identify new policies needed to enhance sustainability, explore the impact of trade liberalisation without and with such policies, and identify ways to balance trade liberalisation with other economic, social and environmental values.

This study examines, in turn, the impact of tariff and non-tariff barriers, increased consumption, overexploitation of tree species, pressures on less protected forests, shifts to plantations, subsidies, consumer access to information, government procurement, and bio-invasion. It then explores in detail the readiness of Canada, Indonesia and the United States for further trade liberalisation in the forest products sector.

It concludes that, "unless countries that export forest products improve forest protection policies, laws, and practices, further trade liberalisation poses a significant threat to efforts to conserve and sustainably manage forests around the world." More specifically, the key challenge comes from the elimination of non-tariff barriers, particularly if this elimination is based on an expanded definition of what constitutes non-tariff barriers, and takes place without the elimination of trade-distorting subsidies and assistance from the OECD to developing countries. The study concludes with five recommendations that call for the elimination of harmful subsidies, the encouragement of a free flow of information, a clarification of the WTO's Sanitary and Phytosanitary Measures Agreement, reform of trade policies, institutions and processes, and a strengthening of international and national frameworks for forest protection.

This study has several attractive features. It encompasses a wide range but prioritised list of environmental and social effects, including impacts of biodiversity and indigenous peoples. Based loosely on the OECD framework, it explicitly includes demands and scale dynamics, as well as sectoral, technology, and policy

processes. It incorporates both ecologically beneficial and harmful effects, and while the emphasis is very much on the latter, the overall balance is appropriate to the concluding focus on precautionary and preventative measures. In short, it suggests how, when, and where to conduct environmentally enhancing trade liberalisation, and thus yields a host of feasible policy recommendations for the near term.

Modelling the Effects of Trade Liberalisation on Forest Cover: Some Methodological Issues.
(Michael Ferrantino)

This paper argues that the environmental effects of agricultural trade liberalisation are potentially large compared to the effects of manufacturing trade liberalisation, and include changes in land use. The principal instigators of deforestation are developing country farm households—particularly those who practice shifting cultivation. The activity of loggers is also potentially significant.

There are numerous ways in which trade liberalisation, by changing relative prices and incomes, can affect household land-clearing decisions. Therefore the author argues that using simulation methods with microeconomic foundations and calibrated against observable data, such as computable general equilibrium and partial equilibrium analysis, is a reasonable approach for the analysis of the effects of trade liberalisation on land use.

The paper indicates that CGE models are capable of representing complex global trade liberalisation processes and of estimating the price and income effect of these for many commodities and regions in a way which takes full account of international and inter-industry relationships of demand and supply. However, the drawback of standard CGE methods is that they contain relatively naïve representations of land use and forests, or no representations at all. Thus, standard CGE frameworks must be supplemented with additional processes or information if they are to yield useful information on land use or deforestation. CGE models with forest sub-models appear to be the most promising class of models for the analysis of trade liberalisation effects on land use.

The insights of household agricultural literature have not been fully incorporated into CGE models. This includes the joint production of agricultural goods and fuel-wood by the household, the wide variety of prices affected by trade liberalisation which can impact land clearing, and the ambiguous effect of land tenure regimes on land clearing. The incorporation of some of these features into the forest sub-model, particularly joint production and richer price linkages, could significantly enhance the usefulness of available methods. It would also be useful to incorporate off-farm wages, since an increase in off-farm wages could reduce deforestation significantly.

The paper concludes that this could be done using existing results from household econometric models as forest sub-models in conjunction with CGE modelling results on trade liberalisation.

Sustainable Trade Expansion in Latin America and the Caribbean: Analysis and Assessment.
(C. Ford Runge, et al)

This study was commissioned by the World Resources Institute. Its purpose was to assist USAID in setting programme priorities for its Latin America and Caribbean country offices. A large team was fielded to undertake the exercise. The resulting manuscript was reviewed by a group of WRI and other staff, and then published in both English and Spanish. The process took close to two years.

The purpose of the study was to evaluate the environmental impacts of trade expansion in Latin America and the Caribbean. The political and economic context was the Free Trade Agreement of the Americas which, in 1997, was still expected to follow from NAFTA and *Mercosur*. The study was intended to be multisectoral, to investigate how policies might make trade expansion supportive of environmental improvements, and ultimately how USAID should establish programme and funding priorities for the region.

It is important to note that the purpose of the study was not consciously to develop a discrete or new methodology. Nonetheless, some general and specific methodological lessons emerged from the experience.

- A "team" a*pproach accomplishes the "buy in" of numerous parties representing diverse interests, strengthening the authority of the final assessment.* The team in this case represented a range of interests: WRI, the Government of Argentina's Institute for Agriculture and Technology (INTA), the University of Minnesota, the University of Rhode Island, the World Bank, and the Center for International Environmental Law (CIEL).
- *The study was organised by putting trade policy changes first, then discussing the sectoral economic impacts of these changes, followed by a detailed decomposition of the environmental impacts of this process by sector. This sequence worked well as a basis for laying out a coherent analysis.* The study was based on the premise that, in general, trade/environment assessments are most clearly reasoned if the linkages from trade expansion to the environment are specified in a trade-environment order.
- *A causal sequence linking trade expansion to environmental effects is necessary.* This sequence was described in terms of trade expansion's impacts on allocative efficiency, but with potentially negative scale effects, which may be offset by changes in the composition of production (e.g., services versus manufacturing) and technology, especially if government policies promote regulation and the assignment of liability for environmental externalities.
- *The bulk of the assessment derived from carefully assembling both multisectoral and sector-specific*

empirical studies. So little is known about the general impacts of trade on the environment that there is no substitute for painstaking empirical research. The empirical basis of the methodology was to examine (a) multiple sectors; (b) different geographic regions; (c) a set of overarching issues (e.g. upward harmonisation, assigning property rights); and (d) regulatory structure and design.

Some specific observations from this work include the following:

- It is possible, using two-digit industrial tariff classification (ISIC) data, to calculate country-by-country export trends for a variety of manufacturing sectors, including food products, textiles, wood products, paper and print, industrial chemicals, non-metal products, basic metals and metal products.
- These export trends can then be compared to a set of environmental indicators by country, drawn from WRI data, to determine whether export growth implies increases in different types of pollution. These types range from particulates to sulphur dioxide to toxic landfills, to toxic air and water emissions.
- In the extractive sectors, no corresponding ISIC data are available, so that a variety of empirical evidence must be assembled to generate an assessment of trade-environment effects. The extractive sectors analysed included agriculture, forestry, fisheries and minerals.
- Specific attention was given to promoting environmental strategies that would also confer *trade* advantages. These included "trading-up" by coupling liberalisation initiatives to environmental policy innovations, better definitions of property rights, institutional innovations in regulatory structure and design, research institutions, and public health initiatives.
- Finally, the study ended with a set of clearly stated principles, conclusions and recommendations, which would be a useful end to other such studies of trade/environment interactions.

The study outlines three principles for sustainable trade policy as follows:

1. Whenever trade and environmental policy issues intersect, both sets of policies should be adjusted so as to maximise the complementarity of trade reform and environmental sustainability.
2. Sustainable economic growth will require environmental damages (externalities) to be explicitly recognised and, where possible, reduced or eliminated (internalised) through the application of the polluter-pays principle, or other environmental policy reforms that emphasise pollution prevention.
3. Implementing both trade and environmental policy reforms will require much clearer definitions of property rights respecting goods and services, as well as infringements of those rights by "bads" and disservices, including environmental pollution. Among the specific conclusions and recommendations reached in this study are the following:

- Many environmental problems are linked only indirectly to trade expansion, but this does not prevent trade from being an important basis for expanded efforts focused on sustainability.
- Overarching strategies for sustainable trade expansion include upward harmonisation of standards, a no-regrets approach to environmental interventions, and much better definitions of property rights in relation to environmental damages.
- Technology transfers focused on pollution prevention are critical.

In addition, the following are indicative of the general and specific techniques and actions suggested:

- In all LAC countries, country assessments should be undertaken in cooperation with nongovernmental organisations and the private sector. Such studies should focus on the most pollution-intensity manufacturing sectors and the main extractive sectors.
- Country assessments and monitoring units should make maximum use of geographic information systems (GIS) to evaluate agricultural land, forests, mining activity and marine resource use. Technical and financial resources should be provided to facilitate use of and access to GIS by government agencies and NGOs.

Will Uruguay Round and APEC Trade Liberalisation Harm the Environment in Indonesia?
(Anna Strutt & Kym Anderson)

This study focuses directly on the effects of multilateral and plurilateral trade liberalisation processes in developing countries, and does so using CGE modelling techniques. This study employs a modified version of the global GCE GTAP model to project the state of the world and Indonesian economy to 2010 and 2020. It then explores the impact of full Uruguay Round implementation (with and without China as a member) and the two stages of APEC-mandated liberalisation. An environmental model to assess impacts on water quality and quantity and air quality in Indonesia is added to the analysis. In doing so it focuses, in general accord with the OECD framework, on changes in scale, composition, technique-technology and (indirectly) regulatory effects.

The main conclusions of the study suggest that "…trade policy reforms slated for the next two decades in most cases would improve the environment (at least with respect to air and water pollution) and reduce the depletion of natural resources in that country, and in the worst cases would add only very slightly to environmental degradation and resource depletion even without toughening the enforcement of existing environmental and resource regulations or adding new ones." It further suggests that trade liberalisation creates environmental harms only in specific sectors easily identified by the GTAP model, and provides the

economic resources required to fully offset the potentially adverse effects.

This study is important for its focus on a developing economy of importance (Indonesia) and for its conclusions that trade liberalisation will not meaningfully harm and will probably help the environment. Yet methodologically it displays many of the benefits and disadvantages of the CGE approach, even in its most advanced GTAP form. It does allow a tracing of the effects of the full global economy, through the routes of demand and supply, and permits a sequenced long-term examination of environmental impacts (over the course of which there is significant change). In this application, it also highlights the different impacts of varying forms of trade liberalisation (multilateral, plurilateral, with China in or out), and thus blends *ex-post* and *ex-ante* forms of analysis. Yet it remains very "assumption sensitive" in several key places and its data requirements, in application to a developing country such as Indonesia, confine it to a limited array of standards indicators (air and water). It could be argued that some key environmental concerns might be left out of the analysis.

Trade Liberalisation and Land Degradation in Indonesia.
(Anna Strutt)

A related GTAP-based, Indonesian-focused study, conducted in 1998 makes advances on some of the problems raised above. Most importantly this study's focus is on land degradation through soil erosion and off-site damage, and extends the application of the above model beyond air and water, to cover land as well. It also incorporates an environment-to-economic feedback loop to this economic growth first (trade and trade liberalisation second) method, by incorporating the ways damage to land through erosion reduces productivity and production associated with that land. Its empirical findings are very similar to those of the Strutt and Anderson study.

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WWF, UNCTAD/UNEP with support from UNDP, and OECD may all be said to have responded to the invitation extended by the Commission on Sustainable Development at its second session in 1994 to undertake further work geared toward developing a framework to facilitate the assessment of the environmental impact of trade policies within the overall perspective of promoting sustainable development. Indeed, as the background document demonstrated, much work has been done by various international organisations, regional organisations and others. The issue for CSD 8 is how this work should proceed in the future.

Before addressing this question, however, it might be useful to place trade-related environmental impact assessment (EIA) in the broader framework provided by national sustainable development strategies. These would be development strategies intended to provide an integrated approach for achieving an interrelated set of objectives related to economic development, social development and environmental protection. To be effective, such strategies would need to be accompanied by a corresponding set of specific policy frameworks and new measures with a view to realising a subset of

time-bound objectives for some particular planning period. Once specified, these policies and objectives could be arranged in matrix form as a starting point for a sustainable development policy impact analysis which would examine the direct impact of particular policies on their principal objectives as well as their indirect impacts on other objectives. From this perspective, analysing environmental and other impacts of changes in trade policies and measures would be an important contribution to a much larger exercise.

With this context in mind, let us return to consider the state of the discussion in CSD. I think it can safely be said that in support of policy making in furtherance of sustainable development at the national level, especially for identifying the need for complementary measures in the environmental and social areas, environmental impact assessment of trade policies is seen by all countries in CSD as a welcome addition to the policy maker's tool kit. There are, however, two respects in which developing countries and, perhaps, some other countries have misgivings. One concerns the application of trade-related environmental impact analysis to the arena of multilateral trade negotiations where they fear it may run counter to their overriding objective of improving market access. Another relates to a perception that the popularisation of a new term, i.e., sustainability impact assessment (SIA), albeit for a concept - integrated assessment - with a long and respectable pedigree, will be followed by efforts to replace EIA's with SIA's where the former are often presently required as a part of the project fomentation and approval process for funding by international financial institutions and bilateral donors.

These sensitivities were no doubt highlighted by several recent developments. One was the well published lobbying effort of some environmental non-governmental organisations against further liberalisation of trade in forest products in the run-up to the WTO Ministerial Council Meeting in Seattle, since this appeared to suggest that multilateral trade liberalisation should be conditional upon prior improvements of regimes for sustainable forest management. At the same time some environmental NGO's have been opposed to a legally binding multilateral environment agreement on forest-which is the classic way to resolve tensions between the still evolving international trade regime and the wish to protect globally important environmental resources. MEA's, after all, establish regimes of rights and obligations taking into account the principal of common but different responsibilities which is of particular importance to developing countries. Another recent development has been the renewed emphasis on the part of some developed countries on the "multifunctional character of agriculture". This, many developing countries suspect, is intended to provide justification for agricultural support measures in developed countries which - if accepted - would have the effect of reducing the positive effects on developing country exports as a result of liberalising international trade in agriculture in the next round of multilateral trade negotiations. A third development was of course Seattle itself with, on the one hand, the emergence of alliances among environmentalists and trade unionists in support of environmental and social objectives, respectively; and on the other, the announcement by the United States of its wish to link certain labour market conditions to future trade agreements.

These concerns of developing countries were abundantly reflected in the preparatory work for CSD-8 where-in contrast to previous CSD decisions (see 3.1.1.) — a somewhat negative note was sounded in its draft elements for decision by referring to "the present disagreement on the concept of sustainability impact assessment".

For these reasons, I feel it is important to point out that contrary to what has been written from time to time, CSD has not as yet endorsed the need for "cooperation... to promote the use of comprehensive sustainability assessments".

Looking ahead, nonetheless, in respect of trade policy related environmental impact - and broader - assessments, there is a clear role for international organisations. In their own consensus based decision-making processes, they can certainly contribute to a better understanding of underlying concepts and evolving developments in the methodologies to operationalise them. There are also opportunities for international organisations, such as UNCTAD and UNEP, in their joint program, to cooperate with WWF and others to develop a common methodological framework — drawing, for example, on the work reviewed here - to be used in additional case studies in developing countries and countries with economies in transition. In doing so, of course, they would wish to take pains to exhibit a very strict neutrality in balancing the concerns of developing countries with those of others.

The use of environmental or sustainability assessment impacts of trade liberalisation at the international level in conjunction with trade negotiations — if undertaken at all — might be of somewhat limited value. It might, for example, be effective in eliciting support from the international community for providing additional capacity building assistance to developing countries. Some international organisations, e.g., ILO, using such methodologies, might identify potential social impacts calling for anticipating the need for improvements of "safety nets" or adjustment assistance". Likewise, UNEP or FAO, in respect of unintended potential negative impacts on water, forests, wetlands, biodiversity, etc, could review the need to strengthen existing MEA's or for new ones, e.g., forests.

Moreover, IGO's clearly can plan a major role in compiling and disseminating information as well as providing technical and financial assistance to developing countries and countries with economies in transition to build capacity at the national level for conducting assessments. In the context of international trade negotiations, they can also provide technical cooperation to developing countries to strengthen their capacity to negotiate better terms, e.g. providing for appropriate

adjustment periods and other assistance in cases of large negative social impacts arising from trade liberalisation (e.g. An adjustment period of 15 years for corn producers in Mexico was agreed in NAFTA).

Relevant Citations from decisions of the Commission on Sustainable Development and the Program for the further Implantation of Agenda 21

(CSD 2 (1994)
Paragraph 33
... framework to facilitate the assessment of the environmental impact of trade policies, taking into account the special needs and conditions of development countries. Any such assessment should be carried out within the overall perspective of promoting sustainable development ... polluter pays principal, the precautionary principal and life-cycle management ... interactions between trade, technological cooperation and changes in production and consumption patterns. Further work in this area by UNEP and UNCTAD in cooperation with other relevant organisations...

(CSD 3 (1995)
Paragraph 58
... trade liberalisation is a necessary but not sufficient condition for sustainable development... National governments have an interest in analysing environmental and social effects of significant changes in the volume and composition in production and consumption patterns, including those resulting from trade policy reform, and making, if required, the necessary policy adjustment with a view to correcting market and policy failures and internalising environmental costs.

Paragraph 67
... invites the joint UNEP/UNCTAD program .... in cooperation with UNDP and other relevant international organisations ... framework to facilitate the assessment of the environmental impact of trade policies ... elements mentioned in paragraph 33 of the 1994 ... decision.

(UNGASS (1997)
Paragraph 29 (c)
Further analysis of the environmental effects of the international transport of goods is warranted.
Paragraph 29 (h)
National governments should make every effort to ensure policy co-ordination on trade, environment and development at the national level in support of sustainable development

(Ad Hoc Intersessional Working Group on Finance/ Trade/Investment/Growth for CSD-8 (2000)
Paragraph 11
It is encouraged to insure that benefits arising from trade liberalisation are equally distributed and reach those living in poverty.

Paragraph 15
All relevant parties are encouraged to identify and pursue opportunities where trade liberalisation, including addressing trade distorting subsidies, holds particular promise for producing trade, environmental and developmental benefits.

Paragraph 20
The concepts of trade-related environmental impact assessment and sustainability impact assessment need to be further explored, and emphasis placed on the development of methodologies, while taking into account the different levels of development of countries, their domestic capacity and the present disagreements on the concept of sustainability impact assessment. Any such assessment would be conducted at the national level in support of national policy development. Relevant international organisations should assist and facilitate a better understanding of these concepts.

Ladies and Gentlemen,

This panel has been asked to address an item which is entitled: "International Approaches to Sustainability Assessment." In the CTE, there is no identity of views on how environmental reviews / sustainability assessments should be performed. But there was agreement that the WTO Secretariat should prepare a factual compilation of various national environmental review approaches. Or as the Chairman of the CTE put it: a photo-album of national photos of present practices. The Secretariat is supposed not to make any generalisations or draw conclusions. Therefore, the purpose of this paper is meant to be national experience sharing, nothing else. Developing countries expressed their concern that such a paper should not be seen as a stepping stone towards any kind of multilateral approach.

In order to understand why the issue of international approaches to sustainability assessments has to be treated with caution in a *Member-driven* international organisation, as is the WTO, it might be relevant to recapitulate some related discussions in the CTE. To put it simply: There are countries that do not mind to be informed of other countries' environmental reviews, but do not wish to consider the issue any further within the WTO context; some other countries have voluntarily undertaken environmental reviews or have recently been mandated by law to undertake such exercises for any future trade agreements and seem to be in favour of experience sharing or closer cooperation; finally, some countries would prefer, instead of national experiences being brought forward to the Committee, to discuss categories of trade measures and their related environmental impacts in general. I shall now elaborate on these rough categories of positions in more detail.

In the CTE, it is recognised by all Member states that countries are at different levels of economic development, and that environmental standards are a function of a country's overall level of development. It is widely understood that developing countries cannot and must not be punished for not having the resources to protect the environment — resources that are beyond their means. Sustainability, to a certain extent, needs to be defined within each Member's national economic and social context. This is why many Members seem to agree that there is not a "one size - fits all" methodology to environmental assessments.

Countries in the first category have stressed, in this regard, the Rio Principles, in particular principle 17, which makes environmental impact assessments a prerogative of national governments. Within the WTO, environmental reviews should remain a member-driven process, whereby a Member considering it useful to undertake such an exercise would be free to actively seek assistance bilaterally or from international organisations. Multilateral approaches were seen by these countries not to be advisable at this stage, not only in view of countries' different levels of development, but not least in view of the technical difficulties, described in the OECD Report on its Methodologies Workshop, in establishing any kind of multilateral guidelines.

Some other Members, while agreeing that environmental reviews fall within the responsibility of national authorities, offered economic and technical support for those interested. Encouraged by this, cooperation was sought by some countries who had started or were sympathetic towards launching their own national initiatives, albeit under significant difficulties due to limited resources. Members who had already undertaken national environmental reviews highlighted the importance of *ex-ante* assessments, which allowed for the results to be taken into account by trade negotiators in shaping their positions. Assessments undertaken at a sufficiently early stage and including ample opportunity for public input had actually revealed that trade liberalisation was not in itself bad for sustainability. Yet, it has become equally clear that trade liberalisation did not necessarily bring everybody closer to Sustainable Development. This was especially found to be the case when analysing some individual sectors. While most discussions in the CTE had focused on Environmental Assessments, some of these countries made it explicit that, in addition, social issues had to be considered as well, distributional effects in particular, in order to identify winners and losers from trade liberalisation and devise possible mitigating measures.

In referring to recent sectoral studies, it was stressed that had negative impacts of trade liberalisation been identified, the appropriate remedy would most likely not have been to put a halt to trade liberalisation. Instead, a re-examination of domestic regulatory systems would be undertaken or, if the consequences were transboundary, progress on international instruments would have been sought. In the environmental field, it had already become obvious that increased co-ordination between trade and environment officials was key in this respect. We in the Secretariat have also witnessed this in both the WTO and environmental fora.

A third category of countries reiterated that the WTO's principal mandate was to help trade flow smoothly, freely, fairly and predictably, within the agreed rules of an open, equitable and non-discriminatory multilateral system. This is why these Members would prefer to focus in the CTE on categories of trade measures without necessarily referring to national environmental reviews or assessments. They cast some doubt as to whether these assessments were done by truly independent experts, and if so, raised the question why some controversial issues had been left out. Significant improvements for the environment could be expected if trade policies, which create price distortions and were therefore bad for the environment, were removed.

In this situation of differing views, therefore, I believe that an information exchange of national experiences seems to have the highest chances of finding Members' consent. In fact, this is what they asked the WTO Secretariat to do.

The question was, however, raised at least once in former meetings, whether the CTE should, or not, discuss the development of a checklist of methodologies in the WTO to assist governments in undertaking reviews. With this hint, I would like to give some encouragement to our work over the next days and wish us a most successful and productive meeting. Our work should be driven by purpose and pragmatism, such that results obtained can be fed into UNEP's ambitious project to develop a guide on "Criteria for the Assessment of Trade Agreements" in the form of a check-list for trade officials.

UNEP has been involved in environmental impact assessment (EIA) since the 1970s, where it has produced a series of sectoral manuals and guidelines. However, when UNEP highlighted the need to undertake environmental impact assessment of trade policies, this was met by resistance, particularly from developing countries, who felt that the use of such a tool could constrain and limit their trade promotion policies and their integration in world trade. UNEP had then to revisit its approach in dealing with assessments of the environmental impacts of trade liberalisation to cater for developing country concerns and render it an acceptable tool to be used to promote mutually supportive trade and environment policies. This included emphasising the need to reflect the true value of traded commodities in particular those of interest to developing countries in order to capture the true value of these commodities, the need to apply valuation methodologies to internalise costs and provide the actual cost and benefit of trade policies, use EIA as a planning tool to integrate environment in trade policy and develop supportive trade and environment policies. UNEP's approach also included the need to develop policy responses based on market incentives, voluntary measures and regulatory measures. Policy responses needed to be practical, implementable and cost-effective.

It needs also to be emphasised that trade, environment and development issues cannot be addressed in isolation from international policy failures such as aid, international debt, consumption and production patterns, commodity prices, and technology transfer.

UNEP has subsequently initiated a number of country case studies to look into the assessment of trade liberalisation on specific sectors and develop policy packages to correct or rectify any negative implications of trade liberalisation policies. The projects were mainly country driven, process oriented, adopted a multi-stakeholder approach from the outset, reflected the development priorities as well as the socio-economic consideration of countries. The projects focused on capacity building through "learning by doing" involving national institutions and expertise.

It was noted that while EIA has been institutionalised and is in use in most developing countries, efforts were now being made to encourage strategic impact assessment, countries in particular developing countries were sceptical about the introduction of another new concept or approach such as sustainability impact assessment (SIA). This is particularly so when there are no clear methodologies which have been developed or sufficient experience with this methodology. Moreover, developing countries have reservations regarding what the social component of assessment includes, in particular when there are concerns about including labour standards, child labour, human rights...etc. which developing countries would not like to see included in such assessments.

To complement UNEP's work on the national level assessments, UNEP has initiated the preparation of a Guide for the assessment of trade agreements and trade

liberalisation policies. The Guide is intended to provide a checklist for negotiators and practitioners of a framework for the assessment of trade agreements and policies. The development of the document adopts a transparent and participatory approach in order to ensure that it is reflective of the concerns of both developed and developing countries and receives the widest possible acceptability by users.

The document will attempt to incorporate and operationalise the RIO principles: Common but differentiated responsibility, the polluter pays principle, the precautionary principle, priority given to the development concerns of developing countries and least developing countries. It will provide a criteria for an effective assessment: what constitutes a good assessment, main components of an assessment, a list of indicators, and policy responses available to reduce the negative impacts of trade agreements and policies and develop supportive trade and environment policies.

Challenges facing assessments include: the development of an acceptable framework which could be used by governments, international institutions and donors; the use of assessment as an integrative methodology for environmental, economic and social aspects, and as a tool to integrate sustainable environment and trade policies in decision-making; the importance of undertaking ex-ante assessments, with focus on sectors while ensuring cross sectoral linkages; the need to incorporate monitoring, follow up and evaluation in assessments; adopt a participatory and a multi-stakeholder approach; provide a policy package response which is practical and implementable. The focus of undertaking the assessment should also be used to promote co-ordination between different relevant government bodies particularly environment, trade and finance ministries while also involving industry, academia and civil society. A basic premise for undertaking such assessment is to enhance local capacities through their involvement in the development of the assessment methodology reflecting countries' environmental, socio-economic circumstances and development priorities.

3.4.1 Background

Agenda 21 and the Commission on Sustainable Development (CSD) have emphasised the important contribution that trade liberalisation can make to sustainable development. In the post-UNCED process, improved access to developed country markets has become even more important as a means to generate financial sources for sustainable development in developing countries, in particular because progress made in other areas identified in Agenda 21, such as finance and technology, has been below expectations. Thus, improved market access for products from developing countries is a key objective.

Trade liberalisation, however, may have positive as well as negative effects on the environment. Both in developed and developing countries it is important to analyse such effects and to avoid or mitigate potential adverse effects through appropriate environmental policies.

The CSD, at its 2nd session (1994) noted “the importance of developing a framework to facilitate the assessment of the environmental impact of trade policies, taking into account the special needs and conditions of developing countries”.

Progress has been made in enhancing understanding of the environmental effects of trade liberalisation. Important work has been carried out, for example, in the OECD. Many studies have also been undertaken in developing countries. UNEP, UNCTAD, as well as regional economic commissions, such as the Economic Commission for Asia and the Pacific (ESCAP) and the Economic Commission for Latin America and the Caribbean (ECLAC), have helped to promote such studies.

Recently, there has been renewed interest in impact assessments. In the process of preparations for new multilateral trade negotiations, several developed countries undertook or announced that they would carry out environmental impact assessments of trade policies and agreements. The Commission of the European Union announced that it had commissioned a “sustainability review” to assess the potential impact on sustainable development of its agenda for the negotiations.

3.4.2 Developing Countries’ Concerns

There is no doubt that developing countries are committed to the objectives of sustainable development and that progress is being made in incorporating environmental considerations into economic policies. Developing countries have nevertheless expressed certain misgivings concerning the recent debate on impact assessments, in particular in the context of future trade negotiations. For example, they have expressed concern about the extent to which environmental impact assessments may affect further trade liberalisation and improved market access for products from developing countries. Also, the institutional and financial capacities

of developing countries to carry out such assessments may be limited. Thus, developing countries are concerned that there will be increased pressure to allocate scarce resources to carry out assessments using approaches and methodologies which may not adequately reflect their own conditions and priorities.

3.4.3 Moving the Debate Forward

This conference can play a key role in promoting better understanding of assessments and their potential contribution to the integration of trade, environment and development. It also provides an opportunity to address concerns of developing countries. To advance the debate and help to build confidence, including in the light of the forthcoming CSD deliberations in April and May, the Conference could focus on issues such as the following:

National level: Assessments can be a useful policy tool at the national level. A clear recognition that responsibilities for carrying out assessments, as well as for making policy choices in the light of their results, lie exclusively with national authorities, appears to be a first step in building confidence. However, there could be a certain degree of international cooperation, for example, in regard to methodological aspects or concerning capacity building provided by multilateral institutions.

Objectives of assessments: The Conference should attempt to clarify the objectives and usefulness of environmental and sustainability assessments as well as the use that would be made of their results. This may help developing countries to consider the potential benefits of their use at the national level, in accordance with their own conditions and needs.

Environmental impact assessments versus sustainability impact assessments: There is a need to clarify the differences between environmental impact assessments (EIAs) and sustainability impact assessments (SIAs) and their possible implications for developing countries. In the recent meeting of the CSD Ad Hoc Working Group on Finance, Trade, Investment and Economic Growth, many developing countries expressed concern about the possible implications of enlarging the scope of EIAs to also include social effects. To the extent that impact assessments generate concerns about conditionality, enlarging their scope will logically intensify such concerns. On the other hand, it may make sense to carry out assessments as part of national sustainable development assessments and there may be merits in including developmental effects. Basically, it is up to national Governments to include the factors they deem appropriate and a clear recognition that impact assessments of trade liberalisation, if any, should be carried out at the national level may help to reduce concerns about the scope and use of assessments.

Methodologies: There are many ways of assessing environmental and sustainable development effects of trade policies and/or trade liberalisation. There is no uniform methodology that fits the interests of all countries. This has been recognised in a recent OECD meeting. Any methodology should take into account the specific needs and conditions of countries at different levels of development. Case studies, such as those promoted by UNEP, are a very promising avenue to assess impacts of trade liberalisation. These studies are carried out by local academic institutions, use multistakeholder approaches and recommend packages of measures to address the problems identified. This experience is very helpful in the development of checklists for future assessments.

Linking with trade negotiations? At the national level, assessments may provide an opportunity for inter-ministerial coordination and dialogue with civil society. This may be useful in identifying the need for "flanking policies" to address possible adverse environmental effects of significant changes in production and consumption associated with trade liberalisation. It is not always clear, however, how the results of assessments would be used by trade negotiators.2 In any case, assessments should not adversely affect market access for products from developing countries.

Scope of the assessments: It may be useful to discuss the scope of assessments. In CSD discussions and elsewhere, it has been proposed to examine the environmental effects of (a) trade liberalisation; (b) trade distortions, such as export subsidies; and (c) trade agreements. In the search for balance, all these areas may require attention.

a. *Trade liberalisation.* In many cases, proposed assessments focus on the effects of trade liberalisation, in particular the provision of greater market access by eliminating or reducing tariff and non-tariff barriers to trade, and the associated changes in production and consumption on the environment or sustainable development. This seems to be the focus of this Conference. Any such assessments should be carried out at the national level. Where potential negative environmental effects are identified, priority should be given to appropriate environmental policies to address such effects.

b. *Trade distortions.* It is also important to assess the environmental or sustainable development impacts of trade restrictions, as well as the potential benefits of their elimination or reduction. This has been fully recognised in several sessions of the CSD.3 There has been growing interest in identifying "win-win-win" scenarios. Assessments of the environmental impacts of trade restrictions and the potential benefits of their removal could be conducted at both national and international levels.

c. *Trade agreements.* Some have suggested that it may be useful to carry out an assessment of the environmental and sustainable development implications of specific WTO Agreements. For example, some have suggested that environment should be an integral part of the review process of the TRIPS Agreement,4 and that it could be worthwhile to carry out an environmental review of that agreement.5

3.4.4 Cooperation between Intergovernmental Organisations

This panel has also been asked to identify possible cooperation between intergovernmental organisations. Both UNCTAD and UNEP have been undertaking work aimed at promoting the integration of environmental considerations into economic policies, including trade policies, for instance in the fields of valuation of environmental goods and services, the sustainable management of natural resources and economic instruments. UNCTAD has cooperated with UNEP in promoting a series of case studies on Environmental Impacts of Trade Liberalization and Policies for Sustainable Development of Natural Resources. UNCTAD and UNEP are seeking to strengthen their cooperation in capacity building in trade, environment and development, through the creation of a joint task force. Technical assistance aimed at helping interested developing countries to develop methodologies as well as institutional capacity to carry out impact assessments at the national level is also important

With regard to UNCTAD, the 10th Session of our Conference, which took place in Bangkok from 12 to 19 February 2000, adopted two substantive documents: the Bangkok Declaration and the Plan of Action. Both emphasise the commitments to sustainable development and environmental protection. The Plan of Action recognises that "in order to help developing countries prevent and overcome any negative effect of economic and financial globalisation, to reap its benefits and to respond to its challenges and opportunities, there is a need for the international community to reconsider and elaborate development strategies and policies, taking into account development's *social, human* and *environmental* dimensions"6 (emphasis added). Member States have also reaffirmed that sustainable development should be one of the important cross-cutting issues in UNCTAD's work7 and have highlighted challenges in the areas of environment and development and of other issues addressed in major UN Conferences.8

The Plan of Action provides UNCTAD with a large mandate for further work on trade and environment. In particular, "UNCTAD's work, in cooperation with other relevant organisations, should focus on helping to ensure balance in the trade and environment debate by highlighting issues of concern to developing countries and strengthening the development dimension". The Plan of Action calls for special attention to "identifying capacity building needs of developing countries" and "a broad programme of capacity building on trade, environment and development". Within this mandate, the UNCTAD secretariat will *inter alia* continue to work with UNEP in assisting developing countries in promoting the integration of environmental considerations into economic policies. This includes work on impacts of trade policies. In accordance with the Plan of Action, special attention will also be given to "identifying policies to address major constraints faced by many developing countries in responding to environmental challenges, such as lack of technical, financial, institutional and supply constraints".

In addition, as task manager on trade, environment and sustainable development for the CSD, the UNCTAD secretariat will continue to contribute to the debate on impact assessments as well as the follow-up to relevant CSD decisions. This includes, for example, further work on the potential environmental, trade and developmental benefits of the removal or reduction of existing trade distortions and restrictions, i.e., "win-win-win" scenarios.

3.5.1 Overview of Studies and Existing Measures

A number of studies have been conducted to provide an assessment, both ex-ante and ex-post, of the impacts of trade liberalisation on the Philippine economy, particularly on output growth, trade generation, and income. In fact, ex-ante impact assessments of trade liberalisation were first undertaken to determine advantages/disadvantages as well as winners and losers from the trade reforms, and to serve as bases for the needed reforms, policy or otherwise, that would complement trade liberalisation policy.

Although limited work has been done to analyse the impacts of trade on broad concerns of sustainable development, the Philippines has, nonetheless, attempted to cover these concerns through various studies which separately looked into certain aspects of sustainability, be they economic, environmental or social. These assessments employed varying approaches/ methodologies to impact assessments.

Review of the Studies Conducted

Methodologies employed in those impact assessments were reviewed vis-à-vis the important elements of a methodology for assessment. In general, the following can be said of these assessments:

1. *Environmental vs. Sustainability Assessments:* The increasing concern on the environment can be evidenced by the relatively significant number of studies that dealt with the environmental impacts of trade liberalisation. However, only a few have looked into its impact on other concerns of sustainable development, such as social and institutional concerns. In many cases, studies limit the scope of analysis to one or a few aspects of environmental or social concerns (that is, focus is either on income distribution, nutrition, health care, or employment).
2. *Trade First vs. Sustainability First:* Although some studies are aimed at analysing impacts of trade on non-economic variables, assessments always begin with an analysis of changes in the economic variables, results of which are then used in assessing impact on non-economic variables. This approach, thus, establishes first a clear connection of environmental and social effects with trade liberalisation.
3. *Correlation and Causality:* The difficulty in isolating the specific contribution/impact that trade liberalisation makes, given other non-trade policies that may have been introduced during the same period, is addressed in the studies through simulation. Simulations through an economy-wide or sectoral model make it possible to analyse effects of specific policy holding other variables constant.
4. *Subject/scope and Timing:* Most of the studies, whether ex-ante or ex-post analyses, employed computable general equilibrium models of the Philippines. While an economy-wide model is able to account for a number of factors and impacts, it has also its limits in providing detailed specifications on various sectors (sector approach) where impacts of trade reforms could be significant.

Liberalisation was simulated in terms of changes in protection rates, either in nominal or effective protection rates. Analyses are limited to the impacts of trade liberalisation by the country, and thus overlook implications of trade liberalisation by other countries on the country's economy.

It is also noted that most of the ex-post analyses looked into the impacts of trade liberalisation as implemented since the 1980's rather than focus on impact of trade under WTO. While the former have the advantage of validating impacts of trade using a longer time period, the latter will be useful in validating expected impacts of trade under WTO.

5. *Quantitative vs. Qualitative Approaches:* Most of the studies utilised econometric models to assess impacts of trade liberalisation. Simple trend analysis on variables where impacts are significant were also tried and seen helpful in providing indicative direction and magnitude impacts of trade liberalisation. Its usefulness, however, has been limited by the fact that, given a number of things that happened during the evaluation period, changes on those variables cannot be directly attributed to trade liberalisation alone; hence, the need for simulation using econometric models. In the case of the Philippines, for example, the Asian financial crisis and the El Nino phenomenon have significantly affected the economy thereby making the attribution of changes in various economic, environmental and social variables to trade liberalisation not so straightforward.
6. *Participation:* Although ideal, participation of all stakeholders in impact assessments, i.e. from the design of an assessment to actual conduct of the assessment, is generally lacking in view of limited resources to allow broad consultation.
7. *Monitoring, Follow-up and Policy Prescription:* Initial studies conducted before reforms under WTO were undertaken were utilised by the government in laying down necessary assistance to the affected stakeholders, either in terms of policy or programs. It is noted, however, that most of the recommendations and subsequent government actions are aimed to cushion the impact of intensified market competition on the farmers. There seems to be no monitoring on the government's compliance as to putting necessary measures in place to prevent or mitigate negative impacts on the environment, or on social well-being.

Impacts of Trade Liberalisation (Findings of the Studies)

In general, studies revealed that trade liberalisation, either

that under WTO or that since the 1980's when the country undertook unilateral trade reforms, have positive effects on economic growth (in terms of GDP), balance of trade and income distribution.

Impacts of trade liberalisation under WTO on the specific sectors vary. In the agriculture sector, aggregate production of livestock and poultry, and non-traditional crops are seen to increase. Commodity prices, except for coffee, have not responded to the WTO-induced changes so far. Impact on employment is positive at the net; although there is a small drop in agricultural employment, this was more than compensated for by new jobs created in the industrial sectors. It is also noted that while WTO has favourable export effects for manufacturing, the reverse is true for the agriculture sector.

Impacts of trade liberalisation undertaken since the 1980's, on the other hand, showed the following results:

a. On the Environment

1. There are indications that trade reforms tend to reduce pressure on upland soils devoted to agriculture, but increase that on forests and mineral resources;
2. There is an average of 1 percent increase in resource depreciation from 1991 to 2000;
3. Generation of air and water residuals is seen to increase over the period. Increase in air residuals is slightly higher than the increase in water residuals. Air pollutants such as PM, VOC, and CO are contributed largely by household consumption activities while SOX and NOX are mainly a result of production activities; and
4. In one particular study, trade reforms are seen to have favourable effects on the environment in view of an increasing trend in the share on non-pollutive industries compared to the pre-trade reform. Conversely, share of pollutive and highly pollutive/hazardous industries consistently went down. Given weak/lax enforcement of environmental laws which could very well encourage pollutive type of industries, the results indicate that the source of favourable trend is the impact of trade reforms, i.e. industries become abreast with global developments, technological and otherwise, which increasingly demand cleaner and greener environment. (Note however that the analysis was only made up to 1992. Effects of the WTO have not been accounted for).

b. On Social Aspects

1. There is a great deal of regressivity in food availability. First to third quintile or the poorer households suffered absolute decline in protein availability while first quintile suffered absolute decline in calorie availability due to increase in prices, despite increase in the absolute income of all households;
2. Despite progressive income effects, the effect on demand for outpatient care was swamped by regressive price effects. Many of these responses are expected from the poorer households (whose price elasticities are higher than the richer households) compared to richer households (whose income elasticities are higher than poorer households); and
3. There is a decline in school attendance and increase in labour force participation of children 10-24 years old.

3.5.2 Critique of the Studies

While results of the studies would have relevance to policy-making, it is deemed that these findings cannot be considered conclusive in that analyses of impacts were based on the unilateral moves of the country to reform its domestic trade policies. As a small nation whose development activities are significantly influenced by the decisions of the larger nations or, in general, by the rest of the world, analysis of impacts of trade liberalisation should also take into account those resulting from the trade reforms done by the rest of the world.

It is also noted that not one of the studies has been able to provide a complete assessment of the impacts of trade on the various elements of sustainable development. Since sustainability assessments should be able provide a comprehensive review of the impacts of trade on all aspects of sustainable development, there is a need to come up with specific SD indicators that would serve as standard parameters against which a policy/program can be assessed. The Philippines, through the support of UN-ESCAP, has had success in coming up with an initial core set of indicators. However, much remains to be done in finalising the list.

Furthermore, since sustainability assessments cover various areas of concern, their conduct should not only involve the government. To the extent possible, various agencies of the government at various level of governance, non-government organisations and other stakeholders should also be involved. This is to ensure wider acceptance of the results of the assessment, and agreement on the appropriate policies to push and necessary measures to be undertaken by each stakeholder.

3.5.3 Next Steps

In view of our commitments made in Rio in 1992 to pursue sustainable development, it is imperative for states to consider on a voluntary basis the conduct of holistic assessments of the impacts of any policy or program at the national level, based on the parameters of sustainable development. For developing countries, the scope and pace of implementation should be determined solely by them, taking into account resource constraints. To better assist policy- and decision making, assessment methodologies need to be enhanced.

In particular, there may be a need to come up with a methodology that would allow participation of other stakeholders. It should be noted that existing methodologies of impact/sustainability assessments are

too technical and quantitative to allow broader participation of all stakeholders. In this regard, there may be a need to ensure that a methodology that could allow broader participation should, at the same time, not entail too much cost. One approach to facilitate impact assessment with broader participation is to use environmental impact assessment (EIA). Since EIAs do not outrightly involve in-depth and quantitative analysis, the process can allow all stakeholders to participate in identifying impacts of an activity on various areas of concerns. Although EIA is more widely used as a tool in determining the broader impacts of projects and activities (including impacts on social well-being and development), its application can be extended to policy and program assessment. In fact, the Philippines, through the leadership of stakeholders from academia, has recently attempted to subject the Medium-term Philippine Development Plan (MTPDP) 1999-2004 to an EIA. The MTPDP contains general directions and policies, which will be pursued in the next six years. Preliminary results of the assessment have resulted in the identification of major issues and concerns which could impinge on the environment and social development. Appropriate measures have also been identified to prevent or mitigate negative impacts of some policy measures identified in the Plan.

International cooperation will also be needed to come up with a list of SD indicators to be used as relevant parameters in assessing trade impacts. Meanwhile, developing countries like the Philippines could improve on modelling techniques which, to the extent possible, should include "multi-country" features to account for impacts of trade liberalisation by the rest of the world. It should be pointed out, however, that while sustainable impact assessments may be continued at the national level, this activity should not be imposed on the developing countries. Rather, they should have the flexibility to undertake this activity depending on their priorities and the availability of resources, and technical and financial assistance should be made available upon request.

3.6.1 Introduction

The OECD's methodologies for environment and trade assessments are the first methodologies of this type developed at the international level.[1] They were adopted for the joint session of environment and trade experts in 1994, following guidelines adopted in 1993 for OECD ministers and that served as general guides for the member countries of the OECD on issues of trade and environment (Directive Guidelines for integrating trade and environment).[2] One of these directive guidelines recommended the realisation of trade and environment assessments.[3]

The OECD's methodologies are focused on two types of assessments: the assessment of the environmental impact of trade measures, and the assessment of the trade impact of environmental measures. This presentation will deal exclusively with the first of the two methodologies.

3.6.2 The OECD Methodology for the Assessment of the Environmental Effects of Trade Measures

Since its adoption, this methodology has been used by member countries of the OECD to conduct assessments of trade policies at the national level.[4] At the same time, other methodologies have been developed to evaluate the environmental impact or, in some cases, the sustainability impact of trade agreements and policies (for example, the methodology for the environmental assessment of the North American Free Trade Agreement between the United States, Canada and Mexico).[5] In October 1999 the OECD organised a seminar to examine the actual state of development of methodologies to assess the environmental impact of trade liberalisation and to develop conclusions and lessons for future assessments.

One of the findings that emerged from the seminar was that the OECD's 1994 methodology has maintained its validity and its utility, particularly with respect to identifying the different effects to examine in the course of an environmental assessment.[6] Another finding was that the methodology has various gaps. In addition, the seminar identified a series of useful lessons for future assessments.

The OECD methodology is divided into two sections: the process of the assessment and the different types of effects to examine.[7] In addition, it contains an annex with various lists of questions ("checklist") intended to facilitate the examination of those environmental effects. This presentation will focus on the second section: the effects that the methodology recommends for examination.

3.6.3 Geographic Scope of the Environmental Effects

Trade measures taken by a country whether unilaterally or under a bilateral or multilateral trade agreement can have effects at different levels:

2.5.6. Other relevant work

The following is a listing of other work in this area that is relevant for the continued examination of case studies in an attempt to develop future methodologies for sustainability assessment. For reasons of time, or in some cases because of an indirect link to the central questions considered in this paper, they were not dealt with in detail. However, they represent important contributions to the literature for consideration in follow up work.

- *National level:* the effects produced within the boundaries of the country (pollution of interior waters, impacts on non-migratory wildlife species, impacts on indigenous vegetation species, etc.)
- *Transboundary level:* the effects have a transboundary impact (pollution of a shared river, acid rain, impacts on migratory species, etc.)
- *Global level:* the effects extend to the entire planet (destruction of the ozone layer, climate change, loss of biodiversity, etc.)

3.6.4 Types of Effects

The central tenet of the methodology is the examination of the different types of effects relevant to the assessment of a trade policy or agreement. It analyses, on the one hand, the effects on the environment, and on the other, the different types of effects of trade measures.

Effects on the Environment

***Pollution Effects*:**
examines the increase or the decrease of emissions of noxious substances into the air, water or land, including solid waste.

Effects on Health and Safety:
these are the effects produced by the raising or lowering of protection of human, animal and vegetation life and health and includes factors such as potable water, the presence of chemical substances in foods, illnesses related to the environment, etc.

Effects on Natural Resources:
these include the increase or decrease in the use of energy and other natural resources, the increase or decrease in the destruction of natural habitats and ecosystems, the extinction of animal species, changes in land use, etc.

Clearly, all these effects are interrelated and the effects on resources (for example, rising use of fossil fuel as an energy source) will have effects on pollution and health. This interrelationship also must be examined when undertaking an assessment.

The 1999 OECD seminar also noted the lack of data and indicators related to environmental impacts, in particular those which referred to impacts on the diversity and use of land, and recommended better and more complete data in that area. As well, it recommended studying the possibility of increasing the range of possible environmental impacts to take into account in the course of an assessment.

In this context, it might be useful to mention the environmental indicators developed by the OECD which include the following:[8]

- *Climate change:* intensity of CO2 emission, concentration of greenhouse gasses
- *Degradation of the ozone layer:* substances that degrade the ozone layer; stratospheric ozone
- *Air quality:* intensity of emissions into the air; quality of urban air
- *Waste:* waste generation, waste recycling
- *Water quality:* quality of rivers, treatment of wastewater
- *Aquatic resources:* the intensity of use of aquatic resources; public supply of water, and prices
- *Forest resources:* intensity of use of forest resources, forested land
- *Fisheries resources:* level of fishing and consumption (national); level of fishing and consumption (global and regional)
- *Biodiversity:* threatened species; protected areas

Types of Effects related to Trade

The methodology recommends an analysis of five types of effects related to trade: product effects, technology effects, scale effects, structural effects, and regulatory effects.

Product Effects:
are effects related to the trade of products that can harm or help the environment (for example, increasing trade in relatively harmful products for the environment such as non-recyclables or, on the other hand, increasing trade in products that are more environmentally-friendly such as emission free vehicles). Also included under this heading are the effects of trade in environmental technologies such as water treatment systems.

One of the gaps that was raised in the 1999 OECD seminar, is that neither the OECD methodology, nor other methodologies expressly include an examination of the possible effects on the environment of the liberalisation of services. In the meantime, there have been some attempts to adapt the methodology to fill this gap, specifically with regard to the "checklist" annexed to the methodology.[9] In addition, it recommends an analysis of the effects of investment measures related to trade.

***Technology Effects*:**
are those that occur in the method of producing a good. Positive effects occur when pollution or the cost for the

environment is relatively low or the environmental cost is comparatively lower, and negative effects occur in the opposite case.

The question of the compatibility with international trade rules of measures related to the process and production methods associated with a good, is controversial. It is important to keep this conflict in mind when evaluating the effects of new trade measures over existing rules related to methods of production.[10]

Scale Effects:
are the effects of trade measures on the level of economic activity. They are associated with the general level of economic activity or the macroeconomic effects that result from a trade measure. Positive effects are those that result in raising economic growth and levels of trade or earnings, without harming the environment. Negative effects occur when this growth brings about an increase in environmental costs.

In relation to economic issues, it was noted in the seminar that one of the difficulties associated with assessment is determining the causal relationships between trade liberalisation (or a trade measure) and an effect on the economy. In particular, it is difficult to estimate what effects are related to a trade policy and which are related to economic growth.

In this context, it was recommended to develop methodologies to reflect what would have occurred if a trade measure or agreement had not been adopted. This analysis must bear in mind that the fact that a certain measure or agreement was not adopted does not imply that the situation would remain the same. Other factors come into play, such as the adoption of other types of measures (for example, environmental measures) within a country or at the international level.

Structural Effects:
these effects are associated with changes in the structure of economic activity or microeconomic effects that result from a trade measure or agreement. Positive structural effects are those that occur when a trade measure promotes a distribution of resources, modes of production and efficient consumption. Negative effects occur when the environmental costs and benefits are not reflected in the price of the products.

***Regulatory effects*:**
are the legal and policy effects of trade measures. The effects are positive when a trade measure preserves the power of the government to make laws and implement policies that protect the environment. The effects are negative when such capacity of a government is limited or impeded by a trade measure.

During the seminar in October 1999, it was indicated that the examination of the effects on regulation need not be limited to purely legal instruments, but should also include economic instruments such as administrative measures, the possibility of adopting voluntary agreements between public authorities, and businesses or industrial associations, etc.[11]

In addition, the seminar recommended to keep in mind the jurisprudence in force, and the possible conflicts with the new measures and suggested examining the possible legal development of a trade policy or agreement, that is to say, to anticipate the possible interpretation of the new measures for the tribunals (whether national or in the framework of the mechanism for dispute resolution of the WTO).[12]

Finally, it recommended to bear in mind the different ways in which a country might establish precautionary measures and methods of prevention in relation to the importation of certain products. The precautionary principle has acquired a recent boost in relation to trade and environment and human health and safety. The different approaches to risk can be relevant in the assessment of the effects of a trade measure on the environment and it is necessary to study ways of integrating this into the methodology.[13]

1. Methodologies for Environmental and Trade Reviews. OCDE/GD(94)103.
2. OECD Joint Session of Trade and Environment Experts. The name of the group was modified recently and it is now called the Joint Working Party on Trade and Environment.
3. "Governments should examine or review trade and environmental policies and agreements with potentially significant effects on the other policy area early in their development to assess the implications for the other policy area and to identify alternative policy options for addressing concerns. Governments may co-operate in undertaking such examinations and reviews. Governments should follow-up as appropriate: to implement policy options, to re-examine the policy agreements and any measures in place; and to address any concerns identified in the conclusion of such re-examination." The OECD procedural guidelines on trade and environment, in "The environmental effects of trade." OECD, 1994.
4. OECD, "Implementation of the OECD procedural guidelines on trade and environment: results of the second review" [COM/TD/ENV(98)132/FINAL].
5. This methodology can be found on www.cec.org/english/profile/coop/frame.
6. Workshop report, "Assessing Environmental Effects of Trade Liberalisation Agreements: Methodologies." OECD 2000, page 11.
7. The section on the process of assessment includes the following elements: selection of *type* of trade measure or policy to evaluate, determine the *scope* of the assessment, *when* to undertake an assessment, *who* should take part in the

assessment process, what *methods* should be used (for example, economic models, forecasting techniques, traditional methodologies for environmental impact assessment of projects, etc.) and what measures for monitoring and followup will be applied.

8. Towards sustainable development. Environmental indicators. OECD, 1998.
9. Dale Andrew, "Liberalising services trade: an approach to the assessment of environmental effects" in "Assessing environmental Effects of Trade Liberalisation Agreements: Methodologies." OECD 2000, page 149.
10. Processes and production measures (PPMs): conceptual framework and considerations on use of PPM based trade measures [OECD/ GD/97/105].
11. Ole Christian Fauchald "Assessing Regulatory Effects of New Trade Rules" in "Assessing Environmental Effects of Trade Liberalisation Agreements: Methodologies." OECD 2000, page 279, and by the same author: "Assessment of legal implications of trade agreements for the use of environmental instruments," in "Environmental assessment of trade agreements and policy." Nordic Council of Ministers, 1998.
12. Joel P. Trachtman, "Assessment of the Effects of Trade Liberalisation on Domestic Environmental Regulation: toward trade-environment policy integration" in "Assessing Environmental Effects of Trade Liberalisation Agreements: Methodologies", OECD 2000, page 295.
13. The recent dispute before the WTO that put Canada and the United States up against the European Union with regard to the prohibition of imports of bovine meat treated with hormones is a clear example of the impact of trade policies based on the precautionary principle.

3.7.1 Introduction

Before I start with this presentation, let me take this opportunity to welcome all of you to this experts' meeting on assessment of trade liberalisation.

WWF has been working on the development of a methodology for environmental and sustainability assessment in the context of trade and trade liberalisation processes for more than a year and a half now. However, I should mention that we produced in 1994 terms of reference for a social and environmental assessment of the URA following a decision taken by the Commission for Sustainable Development referring to the need to develop a "framework for assessment."

Two publications have been released in 1998 and 1999 and outline the WWF methodology or approach to sustainability assessment. In addition, WWF has realised in cooperation with Oxfam two studies on the social and environmental impacts of trade liberalisation in the corn sector. The first one was conducted in 1996 in the Philippines and the second one was undertaken in 1998 in Mexico.

I should also say that this workshop constitutes an important part in the further development of our work and methodology for assessment. We expect that the discussions held in this room will both emphasise the importance of some of the issues we have been developing, as well as point to some new ones that may not have been considered so far.

I will start straight away by outlining the WWF framework for assessment and I apologise to those who are now familiar with it and have already heard what I am about to say. I will keep this section short, as it has been summarised in the background material for the meeting. I will end this presentation with some general reflections on the present topic.

3.7.2 WWF Assessment Framework

WWF is involved in the development of a framework for assessment for the following reasons:

- At a general level, to better understand the linkages and the nature of the relationship between trade, environment and development ;
- at a more specific level, to identify how trade and economics may impact the conservation work that we do on the ground ;
- to find solutions and methods to address the constraints and the potentially negative effects that trade rules and policies may have on the environment and sustainable development.

In others words, our approach to assessment is not limited to undertaking research and analysis on, for instance, how NAFTA affects the production strategy of corn producers

in Mexico and how these changes in turn affect land use, biodiversity conservation but also the social structures of farmers' communities. An important part of our methodology is devoted to trying to find ways to address these impacts and subsequently to develop and implement the appropriate policies. In other words, making sure that the results of the assessment have resonance in the policy-making arena.

In this regard, sustainability assessment is a tool to identify and address the social and environmental effects of trade liberalisation. And from key findings/results of the assessment, concrete policy recommendations are developed with a view to ensuring that trade and sustainable development objectives are mutually supportive.

The framework developed by WWF has three main components:

1. The first part deals with procedural issues, what we can call the 'how' of assessment. For example, who is involved in conducting sustainability assessment and who is responsible for it? When should the assessment be initiated?
2. The second part relates more to the 'what' of the assessment. What is being assessed and how are trade-related effects measured.
3. The third part relates to policy recommendations, as I just referred to earlier. In this regard, the background material prepared for the meeting speaks about "policy relevance" of assessment. What is and should be its influence on policy making and what will determine that the results of the assessment are effectively taken into account by policy-makers who negotiate trade agreements for instance.

Procedural Issues

There are a number of procedural issues that are relevant to consider when developing a framework for assessment. Timing and participation are two of these.

The WWF approach makes it clear that the earlier the assessment is conducted, the greater the likelihood it has of influencing decisions. In other words, an assessment should be done early enough in the trade negotiation process so that it can inform and help determine the negotiating positions of policy makers. At the same time, it is also suggested that an assessment of current trade agreements, such as the URA, is necessary (1) to assess concrete effects of trade liberalisation on the environment and society as opposed to projected or potential ones, (2) to inform preparations for new and yet to come trade liberalisation efforts.

Participation is a second important procedural issue and one which will determine both the effectiveness and legitimacy of the assessment undertaken. There is a need to include relevant stakeholders at different stages of the assessment, both in the design and implementation. These stakeholders range from local communities to involving the relevant government departments (trade, environment, development cooperation), as well as NGOs. How to make this participation possible and effective is in my view an important element in the development of assessment methodologies in general.

The second part of the WWF framework focuses on sectoral assessment. It is suggested that an assessment of trade-related effects should proceed by looking at important products and sectors in the economy, and review potential economic, environmental and social effects of trade. At the same time it is recognised that

2.6. Matrix of Approaches

	OECD	CEC	EU	WWF
1. Environmental vs. Sustainability Assessments	Environmental	Environmental	Sustainability	Sustainability
2. Trade First vs. Environment First	Economic Assessment of the trade agreement or measure	Broad economic, environmental, social and political context followed by economic and other direct effects of NAFTA, including institutional effects	Trade measures	Economic changes of major trade measures
3. Causality and Correlation	Product effects, scale effects, structural effects, technology effects, regulatory effects	Production management and technology; physical infrastructure; social organisation; government policy	Preliminary assessment, to identify potentially significant and non-significant impacts and to differentiate between impacts of greater and lesser significance	Scale effects, structural effects, products/technological effects, socio- economic social effects, environmental effects, regulatory effects (including feedback effects)
4. Subject and Scope	Trade measures and agreements (includes criteria for screening)	NAFTA, broadly defined to include rule changes, institutions , trade flows, investment and other economic conditioning factors	Trade measures (includes a screening process and a scoping phase)	Social and environmental impacts of trade liberalisation including procedural, substantive/sectoral and prescriptive analysis
5. Timing	Will vary depending on the trade measure or agreement, but generally should be conducted early in the policy-making process	*Ex-post*	*Ex-ante* (includes scenarios to compensate for uncertainty)	Early in the negotiating process (ex-ante), but usefulness of ex-post for lessons learned

6. Participation	Nature of participation will vary. Reviews will be carried out by government officials, recommends consultation	Work undertaken by a multidisciplinary team with consultation. No requirement for participation apart from institutional obligations of CEC	Developed in consultation with EC and stakeholders	SAs should be transparent and participatory
7. Quantitative vs. Qualitative Assessment	Mix of methodologies including models, case studies and others	Case studies incorporating qualitative and quantitative approaches	Suggests a mix of quantitative methodologies, along with case studies and social science methods	Relies primarily on qualitative analysis, acknowledges potential value of models with caution
8. Sectoral Approaches	Case studies might be used, recommends development of criteria	Applies to sector studies, includes criteria for selection and upstream and downstream effects into other sectors	Includes case studies in possible approaches	Suggest use of sector studies and includes criteria for selection
9. Indicators for Assessment	Suggests preliminary indications within broad topics of pollution effects, health and safety effects, and resource effects	Includes indicators form air, land, water, and biota and indicates criteria for selection of these and additional indicators	Core sustainability indicators: economic, social and environment	Proposes qualitative judgements to assess impacts
10. Monitoring, Follow-up & Policy Prescription	Importance of monitoring results and following up and suggesting policy responses	No provision for policy recommendations	Acknowledges the need for mitigating and enhancing measures to reduce or eliminate significant negative impacts, and includes criteria and a method for selecting such measures	Includes a prescriptive analysis with policy recommendations.

3. Presentations

The presentations are in the order in which the speakers appeared on the agenda. The power-point presentations have been put in Annex 4.3 of this document. More information on these presentations can be obtained from the individual authors, all of whom are noted in the list of participants (Annex 4.2). Some presentations are missing as they were not available when this document went to press.

3.1. The Role of International Organisations

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cross-sectoral effects are important. For example, trade liberalisation in the agricultural sector has effects on the forest products sector because often land is cleared and trees cut for agricultural exports purposes. However, while the WWF approach outlines the importance of these cross-sectoral effects, the methodology is still under-developed in terms of how to capture and assess these effects.

In essence, the WWF methodology is not quantitative although it does recognise the value of relying on quantitative models and approaches. It relies on a set of qualitative questions which aim to identify economic, social and environmental effects of trade agreements looking at import/export patterns, production and consumption and technology.

Take the example of trade liberalisation in the agricultural sector or even in specific agricultural commodities. The following questions can be asked to screen the potential environmental effects of opening up trade in that sector/ commodity:

- How will increased trade in that sector affect the environment? For example, could it lead to more surface being cultivated and more land being cleared?
- How will changes in production and consumption patterns affect the environment? For example, will trade liberalisation actually result in an increase or decrease in the level of resource use?
- Following trade liberalisation, could there be a transfer of cleaner technology or, on the other hand, more intensive use of pesticides?

It is expected that these types of screening questions for economic, social and environmental effects of trade liberalisation would help set the direction in which trade liberalisation processes affect the environment and society in that particular sector.

Prescriptive Analysis

I will not go in detail over the third part, policy recommendations for assessment, as this was emphasised at the beginning of this presentation. In short, an assessment is not only an academic exercise and its usefulness largely depends on the extent to which the results and key findings of the assessment are actually used to determine and influence trade policy making. I hope that this workshop will provide valuable insight into the very policy relevance of SAs.

3.7.3 General Remarks

Let me end therefore with some general remarks.

First, there is a clear need to clarify the very meaning of sustainability and environmental assessment and what they consist of. For example, in what sense are such assessments in the realm of trade rules and policies different from more widely known environmental impact assessments of projects such as dams, power stations, etc?

Second, having clarified the meaning of sustainability assessment, its purpose is a second important issue. What is and should be the purpose of conducting such assessment? Why would a national government find it relevant to undergo an assessment of the trade liberalisation agreements it becomes a party too?

Here again, a number of points and issues need to be clarified and explored. In my view, the workshop could contribute to this aspect of the discussion by identifying two or three concrete ways and means that define and determine the very purpose and relevance of these assessments.

Thirdly, a substantial amount of work is needed in terms of the practical application of sustainability assessment. And this is related to the capacity, both technical and financial, to undertake assessments. In this regard, an assessment should be sensitive to the sectors and countries where it is applied, taking into consideration the different situations faced by countries at different levels of development. I hope that the case studies presented tomorrow will help in identifying key elements in the practical application of sustainability assessments.

Finally, the issue of participation in the debate about

sustainability assessment, and in the development of methodologies and implementation of assessments is in my view crucial. In this respect, I would like to stress that this workshop intends to provide a frank and constructive exchange of views on the assessment issue by bringing together a wide range of stakeholders with different backgrounds and experiences, from several geographical regions. I hope that the workshop will identify ways to make this exchange of views and sharing of experiences continue, so that we can progress in the development of further work in this field.

The purpose of this presentation is to summarise the purpose and application of the methodology that was developed for conducting a preliminary sustainability impact assessment of the New Round Agenda for the WTO Seattle meeting.

The methodology is described in detail in the accompanying paper, C. Kirkpatrick and N. Lee 'EU Sustainability Impact Assessment Study: Purpose, Method and Application', which has been distributed to delegates.

The first part of the presentation will describe the development and application of the methodology. The second part will discuss a number of questions which arose during the preparation of the study, and which have wider relevance for the development of a sustainability methodology for assessing the impact of trade liberalisation.

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3.8.1 Introduction

This paper summarises the preliminary sustainability impact assessment study of the WTO New Round, which was financially assisted by the European Commission and completed in mid November 1999.1

The two main objectives of the study were.

1. To develop a methodology for carrying out a sustainability impact assessment (SIA), for use in the proposed WTO New Round of Multilateral Trade Negotiations, in the period up to the Seattle meeting.
2. To apply the methodology to a range of measures, which might be included in a New Round Agenda, to make broad qualitative assessment of their likely impacts on sustainable development and to identify the types of mitigatory or flanking measures which might help to maximise its positive impact.

The work programme was divided into two phases:

Phase One*:* mid July - mid September 1999. This mainly involved literature and case study reviews, consultations and the development of an SIA methodology for use in Phase Two.

Phase Two*:* mid September - mid November 1999. This involved an examination of the potential impact on sustainability of each main measure that might be included in the subsequent negotiations and of types of cost effective and workable flanking measures where mitigation or enhancement might be desirable.

There are six further sections to the paper. Section 2 discusses the approach adopted in the EU study to developing an SIA methodology. Section 3 describes the methodology. Section 4 describes its application and main findings. Section 5 offers a number of guiding principles on the selection and use of mitigating and enhancing measures. Section 6 discusses some issues

arising from the application of the SIA methodology in this study, which have implications for the further development of sustainability assessment of trade policy measures. The final section provides a brief summary and conclusions.

3.8.2 Rationale & Approach to Sustainability Assessment

Sustainability impact assessment is a relatively new concept for which there is no established methodology and little practical experience, particularly relating to international trade policy (Muguruza et al 1999. WWF 1998).

What is very familiar, is the methodology and application of separate forms of economic, social and environmental appraisal at the project level. Cost benefit analysis, environmental impact assessment and social impact assessment are long-standing and, in the first two cases at least, their methodologies are well established (Kirkpatrick and Lee 1997, chapter 1).

However, the application of specialised economic, social and environmental appraisals at the policy, plan and programme level (strategic-level appraisal) is much less developed. It is most developed in the economic sector, much less developed (though growing) in the environmental sector, and least developed in the social sector. A similar pattern exists so far as trade-related impact studies are concerned. It is relatively most advanced in the trade economic sector, where modelling studies are often used. It is considerably less advanced in the trade-environment sector where a small number of modelling studies and a greater number of case studies have been completed. It is least developed in the trade-social sector, where case studies predominate. Further details are contained in Kirkpatrick et al 1999 (chapters 3 and 4, and appendices 3 and 4).

The development of an SIA methodology for application to trade-related international agreements faces therefore a number of challenges. First, there is the under developed nature of the constituent appraisal methodologies - economic, social and environmental - for use at the strategic level, and the limited practical experience in their application. Second, there is no established method for integrating these specialised strategic appraisal methodologies, which are based on different discipline-based paradigms and research methods, within a common SIA framework (Lee and & Kirkpatrick 1999, chapter 1).

The first response to these challenges was to construct an "appraisal approach" to help in planning the SIA study. This considered (see Kirkpatrick et al 1999, chapter 2) four issues:

- *What was the task for which the SIA appraisal is needed?* Answering this question not only clarified the types of trade-related measures to be appraised but also the stage in the policy formulation process at which the SIA appraisal was to be used in Phase Two. Since this was an early, preparatory stage it is clear that a ***preliminary*** rather than ***full*** SIA was required in the pre-Seattle situation.
- *What was the analytical framework within which the SIA should be structured?* This, in its simplest form, is illustrated in Figure 1 below. It highlights the importance of certain sub-systems (trade, economic, social, environmental and regulatory) as building blocks within the overall framework, and draws attention to the interdependencies which exist between them.
- *What were the main sustainability impacts to be assessed and how was their importance to be determined?* Attention was focused on a core set of sustainability indicators which relate to economic, social and environmental impacts of importance to sustainable development in all

societies. The importance of changes in these indicators was then assessed in Phase Two, using a number of significance criteria.

- *How were the inevitable uncertainties (arising from incomplete information, limitations in analytical tools, unpredictability of future events, etc.) to be handled within the SIA?* A number of methods and procedures were identified by which some of these uncertainties might be reduced, and others might be managed, within the SIA process itself and through proposed flanking measures (see Kirkpatrick et al 1999, chapter 2.4 for further details).

The second response was to undertake two kinds of literature review: methods-based and trade-agreement-based. The findings are reported in Kirkpatrick et al 1999 (chapter 3 and appendix 3, and chapter 4 and appendix 4, respectively. An extensive list of references is included at the end of the report.). Their common purpose was to clarify the current state of knowledge, of relevance to the appraisal of trade-related agreements, and to assist in the development of the proposed SIA methodology. The first review covered more specialised forms of appraisal (i.e. economic, social, environmental and regulatory impact appraisals) and integrated appraisals (including sustainability appraisals). The second review covered appraisals of trade-related agreements and other initiatives of relevance to the appraisal of measures that might have been included in the New Round negotiations.

The additional understanding gained from the literature and case study reviews was drawn upon in developing the SIA methodology, which is described in the next section.

3.8.3 SIA Methodology

The analytical framework which has been developed is illustrated in Figure 1. It highlights the importance of a number of different sub-systems (trade, economic, social, environmental and regulatory) as building blocks within the overall framework. It also draws attention to the different mechanisms (direct, indirect, feedback, combined) through which impacts are transmitted due to the connections which exist between the sub-systems.

Four kinds of information played a key role in the assessment. These were.

- A list of 15 measures which might be negotiated during the New Round and which, therefore, were the main subject matter for this appraisal. These are listed in Box 2.
- Three different policy scenarios for the New Round: base scenario, intermediate scenario and a liberalisation scenario. The base scenario implied that no new agreement would be reached on the measure concerned. The intermediate scenario reflected the EU's initial negotiating position. The liberalisation scenario assumed greater and faster liberalisation and very limited changes to existing mitigatory measures for adverse social and environmental impacts.
- Four different country groups for which appraisals were undertaken: the European Union, developing countries, least developed countries and the world.
- A list of sustainability indicators - evenly balanced between economic development, social development and resource/environmental quality - and a set of significance criteria to be used in their interpretation. These are shown in Box 1. It should be noted that, in the case of long-term impacts, additional considerations may apply,

The assessment process, which was undertaken in Phase Two, contained four main stages:

- *screening:* to determine which measures required SIA because they were likely to have significant impacts.
- *scoping:* to establish the appropriate coverage of each SIA.
- *preliminary sustainability assessment:* to identify potentially significant effects, positive and negative, on sustainable development.
- *mitigation and enhancement analysis:* to suggest types of improvements which might enhance the overall impact on sustainable development of New Round Agenda measures.

In undertaking the assessment, use was made of a variety of appraisal techniques (including those for handling uncertainty) and empirical studies identified in the literature reviews undertaken in Phase One (see Kirkpatrick, Lee and Morrissey, 1999) and continued during Phase Two. In so doing, their individual strengths and limitations were taken into consideration. These were supplemented by other available data sources, the knowledge and judgement within the study team and its associates, and wider consultations with specialist organisations and interested individuals in the field.

3.8.4 Application of Preliminary SIA Methodology

Screening

The purpose of screening was to determine whether any of the measures initially listed for investigation in the SIA of the New Round (see Box 2) might be excluded from further examination on the grounds that they were unlikely to give rise to significant economic, social or environmental impacts. All of the measures listed in Box

2 were investigated and, in each case, their likely impacts were considered according to the three scenarios ("base", "intermediate" and "trade liberalisation"). Impacts were analysed in relation to the four target groups of countries: the European Union, developing countries, least developed countries and the world. The screening findings were initially derived using the study team's own knowledge, the documentary sources listed in the Phase One Report and various consultations. Subsequently, these were tested in meetings with the European Commission and with representatives of Member States and civil society, during October 1999.

The main conclusions which were drawn from the screening, exercise were:

- All of the measures listed might give rise to some significant social and/or impacts as well as economic impacts. For this reason, none of the listed measures could be safely screened environmental out of subsequent stages in the preliminary SIA process.
- The nature and extent of the potential impacts varied between different measures, different scenarios and different target groups. Impacts could be both positive and negative, varying according to the particular measure, context and target group involved.

Consequently, each of the fifteen measures was submitted to scoping and preliminary appraisal.

Scoping and Preliminary Impact Assessment

The main purpose of scoping is to determine the terms of reference for the appraisal of each measure by examining its components to identify those which may lead to significant impacts, and those which are unlikely to do so and may be excluded from further analysis.

Preliminary assessment is an extension to scoping in two senses: it assists in dealing with any remaining uncertainties concerning which impacts are to be recorded as potentially significant and non-significant, and differentiates, so far as the available information allows, between impacts of lesser and greater significance.

Scoping aims to identify the cause-effect routes through which significant impacts may result, taking account of possible indirect, feedback and cumulative impacts, as well as direct impacts. Both scoping and preliminary appraisal were undertaken for each country group and for each scenario in order to record any differences in likely impacts between them. Similar sources and kinds of information, though in corresponding greater detail where needed, were used for scoping and preliminary appraisal as for screening. Progressively more attention was paid to the characteristics of the individual components of each measure, the different contexts in which they might be applied, the cause-effect routes involved, and whether the resulting economic, social and environmental impacts were likely to be significant or not.

Finally, the combined impacts were assessed for all of the measures that might be included on the New Round Agenda, taking into account any additional indirect, feedback and cumulative impacts which result from interactions between the measures and their individual impacts.

In this study there was not a well-defined division between the completion of scoping and commencement of preliminary assessment. This reflected the limited duration of Phase Two, and also the fact that preliminary assessment is an extension of scoping, rather than a separate full assessment.

The choice of indicators used in the scoping and preliminary assessment (Box 1) was largely determined by considerations of purpose (the purpose in which they were to be used), consistency (with the definition of sustainable development to be used), and practicality (quantitative or qualitative). The total number of indicators chosen was deliberately small (nine in total). This was considered preferable to using large numbers of indicators, which was judged unlikely to be practicable, particularly in the early negotiations or decision making situations that were anticipated in the post-Seattle period. The choice of indicators was also intended to promote internal consistency within the appraisal as a whole and to limit the volume of information gathering and analysis to that which was manageable within the time available. The core indicators were used in a flexible manner (for example, using different formulations of an indicator where more appropriate in the circumstances or where the availability of information dictated this). Also, where other relevant information was available, it was used as a supplementary source in interpreting the findings.

3.3. UNEP's Involvement

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Sustainability impacts were of relevance to the New Round agenda where they are of significance i.e. they were likely to be a material consideration in negotiations and decision making. Particularly in high-level policy appraisal, significance criteria cannot usually be expressed in terms of well-defined threshold values. Instead, combinations of criteria are used where the likelihood of a significant impact increases as the combined set of core indicator values moves in specified directions. This approach was used in applying the four inter-related significance criteria listed in Box 1. Significance indicators can be constructed in different ways. Target indicators involve comparisons with a base-line situation relative to long-term sustainability targets. These can be problematic as long-term indicators because of difficulties in setting long-term sustainable development targets, and constructing sufficiently reliable long-term forecasts to compare with these. For this reason, *target* indicators may be supplemented by *process* indicators. The latter are used to evaluate whether policies (in this case trade policies or trade-related economic, social and environmental policies) are consistent with sustainable development principles (e.g. polluter pays principle, user pays principle, precautionary principle, reduction in income and gender inequalities etc.) and whether the regulatory and institutional capacities to implement these policies exist in the countries concerned and are being effectively used. In this preliminary study, sustainable development process indicators were only used in a limited way as a supplementary source of information to the indicators listed in Box 1.

The preliminary assessment is a logical extension to scoping and was intended to provide further appraisal information relevant to the pre-negotiation stage. The preliminary assessment was under-taken for each measure, and according to each scenario and country grouping, and was presented in a matrix, as illustrated in Table 1.

Preliminary SIA Results

The results obtained from the preliminary SIA of the individual measures, according to the "intermediate" and "liberalisation" scenarios, were based on comparisons with the situation in the 'base" scenario. The main findings are summarised below.

a. In the case of the European Union*:*

- According to the *intermediate scenario* the *economic impacts* of most of the measures are positive and are significant or on the margin of significance. In a number of cases, however, there are both gainers and losers (e.g. consumers and producers or vice versa) and in two cases (agriculture and services) these were considered to be of sufficient importance to be separately identified. *Social impacts* and *environmental impacts* are identified as potentially significant or on the margin of significance for at least half of the measures. In many cases, social and environmental impacts are recorded as being both positive and negative either because different social groups or countries are impacted differently or because the impacts in question are likely to change over time. Both issues of distribution and time are relevant to the intra- and intergenerational concerns of sustainable development and are discussed further below. In summary, according to the intermediate policy scenario (which approximates to the EU's initial negotiating objectives), the majority of the individual impacts are likely to be of lesser rather than greater significance; most are positive or contain positive components but these are frequently accompanied, particularly in the case of the social and environmental impacts, by negative impacts on some socio-economic groups and/or over certain intervals of time. A number of these individual measure impacts, both positive and negative, are expected to be of greater combined significance when the impacts of *the Agreement as a whole* are assessed.
- According to the *liberalisation scenario,* most of the *economic* impacts are expected to be significant and positive in the longer term (and certain of these could be higher, in the longer term, than in the intermediate scenario). However, some could be negative or of lesser significance in the short and medium term due to the costs of adjustment during the transitional process. In the case of the *social* and *environmental* impacts, there are both positive and negative consequences but overall performance is less satisfactory than in the intermediate scenario. The reasons for this are mainly two fold: the absence of the social and environmental safeguards which are built into the intermediate scenario and the likely higher social and environmental costs during the transitional period of adjustment. As in the intermediate scenario, the combined impacts (positive and negative) of the Agreement as a whole are likely to be of greater significance.

The scoping and preliminary findings for each measure are presented, in separate sections, in Chapters 4 and 5 of the Phase 2 report. The combined findings of the preliminary appraisal for the New Round as a whole, under different scenarios and for different country groupings, are presented in the final section of Chapter 5.

b. In the case of Developing Countries and the Least Developed Countries:

There is likely to be considerable diversity in the impacts of the individual measures both between and within the two country groups. However, for present purposes, the

overall experiences of the two groups are likely to be sufficiently similar that they can be considered together.

According to the intermediate scenario the *economic impacts* are mostly significant. In the great number of cases, these are positive for some countries or become so after an interval of time (the potential exceptions concern labour standards and the trade-MEA issue). However, probably to a greater degree than in the EU country group, there are some countries and socio-economic groups

- which may experience economic welfare losses, depending on their economic structure and adaptability to changing market and policy conditions. The extent of these potentially negative elements depends on the specific details of the individual measures, and the timing of their implementation (this is examined further, as a more general policy issue, later). The *social impacts* of the individual measures are also mostly significant, and of lesser rather than greater importance. A number are expected to be positive, or to become so after a period of time. However, in the case of a number of measures, impacts on individual countries, or socioeconomic groups could be negative. This is more likely where there is no increase in economic welfare experienced, at least in the transitional period, and where there are significant changes in the distribution of income. The expected *environmental impacts* of individual measures are similar in pattern, although not identical, to that of the social impacts. There are significant gains and losses predicted, varying according to socio economic group and country context. To some degree they will mirror the predicted changes in economic and social impacts but will also be influenced by the existing level of environmental stress in the country concerned and by its regulatory and institutional capacity to deal with such stress.
- According, to the liberalisation scenario the *economic impacts* on these two country groups are more complex and diverse. A faster process of liberalisation, if not accompanied by considerably strengthened supporting measures, is likely to result in a much sharper division between countries and socio-economic groups into gainers and losers in economic welfare, particularly during the short and medium term adjustment period. In the longer term, assuming markets become more efficient, additional economic welfare gains should be made by these country groups as a whole. However, it is more problematic to establish the extent to which more countries and social groups will share in these welfare gains or, more fundamentally, how many of these countries will emerge from the transitional process on a closer trajectory to sustainability than previously. The majority of the *social and environmental impacts* are likely to be significant and, particularly during the transitional period, negative impacts (some at or near the greater significance level) are likely to be experienced. Their relatively greater importance is partly a reflection of the greater variations in economic welfare changes in this group and their social and environmental consequences, but also of the absence of the social development proposals and capacity strengthening in environmental protection which are a constituent element of the intermediate scenario. To the extent that developing countries re-emerge from the transitional process with higher economic efficiency and the capacity to make additional economic welfare gains, this could be reflected in some positive social and environmental impacts. This is provided it is accompanied by corresponding

3.4. Approaches to Sustainability Assessments & Opportunities for Cooperation and Coordination between Intergovernmental Organisations

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changes in the distribution of welfare and significantly strengthened environmental protection and resource conservation practices.

As in the case of the European Union, the combined impacts, positive and negative, of the Agreement as a whole are likely to be more than the simple sum of the impacts of their constituent measures because of synergistic effects. These apply in both intermediate and liberalisation scenarios but could be of greater consequence in the latter, where certain of the in-built mitigating measures found in the intermediate scenario are not present.

c. In the case of the World as a Whole:
The combined impacts consist of those which have already been described, together with those on other developed countries, additional to the European Union.

The impacts on the rest of the developed world, under both the intermediate and liberalisation scenarios, are more likely to approximate those of the European Union. However, there is great diversity within the developed world, as there is within the developing world, and there is likely to be a corresponding diversity in the economic, social and environmental impacts which they experience.

The impacts of each of the proposed measures on the world as a whole reflect the findings already presented adjusted to include the remainder of the developed world. Overall, they indicate a significant expansion in world economic development, which is likely to be greater once the adjustment to the trade measures has been completed. However, the projections of likely social and environmental consequences are much more mixed. There are gainers and losers, both within individual countries and between countries, for reasons that have already been described. These exist in both scenarios, but the extent and significance of negative impacts is likely to be greater in the liberalisation scenario.

3.8.5 Mitigating and Enhancing Measures

Part of the purpose of this study was to suggest measures, including flanking measures, which might enhance the impact on sustainable development of the New Round measures that were subject to sustainability impact assessment. The objective was not to appraise these M and E measures; rather it was to suggest certain guiding principles and selection criteria that might be used in the post-Seattle negotiation period.

Guiding Principles
A programme of M and E measures should possess an internal consistency and relevance to the objectives of the trade agreement it is expected to serve. With this in mind, there are a number of general principles which should guide the selection and subsequent implementation of M and E measures. These include:

- *Sustainable Development:* The Preamble to the Agreement establishing the WTO commits the organisation to achieving trade liberalisation that is consistent with the objective of sustainable development. This implies that equal consideration should be given to economic, social and environmental impacts of trade liberalisation and rule changes and that SD considerations should be mainstreamed into all aspects of the WTO's work. In turn, this suggests that subsidiary principles consistent with inter-and intra-generational equity and environmental and social policy principles of sustainable development (e.g. polluter pays principle, user pays principle, precautionary principle, distributive justice, etc.) should be respected in trade policies.
- *Regulatory Harmonisation:* WTO multilateral regulations and rules need to achieve as much coherence and harmonisation as possible between domestic regulation and other international regulatory disciplines in the economic, social and environmental fields.
- *Development Interests:* The WTO Preamble also commits the organisation to achieving trade liberalisation that is consistent with development objectives. This need is particularly evident in the case of the least developed countries where existing conditions - as shown in the current level of their economic, social and environmental indicators (see appendix 1) - are already close to, or in some cases below, the minimum level for sustainable development.
- *Policy Co-ordination:* The effectiveness of M and E measures can be increased by cooperation between international organisations based on consideration of the interaction between trade-related areas and other policy areas, in a manner that is mutually supportive and complementary. There are already provisions for closer international cooperation between WTO, IMF, UNCTAD and the World Bank. The conclusion of similar agreements, with other international organisations involved in social development and environmental policy matters, could facilitate greater

international co-ordination in the design and application of an overall international M and E strategy for advancing sustainable development.

Selection Criteria

The following more specific criteria were proposed for use in the initial identification of possible M and E measures and in any more detailed post-Seattle appraisal.

- *Relevant:* suitable for addressing specific deficiencies identified in the appraisal findings.
- *Workable:* the measures proposed are practical in legal, organisational and technical terms.
- *Cost-effective:* they are likely to be a least cost way of achieving the desired improvement.
- *WTO compatible but not necessarily WTO led:* they should be consistent with existing or WTO compatible revised WTO rules but they do not necessarily need to be organised, financed or implemented by WTO.
- *Coherent:* the measures should be consistent with each other, with other trade measures already prepared, in the relevant scenario, and with the goals of sustainable development.
- *Complementary to other sustainable development initiatives:* the proposed measures should not duplicate other measures which may be more appropriately undertaken by others.

Initial List of M and E Measures

An initial list of possible mitigating and enhancing measures was contained in chapter 6 of the Phase Two report. It was illustrative of the wide range of instruments that could be developed to offset negative impacts or enhance positive impacts associated with each of the measures proposed for inclusion within the New Round Agreement. They included M and E measures to:

- Remove or modify trade-related practices which reduce economic welfare, increase income and other forms of inequality, intensify pressures on environmental quality and encourage over-use of natural resources.
- Encourage greater economic efficiency leading to increased economic welfare; align prices more closely to their full social costs of production; encourage technical change, appropriate to different country situations, which stimulates resource saving and more effective pollution control; strengthen the regulatory provisions for environmental and social protection where market systems are not yet able to perform these tasks effectively; and address problems of poverty and income inequality using methods which are decoupled from mechanisms known to impede economic efficiency and environmental conservation.

3.8.6 Further issues in Developing an SIA Methodology

The EU study was a preliminary SIA study, completed in a comparatively short period of time, in advance of the WTO Seattle meeting. The work has raised, however, a number of additional questions of sustainability appraisal methodology and its application, which are examined in this section.

Comparisons between different Appraisal Findings

The empirical studies relevant to the trade policy-sustainable development relationship are reviewed in Kirkpatrick, Lee and Morrissey 1999. The findings of these studies are divergent and incomplete. Some, using formal modelling (often general equilibrium models), conclude that there are significant economic welfare gains to be obtained from trade liberalisation. Recent studies of this kind include: Australian Department of Foreign Affairs and Trade 1999; OECD 1999a; European Commission 1999. These are mainly trade-economy models which do not include social, environmental and regulatory sub-systems shown in the analytical framework in Figure 1. Where they do consider likely environmental consequences this is attempted in a less rigorous and detailed manner. (For example, by using a limited number of average emission factors which are used to predict changes in the aggregate quantity of certain emissions (OECD 1997) or assuming a simple, general relationship between economic development and environmental improvement (e.g. based on the environmental Kuznets curve (OECD 1999b). Social impacts are rarely considered other than by assuming a simple, usually positive, relationship with the average growth in incomes. There is also a growing case study literature on the trade-environmental-social relationship which often identifies negative environmental and social consequences resulting from trade liberalisation (Kirkpatrick, Lee and Morrissey 1999).

The difference in these findings is a possible source of confusion both to trade agreement negotiators and to other interested parties, including civil society. For this reason, it is important to clarify the reasons for these disparities so that, in the future, negotiations might proceed on a more consensual basis.

The results obtained from using general equilibrium trade models (and other kinds of models) depend crucially upon the properties of these models as well as on the quantity and type of data used within them. Both are important and are interrelated. For example, where data are limited (as is commonly the case) additional simplifying assumptions are made in the model to reduce information requirements or to enable other less directly appropriate data to be used. To a greater or lesser extent, the model's findings will then be different to what they might otherwise be. The properties of models are also influenced by other factors such as the purposes for which they are to be used and the need to stay within computational limitations. Hence, models that may be well-suited to analyse certain types of trade-economy relationships may not be suited, or easily extended, to analyse trade-economy – social- environmental – regulatory relationships.

This is not a criticism of trade-economy models. Modelling is more fully developed in this area than for

any other element in the trade-sustainability relationship. However, there are certain characteristics of the existing models that may account for some of the limited differences between this study's findings and those derived from the modelling studies described above. For example, these types of models often assume:

- efficient, highly competitive markets are in place or, where the presence of oligopoly is recognised, fairly simple types of rivalrous behaviour are assumed;
- equilibrium conditions apply and, therefore, adjustment processes and costs associated with disequilibrium conditions are ignored;
- aggregation in the analysis over a number of sectors, countries etc. and averaged supply and demand functions etc. in circumstances where the level of variability is likely to be high.

The shortcomings associated with these simplifying assumptions are likely to be particularly severe where the analysis in being applied to a diverse range of developing countries, least developed countries, and economically advanced economies. Further concerns arise where models of this kind are then extended, without sufficient adaptation, to assess social and environmental impacts given that:

- these types of impacts are particularly associated with imperfect markets and disequilibrium conditions; and
- the variations in these impacts at the local level and between different socio-economic groups can be great and where impact measures are often multi-dimensional and semiquantitative in nature.

In so far as there are some differences between this study's findings and the findings of modelling studies, they may be mainly traced to the additional consideration given in this study to the distribution of benefits and costs and to the impacts associated with a lengthy adjustment process under disequilibrium market conditions.

Ex post case studies, as often undertaken, also have their own limitations which need to be taken into consideration when interpreting their findings.

Appraisal of Long-Term Impacts

The analysis so far has mainly related to impacts resulting from trade measures over a short and medium term period (say, up to 15 years). This is important because negotiators may require a net benefit from the trade agreement over both of these time intervals, if an agreement is to be politically acceptable.

However, an *additional requirement*, assuming sustainable development is adopted as a long-term goal, is to appraise the trade agreement package from a long-term perspective. This, almost certainly, introduces a further dimension to appraisal. Certain factors, which are *implicit* in the short and medium term appraisal, now need to be made *explicit*. These include.

- long-term economic and population growth rates, and the influence which trade-related policies have on these;
- changes in technology and, more specifically, how the trade-related policies influence the rate and direction of inventive and innovative activity (e.g. influencing trends towards dematerialisation and resource saving);
- the constraints imposed by carrying capacity and limited stocks of critical capital;
- changing life styles and the factors which influence whether or not these are culturally and environmentally enhancing.

The literature on the influence of liberalisation and increased market competition on these long-term trends is sometimes ambivalent, if not contradictory, in its findings (Porter and van der Linde 1995. OECD 1997a). In these circumstances, it is prudent to assume that, as in the short and medium term, mitigating and enhancing (M and E) measures will be needed in the long-term and that trade liberalisation accompanied by greater market competition cannot be relied upon to achieve long-term sustainability on its own.

However, when considering the long-term, the formulation of M and E measures is likely to change. They are more likely to be oriented towards:

- the underlying principles upon which they are based (e.g. polluter pays principle, user pays principle, precautionary principle); and
- the institutional capacities and commitments to implement policies (e.g. trade-related policies and accompanying flanking measures) which are consistent with these principles. The core sustainable development indicators used in this study, which are mainly *target indicators*, need to be supplemented by *process indicators* (i.e. indicators to assess progress made in incorporating sustainability principles into trade agreements and in developing the capacity and commitment within trade-related organisations to adopt and implement sustainable development (SD) -consistent trade agreements

3.8.7 Summary & Conclusions

The working, method which has been described above was used in the pre-negotiation phase which culminated in the Seattle meeting. Its aim was to achieve a balanced coverage of economic, social and environmental impacts (both positive and negative) as well as being practical and transparent in its approach. It also considered the distribution of these impacts on different target groups. Within the restricted time available, it used a package of appraisal methods, mainly adapted from more specialised areas of assessment and drew upon a combination of

3.5. National & Local Approaches to Sustainability Assessment: Needs & Opportunities

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qualitative and quantitative sources of information and different forms of consultation. The approach lacks technical sophistication, but was considered appropriate to the task it served and the circumstances in which it was used.

This, however, is not the end of the story. The European Commission has indicated its intention to continue the sustainability impact assessment study and intends to formulate proposals for the development of a more detailed form of SIA for use in future WTO trade negotiations. The elaboration of an appropriate methodology for this more detailed SIA raises a number of new issues, certain of which have been identified in this paper. The Quito meeting could play a useful role in a further exploration of these issues.

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Among the standing obligations of the Commission for Environmental Cooperation is to undertake an on-going assessment of the environmental effects of NAFTA (NAAEC Article 10(6). When this obligation was made five years ago by Canada, Mexico and the United States, no one was quite certain as to how to go about assessing the environmental implications of a specific trade liberalisation agreement. Accordingly, efforts over the past five years have concentrated on developing a methodology in order to ask the right questions about trade-induced
environmental change related to the NAFTA.

The Final Framework is the result of five years of work involving environment and trade officials from the three NAFTA Parties, lawyers, economists, political economists, input and comments from the public, guidance from an Advisory Group, and input from peer reviewers and the Joint Public Advisory Committee which reports directly to the CEC Council. In short, the Framework is the product of many hands, and many disciplines, with on-going input from the public. The process, by which the Framework was developed, based on principles of transparency and public input, is almost as important as the Final Framework itself. Several individuals were especially involved in shaping the final framework, including Professors Ford Runge of the University of Minnesota and John Kirton of the University of Toronto, under the guidance of Sarah Richardson, formerly of the CEC. Copies of the Framework are available in Spanish, French and English on the homepage of the CEC, at www.cec.org

The point of departure for the Framework is to pose a series of hypotheses regarding the assumed environmental effects of trade liberalisation. The hypotheses in essence frame the parameters of the subsequent analysis: that is, assumptions such as the race to the bottom, regulatory chill, an accelerated transference of environmentally sound technologies related to trade, or positive effects of FDI on domestic environmental quality are presented, examined and confirmed or refuted based on the subsequent analysis.
The usefulness of posing a series of hypothesis cannot be overstated. Given the complexities in isolating and quantifying trade-induced environmental change arising from a single trade agreement - in this case the NAFTA – the hypothesis establishes badly needed parameters or disciplines of inquiry within which the methodologies can be applied.

Turning to the framework itself, the first comment is that it is intended to be applied at the sectoral level, and in a linear or sequential manner. The first step is to examine various economic and other consequences of the NAFTA itself, including NAFTA rule changes, NAFTA institutions, trade flow data, transborder investment flows, and other economic conditioning factors. It is worth emphasising that an important assumption of the Framework is that institutions matter for environmental quality. In the case of the NAFTA, several institutions such as the so-called side agreement on the environment that established the Commission; approximately 26 trilateral working parties and groups under NAFTA looking at various technical issues such as pesticides, standards harmonisation, and hazardous wastes; various bilateral initiatives such as the U.S.-Mexico border initiative – all exert important influences on environmental quality and environmental policy in North America.

The second point worth noting, is that since NAFTA is unique in its inclusion of new disciplines covering trade-related investment, the framework recommends that analysis refer not only to trade flow data, but also the relationship between foreign direct investment and environmental quality. Beyond examining the specific implications of NAFTA Chapter 11, the framework notes that transborder FDI flows are closely associated with changes in trade patterns, and reference is therefore made to taking into account such variables as comparing pre and post-NAFTA changes in FDI stocks and patterns among the three countries. Investment-related considerations noted in the framework include the regional concentration of FDI including geographic and sectoral concentration, shifts in the sectoral composition of FDI, the link between FDI and technology transfer and diffusion, changes in environmental standards relating to production and products, and other investment considerations.

The third point worth noting in the framework is how to link trade flow data, trade-related investment data and other economic variables with environmental effects. The framework notes that among the factors to consider at the sectoral level are the production, management and technology profile of firms engaged in NAFTA associated trade and investment activities. Six variables are noted under the production -management - technology cluster – composition of inputs, relative production efficiency, physical technology, management standards, product characteristics and prices, and the sectoral and geographic concentration of production. A second consideration relates to the physical infrastructure of the geographic location in which NAFTA related economic activity is concentrated. Consideration of the characteristics and environmental impact of the physical infrastructure that supports and connects site-specific production units which have been affected by NAFTA are noted. Factors to be considered under infrastructure considerations include existing infrastructure capacities, the relationship between capacities and the concentration of economic activity, the identification of infra-structure related bottlenecks or choke-points, usually in border crossing regions, the creation of transport related corridors which, in the North American context, usually refer to north-south road-transport corridors and intermodal shifts in the type of transport (that is, from marine to road transport.)

In addition to weighing production and infrastructure factors, the framework identifies two other variables: social organisation and government policy. Social organisation issues include the existence and role of civil

society groups, private property, labour migration patterns, community traditions and formations. In government policy, considerations are generally related to the type and extent of government environmental policies, including market based instruments, government-related green procurement policies, financial incentives and instruments, levels of enforcement and other domestic considerations.

The final area noted in the Framework is how all these variables relate to environmental quality, that is, how NAFTA affects air, water, land and living things.

This final area seems to me to be the most difficult, since it immediately calls into question the choice, level of comparability and aggregation of environmental data. An obvious point which nevertheless bears repeating is that environmental indicators are not limited to pollution indicators. While considerable progress has been made in gathering pollution-related indicators for example N0x and S0x, particulate matter and BOD – there are still considerable gaps in what is meant by non-pollution environmental indicators, including how to measure changes in biodiversity and land management.

The Final Framework does not present the final word on how to aggregate environmental data in order to show a complete environmental picture. It does suggest that indicators can be organised using various tried methods, including pressure-state-response methods, assuming that levels of environmental pressures, such as pollutants, and levels of environmental support factors – including carrying or pollution assimilative capacities coupled with regulations and production variables – vary by geographic region and by the environmental media examined. The framework notes that the most important consideration is the cumulative effect of NAFTA-related changes in environmental pressures and support.

To measure changes in environmental pressures and carrying capacities, the framework refers to eight key air pollutant indicators – including obviously S0x, N0x, particulate matter and carbon monoxide and dioxide – 44 water pollutant indicators, primarily related to drinking water standards, land indicators, including indicators of intensity of pesticide use per hectare of agricultural lands, percentage of forested areas, changes in forest cover as well as changes in the diversity of forest cover, waste generation and other indicators. And finally, biodiversity indicators, including number of threatened or extinct species, changes in these numbers or trajectories, wetlands and protected natural areas.

The framework also notes that some progress has been made in aggregating environmental indicators. For example, work by SCOPE, OECD and the United Nations offers some promise in attempting to come forward with a kind of composite set of environmental indicators comparable to GDP that is capable of showing whether the state of the environment is better or worse. However, this question of indicator aggregation is a long-standing one, and until consensus is reached on a suitable set of aggregated indicators, measuring the link between trade and environment will have to rely on choices of those doing the assessment to make sure that an appropriate and representative cross-section of indicators is applied.

As the above suggests, the Final Framework is a check-list of factors that ought to be considered, as opposed to an actual assessment of the environmental impacts of NAFTA. In developing the framework, three issues studies - involving Mexican maize, cattle feed production in the United States and Canada, and electricity restructuring - were prepared and are also available by contacting the CEC.

The next step is to put the framework to work. To that end, the Council of Ministers has issued a public Call for Papers, for a Symposium to be held in October 2000 on the environmental effects of NAFTA.

Objective:
To identify, with the assistance of a number of different stakeholders, emerging approaches in methodologies to undertake sustainability assessments of trade agreements, with a view to enhancing their practical application, policy effectiveness and international coordination in this field.

Outcome:
Results of this meeting will be synthesised in a Final Report that will provide:

1. A set of recommendations identifying emerging approaches in the methodology and practice of sustainability assessments;
2. Identification of the ways to maximise the policy effectiveness of sustainability assessments;
3. Indication and clarification of the roles that a range of organisations can play to increase international coordination in the development of further work in this field.

Day One—6 March 2000

9:00-9:30 Keynote Address

Yolanda Kakabadse
IUCN President and Executive President of Fundación Futuro Latinoamericano, Ecuador

Welcome by Co-chairs

Jan Pieters
Senior Economic Policy Advisor, Ministry of Environment, Netherlands
Augusto Tosi
Under Secretary of Industry, Ministry of International Trade, Industry and Fisheries, Ecuador

9:30-10:10 International Approaches to Sustainability Assessment: A Useful Tool and Opportunities for Increased Coordination?

Objective: The objective of this panel is to identify where the opportunities exist for input in terms of ongoing interest from, and work of international organisations on sustainability assessment of trade liberalisation. It should also provide a context for considering where sustainability assessments stand in the international arena and what possibilities and difficulties exist for international cooperation.

Kenneth Ruffing
Deputy Director, Department of Social and Economic Affairs (DESA)
UN Commission for Sustainable

3.6. The OECD Methodology for the Environmental Assessment of Trade Policies and Agreements: Types of Effects to Evaluate

Cristina Tébar Less
Environment Directorate, Organisation for Economic Cooperation & Development

Development (CSD)
Alexander Keck
Trade and Environment Division, World Trade Organisation (WTO)
Hussein Abaza
Chief, Economics and Trade Unit, United Nations Environment Programme (UNEP)
Rene Vossenaar
Chief, Trade, Environment and Development Section, United Nations Conference on Trade and Development (UNCTAD)

10:10-10:30 Questions

10:30-10:45 Coffee

10:45-11:45 Local and National Approaches to Sustainability Assessment: Needs and Opportunities

Objective: The objective of this session is to consider the different experiences and perspectives of national governments, NGOs and other stakeholders to begin to explore the utility and role of sustainability assessments in policy making, with a view to considering their practical application at local, national and regional levels.

P.M.Lotilla
National Economic Development Authority (NEDA), Philippines
Godfrey Bahiigwa
Senior Research Fellow, Economic Policy Research Centre (EPRC), Uganda
Thomas Gillmore
Deputy Director, Department of Foreign Affairs and International Trade, Canada
Laura Parker
DG Trade- External Relations and Commercial Policy, and
Naseef Huda
DG Environment, European Commission

11:30-1:00 Discussion on Panels One and Two

1:00-2:30 Lunch

2:30-3:40 Review of Existing Methodologies for Environmental and Sustainability Assessment of Trade Liberalisation

Objective: The objective of this panel is to examine some of the assessment methodologies that have been developed to date. Presentations will focus on key procedural and substantive points of each approach. It is hoped that this review of existing methodologies will help in the identification of priority work areas and research gaps, as well as an examination of additional and/or emerging approaches. It is also intended to contribute to assessing the purpose, opportunities and difficulties that arise in the context of developing sustainability assessments.

Cristina Tébar-Less
Environment Directorate, Organisation for Economic Co-operation and Development (OECD)
Marianne Schaper
Environment and Human Settlements Division
UN Economic Commission for Latin America and the Caribbean (ECLAC)
Mireille Perrin
World Wide Fund for Nature (WWF International)

3:40-3:50 Coffee

3:50-5:00 Presentations continued followed by questions/discussion

Colin Kirkpatrick
Director, Institute for Development Policy and Management
University of Manchester, United Kingdom
Jane Barr
Commission for Environmental Cooperation (CEC), Canada
Nicola Borregaard
Director, Centro de Investigacion y Planificacion del Medio Ambiente (CIPMA), Chile

5:00-6:30 Breakout Groups

Objective: The objective of this session is to continue the discussion from the morning in smaller groups. Breakout groups will be encouraged to discuss the value and effectiveness of sustainability assessments. Participants should also consider existing and prospective methodological approaches to sustainability assessment from the perspective of stakeholders and national governments, with an emphasis on developing countries.

7:30 Welcoming Reception

Day 2—7 March 2000

9:00-10:00 Report Back to Plenary from Breakout Groups

10:00-11:30 Applying Assessment Methodologies: Sectoral Assessments

Objective: This session considers the experience of the practical application of methodologies to specific sectors or issues.

Agriculture
Alejandro Nadal
El Colegio de Mexico, Mexico

Forestry
David Schorr
Director, Sustainable Commerce Programme, World Wildlife Fund (WWF-US)

Services
Dale Andrew
Principal Administrator, Trade Directorate
Organisation for Economic Co-operation and Development (OECD)

11:30-11:45 Coffee

11:45-1:00 Discussion in Plenary on Case Studies Presented

1:00-2:30 Lunch

2:30-2:45 Introduction to Breakout Groups

2:45-4:45 Breakout Groups

Objective: The objective of this session is to identify what the methodologies and their application are telling us and what they are not telling us and how that might be addressed. This discussion will help us identify what existing and what additional issues need to be considered in a comprehensive sustainability assessment from an economic, environmental and social perspective, taking into account previous discussions.

(1) Economic Processes that are critical to consider for SAs.
(2) Environmental Processes that are critical to consider for SAs.
(3) Social Processes that are critical to consider for SAs.

4:45-5:30 Coffee

5:30-6:15 Rapporteur Reports

Objective: The objective of this session is to identify some important conclusions as far as assessment of different types of trade-related effects (economic, social and environmental) are concerned, as well as to identify different levels of assessment (local, national, regional and international). A number of emerging approaches and commonalties can arise where further research is needed.

Day 3—8 March 2000

8:30-11:30 Tour of Quito

11:30-1:00 Presentation of Draft Final Document to Plenary and Discussion

1:00-2:00 Lunch

2:00-4:00 Presentation of Final Document, Discussion, Next Steps and Closing

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3.7. WWF's Work on Sustainability Assessment of Trade

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Emerging Environmental Review Framework – Canada

- Retrospective Analysis (November 1999)
- Drafting Environmental Review Framework
- Drivers: Cabinet Directive, Ministerial Directions, Public Expectation, International
- Framework Subject to Further Refinement
- Consultations

Benefits of the Environmental Review

- Useful tool to promote sustainable development
- Address stakeholders concerns in open & transparent manner
- Identify potential environmental effects early
- Assist Negotiators in considering possible positive & negative issues
- Identify potential conflicts with environmental legislation
- Contribute to overall policy cohesion: provide a means to consider environmental issues

Challenges of the Environmental Review

- New Field of Analysis
- Causality and Correlation: data limitations
- Timing Issues
- Traditional Analyses and Approaches
- Clarity of Purpose

Towards an Environmental Review Framework

- Agreement Analysis: Sectoral Analysis, Scope, Relevance
- Anticipated/Actual Trade Liberalisation Activity
- Direct/Indirect Trade-Related Effects
- Environmental Effects and Significance *vis-à-vis* Trade-Related Effects
- Combine Sectoral Analyses: Cumulative Effects, Mitigation and Enhancement Options
- Combine Agreement Analyses : Cumulative Effects, Mitigation and Enhancement Options
- Summary Document Proposed Follow-up

Consultations

- Consultations central to effective policy-making at local level and within national governments

Classification of international trade by product type

Objective
To analyse the changes in relation to their environmental characteristics

- *Scale Effect*
- *Composition Effect*
- *Technology Effect*

Methodology
Classification of international trade by product type

Assessment of the environmental impact across:

Scale Effect
Composition Effect
Technology Effect

"Dirty" industries

CUCI, Rev.1

251	Pulp and waste paper
332	Petroleum products
512	Organic chemical products
513	Inorganic chemical products
514	Other inorganic chemical products
515	Radioactive materials
521	Mineral tar
561	Manufactured fertilizers
599	Insecticides, fungicides etc.
631	Chapas and terciadas wood
632	Wood processors
641	Paper and cardboard
642	Articles of pulp, paper and cardboard
661	Lime, cement and other construction materials
67	Iron and steel
68	Non-ferrous metals
69	Metal manufacturers

...composition effect

1. Contribution to export total according to usage intensity

- natural resources

Table 1:
Preliminary Appraisal for a Measure included in the SIA for the proposed New Round Agenda

Impact on	Significant Impacts								
	Scenario 1			Scenario 2			Scenario 3		
	A	B	C	A	B	C	A	B	C
EU Countries	0 (- 1)	0	0 (- 1)	±1	±1	±1	-1/+1	-1/+1	- 1
Developing Countries	0	0	0	±1	±1	±1	-1/+1	-2/+1	- 1
Least Developed Countries	0	0	0	±1	±1	±1	-1/+1	-2/+1	- 1
Global	0	0	0	±1	±1	±1	-1/+1	-1/+1	- 1

Notes:
A = economic impacts (changes in level of average real income; net fixed capital formation; employment)
B = social impacts (changes in level of equity and poverty, health and education; gender inequality)
C = environmental impacts (changes in air, water and land quality; biological diversity; other natural resource stocks)

0 = non-significant impact compared with the base condition
1 = lesser significant impact
2 = greater significant impact

\+ = positive impact
\- = negative impact
± = positive and negative impacts: net effect uncertain and/or varying according to context
( ) = impact in the base situation compared with the existing situation
-/+ = range indicating variation over time

♦ technological content
♦ factors of production (capital, labour)
♦ dirty industries

\- Contribution of the sector in the OECD market +

2. Index of Revealed Comparative Advantage (VCR) export specialisation > **1?**

Rising stars:
Chile: Semi-manufacturing based in labour and capital intensive agricultural resources
Brazil: manufacturing of basic inputs
Peru: Semi-manufacturing based in labour intensive agricultural resources

3. Competitiveness matrix
(behaviour of certain sectors in the OECD market and VCR)

♦ withdrawls
♦ falling stars
♦ lost opportunities
♦ rising stars

Competitiveness Matrix

Technology Effect

● **Imports of capital goods** (NU):
Indicator of technology transfer

Section 7 of the CUCI (machinery)

NO

Implies larger investments (and costs) in environmental services, technology and equipment

- **Index of technological specialisation (IET)**:

CM= global market contribution

>1 Contribution of countries in markets with high technology is greater than the contribution in markets with low technology

Index of Technological Specialisation

Mexico

Brazil

Chile

Results:

The pattern of export specialisation that emerged in the 1990s is environmentally more vulnerable than that in the 1980s

Growing specialisation in natural resource intensive industries

Relative loss of significance in technology intensive sectors
(except for Mexico--maquilas)

Greater environmental demand in international markets

4.3.3 Towards Understanding Costs and Benefits of Trade Liberalization :

A new Assessment Methodology

Nicola Borregaard
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What is the Extended Domestic Resource Cost (EDRC) Approach?

- comparing domestic costs of export production to foreign exchange earned
- analyzing sector's ability to compete with world market prices
- integrates environmental variable
- ratios beyond 1 imply that production would be undesirable from a welfare point of view

How to derive an EDRC

Step 1: Develop Company Budgets

Step 2: Classify Inputs and Outputs

Step 3: Determine Market Prices and Social Prices for all Inputs and Outputs

Step 4: Define and Quantify Possible Environmental Effects and value per unit of output produced

Step 5: Calculate Ratios

Application in Chile

- three sectors (forestry, fishery, mining)
- three export products (pulp, fishmeal, refined copper)
- three years
- average of three environmental effects in each case:
- - mining: SO2, arsenic, water
- - forestry: BOD, TSS, TRS, carbon capturing
- - fishing: BOD, TSS
- basic valuation method: abatement costs

Results

Limitations

- data availability
- limited number of environmental effects
- valuation methods
- environmental problems are location specific
- economic data is company specific
- international prices are also distorted

Why worry about Services?

- Growth of 8 Percent on average since 1990
- In view of Seattle Outcome, remains (with Agriculture) area for new trade talks
- Worrying Sectors, e.g. transport

What has been done in the past?

- Little in the literature on Environment/Services
- Promising work underway on Services Economy (nationally)
- US & Canadian Reviews of Uruguay Round
- Though on CTE Agenda, not been treated in WTO

Canadian Review

- Potential Effects on Transportation, Construction and Consulting
- Took regulatory effects approach
- Role of GATS Articles VI, VII and XIVb

GATS Article VI:

- To allow National Environmental Regualtions

GATS Article VII:

- Via harmonisation and mutual recognition, stricter environmental protection would be permitted

GATS Article XIV (General Exceptions Article):

- "...provisions likely sufficent to cover all areas of identified environmental concern"

Sector Specific Remarks:

- Exemption from MFN for Fisheries Services
- Environmental Services: Potential for major contribution to Sustainable Development

US Review

- Emphasis on Transport Sectors and Environmental Services
- Transport: Air, Maritime and Land Services
- Emphasises Exclusions or Future Negotiations

Air Transport Services:

- Traffic Rights Excluded

Land Transport Services:

- Rail: No change, as already open
- Truck/Bus: Linked to NAFTA

Future Negotiations: Maritime "

Outcome of these negiotiations is expected to have little or no environmental effects

Environmental Services:

- Growth likely to provide significant benefits to the Global Environment

Remarks on US & Canadian Reviews

- Effects: Positive (Environmental Services), insignificant (Transport due to lack of GATS Coverage) or uncertain (Fisheries)
- Lack of coverage due to GATS as work in progress
- Fall back on national regulations (via Art. VI)
- Exceptions (Art. XIVb)

OECD Methodologies & Checklists

- Preliminary Screening
- Scale Effects
- Structural / Technology Effects
- Product Effects
- Regulatory Effects

Screening

Identify "Win-Win" Sectors

- Environmental Services, e.g. APEC Initiative
- Sustainable Tourism, CEC/NAFTA Work

OECD Methodologies checklists ask:

- Principal types of effect predicted?
- Potential Magnitude?
- Potential Scope?

- As "invisibles", many services have low direct impact
- Others potential large magnitude
  ⇒Transport, Construction, Tourism, and…
- others contribute to cumulative effects
- Direct Environmental impact per facility
  ⇒Point Source
- Cumulative Environmental Impact
  ⇒Non-Point Source

Screening Services for Environmental Impact

HIGH

LOW

Scale Effects

- Justification for lowering Barriers: *More* Activity
- £250 BN (World Welfare) form 50% reduction of distortion in provision of services

Structural & Technology Effects

How will the Pattern of Economic Activity be affected?

- Liberalising Services: to import managerial Expertise & Technologies
- Need to assess relative environmental impacts of new technologies & production patterns
- Services imports based on cost & quality: are they also more environmentally friendly?
- Producer Services (Financial , Telecom, Transport) as inputs to improve productivity in all sectors
- in turn contribute to manage production systems
- efficency brings less Energy /Material inputs

Regulatory Effects

Methodologies Checklists ask about

- Exceptions
- Harmonisation
- Services Provision with implications for Environmental Policy

Services Trade-Specific Issues

- Role of Domestic Regulations
- Relationship of Services & Goods supplied
- Services as inputs for other services
- Services Substitutability (Rail, Road, Waterways)
-

Concluding Remarks

- Services is a sector for Environmental Review
- Specific Sub-Sectors to review: use screening
- OECD *Methodologies* : *Yes*, General Enough Tool
- Services Trade & GATS-Specific aspects merit testing by sector
- Post Seattle: Services Trade *is* being assessed
  ⇒Norway (Transport, Shipping)
  ⇒EU SIA: recommended

References

3.9. Final Analytical Framework to Assess the Environmental Effects of NAFTA

Jane Barr
Commission for Environmental Cooperation, Canada

4. Annexes

4.1. Meeting Agenda

4.2. List of Participants

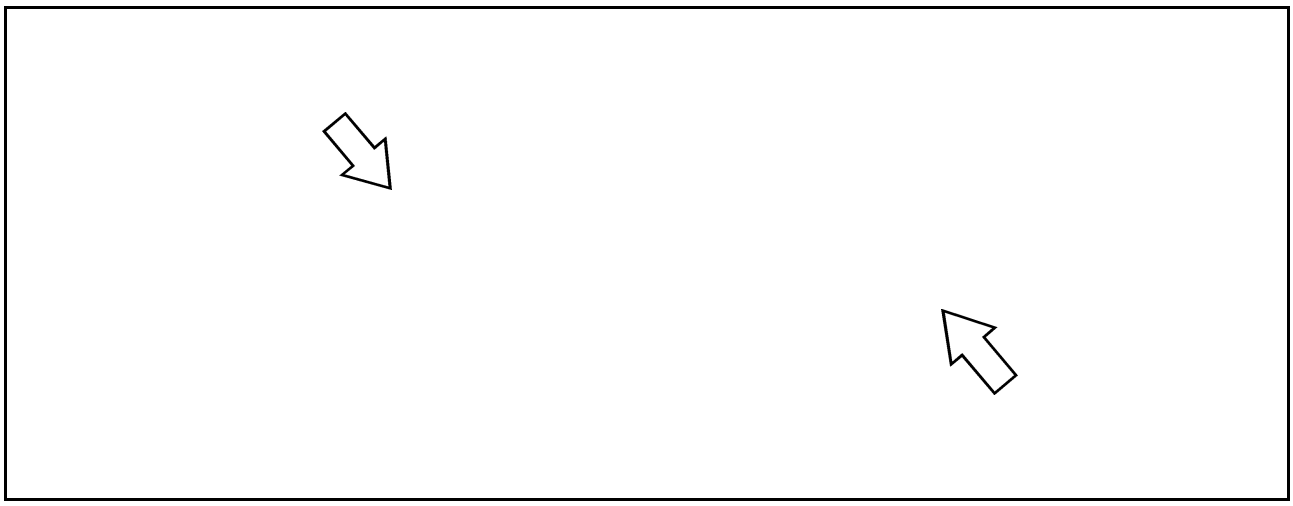
4.3. Power Point and Note-form Presentations

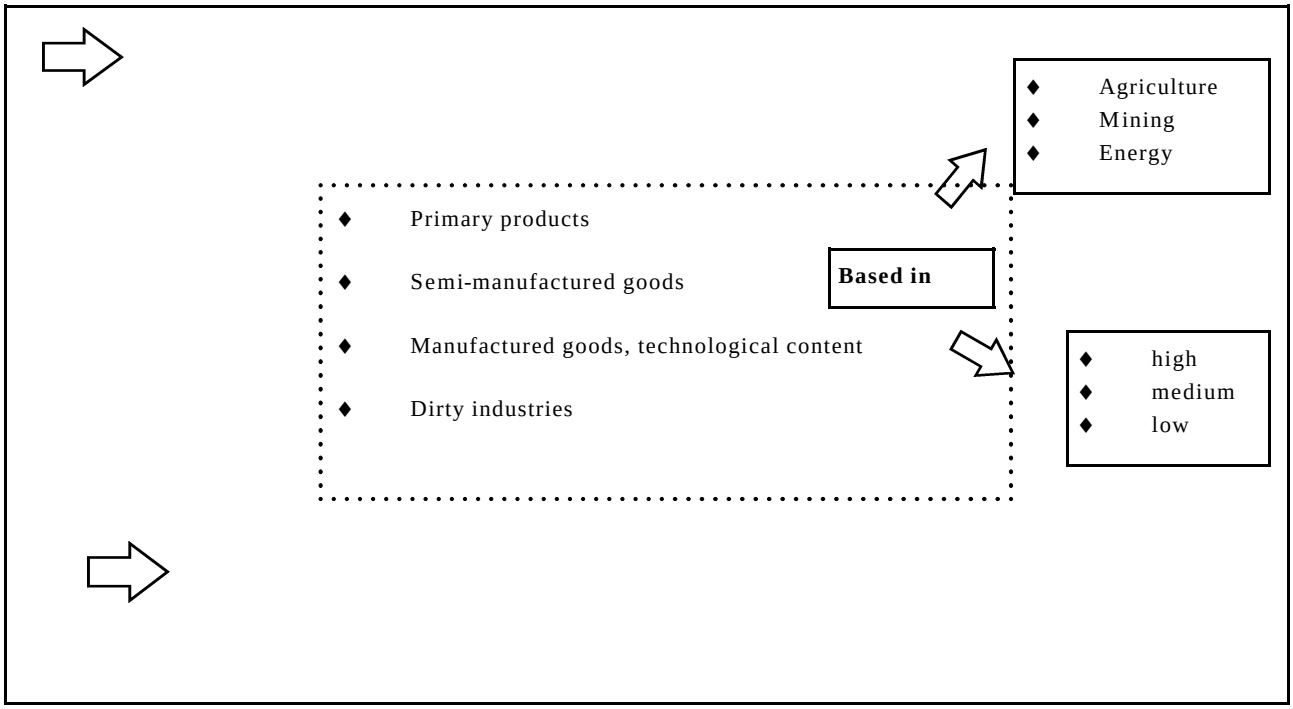
4.3.1 Experts' Meeting on Sustainability Assessment of Trade Liberalisation

Thomas Gillmore
Department of Foreign Affairs and International Trade, Canada

4.3.2 Presentation of ECLAC

Marianne Schaper
Economic Commision for Latin America and the Carribbean





Environmentally sensitive or "dirty" industries

Criteria:

Those in the United States that incurred the highest costs for the control and reduction of pollution in 1988
(BM, Low and Yeats, 1992)

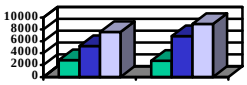
40 industries of the CUCI

Scale Effect

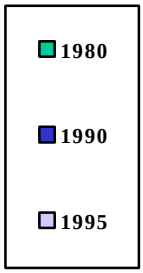
Volume of exports

- Primary Products
  x4

Volumen pesca (toneladas)



Chile



- Dirty Indusry
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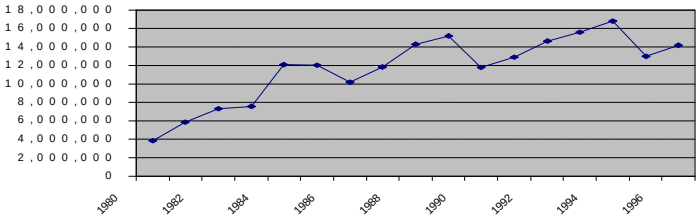


Composition Effects

Trade liberalisation ⇨ Variations in relative prices

⇩

Reassignment of productive resources in accordance with VC

⇩

New export specialisation

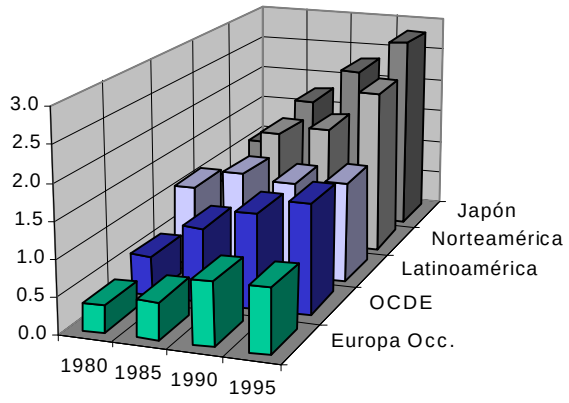
↘ $\frac{Xij/Xj}{Xi/X}$

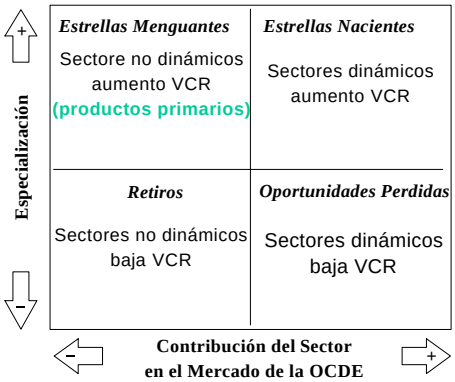
Brazil: Index of export specialisation (VCR)

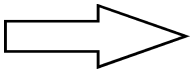
Group of “dirty” industries

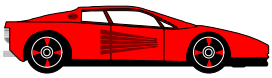
VCR>1

VCR<1

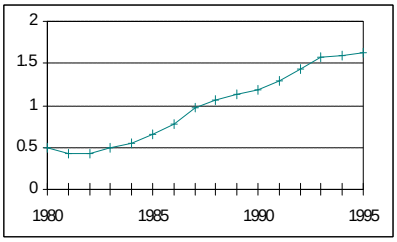


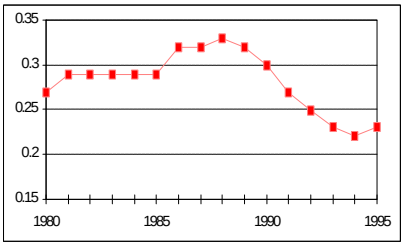


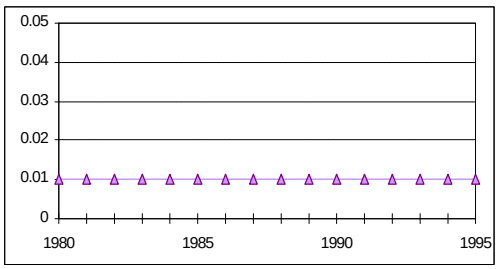


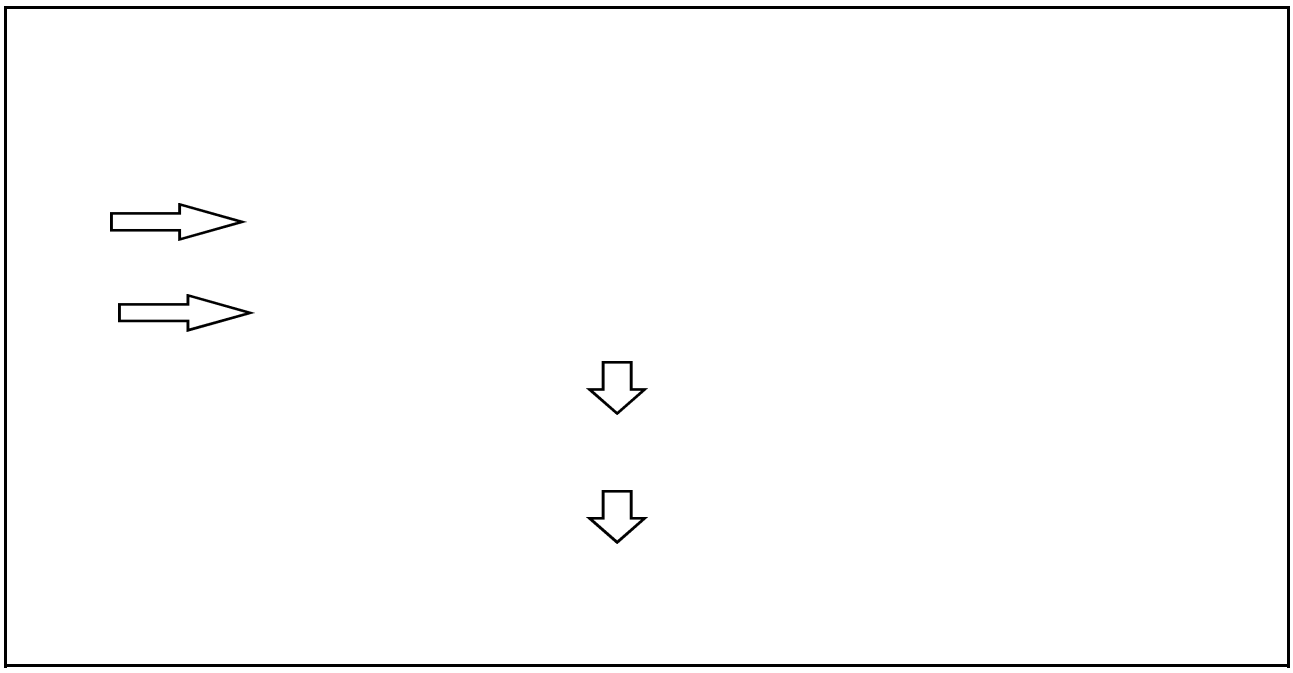


$$IET_i = \frac{CM_i^A}{CM_i^B}$$







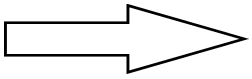


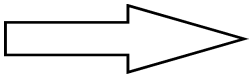
Extended Domestic Resource Cost Method

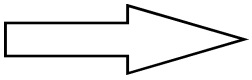
		Formula	Time		
			1994	1995	1996
A.	**Primary factors valued at domestic prices (value of units used per unit output)**	= sum (A1:A10)	10.500	9.925	10.300
A1.	Land		0	0	0
A2.	Skilled labor		8.400	7.940	8.240
A3.	Unskilled labor		0	0	0
A4.	Sunk capital or fixed assets		2.100	1.985	2.060
A5.	Total Water pollution	=A6+A7	0	0	0
A6.	Biological Oxygen Demand (BOD5)		0	0	0
A7.	Total Suspended Solids (TSS)		0	0	0
A8.	Air pollution from production		0	0	0
A9.	Net benefit of carbon capturing of forest planations		0	0	0
A10	Net costs of electricity generation		0	0	0
B.	**Primary factors valued at shadow prices (value of units used per unit of output)**	= sum (B1:B10)	22.271	21.051	21.846
B1.	Land		0	0	0
B2.	Skilled labor		8.400	7.940	8.240
B3.	Unskilled labor		0	0	0
B4.	Sunk capital or fixed assets (plants)		2.352	2.223	2.307
B5.	Total Water pollution	=B6+B7	5.844	5.523	5.736
B6.	Biological Oxygen Demand (BOD5)		5.734	5.420	5.627
B7.	Total Suspended Solids (TSS)		.109	.103	.107
B8.	Air pollution from production		0	0	0
B9.	Net benefit of carbon capturing of forest planations		-.168	-.159	-.165
B10	Net costs of electricity generation		0	0	0
C.	**Value added at border prices**	(from Table 2)			
C4.	Sophisticated Balassa method for border prices		99.981	227.144	94.245
D.	**DRC Coefficient**				
D4.	Sophisticated Balassa method for border prices	= B/C4	0.22	0.09	0.23

What is behind that?
A complementary approach to
trade - environment assessments

- emphasis on environmental aspects (“bottom-up”)
  - lack of environmental information
  - trade-environment links are not priority issues
- emphasis on policy-relevant questions
  - environmental policy still in intial phase
- sectoral approach
  - main impact of trade liberalization has been increasing pressure on natural resource exploitation
- emphasis on link between economics and environment, involvement of many actors
  - environment has comparatively low political leverage
  - economic aspects have played a significant role in environmental policy making
  - cooperative approach with industry is important







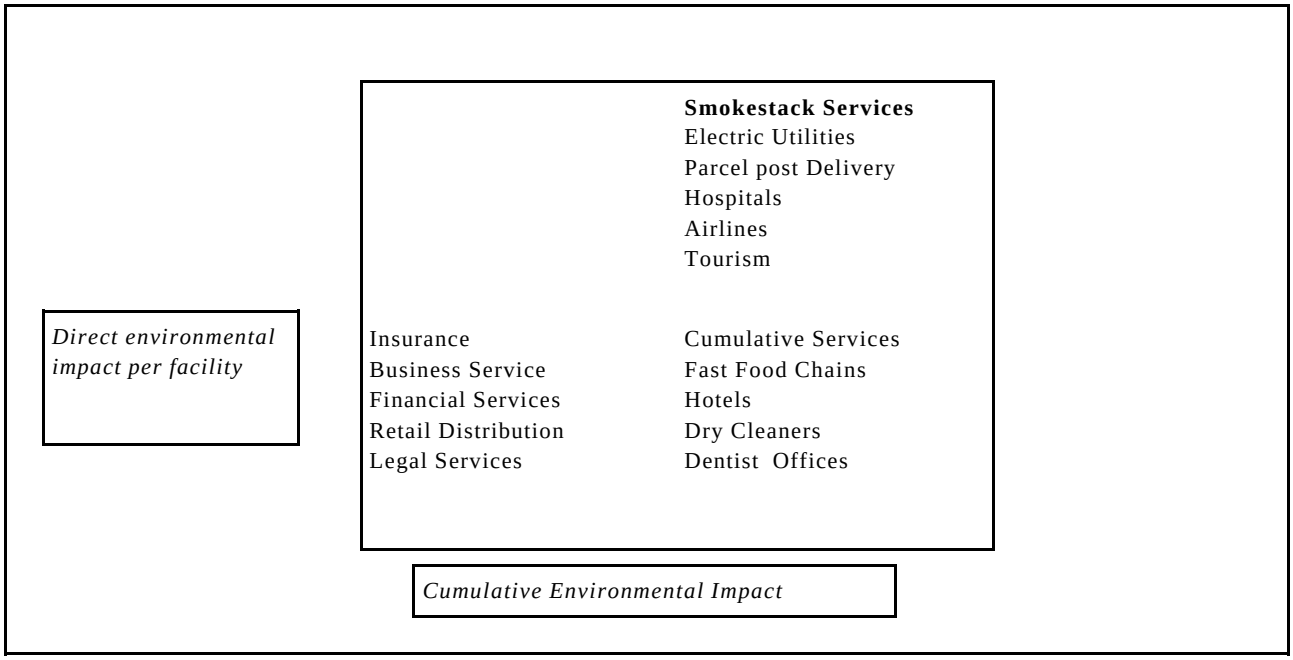
	Fishmeal	Pulp	Refined Copper
Economic DRC	**0.65**	**0.11**	**0.18**
Environmental DRC	**0.97**	**0.25**	**0.46**

Final Comments

- complementarity of approaches
- importance of bottom-up approach
- importance to start discussion on some general questions related to trade-environment interrelations
- … and to involve the main actors from the outset

4.3.4 Trade in Services
Assessing Environmental Effects

Dale Andrew
Principal Administrator, Organisation for Economic Cooperation and Development


Smokestack Services
Electric Utilities
Parcel post Delivery
Hospitals
Airlines
Tourism
Direct environmental impact per facility
Insurance
Business Service
Financial Services
Retail Distribution
Legal Services
Cumulative Services
Fast Food Chains
Hotels
Dry Cleaners
Dentist Offices
Cumulative Environmental Impact

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