

ICTSD Project on Environmental Goods and Services



# Defining Environmental Goods and Services: A Case Study of Mexico



By **Enrique Lendo**

Consultants in Environmental Strategy and Negotiations (COESNA)

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## ACRONYMS

AGE	Applied General Equilibrium
AGR	Annual Average Growth Rate
AIDCP	Agreement on the International Dolphin Conservation Programme
ALADI	Asociacion Latino Americana de Integracion - Latin American Integration Association
APEC	Asia Pacific Economic Co-operation Mechanism
BANCOMEXT	Banco Nacional de Comercio Exterior – Mexican Export-Import Bank
BFKMW	Bisset, Flint, Kirkpatrick, Mitlin and Westlake
CANACINTRA	Cámara Nacional de la Industria de la Transformación – National Chamber of the Processing Industry
CADS	Centro de Apoyo al Desarrollo Sostenible – Centre for the Support of Sustainable Development
CCA	Causal Chain Analysis
CCE	Consejo Coordinador Empresarial – Business Coordination Council
CESPEDES	Centro de Estudios del Sector Privado para el Desarrollo Sustentable – Centre for Sustainable Development Studies of the Private Sector
CGE	Computable General Equilibrium
CMAP	Clasificación Mexicana de Actividades Productivas - Mexican Classification of Productive Activities
COMIA	Comisión Mexicana de Infraestructura Ambiental – Mexican Commission for Environmental Infrastructure
CONCAMIN	Confederación Nacional de Cámaras Industriales – National Confederation of Industrial Chambers
CONIECO	Comisión Nacional de Industriales Ecologistas – National Council of the Environmental Industry
COPARMEX	Confederación Patronal Mexicana – Mexican Confederation of Employers
CPC	Central Product Classification
CSD	United Nations Commission on Sustainable Development
CTE	Committee on Trade and Environment
CTS	Council for Trade in Services
EAP	Mexican Environmental Auditing Programme
EBI	Environment Business International
ECLAC	Economic Co-operation Latin American Commission
ECODIR	Directorio Ambiental – Environmental Directory of the environmental industry
ESCOs	Energy Saving Companies
EGS	Environmental Goods and Services
EIP	Economic Impact Potential
EMS	Environmental Management Systems
EPC	Eastern Pacific Ocean
EPPs	Environmentally Preferable Products
EU	European Union
EUROSTAT	European Statistical Office
EVIP	Environmental Impact Potential
FAO	United Nations Food and Agriculture Organisation
FDI	Foreign Direct Investment
FIDE	Fideicomiso de Ahorro de Energía Eléctrica – Energy Saving Trust Fund
FLMS	Ley Federal de Metrología y Estandarización – Mexican Federal Law of Metrology and Standardisation
FSC	Forest Stewardship Council
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade

GDP	Gross Domestic Product
GEMI	Global Environmental Management Initiative
GIS	Geographic Information Systems
GREEN	General Equilibrium Environmental Model
GTAP	Global Trade Analysis Project
HS	Harmonised System of Classification
IATTC	Inter-American Tropical Tuna Commission
ICTSD	International Centre for Trade and Sustainable Development
IFOAM	International Federation of Organic Agriculture Movements
IGO	Intergovernmental Organisations
IMNC	Instituto Mexicano de Normalización y Certificación – Mexican Institute of Standardisation and Certification
INEGI	Instituto Nacional de Estadística y Geografía e Informática – National Statistical Authority
IOA	Industrial Organic Agriculture
IP	Impact Potential
KLM	Kirkpatrick, Lee and Morrisey
LEGEPA	Ley Federal del Equilibrio Ecológico y Protección Ambiental – Federal Law of Ecological Balance and Environmental Protection
MCA	Multi-criteria Analysis
MDG	Millennium Development Goals
MERCOSUR	Mercado Común del Sur – Common Southern Market: trading zone among Argentina, Brazil, Paraguay and Uruguay
MFN	Most Favoured Nation
MMPA	Marine Mammal Protection Act
CEC	North American Commission for Environmental Cooperation
NAFTA	North American Free Trade Agreement
NAMA	Negotiating Group on Non-agricultural Market Access
NGOs	Non-governmental Organisations
NMX	Normas Mexicanas – Mexican Voluntary Standards
NOM	Norma Oficial Mexicana – Mexican Official Standard
NTBs	Non-tariff Barriers
NTFP	Non-timber Forest Products
OECD	Organisation for Economic Co-operation and Development
PEMEX	Petróleos Mexicanos – Mexican Petroleum Company
PIA	Potential Impact Analysis
PNMARN	Programa Nacional de Medio Ambiente y Recursos Naturales – National Environment and Natural Resources Programme
PND	Plan Nacional de Desarrollo – National Development Plan
POA	Purist Organic Agriculture
PPMs	Process and Production Methods
PROAIRE	Programa para Combatir la Contaminación del Aire en la Zona Metropolitana de la Ciudad de México – Air Pollution Control Programme for the Mexico City Metropolitan Zone
PROFEPA	Procuraduría Federal de Protección Ambiental – Mexican Federal Attorney for Environmental Protection
QAI	Quality Assurance International
SD	Sustainable Development
SDIP	Sustainable Development Impact Potential
SECTUR	Secretaría de Turismo – Ministry of Tourism
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales – Ministry of Environment and Natural Resources
SENER	Secretaría de Energía – Ministry of Energy

SHCP	Secretaría de Hacienda y Crédito Público – Ministry of Finance and Public Credit
SIA	Sustainability Impact Assessment
SIEM	Sistema de Información del Empresariado Mexicano – Mexican Enterprise Information System
SIP	Social Impact Potential
SMBC	Smithsonian Migratory Bird Center
SMEs	Small and Medium-sized Enterprises
TEQUILA	Trade and Environment Equilibrium Analysis
UMAS	Units for the Management for the Conservation of Wildlife
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
US	United States of America
US-EPA	US Environmental Protection Agency
WBCSD	World Business Council for Sustainable Development
WCO	World Customs Organisation
WSSD	World Summit on Sustainable Development
WTO	World Trade Organisation

## 1. INTRODUCTION

At the beginning of the 21<sup>st</sup> century, the international community reaffirmed its commitment to sustainable development. Several international meetings were convened to redefine the goals, the path and the means to boost economic growth, improve social development and ensure the sustainable use of natural resources and ecosystems. Four commitments from the multilateral agenda stand out due to their potential to enable the implementation of sustainable development: the United Nations Millennium Development Goals, the Monterrey Consensus, the World Trade Organisation (WTO) Doha Ministerial Declaration, and the Plan of Implementation of the World Summit on Sustainable Development (WSSD).

The concept of environmental goods and services (EGS) was addressed directly and indirectly in the above commitments. On the sustainable development front, the Millennium Declaration recommended halving by 2015 the proportion of people without sustainable access to safe drinking water.<sup>1</sup> The Monterrey Consensus called for investment in basic economic and social infrastructure, development of public private partnerships and measures to foster corporate social responsibility, including the prevention of negative environmental impacts and the sustainable use of natural resources.<sup>2</sup> Liberalisation of trade in environmental goods and services is explicitly mentioned in the WTO negotiating mandate adopted at the Doha Ministerial Conference in 2001.<sup>3</sup> Finally, the WSSD Plan of Implementation adopted the target on access to safe drinking water from the Millennium Declaration and added a similar target for basic sanitation services.<sup>4</sup> Moreover, the WSSD Plan of Implementation made specific reference to the creation and expansion of markets for environmentally friendly goods and services.<sup>5</sup> These commitments support the liberalisation and market expansion of the EGS sector as a strategy worth exploring to support the pursuit of sustainable development.

However, implementing such a strategy poses major challenges. Sustainable development is a complex concept. Different definitions and interpretations have been proposed over the last two decades – both by the international community and by national states, the majority of which make reference to the need to integrate economic, social and environmental criteria. All of these criteria should be taken into account when assessing the sustainable development impacts of trade liberalisation of EGS. It is also important to take into account that sustainable development priorities may vary from country-to-country according to their particular developmental needs and circumstances.

The development of instruments at the bilateral, regional and global levels has contributed significantly to setting guidelines and strategies for the implementation of sustainable development. However, it is up to each country to decide the most suitable means of implementation at the national level, including the hierarchy, sequencing, time frame, and level of implementation of each sustainable development goal according to its specific economic, social, environmental and political context.

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<sup>1</sup> Goal 7 of the Millennium Declaration, adopted by the United Nations in New York in 2000, refers to three sustainable development targets: integrating the principle of sustainable development into country policies and programmes and reversing the loss of environmental resources (Target 9); halving the proportion of people without sustainable access to safe drinking water by 2015 (Target 10); and achieving a significant improvement in the lives of at least 100 million slum dwellers by 2020 (Target 11).

<sup>2</sup> Although the Monterrey Consensus does not address environmental goods and services directly, many of the recommendations included could have significant impacts on the development of this market.

<sup>3</sup> Paragraph 31(iii) of the Doha Ministerial Declaration states: “With the view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on the reduction, or as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services”.

<sup>4</sup> Paragraph 24 of the WSSD Plan of Implementation calls on governments to “Launch a programme of actions, with financial and technical assistance, to achieve the Millennium Development Goal on safe drinking water. In this respect, we agree to halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water as outlined in the Millennium Declaration and the proportion of people without access to basic sanitation” (WSSD, 2002).

<sup>5</sup> Paragraph 93(b) of the WSSD Plan of Implementation calls on governments to “(b) Support voluntary WTO compatible market-based initiatives for the creation and expansion of domestic and international markets for environmentally friendly goods and services, including organic products, which maximize environmental and developmental benefits through, *inter alia*, capacity building and technical assistance to developing countries”.

In terms of the current study, it is more useful to assess the impacts of EGS trade liberalisation against Mexico's own sustainable development goals and strategies, which in any case capture two decades of participation in the international sustainable development agenda. The following Chapter will address the sustainable development trends, goals and strategies adopted by Mexico over the last three decades. Chapter 3 discusses the current debate regarding the liberalisation of the EGS sector. It focuses on definitional aspects and proposes a definition/classification approach that could increase the potential for positive sustainable development impacts from liberalisation. Chapter 4 addresses the current market structure of the EGS sector in Mexico under a traditional definition (e.g., the Organisation for Economic Co-operation and Development (OECD) approach). Chapter 5 considers the feasibility and potential sustainable development benefits of including some environmentally preferable products of export interest to Mexico under a broadly defined approach to EGS. Chapter 6 proposes and implements a methodology for a sustainability impact assessment specifically for Mexico. Finally, Chapter 7 suggests some possible ways forward for the negotiations of EGS at the WTO, with specific proposals for a negotiating strategy for Mexico.

It is expected that the results of the present study will support North American decision making in the area of environmental goods and services under the current WTO negotiations and in other fora.

## 2. SUSTAINABLE DEVELOPMENT PATTERNS IN MEXICO

### 2.1 Economic, Social and Environmental Trends

Like other rapidly industrialising countries, Mexico is undergoing a transition driven by demographic, social, economic and political dynamics with direct and indirect effects on the scale and structure of Mexican industries, including the environmental goods and services sector.

Over the last 15 years, Mexico has undertaken a series of structural reforms to adapt its economic model to the current world situation. Reforms are based mainly on market mechanisms, including the reduction of government intervention in the goods and services markets, as well as participation in international markets. The impacts of this new economic model vary from sector to sector. Mexico's integration into the global economy through trade and investment agreements has fostered productivity and competitiveness in certain export industries and generated unprecedented gains in international markets. However, other sectors – mainly small and medium-sized enterprises – have not been able to bring their structures, strategies and production processes up-to-date.

The weak domestic market demand limits the stock and distribution of goods and services, as well as the consolidation of production chains to support export industries. This represents one of the major constraints to fostering regional development and alleviating poverty. In general, the economic growth strategy has excluded small entrepreneurs that usually capture these alternative/niche market opportunities, and isolated low-income populations and indigenous people.

According to economic theory, the liberalisation process that Mexico undertook in the second half of the 1980s should have increased the mobility of factors of production, changing income disparity trends between regions, states and income groups. However, this has not taken place at the pace expected due to institutional, economic and capacity constraints, including inequalities in infrastructure, access to public goods and inefficient market development. In addition, the southern states lack sound trade facilitation policies necessary for expanding their export production (including in environmentally preferable products) (Hernandez, et. al., 2003).

Today, Mexico is the 12<sup>th</sup> largest economy in the world (World Bank, 2005). Nevertheless, social and environmental problems pose major challenges for the full implementation of sustainable development goals. Yet, the United Nations Development Programme (UNDP) ranks the country 55<sup>th</sup> in the *Human Development Index*. This is explained by poverty and income inequality factors. Poverty remains widespread. Some indicators show that over half of the population lives in impoverished conditions, with one third in extreme poverty (INEGI, 2002a). Moreover, 28 percent of the population older than 15 years has not completed elementary school. One tenth lacks access to basic water services (Presidencia de la República, 2001). Economic liberalisation has not reduced these inequalities. Between 1992 and 2002, ten percent of the poorest Mexican families captured only 1.6 percent of the national income, while ten percent of the wealthiest families captured 35 percent (Hernandez, et. al., 2003). Indigenous people are among the most vulnerable groups within low-income populations and deserve special attention.

The evaluation of social policies undertaken in Mexico over the last decades has shown that traditional programmes (i.e. direct transfers) have been insufficient for reducing poverty and inequality. Other factors have played a major role, such as macroeconomic conditions and human and economic capital. An efficient social development strategy should consider family income, assets (such as land, human capital and technology) and the relative prices of these assets. In this regard, programmes that foster the competitiveness of goods and services produced by low-income groups (including environmentally preferable products) constitute a key component of an effective social policy.

Environmental problems have only recently become a national concern in Mexico. Although the first measures to regulate human impacts on the environment began in the 1960s, it was not until the 1980s that comprehensive federal regulations and institutions were established. For instance, the Federal Law of Ecological Balance and Environmental Protection (LEGEPA) was enacted in 1988 and amended in 1996 to incorporate modern tools for

environmental protection and conservation, including the natural protected areas system, environmental impact and risk assessment, ecological territorial development, as well as some self-regulatory and economic instruments. Since then, a considerable network of regulations and institutions for environmental protection and natural resource management has been established. Today, all states and several local governments have developed regulatory frameworks for environmental protection and the sustainable use of natural resources. An increasing number of environmental offences are now considered a crime and sanctions are issued when violations are found.

Despite all the gains in terms of regulatory and institution building, Mexico faces major challenges for the control and reversal of pollution patterns and unsustainable use of natural resources. Since 1960, the country has lost 30 percent of its tropical and temperate forests as a result of deforestation, soil degradation and the conversion of forest to agricultural land. Desertification trends have increased, with direct impacts on productivity, ecosystems and economic stability. In addition, the demand for water has doubled with the growth in population, affecting the availability and quality of this natural resource (SEMARNAT, 2001). Marshlands and swamps have lost a significant amount of territory to the development of oil infrastructure and tourism. The quality of these ecosystems has also deteriorated due to land-based pollution. Industrial development and urbanisation have increased air, water and soil pollution in additional regions (SEMARNAT, 2001).

## **2.2 Policy Integration to Foster Sustainable Development**

For many decades, development strategies underestimated the economic and social costs of demographic growth, income and geographical distribution inequalities, as well as the environmental impact on ecosystems. Disparities in economic development between Northern and Southern Mexico (aside from rural and urban areas), increasing poverty rates and the lack of a comprehensive strategy for regional development have intensified the environmental and social problems linked to development. It is estimated that in 1998, the cost of environmental and natural resource degradation accounted for 11 percent of the Mexican GDP (INEGI, 2002b). Unsustainable patterns of production and consumption are driven by different factors, including the growth in exports that depend heavily on natural resources. Escalating rural poverty rates have direct impacts on the agricultural sector, and the expansion of the livestock sector affects soil fertility (SEMARNAT, 2001). In 1999, 64 percent of the Mexican territory suffered from some type of environmental degradation (SEMARNAT, 2001).

Industrialisation over the last four decades has also stimulated migration from rural to urban areas. In 2000, 74 percent of Mexicans were located in large and medium-size cities (World Bank, 2001). Despite improvements in pollution control policies, the centralisation of manufacturing and service activities in cities – coupled with unsustainable transport patterns and insufficient institutional capacity – continue to put pressure on the quality of air, water and land (SEMARNAT, 2001).

Mexico's economic development policy has been characterised by diverse market and government failures, including inadequate valuation of natural resources and ecological services, leading to mispricing of many economic goods and services. Below-cost water tariffs, especially in the agricultural sector but also in urban areas, as well as subsidies for fertilisers and electricity, are among the notable government failures that have fostered unsustainable patterns of production and consumption. These patterns are most evident in the agriculture, fisheries, manufacturing, energy and tourism sectors.

The social dimension of sustainable development has been less analysed than the economic and environmental dimensions. However, the relationship between environmental and social trends has become evident recently in certain public policy areas. Growth and migration patterns have stimulated changes in land use, expanding the frontiers of agriculture. Twelve million people currently live in Mexican forest areas that have high poverty rates. Moreover, 3.3 million of these people live in high priority biodiversity areas (SEMARNAT, 2001). Those populations place direct pressure on the natural resources stock due to unsustainable practices, such as slash and burn agriculture. At the same time, increasing deforestation has had a significant impact on river basins by breaking the balance of natural energy cycles. In the long run, this pattern creates a vicious circle of poverty, natural resources degradation and increasing vulnerability to natural disasters.

In terms of basic services, rural communities are significantly less endowed than their urban counterparts. For instance, in 2002 nearly 11 million people (7.5 million in rural areas) lacked access to potable water and 22 million lacked access to sanitation services. Most the people without access to potable water and sanitation live in communities located in Southern and South-eastern Mexico (notably in the states of Chiapas, Guerrero and Oaxaca), which hold 77 percent of the country's hydrological resources (SEMARNAT, 2001).

Environmental health problems provide ground for the interaction between health and environmental policies in urban areas. Indeed, the first government authority responsible for environmental issues in Mexico was created within the Ministry of Health in the early 1980s. Since then, health authorities at the federal, state and local levels have kept track of public health impacts from increasing pollution rates in different media, particularly air and water. Historical data have demonstrated that the groups most vulnerable to environmental health problems are children, pregnant women and the elderly (SEMARNAT, 2001).

National statistics do not keep track of permanent employment figures in the environmental sector. However, it is estimated that jobs related to environmental activities represent about one percent of the total employment force in Mexico (OECD, 2003c). On the other hand, although the impact of environmental policy in national employment has not been assessed, some sectors, including water management, air pollution control and solid and hazardous waste, have created business opportunities with potential positive impacts on the labour market. For instance, private investment in the hazardous waste sector generated 3,000 direct jobs and 6,300 indirect jobs for the period 1990-2001. Due to the informal nature of the solid waste management industry, it is difficult to assess its actual impact on the labour market, but it is expected to be quite significant especially in the low-skilled labour segment of marginal urban communities (OECD, 2003c). On the other hand, as will be elaborated in Chapter 5, there is an enormous potential for job creation in the rural sector and in some coastal areas in activities such as sustainable agriculture, tourism, forestry, fishing and biodiversity management.

Attempts to integrate environmental concerns into the public policy making process in Mexico date back to the 1980s with the establishment of the first regulatory and institutional schemes, including the enactment of LEGEPA. However, it was not until the mid-1990s that the Mexican government started implementing the *Agenda 21* commitments adopted at the 1992 Earth Summit. Indeed, the 1995-2000 National Development Plan (Plan Nacional de Desarrollo (PND)) incorporated – for the first time in Mexican history – the principle of sustainable development. Six years later, the PND has confirmed that this principle lies at the centre of public policy making. The PND, which involved a wide-ranging consultation process, sets the guidelines for public policy making in Mexico. It includes goals and strategies for economic and social development, as well as governance. Federal Ministries and agencies base their strategies on this programme. Sustainable development cuts across all policy areas in the PND. Tables 2.1 and 2.2 present the economic and social policy goals and strategies embraced by the 2001-2006 PND. Table 2.3 presents the environmental strategic programmes/campaigns and goals contained in the National Environmental and Natural Resources Programme 2001-2006, which sets the environmental policy framework in Mexico at the federal level based on the PND. Due to its significance to Mexico's institutional sustainable development architecture, the PND, as well as its corresponding environmental sectoral programme, set a useful benchmark for a sustainability impact assessment of trade policy, including the liberalisation of the EGS sector.

Progress has been made in the implementation of the sustainable development guidelines contained in the PND in its first three years. For instance, some national ministries and government bodies have set their own sustainable development goals and indicators. More recently, the Ministries of Energy (SENER) and Tourism (SECTUR) in collaboration with the Ministry of Environment and Natural Resources (SEMARNAT) completed comprehensive strategies to foster sustainable patterns of production in their respective sectors and the Mexican Congress passed the Law of Sustainable Rural Development (2003). In addition, the Mexican Ministry of Finance and Public Credit (SHCP) established a unit for the development of environmental economic instruments, including taxes and charges, as well as for the analysis of the impact of subsidies on different economic and social variables including the environment.

**Table 2.1: Economic Development Goals and Strategies within the PND 2001-2006**

GOALS	STRATEGIES <sup>6</sup>
(1) Achieve a Sound Macroeconomic Environment	<ul style="list-style-type: none"> <li>a) Co-ordinate fiscal and monetary policies.</li> <li>b) Reinvent fiscal policy.</li> <li>c) Promote efficient regulatory and supervision schemes in the financial system.</li> <li>d) Foster a solid and efficient banking industry.</li> <li>e) Strengthen non-banking financial services and insurance culture.</li> <li>f) Develop a social banking policy.</li> <li>g) Reactivate the development banking industry.</li> <li>h) Foster efficiency in the stock market.</li> <li>i) Promote productivity in the public sector.</li> </ul>
(2) Increase and Expand Competitiveness	<ul style="list-style-type: none"> <li>a) Promote sectoral development and competitiveness.</li> <li>b) Develop good quality infrastructure and public services.</li> <li>c) Foster a new labour culture and promote a reform of the labour framework.</li> <li>d) Foster an advantageous integration of the country into the international environment and the new economy.</li> <li>e) Promote the use and take advantage of information technology means.</li> <li>f) Consolidate and foster institutional and regulatory frameworks to simplify the administrative burden faced by companies.</li> <li>g) Increase foreign direct investment flows.</li> <li>h) Strengthen the domestic market.</li> <li>i) Implement a comprehensive corporate development policy.</li> </ul>
(3) Ensure Inclusive Development	<ul style="list-style-type: none"> <li>a) Integrate micro-entrepreneurs and self-employed workers to the market.</li> <li>b) Establish institutions to finance low-income entrepreneurs.</li> <li>c) Promote rural development and improvement in the welfare of rural population through investment, integration to chains of production, capacity building and technology transfer.</li> <li>d) Foster the creation and development of productive projects with benefits to vulnerable groups in indigenous communities.</li> <li>e) Expand basic information technology infrastructure in rural communities and low-income urban areas.</li> </ul>
(4) Promote Balanced Regional Development	<ul style="list-style-type: none"> <li>a) Strengthen regional economies.</li> <li>b) Support the elaboration of locally designed urban development plans.</li> <li>c) Support the development of local, state and regional tourist industries.</li> <li>d) Create sustainable development centres to discourage regional migration.</li> <li>e) Co-operate with state and local authorities in the regional development planning processes.</li> <li>f) Develop the Northern and Southern regions according to their economic potential and their particular natural and social characteristics.</li> </ul>
(5) Create the Conditions for Sustainable Development	<ul style="list-style-type: none"> <li>a) Foster efficient use of natural resources, especially water and energy.</li> <li>b) Promote comprehensive and decentralised environmental policies.</li> <li>c) Strengthen research and technology innovation to support sustainable development through clean technologies and production processes.</li> <li>d) Foster environmental protection and sustainable use of natural resources through education, training, communication and social participation.</li> <li>e) Improve the environmental performance of the federal government.</li> <li>f) Continue the development and implementation of a national sustainable development strategy.</li> <li>g) Advance in the strategy to mitigate greenhouse gas emissions.</li> </ul>

Source: Presidencia de la República: *Plan Nacional de Desarrollo 2001-2006*, [www.presidencia.gob.mx](http://www.presidencia.gob.mx).

<sup>6</sup> The components of each strategy can be consulted in the National Development Plan (PND 2001-2006), [www.presidencia.gob.mx](http://www.presidencia.gob.mx).

**Table 2.2: Social Development Goals and Strategies within the PND 2001-2006**

GOALS	STRATEGIES <sup>7</sup>
(1) Improve Education and Welfare	<ul style="list-style-type: none"> <li>a) Provide quality education tailored to the needs of the Mexican population.</li> <li>b) Foster long-term social development policy.</li> <li>c) Design and implement programmes to reduce poverty, increase access to basic infrastructure<sup>8</sup> and provide development opportunities to the low-income population.</li> <li>d) Improve health standards.</li> <li>e) Contribute to the comprehensive development of families through the provision of social security services.</li> <li>f) Promote and implement housing and urban development public policies as an engine to development by linking territorial development policies with housing and construction programmes.</li> <li>g) Integrate rural populations to the economic development strategy by (among others) taking advantage of technology development and sustainable use of natural resources.</li> <li>h) Direct scientific and technological activities to address the basic needs of the population (including nutrition, health, education, poverty alleviation and environmental quality).</li> </ul>
(2) Enhance Equity and Equality Opportunities	<ul style="list-style-type: none"> <li>a) Promote equity of education.</li> <li>b) Eliminate discrimination and violence towards women.</li> <li>c) Protect and provide full development of children and teenagers.</li> <li>d) Develop inclusive policies for the elderly.</li> <li>e) Promote and strengthen the development of handicapped people.</li> <li>f) Provide incentives for the participation of indigenous population in national development.</li> </ul>
(3) Promote Education to Develop Personal Capacities as well as Individual and Collective Initiatives	<ul style="list-style-type: none"> <li>a) Enhance adult education.</li> <li>b) Diversify and make education supply more flexible.</li> <li>c) Strengthen scientific research and technological innovation to support human resource development.</li> <li>d) Facilitate access to state of the art technology.</li> <li>e) Support the creation of social enterprises with the participation of low-income population in rural and urban areas.</li> <li>f) Foster the knowledge of culture and diversity throughout the Mexican population.</li> </ul>
(4) Strengthen Cohesion and Social Capital	<ul style="list-style-type: none"> <li>a) Strengthen family culture.</li> <li>b) Foster civic culture through education.</li> <li>c) Stimulate the participation of civil society in the development of public policies.</li> <li>d) Integrate vulnerable populations into the development strategy.</li> <li>e) Foster co-ordination between the education and culture sectors and strengthen cultural infrastructure throughout the country.</li> <li>f) Establish a national model to develop sport culture.</li> <li>g) Promote the modernisation of union groups.</li> </ul>
(5) Achieve Social and Human Development in Harmony with Nature	<ul style="list-style-type: none"> <li>a) Harmonise growth and territorial distribution with sustainable development.</li> <li>b) Promote environmental culture in the decision making process.</li> <li>c) Strengthen scientific and technological research to better understand sustainable development.</li> <li>d) Create new ways of interconnection with the environment and foster</li> </ul>

<sup>7</sup> The components of each strategy can be consulted in the National Development Plan (PND 2001-2006), [www.presidencia.gob.mx](http://www.presidencia.gob.mx).

<sup>8</sup> A key component of this strategy is to expand basic services, including potable water, sewage, electricity and roads.

GOALS	STRATEGIES <sup>7</sup>
	sustainable production and consumption processes. e) Stop and reverse water, air and soil pollution. f) Stop and reverse erosion processes and increase reforestation.
(6) Enhance the Responsive Capacity of the Government	a) Promote the design and implementation of education policy at the state and local levels by involving communities in education policy making and implementation. b) Build trust and credibility in government actors and institutions. c) Reduce school desertion by supporting low-income families through scholarships. d) Promote insurance schemes to protect families against extraordinary health expenses. e) Regularise rural property through assuring legal certainty of land rights. f) Strengthen justice and reduce uncertainty in the rural sector. g) Promote effective schemes to support unemployed people.

Source: Presidencia de la República: *Plan Nacional de Desarrollo 2001-2006*, [www.presidencia.gob.mx](http://www.presidencia.gob.mx).

**Table 2.3: Environmental Strategic Programmes, Campaigns and Goals within the PNMA 2001-2006**

STRATEGIC PROGRAMMES AND CAMPAIGNS	GOALS <sup>9</sup>
(1) Halt and Reverse Pollution of Systems that Support Life	a) Halt and reverse the pollution of water, air and soil to ensure the conservation of these resources for future generations. b) Ensure integrated management of water, air and land. c) Ensure compliance with environmental laws, standards and regulations. d) Reclaim rivers, lakes, basins and watersheds from polluting sources. e) Ensure a culture of rainwater infiltration and storage. f) Recuperate and reuse wastewater from agricultural use.
(2) Halt and Reverse Loss of Natural Capital	a) Halt and reverse natural resource degradation to preserve potential benefits for future generations. b) Ensure approaches for natural resource use that incorporate processes for their conservation, protection and development. c) Ensure co-responsible participation of social groups and individuals in the conservation and use of natural resources and the environment.
(3) Preserve Ecosystems and Biodiversity	a) Integrate and consolidate instruments and means for biodiversity conservation. b) Ensure co-responsible participation of all sectors in the conservation of biodiversity. c) Ensure approaches for the use of natural resources and environmental services that guarantee the preservation of species, genetic biodiversity, and conservation of ecosystems and their inherent ecological processes.
(4) Promote Sustainable Development	a) Incorporate environmental criteria into the decision making process on economic and social policies at all government levels and throughout all sectors. b) Strengthen federalism and ensure integrated management of environmental issues with the participation of local stakeholders. c) Ensure compliance with legal environmental instruments by

<sup>9</sup> The specific actions to reach these goals can be consulted in the Mexican National Environment and Natural Resources Programme (PNMA) 2001-2006, [www.semarnat.gob.mx](http://www.semarnat.gob.mx).

STRATEGIC PROGRAMMES AND CAMPAIGNS	GOALS <sup>9</sup>
	involving society in their understanding and vigilance.
(5) National Campaign for Forests and Water	a) Build a national alliance for the recovery of water bodies and forestlands throughout the country. b) Make national economic and public policies, as well as market mechanisms, work towards natural resources rescue. c) Promote a new environmental culture through out the population to achieve sustainable development.
(6) National Campaign for a Clean Mexico	a) Decrease solid waste disposal. b) Create business and market incentives for waste management to reduce stress on public budgets. c) Create opportunities for private participation. d) Reduce environmental problems and health risk associated with waste.

Source: Mexican National Programme of Environment and Natural Resources (PNMARN) 2001-2006, [www.semarnat.gob.mx](http://www.semarnat.gob.mx).

### **3. ENVIRONMENTAL GOODS AND SERVICES IN THE INTERNATIONAL CONTEXT**

#### **3.1 Definition and Classification Aspects**

As noted above, the potentially positive sustainable development impacts from the liberalisation and market expansion of EGS, including traditionally defined Environmentally Quality Support Goods and Services (EQSGS) and EPPs, have been addressed in the mandates of diverse international forums,<sup>10</sup> including the Fourth Ministerial Declaration of the WTO and the WSSD Plan of Implementation, which call for liberalisation and market expansion of these sectors.<sup>11</sup> The concepts of EQSGS and EPP will be detailed later in the study.

Despite all the work undertaken in this field in recent years, the international community has yet to reach a consensus on the proper definition and classification to support the implementation of these mandates. Neither the WTO Doha Declaration nor the WSSD Plan of Implementation define or propose a classification for the EGS sector. Post-Doha negotiations on this topic have been based both on documents submitted by WTO Members (including the European Union (EU), the United States, Canada, Switzerland, New Zealand, Japan, Australia and Colombia) and on the work developed in other forums. Among the latter, the definitions and classifications proposed by the OECD,<sup>12</sup> the Asia Pacific Economic Co-operation Mechanism (APEC) and the United Nations Conference on Trade and Development (UNCTAD) stand out.

In 1999, the OECD, in collaboration with the Statistical Office of the European Communities (Eurostat), developed a manual for the EGS industry, which included a definition, classification and list of goods based on the Harmonised System of Classification (HS Codes). This manual represents one of the first attempts to define and classify the industry at the international level.

The international debate around the adoption of EGS definitions and classifications for trade purposes tends to converge on the idea that the OECD/APEC proposals do not present a “one size fits all” solution. One argument central to this idea is that most of the EGS included in these lists are support goods and services, either for pollution control or for natural resource management, as opposed to products and services derived from sustainable activities. Another argument is that most of the EGS from the OECD/APEC lists rely on capital-intensive technological solutions to environmental problems, and present a comparative advantage to developed countries in the international trade context. Moreover, some of the categories and sub-categories from these classifications are not sufficiently disaggregated in areas in which developing countries could obtain the largest gains from trade liberalisation. This is the case for the Resource Management Group of the OECD classification.<sup>13</sup> One more argument is that developing countries’ regulatory and institutional frameworks are not solid enough to engage in a trade liberalisation process under the OECD/APEC lists. This is particularly true in countries where the majority of environmental services are still provided by the government.

#### **3.2 Broadening the Definition of EGS**

Within this context, Mexico faces major challenges in defining its position towards the most suitable definition/classification for EGS in light of its sustainable development goals. Mexico is the 12<sup>th</sup> largest

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<sup>10</sup> Some fora that have directly or indirectly addressed the positive effects from the liberalisation and market expansion of environmental goods and services/environmental preferable products include, but are not limited to: the UN Millennium Summit (2000), the WTO Fourth Ministerial Declaration (2001), the Monterrey Consensus on Financing for Development (2002), and the World Summit on Sustainable Development (2002). The topic is also a key component of the work programmes of many economic and environmental co-operation agencies and commissions, such as the OECD, UNCTAD, the North American CEC, APEC and the UN Economic Commission for Latin America and the Caribbean (ECLAC). Some international non-governmental organisations and think tanks are also involved in initiatives in this area, including the International Centre for Trade and Sustainable Development (ICTSD).

<sup>11</sup> See notes 3 and 4.

<sup>12</sup> OECD, 2003b.

<sup>13</sup> The OECD proposes three major categories to classify the environmental goods and services industry: a) Pollution Management; b) Cleaner Technologies and Products; and c) Resource Management (OECD, 1999a).

economy in the world and a member of both the OECD and APEC. The country has invested a large amount of resources (relative to others at the same level of development) to enhance its institutional and regulatory frameworks for environmental protection and the development of a diverse range of industries, including the environmental industry.<sup>14</sup> Today, Mexican standards for environmental protection compare and, in some cases, exceed those of some developed countries, in part because of its membership in the North American Free Trade Agreement (NAFTA) and its environmental organization, the North American Agreement on Environmental Cooperation (NAAEC). Despite the major gains in institutions and regulations for environmental protection (as mentioned in Chapter 2), Mexico, nevertheless, is experiencing difficulties in complying with its own standards. In addition, urban environmental challenges (also mentioned above) and the need to provide waste management, sanitation and potable water services to a growing population in the context of scarce government resources, demand the provision of cost-effective technologies and services.

On the other hand, Mexico has the second lowest GDP per capita rate among OECD countries<sup>15</sup> and over one third of its population lives below the poverty line, especially in rural areas. The country also has the second lowest environmental expenditure rate among OECD members,<sup>16</sup> which in some cases hinders its capacity to implement the environmental/sustainable development recommendations committed in that forum. This trend is particularly evident with regard to recommendations on the adoption of expensive environmental technologies and the use of economic instruments given shortcomings in technical capacity as well as inadequate regulatory and institutional frameworks for their full implementation.<sup>17</sup> In addition, Mexico shares with other developing countries a comparative advantage in the export of some environmentally preferable products,<sup>18</sup> particularly in the primary sector (sustainable agriculture, forestry, fisheries and biodiversity management) and in some services sub-sectors, such as tourism. The increased liberalisation of international trade in goods and services in these sectors could not only bring significant environmental and economic benefits to the country, but also has the potential to push some key social development goals (as will be discussed in Chapter 5).

Thus, Mexico could obtain potential sustainable development benefits from the liberalisation of the EGS sector, both under the OECD scheme and under a broader definition of these goods and services. A way forward in terms of definition and classification is to build upon the OECD classification by adding goods and services of trade interest to Mexico, then assessing the sustainable development implications of such an approach.

This option is worth assessing not only because Mexico is a member of the OECD, but also because the OECD classification seems to be the most elaborated of the proposals available. It assigns Harmonised System of Classifications (HS) codes to most of the goods considered and the major services categories can be assigned Central Product Classification (CPC) symbols. This classification is also useful in terms of environmental policy making because it addresses end-of-pipe problems, as well as pollution prevention and sustainable resource management, to improve eco-efficiency. Finally, since the OECD list was originally developed for analytical purposes, it is indicative (not exhaustive) and gives room to incorporate a broader definition of products and services.

A way of adapting the OECD classification in order to incorporate a broader definition of goods and services is to divide goods and services in the three major groups (see Section 3.3) into two categories:

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<sup>14</sup> Some sub-sectors within the EGS industry (notably water and waste management) have undertaken regulatory reform processes to liberalise certain services that were traditionally provided by the government.

<sup>15</sup> Mexico's GDP per capita in 2002 was US\$9,200, when the OECD average was US\$25,000 (OECD, 2004a).

<sup>16</sup> Mexico's environmental/GDP expenditure in 2002 was 0.7 percent, when the OECD average was 1.2 percent (OECD, 2004b).

<sup>17</sup> For more information see OECD, 2003c.

<sup>18</sup> As opposed to environmental quality support goods and services, which embrace support equipment and activities to prevent, reduce, minimise and revert environmental impacts from productive activities (i.e. only inputs into sustainable activities), environmentally preferable products include goods and services grown, extracted, manufactured and provided following sustainability criteria in all or some stages of their life cycle (including outputs from sustainable activities).

- Environmental Quality Support Goods and Services (EQSGS): according to their end-use or purpose; and
- Environmentally Preferable Products (EPPs): according to their
  - a) extraction and production criteria; and
  - b) use, characteristics and disposal criteria.

### 3.3 Adapting the OECD Classification to Boost Sustainable Development Impacts

This study examines ways in which the OECD classification can be adapted to boost the sustainable development impacts from EGS trade liberalisation, particularly for Mexico. The OECD classification proposes three major groups of EGS: Group A: *Pollution Management*; Group B: *Cleaner Technologies and Products*; and Group C: *Resource Management*. It is likely that Group C holds the largest potential for including Mexican goods and services with significant sustainable development benefits, particularly from an export perspective.

**Group A: Pollution Management** does not present a challenge given that most of its categories are related to end-of-pipe policies and products. Goods and services in this Group are defined in terms of a product's end-use, and mostly involve equipment and support services to enhance environmental quality. This Group is the most elaborated of the three, but it does not present opportunities for including environmentally preferable products of export interest for Mexico. In any case, most of the gains from trade liberalisation under this Group will come through reductions in relative import prices, hence lower environmental compliance cost. The definitions of each category in this Group do not need to be amended in order to allow for these gains.

**Group B: Cleaner Technologies and Products** is directly related to efficiency criteria in the production process, as well as to the reduction of environmental impacts in the final stage of the life cycle of products. These types of criteria are dynamic and, in most cases, require certification. Adoption of certification schemes for clean and efficient processes and products has become increasingly common in the recent decade in Mexico, especially among large and, to lesser extent, medium-size companies (see Annex II). In any case, the current definitions for the categories included in Group B are suitable for Mexico and do not need to be amended.

In contrast, **Group C: Resource Management** would need to be amended in order to incorporate several goods and services with the potential to boost the sustainable development impacts from trade liberalisation in Mexico. Group C embraces activities that produce EQSGS, namely, equipment, technology or specific materials. It also includes the design, construction or installation, as well as management or provision of other services related to reducing the impact of intensive natural resource extraction on diverse ecosystems. This category addresses some primary production activities and services, such as sustainable agriculture, fisheries and forestry. It also includes certain service activities that provide inputs for production in other sectors of the economy or represent components of the basic needs basket and welfare of households, such as energy, water supply and tourism. It includes a category for recycled materials that might be justified by the potential to reduce the use of raw materials,<sup>19</sup> and a category for natural risk management, given that unsustainable patterns of natural resource extraction and use tend to increase environmental risk of, for instance, natural disasters or epidemics.<sup>20</sup>

Some countries, including Mexico, could have a comparative advantage in the production or provision of outputs from sustainable activities (i.e. EPPs), as elaborated in the list proposed in Annex I and discussed in Chapter 5. The consideration of EPPs in this Group will imply, in most cases, the use of labelling and/or certification schemes for identification, confidence and reliability purposes. In the case of Mexico, it might be possible to explore the use of these policy tools to broaden the definition of EGS proposed by the OECD, since demand for

<sup>19</sup> The example included in the OECD indicative list of goods is recycled paper, which represents a substitute for paper manufactured with raw materials extracted from forests (OECD, 1999a).

<sup>20</sup> There is no straightforward explanation for including indoor air pollution control in this Group as opposed to in the Pollution Management Group. In any case, all the categories embraced in the Resource Management Group deal with inputs to provide a sustainable activity – not with the outputs from that activity.

quality-labelled goods has grown exponentially over the last decade. Annex II addresses the findings from a recent study completed for the CEC, which surveys environmental labelling and certification schemes in Mexico (CEC, 2004a).

A broader definition of environmental goods and services under the OECD Resource Management Group would include goods and services grown, extracted, manufactured and provided following sustainable criteria at all or some stages of their life cycle. In order to adapt the OECD EGS classification so that goods and services of export interest to Mexico can be added to the list, the definitions of some categories need to be amended. Box 3.1 includes amended proposals and category additions needed to facilitate the incorporation of these goods and services from Mexico. This implies that the OECD categories comprising primarily *inputs* into activities such as sustainable agriculture and tourism will need to be supplemented by *outputs* derived from these activities. For example, the "sustainable agriculture and fisheries" category under the OECD definition includes any activity that produces equipment, technology or specific materials, designs, constructs or installs, manages or provides other services for systems which reduce the environmental impact of agriculture and fishery activities and biotechnology applied to agriculture and fishery activities. Under a broader definition, products could include, for example, organic fruit or sustainably harvested fish. The potential goods and services to be incorporated under these new and amended categories, as well as the criteria for their incorporation, are presented in Annex I.

**Box 3.1: Amendment Proposals to the OECD/Eurostat Classification to Facilitate a Broad Definition of EGS**

(amendment proposals are underlined)

A. POLLUTION MANAGEMENT GROUP

- *Environmental equipment and specific materials*
- *Environmental services*

B. CLEANER TECHNOLOGIES AND PRODUCTS GROUP

C. RESOURCE MANAGEMENT GROUP

- *Indoor air pollution control*
- *Potable water treatment and distribution*
- *Water supply and sustainable water management*
- *Recycled material*
- *Renewable energy*
- *Heat/energy saving and management*
- *Sustainable agriculture and fisheries*

This category includes any activity that produces equipment, technology or specific materials, designs, constructs or installs, manages or provides other services for systems which reduce the environmental impact of agriculture and fishery activities. It includes biotechnology applied to agriculture and fishery activities. In addition, this class embraces products derived from sustainable agriculture and livestock management and the fishing industry, including ecological farming<sup>21</sup> and conservation agriculture.<sup>22</sup>

- *Sustainable forestry*

This category includes any activity that produces equipment, technology, or specific materials, designs, constructs or installs, manages or provides other services for programmes and projects for reforestation and forest management on a long term sustainable basis. It also includes wood species extracted using

<sup>21</sup> Holistic management systems are designed to enhance biodiversity, biological cycles and biological activity of soils. This type of production is based on reduced use of inputs and the exclusion of chemical synthesis.

<sup>22</sup> Conservation agriculture enhances the efficient use of natural resources through an integrated use of land, water and biological resources combined with external inputs (FAO, 2002).

sustainable management practices from virgin or forested and reforested plantations, for marketing purposes as wood by-products or raw materials.

- *Sustainable biodiversity and landscape*

This category includes all biological materials (excluding wood products) extracted in a sustainable manner from natural ecosystems for human use including individual members of species, resins rubber, latex, chicle, ornamental plants, wildlife (products and live animals), and raw materials like bamboo, natural fibres, rattan and bromeliads.<sup>23</sup> It also includes the provision of services for the conservation and sustainable management of biological diversity and landscape and the management and surveillance of parks and natural protected areas.

- *Natural risk management*
- *Sustainable tourism and eco-tourism*

This category includes any activity that designs, constructs, installs, manages or provides other services for tourism that involves the protection and management of natural and cultural heritage, or the education about the natural environment, and that do not damage or degrade the natural environment. It also includes the provision of different tourism infrastructure and services following environmental and sustainable development criteria.

- *Other*

Source: OECD-Eurostat, 1999a.

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<sup>23</sup> According to the guidelines for assessing the management of non-timber forest products (NTFP) in natural forests developed by the Rain Forest Alliance in 1989, this category could be further classified into four groups:

*Exuded*: Resins, latex, rubber, colours and pigments for industrial and non-industrial use in the food, cosmetics and pharmaceutical industries.

*Vegetative structures*: Plant parts, such as stems, leaves and roots used in the pharmaceutical and food industries as raw materials for handicrafts and ornament, as well as construction materials.

*Reproductive parts*: Vegetal parts, such as nuts, fruits and seeds commonly used in the pharmaceutical, cosmetics, food and vegetal oil industries.

*Wildlife fauna*: Includes live animals and products derived from direct extraction of wildlife (pets, feathers, collection articles, etc.).

## 4. TRENDS IN THE MEXICAN MARKET FOR ENVIRONMENTAL QUALITY SUPPORT GOODS AND SERVICES<sup>24</sup>

### 4.1 Key Market Drivers

The Mexican market for traditional environmental quality support goods and services (EQSGS) is small, but dynamic. Its current structure and characteristics are the evolutionary outcome of interactions between socio-economical, environmental, institutional and technological factors. Despite the fact that it has been in existence for no more than three decades, some market drivers can be identified.

Probably the most important driver is set by Mexico's environmental challenges and goals, which have been addressed by a *dynamic development of regulatory and institutional frameworks*. The performance of environmental institutions, particularly in the area of monitoring and enforcement, has played a central role in shaping the dynamics and characteristics of the Mexican EGS market. Table 4.1 presents the evolutionary path of the Mexican regulatory framework regarding environmental protection and natural resource management.

**Table 4.1: Evolution of Selected Federal Regulatory Instruments Related to the Environment**

Year	Instrument
1952	Federal Hunting Law
1986	Federal Law of the Sea
1988	General Law of Ecological Balance and Environmental Protection (LEGEPA), amended in 1996 and 2001
1992	Federal Law of Metrology and Standardisation
1992	Agriculture Law
1992	Federal Fishing Law
1992	Forest Law, amended in 1997
1992	General Law of Human Settlements
1992	General Law of National Goods
1992	Law for the Conservation of Water and Soil
1992	National Water Law, amended in 2003
2000	General Law of Wildlife
2002	Rural Sustainable Development Law
2003	Federal Law of Transparency and Access to Public Government Information
2003	General Law for Sustainable Forest Development
2003	General Law for the Prevention and Integrated Management of Waste

Source: OECD, 2003c.

**Increasing competitiveness in global markets** and openness of different industries in the Mexican economy is a second market driver. For the last three decades, an environmental culture within large companies has emerged, mostly linked to market strategies, and a culture of social responsibility driven by international factors. Industrial initiatives, magazines, forums and fairs have become popular, showing industry's increasing interest in sustainable development issues.

<sup>24</sup> This section is based on the OECD-CEC study *Identifying Complementary Measures to Ensure Maximum Realisation of Benefits from the Liberalisation of Trade in Environmental Goods and Services: the Case of Mexico*, 2003d. Figures have been updated with the latest information available, the analysis of some issues was illustrated with examples and a section added on trade flows for EGS.

In the international context, the private sector has responded to the global sustainable development agenda, launched at the Earth Summit in 1992, with the creation of different organisations promoting voluntary schemes for environmental protection and the sustainable use of natural resources. These organisations include the World Business Council for Sustainable Development (WBCSD), the World Industry Council for the Environment (WICE), the International Chamber of Commerce (ICC), the International Association of Chemical Industries (IACI), and the Global Environmental Management Initiative (GEMI). Different policy instruments, such as internationally recognised agreements, standards, audits and environmental management systems, as well as certification and labelling methodologies for products and processes, have facilitated the adoption of schemes for environmental protection.

The Mexican private sector has experienced a parallel process in different industries. National chapters from the WBCSD and other international sustainable development-oriented organisations have been inaugurated in Mexico. Moreover, chambers and associations representing the Mexican private sector have created their own bodies to address local environmental and sustainable development issues. Among these bodies, the Ecology Commissions of the Mexican Confederation of Employers (COPARMEX) and the National Confederation of Mexican Industrial Chambers (CONCAMIN), the Centre of Private Sector Studies for Sustainable Development of the Mexican Business Co-ordination Council (CESPEDES/CCE), the National Council of Environmental Industry (CONIECO) and the Commission of Environment and Ecology of the National Chamber of the Processing Industry (CANACINTRA) stand out. Over the last decade, these bodies have promoted the adoption of voluntary policy tools for environmental protection, including internationally recognised standards, environmental management systems (EMS), cleaner/more efficient technologies and processes and environmental certification schemes among Mexican companies.

Table 4.2 contains a selected list of large Mexican export companies that have embraced environmental and social responsibility principles in their production processes. According to a study by Wisner and Epstein, NAFTA, in addition to creating additional exporting opportunities, also created a “pull” effect on Mexican businesses to be more responsive to environmental management issues. The study found that firms exporting to the US and Canada were significantly more responsive in their environmental management actions than were firms that did not export, given more or less the same level of regulatory influence (Wisner and Epstein, 2003).

**Table 4.2: Selected Mexican Exporters Embracing Environmental/Social Responsibility Criteria**

Company	Sector	Total Sales in 2002 (US\$ millions)	Sales abroad in 2002 (US\$ millions)	Government Administered environmental certification	Privately Administered environmental certification	Social Responsibility Certification/Sustainable Development
PEMEX	Energy services	62,614	23,889	PROFEPA: Clean Industry Seal	ISO 14000 SIASP and PRO-SSPA <sup>25</sup>	Self designed social responsibility programme
CEMEX	Cement	7,024	4,224	PROFEPA: Clean Industry Seal	ISO 14000	Gold Medal World Environmental Centre
BIMBO	Food products	4,279	1,369	US-EPA (EMS Guidelines) Integral Management System Programme (SIGA)		Socially Responsible Award by the Mexican Centre for Philanthropy
IMSA	Iron and steel	2,822	1,520	PROFEPA: Clean Industry Seal	ISO 1400	
ALFA	Diverse manufactured products <sup>26</sup>	5,311	1,894	PROFEPA: Clean Industry Seal	ISO 1400	Socially Responsible Award by the Mexican Centre for Philanthropy
ICA	Construction	826	267	PROFEPA: Clean Industry Seal	ISO 1400	
VITRO	Glass	2,474	619	PROFEPA: Clean Industry Seal	ISO 1400	
FEMSA	Diverse products (beverages, packaging, retail, etc)	5,475	353	PROFEPA: Clean Industry Seal	ISO 1400	Socially Responsible Award by the Mexican Centre for Philanthropy
SAN LUIS RASSINI	Auto-parts	451	375	PROFEPA: Clean Industry Seal	ISO 14000	
Colgate-Palmolive	Chemicals	N/A	N/A	PROFEPA: Clean Industry Seal		GEMI

Sources: Developed by the author with information from Expansion, *The 500 More Important Companies in Mexico*, www.expansion.com.mx; Company information from PEMEX, CEMEX, BIMBO Group, IMSA Group, ALFA Group, ICA, VITRO, San Luis Rassin websites; World Environmental Centre (WEC), *WEC Gold Medal for International Corporate Achievements in Sustainable Development*, www.wec.org; Mexican Centre for Philanthropy, Socially Responsible Company Award, www.cemefi.org; Ministry of Environment and Natural Resources, Federal Attorney for Environmental Protection (PROFEPA), *Environmental Audit Programme*, 2004, www.profepa.gob.mx.

<sup>25</sup> Security Systems for Environmental Security and Management.

<sup>26</sup> Some of the products manufactured by the ALFA Group include steel plaques, chemicals and nylon.

To address the challenges of increasing industrial pollution, the Mexican government has relied on command and control, as well as self-regulatory – voluntary – instruments, which target environmental performance beyond the compliance levels. The Environmental Audit Programme (EAP) was one of the two policy instruments supporting the creation of the Mexican Federal Attorney for Environmental Protection (PROFEPA) in 1992.<sup>27</sup> The EAP is based on the experience from a similar programme in the United States. After 12 years of operation, this programme has certified 2,700 organisations for environmental performance, of which 500 have reaffirmed their agreements with PROFEPA. Most of the organisations certified are large private and public companies. Table 4.3 presents the main industries in which companies and other entities have been granted certificates and labels within the EAP.

**Table 4.3: Industries Participating in the Mexican Voluntary Environmental Audit Programme**

SERVICES	GOODS
<ul style="list-style-type: none"> <li>• Transport (mainly airports, trains and ports)</li> <li>• Energy (mainly oil, gas and electricity)</li> <li>• Mining</li> <li>• Tourism (mainly hotels)</li> <li>• Hospitals</li> <li>• Environmental services</li> <li>• Construction and real estate</li> <li>• Government agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Automobile and auto parts</li> <li>• Cement</li> <li>• Pulp and paper</li> <li>• Paint and paintings</li> <li>• Chemicals</li> <li>• Photography</li> <li>• Pharmaceuticals</li> <li>• Electronics</li> <li>• Machinery</li> <li>• Food and beverages</li> <li>• Glass</li> <li>• Plastics</li> <li>• Steel, aluminium, copper and iron</li> </ul>

*Sources:* Developed by the author according to information from the Mexican Federal Attorney for Environmental Protection (POFEPA), *Environmental Audit Programme*, 2004, [www.profepa.gob.mx](http://www.profepa.gob.mx).

However, the trend of environmental and social responsibility has not yet permeated Mexico’s micro, small or medium-sized enterprises (SMEs). Some surveys have concluded that Mexican SMEs in general are not investing in products or services to improve their environmental performance due to various reasons, such as short-term financial constraints, concerns about effects on production costs or, in some cases, failure to comply with legal obligations.<sup>28</sup>

***Increasing involvement of civil society in environmental issues*** is another market driver that has gained importance in recent years. As a result of Mexico’s structural reform process over the last three decades, the state’s participation in social and economic issues has shrunk. This process has fostered the consolidation of stakeholders, with the private sector typically leading on economic issues (through privatisation and deregulation) and non-governmental organisations (NGOs) leading on social issues (co-responsibility). Box 4.1 outlines the evolution of environmental NGOs in Mexico.

<sup>27</sup> The other instrument is the Industrial Verification Programme. This is a mandatory programme intended to verify industry compliance with federal environmental laws and regulations. For more information refer to [www.profepa.gob.mx](http://www.profepa.gob.mx).

<sup>28</sup> See Roberto Constantino, 1996; and Lilia Domínguez, 1999.

#### **Box 4.1: Evolution of Environmental NGOs in Mexico**

- Over 80 percent of environmental NGOs in Mexico were established after 1980.
- Between 40-60 percent of their funds come from grants.
- In 1992, there were 732 environmental NGOs working in 14 out of 32 states in Mexico (281 were established in the Federal District (Mexico City), 35 in the State of Mexico, 33 in Queretaro, 28 in Oaxaca, 24 in Quintana Roo, 21 in Guanajuato and Veracruz each, 20 in Yucatan, Nuevo Leon and Jalisco each, 19 in Guerrero, 17 in Tamaulipas and 16 in Sonora and Sinaloa each, among others).
- The policy areas of work include:
  - a) Conservation and outreach
  - b) Environmental education
  - c) Research and training
- The main thematic areas are:
  - a) Water
  - b) Energy
  - c) Forest policy
  - d) Environmental technology
  - e) Biodiversity and wildlife.
  - f) Organic agriculture
  - g) Solid waste
  - h) Air
  - i) Tourism
  - j) Fisheries
  - k) Rural – urban planning
  - l) Environmental impacts

*Sources:* Developed by the author with information from the Mexican Ministry of Environmental and Natural Resources ([www.semarnat.gob.mx](http://www.semarnat.gob.mx)) and the Mexican Department of Internal Affairs ([www.gobernacion.gob.mx](http://www.gobernacion.gob.mx)).

With regard to the development of a regulatory framework for the participation of civil society in environmental policy making, the Mexican Constitution contains four provisions for democratic planning. The Mexican Planning Law regulates the participation of civil society in the formulation of the PND. Presently, most environmental regulatory instruments (e.g. LEGEPA, and the Forest, Water, and Wildlife Laws) include provisions for civil society participation. For instance, some regulatory instruments, such as environmental audits and environmental impact evaluations, should involve a process of public consultation. In this regard, Mexican civil society has influenced environmental policy not only through indirect means, such as outreach, education and public opinion in different information media, but through direct involvement in the policy making and evaluation processes.<sup>29</sup>

At the regional level, it is worth noting the role of the CEC in pursuing both its environmental co-operation agenda and its environment and trade agenda in active collaboration with civil society. The CEC has involved the public of all three NAFTA countries in its research work, promoted dialogue and information exchange

<sup>29</sup> At the federal level, the Mexican Ministry of Environment and Natural Resources has supported the creation of formal advisory councils (e.g. Consejos Consultivos para el Desarrollo Sustentable), which are involved in the design, implementation and evaluation of national environmental policies and programmes.

through North American networks of individuals sharing the same interests and created an increasingly valuable body of knowledge on North American environmental issues.<sup>30</sup>

Given the market drivers mentioned above, a qualitative matrix of potential EGS and EPPs present in the Mexican market are included in Table 4.4. Some quantitative information on this market is presented in the next section of this Chapter and the characteristics and potential of EPPs are elaborated in Chapter 5.

**Table 4.4: Recipients of EGS and EPPs in Mexico**

Segment	Description	Examples of Recipients
<b>Environmental Quality Support Services</b>		
Environmental Testing & Analytical Services	Provide testing of “environmental samples” (soil, water, air and some biological tissues).	Regulated industries, government, environmental consulting & engineering, hazardous waste and remediation contractors
Wastewater Treatment	Collection and treatment of residential, commercial and industrial wastewater. Facilities are commonly known as POTWs or publicly owned treatment works.	Municipalities, commercial establishments & all industries
Solid Waste Management	Collection, processing and disposal of solid waste.	Municipalities & all industries
Hazardous Waste Management	Collection, processing and disposal of hazardous, medical and nuclear waste.	Chemicals, petroleum, manufacturers, government agencies
Remediation/Industrial Services	Clean-up contaminated sites, buildings and operating facilities.	Government agencies, property owners, industry
Environmental Consulting & Engineering	Provide engineering, consulting, design, assessment, permitting, project management, operation & maintenance, monitoring, etc.	Industry, government, municipalities, waste management companies, publicly owned treatment works (POTWs)
<b>Environmental Quality Support Goods</b>		
Water Equipment & Chemicals	Provide equipment, supplies and maintenance in the delivery and treatment of water and wastewater.	Municipalities & all industries
Instruments & Information Systems	Produce instrumentation for the analysis of environmental samples, including information systems and software.	Analytical services, government-regulated companies, municipalities
Air Pollution Control Equipment	Produce equipment and technology to control air pollution, including vehicle controls.	Utilities, waste-to-energy industries, auto industry, municipalities, emission verification companies.
Waste Management Equipment	Provide equipment for handling, storing or transporting solid, liquid or hazardous waste, including recycling/remediation equipment.	Municipalities, producing industries, solid waste companies
Process & Prevention Technology	Provide technology for in-process pollution prevention and waste recovery.	All industries
<b>Environmental Resources</b>		
Water Utilities	Sell water to end-users.	Consumers, municipalities & all industries
Resource Recovery	Sell materials recovered and converted from industrial by-products or post-consumer waste.	Municipalities, producing industries, solid waste companies
Clean Energy Power & Systems	Sell power and systems in solar, wind, geothermal, small-scale hydro, energy efficiency and demand side management.	Utilities, all industries & consumers
<b>Environmental Consumer Goods (EPPs)*</b>		

<sup>30</sup> For more information see CEC, 2004b.

Sustainable Agriculture Products	Agricultural products or finished food products derived from certified organic materials and processes.	Consumers, food manufacturing companies, food service companies
Sustainable Forestry Products	Timber or finished forest products derived from certified sustainable forestry programmes.	Consumers & manufacturers
Sustainable Tourism and Eco-tourism	Tourism revenues derived from certified tourism activities, including large infrastructure projects, as well as eco-tourism locations that minimise the 'environmental footprint' of transportation and lodging facilities.	Consumers

Source: Adapted by the author from the study prepared for the CEC by Environment Business International, (CEC, 2004c).

\* This category will be expanded in Chapter 5 of the study.

## 4.2 Size and Dynamism of the Mexican Environmental Goods and Services Market

The environmental quality support goods and services (EQSGS) market consists of a set of broad technological categories that reinforces or replaces the ability of natural capital to maintain environmental and ecosystem equilibrium. A technical definition and classification of the market for trade purposes should reflect this fact, rather than merely identify commercial branches.

As discussed in Chapter 3, initiatives developed at the multilateral level for the definition and classification of the sector, especially in industrialised countries, suggest that the EQSGS market can be segmented according to the different characteristics and uses of the available products and services. By making a comparison between the concepts included in the OECD/Eurostat codes, and the goods and services contained in the Mexican system for classifying economic activities, the supply size in the Mexican EQSGS market can be roughly outlined. However, several data constraints need to be taken into account.

Table 4.5 shows that, like in many other countries, *the traditional Mexican EGS market is highly concentrated* in the group of goods and services for *Pollution Management*. The second largest segment is the one oriented to *Resource Management*. It is possible, however, that official statistics underestimate the *Resource Management* group due, in large part, to the difficulty of identifying firms supplying outputs from this sector such as eco-tourism services or products from sustainable agriculture, fisheries and forestry and, to a lesser extent, identifying those firms that supply inputs (e.g. equipment) into these activities. In order to improve the understanding and potential of these sectors, it will be imperative for national statistics to systematically record the main characteristics and evolution of these sectors. In any case, the *Resources Management Group* accounts for a far lower share of the Mexican EGS market than *Pollution Management*.

The *Cleaner Technologies* Group is the smallest in the Mexican EQSGS market. This market segment presents a complication, as the identification of these products and services often requires certification. Schemes available in Mexico for efficient/cleaner technology processes and products certify companies (or, more precisely, facilities), as opposed to processes or products (except in the case of energy-efficient products). Some examples of such schemes are included in Annex III.<sup>31</sup>

The Mexican EGS market may be small compared with other sectors of the economy, but statistics suggest an *increasing rate of growth*. Table 4.6 notes that the average growth rate between 1993 and 1998 reached levels between two and six percent for items such as the number of active economic units, gross production and value-added, total inputs used and labour.

Although neither the Mexican classification system of productive activities nor the economic census show in detail the importance of *environmental services* in the EGS market, it is a highly diversified and growing

<sup>31</sup> For an elaboration of each scheme see CEC, 2004a.

segment, particularly with regard to activities where synergies can be found with the government's environmental objectives.

Table 4.7 reveals that about 99 percent of the environmental goods firms in Mexico are small scale. ***The number of small enterprises is larger than the medium and large enterprises***, except in the case of operations subject to economies of scale, which commonly are provided by large public or private firms, such as energy production, potable water supply systems or municipal waste and wastewater treatment plants.

Table 4.8 illustrates ***the increasing penetration of environmental services firms into the different segments of the Mexican EQSGS market*** between 2001 and 2002, in particular for laboratories, auditing and certification services, and mitigation of soil pollution.<sup>32</sup>

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<sup>32</sup> Figures in Table 4.8 should be interpreted with caution since the source consulted does not clarify whether the total increase in the number of companies is related to an improvement in accounting methodology or an increase in market size.

**Table 4.5: Number of Mexican Firms in the EGS Sector According to the OECD-Eurostat Classification**

GROUP (OECD/Eurostat Classification)	SIEM DIRECTORY*						ECODIR 2002**						
	FIRMS <sup>1</sup>	% of registered firms at SIEM <sup>2</sup>	%	Firms producing environmental goods <sup>3</sup>			Firms offering only goods	% / <sup>4</sup>	Firms offering only services	% / <sup>4</sup>	Firms offering goods and services	% / <sup>4</sup>	TOTAL <sup>5</sup>
				Chemical prods.	Other manufac- tured	Other non- manufactured							
<b>A. POLLUTION MANAGEMENT</b>	4,046	0.73	63.5	694	3,041	311	44	51.8	164	36.0	137	39.0%	345
<b>B. CLEANER TECHNOLOGIES AND PRODUCTS</b>	665	0.12	10.4	429	236	---	---	---	---	---	---	---	---
<b>C. RESOURCE MANAGEMENT</b>	1,657	0.30	26.1	548	580	529	27	31.8	369	81.1	112	31.9%	508
<b>FIRMS PARTICIPATING IN MORE THAN ONE GROUP</b>	Not available	Not available	Not available	Not available	Not available	Not available	23	27.1	46	10.1	153	43.6%	222
<b>TOTAL</b>	6,368	1.15	100.0	1,671	3,857	840	85		455		351		891

Sources: INEGI, *Economic Census*, 1998; Secretaría de Economía, 2004c; ECODIR, 2001 and 2002.

\* Padrón empresarial SIEM (Sistema de Información del Empresariado Mexicano). Firms considered are all the producers included in the industrial activities, in which environmental goods – according to the OECD/Eurostat classification – are contained. The final use of these products may or may not be environmental.

\*\* Industrial directory specialized in the environmental sector. It includes firms claiming to be specialized in environmental goods and/or services.

1. Number of firms that produce goods for Groups A, B or C, registered at SIEM, according to their main activity.

2. Percentage from the total number of firms registered at SIEM in all productive sectors (557,392).

3. Consisting of goods only. Classification follows standard categories included in the Mexican Classification of Productive Activities (CMAP).

4. Percentage of active firms in each group. The relative percentage exceeds 100 percent because some firms participate in more than one group and the total number of firms offering goods and/or services is calculated after discounting duplication.

5. The number of firms contained in A + B + C is higher than the total number of firms because some of them are considered in more than one group.

**Table 4.6: Main Characteristics of the Environmental Goods Sector, Mexico 1993-1998**

		A. POLLUTION MANAGEMENT	B. CLEANER TECHNOLOGIES AND PRODUCTS	C. RESOURCE MANAGEMENT	Total	AGR%
Economic units	1993	10,306	208	2,447	14,108	6.68
	1998	14,273	448	3,765	19,496	
Average occupied personnel	1993	305,891	1,960	206,120	589,650	2.33
	1998	378,103	15,378	210,300	661,638	
Total wages <sup>1/</sup>	1993	7,435,687	471,478	6,319,866	17,141,490	-5.13
	1998	6,379,875	459,394	5,250,920	13,176,200	
Gross production <sup>1/</sup>	1993	40,456,472	3,208,406	64,337,907	139,616,875	4.35
	1998	59,827,829	4,493,165	99,290,610	172,703,375	
Total inputs <sup>1/</sup>	1993	26,562,640	2,165,880	45,745,523	96,713,766	2.19
	1998	34,289,020	2,625,085	65,936,758	107,773,654	
Added value <sup>1/</sup>	1993	13,893,831	1,042,525	18,592,453	42,903,278	3.65
	1998	21,209,116	1,536,609	25,027,983	51,321,085	

1/ 1993 = 100

AGR: Annual average growth rate

Source: INEGI, 2002.

**Table 4.7: Structure of Mexican EGS Firms in 2001**

Firm scale	%
Small (1-500)	99.3
Medium-size (501-1000)	0.4
Large (>1001)	0.3

**Table 4.8: Percentage Increase in the Number of Mexican Firms Participating in the Environmental Services Market (2002 over 2001)**

Market segments	Firms in 2001	Firms in 2002	Percentage increase
Water	150	198	32
Air	41	55	34
Soil	51	75	47
Waste	152	203	34
Energy	24	31	29
Risk & security	31	42	35
Consulting & advising	208	274	32
Auditing & certification	24	37	54
Laboratories	46	67	46

Source: ECODIR, 2001 and 2002.

Note: Annual increases may be partially due to improvements in statistical registry of firms.

### 4.3 Future Trends for the Environmental Goods and Services Market in Mexico

Future trends for the Mexican environmental goods and services market arising from a qualitative interpretation of supply and demand factors are presented below.

- Measuring, monitoring and certification will be the most demanded environmental services.
- In the water market, there will be a moderate growth in the demand for goods and services used in: (i) modernising and rehabilitating existing infrastructure; (ii) constructing industrial and municipal treatment plants, mainly for basic and secondary treatment; and (iii) monitoring services and water analysis. Law enforcement and pricing of water are important constraints for the further development of this market.
- Increases in solid waste management and soil remediation are also expected. Hazardous waste management and disposal may also grow significantly over the next several years. The General Law for the Prevention and Integrated Management of Waste, enacted in 2003, might provide market players with an improved framework for participation. However, meaningful development depends strongly on progress being achieved in the implementation of this regulatory instrument – including its enforcement – and in overcoming political and cultural challenges.
- An increasing number of public-private partnerships related to the development of new infrastructure for the treatment of water and waste is likely in the future. The recently created Mexican Commission for Environmental Infrastructure (COMIA), a mixed body with representatives from private, public and social sectors, could be a catalyst for these partnerships.
- Services for monitoring, research and evaluation of natural resources will be in demand as institutions respond to resource degradation.
- Demand for goods and services for the reduction of greenhouse gases will tend to grow, despite the absence of a clear institutional framework. A likely catalyst might be the recently created Office of Climate Change Policy.
- There is high potential and a competitive advantage for constructing eco-tourism facilities and complementary services, for bio-prospecting and for “green” primary goods, such as organic agricultural products.<sup>33</sup>
- While the renewable energy market is still very small, it is expected to grow in the next few years, especially with regard to wind energy infrastructure and related services. This market could also involve private participation. In 2001, the Ministry of Energy and the Ministry of Environment completed the Sustainable Energy Strategy 2001-2006, which includes several actions to enhance renewable energy markets (e.g. innovative regulatory schemes to foster interconnection and transmission to foster the use of energy from renewable sources). However, significant development will depend on political consensus in the Congress to reform the energy sector so that it will, among other things, allow private participation in electric power generation.
- The attention paid to environmental risks will increase, but the specific features of goods and services used to minimise these risks have yet to be clearly defined. Large companies dealing with environmental risk management services will remain the most important market.

### 4.4 International Trade in Environmental Quality Support Goods and Services

International trade currently accounts for 30 percent of Mexico’s GDP, up from 17 percent in the early 1990s. The country has raised its share of total world exports to 2.6 percent in 2000-01 from 1.4 percent 15 years earlier. The growing predominance of manufactured goods in exports has lowered the vulnerability of export revenue to changes in oil prices. The increased openness of the economy has been accompanied by the

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<sup>33</sup> These segments will be addressed in detail in Chapter 5.

development of intra-industry and intra-firm trade (OECD, 2003a). Although there is a close synchronisation of the industrial sector with the US, the current account balance is less vulnerable to the cycle in this partner country than in the past.<sup>34</sup>

While the lowering of tariff and non-tariff barriers has undoubtedly had an impact on the competitive strength of the domestic economy, much of the economy remains comparatively closed because of over-regulation and high transport and communication costs. The failure of productivity to pick up in a sustained fashion ten years after Mexico's entry into NAFTA suggests deep-seated problems of adaptation and lack of competitiveness – except for the narrowly-based manufacturing export sector – which is only slowly being resolved (OECD, 2003a). It is still difficult to obtain exact figures for the share of trade in environmental quality support goods and services (EQSGS) in Mexico's overall trade given that national statistics do not consider this a category of its own.

Difficulties in measuring trade in goods arise from the lack of an agreed definition of environmental goods, incomplete trade data, limitations in the HS nomenclature for the classification of environmental goods, and the fact that many environmental goods have multiple end-uses, only one of which may be environmental (UNCTAD, 2003c).

The HS classification does not, in most cases, identify EQSGS at the six-digit level. Many products may be classified under a common six-digit code, only one of which, or a subset thereof, falls into the category of environmental goods. This may pose an administrative difficulty in tariff liberalisation for some countries that apply tariffs at the six-digit level. Moreover, data on the end-use of traded goods is not recorded and cannot be systematically accessed for analytical purposes. For multiple-use environmental goods, computations tend to overestimate the part of trade that takes place for environmental purposes (UNCTAD, 2003a and c).

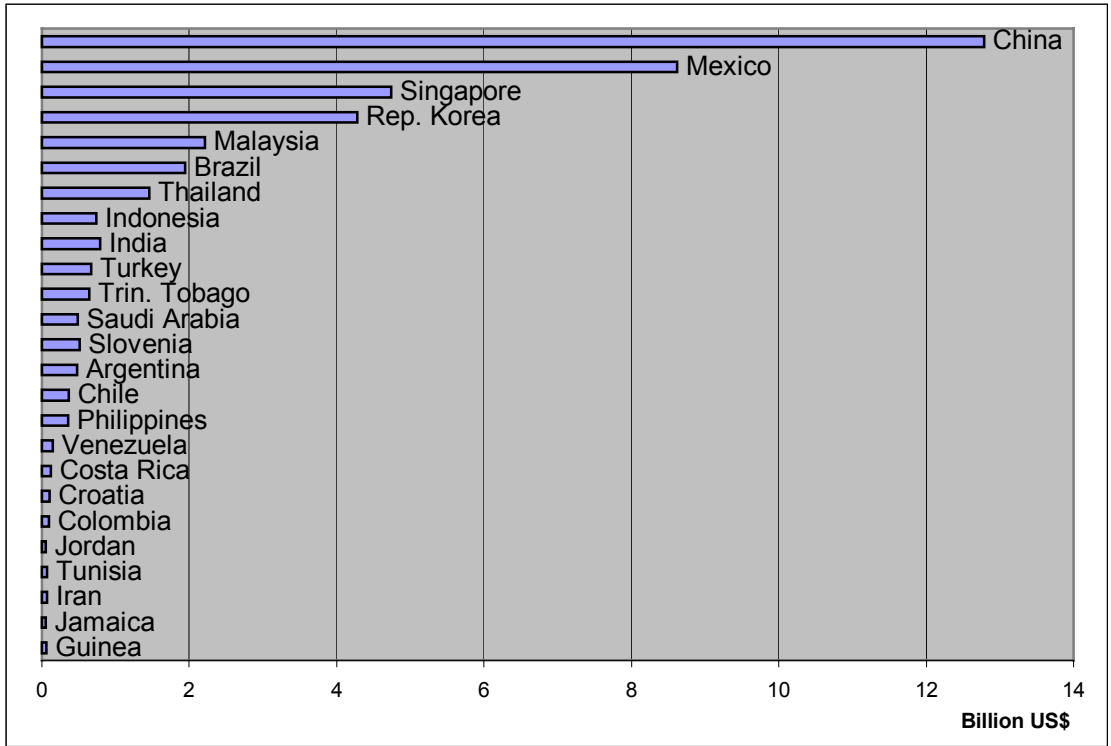
Despite statistical challenges, some international organisations have carried out comprehensive analyses of trade flows and market size for the EQSGS sector. For instance, UNCTAD has estimated the size of the global EQSGS industry at US\$550 billion, of which 50-75 percent is associated with environmental services (this figure represents the sum of domestic sales and exports). According to UNCTAD, in 2000 Mexico ranked second – just below China – among developing country exporters of traditional environmental goods under the OECD and APEC classifications. Its total exports amounted to almost US\$10 billion (see Diagram 4.1). However, Mexico's trade deficit under the APEC and OECD classifications was US\$5.4 billion and US\$ 5.2 billion, respectively, in the same year, amounting to US\$6.1 billion under the combined (and overlapping) APEC and OECD lists (UNCTAD, 2003a).

The potential for trade as a vehicle for technology transfer is also important. A recent study by Richardson, entitled *Assessing Technology Transfer and NAFTA* (Richardson, 2004), stated that direct commercial transactions related to international technology transfers to Mexico were valued at US\$454 million in 1999, up from US\$347 million in 1996 (WTO, 2002b). The study adds that “these transfers are likely related to the strong presence of foreign affiliates in Mexico, which appear to acquire technology actively from their countries of origin. Foreign innovation also reaches Mexico embodied in new plants and equipment, which in recent years have arrived in significant volumes through trade and foreign direct investment (FDI).” The study also notes that the greatest direct environmental technology transfer gains from Canadian FDI in Mexico are in the energy and the “other industrial” sectors. For example, in the energy sector, TransAlta is operating two 250 megawatt gas-fired power plants in Campeche and Chihuahua. These plants reportedly convert gas into electricity and sell the latter to Mexico's Federal Electricity Commission (CFE) under a 25 year long-term contract, with payment in US dollars. The study states that the investment began with the first plant in March 2000 and was reinforced by the second in March 2001, inspired by growing Mexican electricity demand and NAFTA. The study adds that “the use of gas-fired turbines helps institute a technology that is much more environmentally friendly than the oil-based technology on which Mexico's electricity generation had traditionally been based”.

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<sup>34</sup> Mexican trade within the NAFTA region, mainly with the United States, accounts for more than 80 percent of its global trade.

**Diagram 4.1: Top Developing Countries Exporting Environmental Goods (EQSGS)**



Source: UNCTAD, 2003.

## 5. TRENDS IN THE MEXICAN MARKET FOR SELECTED ENVIRONMENTALLY PREFERABLE PRODUCTS

The market for environmentally preferable products (EPPs) in Mexico includes primary sector activities mainly promoted by non-governmental and international organisations. More recently, government and international initiatives have also fostered the introduction of sustainable processes in the provision of some services with export potential. Such products and services usually rely on labelling and certification schemes that, in most cases, go beyond environmental quality to address social development, equity, fairness, community development and benefit sharing, among others. The main sectors involved are sustainable tourism, agriculture, forestry and commercial fishing. All of these present significant export potential, as well as potentially significant sustainable development benefits in their production and provision. However, if Mexico wishes to maintain its lead in the EPP sector, sound government support will be paramount to turn this potential into actual gains given that the majority of sustainable agricultural and forestry products have historically depended on *price premiums* for market expansion. Government initiatives, such as “green-procurement” and trade facilitation, are two possible mechanisms of support.

### 5.1 Tourism

Tourism is Mexico’s third largest industry and source of foreign exchange after oil and manufacturing. Revenues from international consumers accounted for US\$8.2 billion in 2000 – roughly half of Mexico’s current account (SECTUR, 2003). In order to reach world-class quality standards, Mexico’s tourism industry has implemented different certification schemes with regard to the quality of services, competitiveness of small and medium-sized tourism enterprises, labour conditions and food safety, among others.

The Mexican tourism sector has also been one of the most progressive supporters of sustainable development. In 2001, the Ministry of Tourism (SECTUR), in collaboration with the Ministry of the Environment and Natural Resources (SEMARNAT), completed a sustainable development strategy for this sector entitled *Agenda 21 for Mexican Tourism*. This strategy proposes, among other instruments, a sustainable tourism certification programme. In order to assess the public’s interest in sustainability in the tourism sector, SECTUR conducted a survey among national and international users of Mexican tourism services. The two main findings from this survey were that 69 percent of respondents were willing to pay a price premium for sustainable tourism services and 76 percent considered the environmental quality of destinations an important factor.

SECTUR’s analysis also shows that the seal of environmental compliance from the Mexican Federal Attorney for Environmental Protection (PROFEPA)<sup>35</sup> could be a good option for the first stage of the tourism certification programme. This scheme is administrated by SECTUR in collaboration with the Mexican Hotels Association, SEMARNAT, PROFEPA, state and local authorities, as well as interested private companies and NGOs. Environmental compliance certificates can be granted to hotels, tourism companies and destination localities. In 2002, SECTUR/PROFEPA granted the first such seal within the hotel category and launched a pilot project to certify Huatulco, Oaxaca as an environmentally preferable destination.

### 5.2 Agriculture

Fostered by international market demand, sustainable agricultural processes were introduced by Mexican farmers in the early 1990s. Since then, the production of organics, mainly tropical and ‘winter’ products, systematically has gained market share. Mexico now has the 15<sup>th</sup> largest organic production area in the world, accounting for 103,000 hectares (Gómez Cruz, 2001).

Despite the lack of adequate government support to develop a sustainable agriculture strategy in the last decade, stakeholders, ranging from NGOs and academia to international organisations and the private sector, have made attempts to bridge the gap between international markets and local producers through capacity building, financial

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<sup>35</sup> PROFEPA is in charge of enforcing Mexican laws, regulations and standards at the federal level.

support and recognition schemes. Government policies implemented in recent years, including the '*Alianza para el Campo*' programme and the Law for Sustainable Rural Development, might complement the efforts already underway.

After a decade of expansion, organic agricultural production in Mexico continues to be primarily driven by foreign demand and the possibility of obtaining a *price premium* for organic products in more developed countries. Mexican production in organics accounted for US\$140 million in 2001, with a growth rate of 42 percent in production area over five years. More than 33,000 producers are involved in this activity, which created more than 16.4 million journals<sup>36</sup> in 2000 (Gómez Cruz, et. al., 2003). There are 262 zones in 28 states dedicated to organic agricultural production. However, 87 percent of this production takes place in the states of Chiapas, Oaxaca, Michoacan, Chihuahua and Guerrero, which at the same time show high poverty and inequality rates, as well as high biological and ethnic diversity.

There are three main types of organic agricultural production systems:

- 'Purist' organic agriculture (POA), which is based on local technologies and resources and mainly consumed on the farm itself;
- International Federation of Organic Agriculture Movements (IFOAM)-type agriculture, which is based on standards that usually require certification and labelling; and
- Industrial organic agriculture (IOA), which depends on foreign technology and is primarily directed to international markets.

More than a dozen major sustainable agriculture certification schemes are used to certify over 20 commodities. The main destinations for these products are the US, Canada, Japan, some Western European countries and Australia.

**Sustainable coffee** accounts for the largest share among sustainable agricultural products. Mexico is the fifth largest coffee producer in the world, with total exports amounting to about 340,000 tonnes a year, which represents a significant share of the country's total agricultural exports. However, while in the best years coffee exports amounted to 27 percent of total agricultural exports, they now represent only 7 percent due to a decrease in international coffee prices. Historically, 98 percent of coffee exports come from green beans and 73 percent are exported to the US (BANCOMEXT, 2004). Mexican coffee is important not only because of its environmentally preferable characteristics, but also due to its economic and social benefits. It is estimated that more than three million people in Mexico depend on coffee production, and coffee revenues are the main source of income for 4,600 communities in 12 states.

Mexico is a leader in organic coffee exports, accounting for 20 percent of such exports worldwide and the first country to export organic coffee (CEC, 2001). There are three types of sustainable coffee certification schemes: organic, shade-grown and fair trade. While most fair trade coffee is organic and most organic coffee is shade-grown, not all shade-grown coffee is organic or fair trade. Depending on the source, shade-grown coffee represents 60-99 percent of the total coffee plantation area in Mexico (CEC, 2001).

Shade-grown coffee has suffered from industry divisions over standards, criteria and certification. Part of the problem is that different ecosystems make it challenging to develop a universal standard that reflects a consensus on the definition of 'shade-grown'. Shade-grown coffee became an issue in the mid-1990s with the advent of the Rain Forest Alliance's *Eco-OK* 'conservation coffee', which includes criteria beyond just being shade-grown. A few years later, the Smithsonian Migratory Bird Center (SMBC), supported by the Commission for Environmental Cooperation, offered its own label for shade-grown coffee with more stringent criteria. Since then, similar smaller labels have emerged with limited market penetration. The main characteristics of sustainable coffee certification schemes, as well as those for other sustainable agricultural products, are

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<sup>36</sup> A "journal" is the wage payment for a day of work. This type of labour payment is used for some activities in Mexico, including agriculture, when workers are hired on a temporary basis.

presented in Annex III. In addition, extensive research has been undertaken on sustainable coffee certification in Mexico both by national institutions and international organisations.<sup>37</sup>

### 5.3 Forestry

The forestry sector's share of Mexican GDP was 1.3 percent in 1996 and 1.1 percent in 2001. Forestry policy was declared an issue of national security in Mexico's 2001-2006 PND. Seventy two per cent of the national territory is covered by forests (141.7 million hectares) and 25 percent of this surface is virgin rainforest. Mexico has one of the largest deforestation rates in Latin America. The country loses 600,000 hectares of virgin forest a year. That amounts to a deforestation rate of 1.5 percent (SEMARNAT, 2001).

Mexico's international trade in forest products has experienced a significant increase since the 1990s due to the adoption of several international trade agreements. The agreements with the largest impacts on this sector are NAFTA with the US and Canada, and – to lesser extent – bilateral trade agreements with Chile, Bolivia, Costa Rica, Colombia, Nicaragua, Venezuela and the EU. Between 2000 and 2002, Mexico's total imports of wood products accounted for US\$870 million (65 percent came from the US and Canada), while total exports amounted to US\$422 million (97 percent went to the US). In the same period, 29 percent of imports came from ALADI countries,<sup>38</sup> 5 percent from Andean Pact countries,<sup>39</sup> and 4 percent from Mercosur.<sup>40</sup> After the US, the most important export markets for Mexican wood products are Central American countries, with one percent, and the EU, ALADI, Andean Pact and Mercosur, with the remaining two percent (Mora, 2003).

Trade in wood products accounted for 0.46 percent of Mexico's total imports and 0.39 percent of its total exports for the period 1995-2000. The trade deficit in wood products has increased significantly, changing from a US\$34 million surplus in 1995 to a US\$592 million deficit in 2002. The main products traded are round-wood, wood frames, manufactured wood, timber, boxes, cages, wood boards and plated wood. Sixty-three percent of the production of these products took place in the states of Durango, Chihuahua, Michoacan and Oaxaca.

In terms of sustainable forest management, Mexico has some experience in ecosystem restoration, through soil regeneration and conservation, and reforestation. There are models of community participation that show decreasing degradation in areas under sustainable forest management (see Annex IV). Successful experiments of sustainable practices have been carried out in states such as Durango, Michoacan and Oaxaca. However, most forestry production takes place in areas without sustainable management programmes. Of the 21.6 million hectares with market potential, only 8.6 million hectares are under some form of sustainable management.

The Mexican Forest Law mandates the establishment of forest management units in different forest regions and river basins. However, this scheme is not always compatible with private sector participation because it fosters dispersion of forest production units, which increases the transaction costs of technical services necessary for sustainable forest management. For this reason, Mexico's National Forest Programme 2001-2006 considers a strategy for sustainable forest management, forest plantations and restoration, including actions for public policy adjustment, property rights settlement and insurance, capacity building and technical development and indicators, as well as promotion and facilitation of certification systems.<sup>41</sup> The last item highlights the importance of supporting already existing eco-certification programmes administered by the private sector and NGOs.

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<sup>37</sup> For more information on sustainable coffee certification see the CEC ([www.cec.org](http://www.cec.org)), the Mexican Council for Coffee ([www.cmcafe.org.mx](http://www.cmcafe.org.mx)) and the Mexican National Bank of Foreign Commerce ([www.bancomext.gob.mx](http://www.bancomext.gob.mx)).

<sup>38</sup> ALADI is the Asociacion Latino Americana de Integracion - Latin American Integration Association – comprised of Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Paraguay, Peru, Uruguay and Venezuela.

<sup>39</sup> Bolivia, Colombia, Ecuador, Peru and Venezuela.

<sup>40</sup> Argentina, Brazil, Paraguay and Uruguay.

<sup>41</sup> Strategy 6.4 of the National Forest Programme 2001-2006 establishes sustainable forest management actions for the Mexican forestry sector.

The most popular non-governmental sustainable forestry certification scheme in Mexico is the Forest Stewardship Council (FSC) provided through the Rain Forest Alliance and the Mexican Civil Council for Sustainable Silviculture. This programme has been fairly successful in increasing the number of communities involved and the total certified forest area under sustainable management. In 1995, only five communities participated in the programme. Today, there are over 30 communities certified (including *ejidos* and indigenous groups), covering over 600,000 hectares in different regions of Mexico. Annexes III and IV present the main characteristics of the FSC certification programme and the total area of certified sustainable forests by state, community and product, respectively.

#### 5.4 Fisheries

Mexican fisheries exports accounted for US\$594 million in 2002. From this total, tuna exports amounted to 22,533 tonnes, with a value of US\$56 million. The main tuna export markets in order of importance were the US (US\$22.7 million), Spain (US\$10.4 million), Japan (US\$7.9 million), Panama (US\$7 million), Costa Rica (US\$2.7 million) and Italy (US\$2.3 million). Tuna is also the second most important commercial fish species captured in Mexico – after sardines in volume terms and after shrimp in value terms, accounting for 10 percent of the total production in 2003 (SAGARPA, 2002). Yellow fin tuna accounts for 75-90 percent of total tuna species captured; the states of Sinaloa, Baja California and Colima on Mexico's Pacific coast contribute 90 percent of tuna catches. Mexico currently has an infrastructure of 114 large tuna vessels with hauling capacity ranging from 50 to 1,700 tonnes. Captures have shown a constant growth rate since 1987, reaching their highest level in 1997, with 169,000 tonnes mostly directed to international markets (SAGARPA, 2003).

However, the Mexican tuna industry has faced serious market access challenges. The *Tuna-Dolphin* panel between the United States and Mexico in the early 1990's in the General Agreement on Tariffs and Trade (GATT) set a benchmark for trade and environment analysis on the multilateral agenda, as well as established the foundations of the Mexican position towards environmental labelling and certification schemes in the context of international trade. In 1991, the US Marine Mammal Protection Act (MMPA) – which enforces the reduction of dolphin mortality by employing domestic fishing regulations and applying trade embargoes on non-conforming foreign countries – was recognised as an international trade barrier by a dispute settlement panel of the GATT. Mexico had complained that the application of the MMPA was inconsistent with the US obligations under the GATT (Urgese, 1998). The *Tuna-Dolphin* panel was the first case that tested the legitimacy of using unilaterally imposed environmental process and production methods (PPMs) as a justification for trade restrictions (ICTSD, 2004).

Since the *Tuna-Dolphin* panel, Mexico has become both more trade-oriented and more environment-oriented. Two sustainable management initiatives are currently in place in the tuna industry. The first consists of *sustainability bans* targeted at tuna species in areas regulated by the Inter-American Tropical Tuna Commission (IATTC) both in international waters and in Mexico's Exclusive Economic Zone. In addition, Mexico belongs to the Agreement on the International Dolphin Conservation Programme (AIDCP). The 1999 AIDCP is a multilateral agreement that promotes the protection of dolphins during tuna catches in the Eastern Pacific Ocean.<sup>42</sup> In June 2001, AIDCP members adopted a certification/labelling scheme called 'Dolphin Safe AIDCP'. The Mexican government has embraced this scheme as the only instrument supported by a broad-based multilateral agreement that includes a transparent follow-up mechanism and active member participation (SAGARPA, 2004). It is likely that the Dolphin Safe AIDCP label will have a larger impact on exports of tuna than in domestic consumption. The main characteristics of this scheme are presented in Annex III.

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<sup>42</sup> The Parties to the AIDCP are: Colombia, Costa Rica, El Salvador, Ecuador, the EU, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, the US, Vanuatu and Venezuela.

## 5.5 North American Trade in EQSGS and EPPs

A detailed assessment of the North American environmental market was recently performed by Environment Business International (EBI) for the Commission for Environmental Cooperation (CEC, 2004c). Using its own methodology, EBI estimated that most Mexican trade in EQSGS and EPPs takes place within the NAFTA region, where the environmental market stood at US\$232 billion in 2001 or 41 percent of the global market. Environmental trade between Canada and Mexico totalled US\$32 million in 2001 (US\$18.9 million in Canadian exports to Mexico and US\$12.8 million in Mexican exports to Canada). Mexico–US environmental trade totalled US\$1 billion in the same year (US\$116 million in Mexican exports to the US and US\$920 million in US exports to Mexico). Overall environmental trade within the NAFTA region was US\$4.1 billion in 2001, with the equipment segments accounting for two-thirds of the total. Within the equipment segment, water equipment and chemicals, air pollution control and waste management equipment were the largest segments (CEC, 2004c).

Tables 5.1 and 5.2 detail Mexico's trade flows with the US and Canada. The first issue worth noting from these tables is that Mexico is a net importer of EQSGS and EPPs both with the US (US\$802 million trade deficit) and with Canada (US\$6 million deficit). This is explained by large imports of capital-intensive environmental goods (equipment). Goods accounted for 54 percent of the total US imports and for 70 percent of the total Canadian imports. In contrast, the resources category presents the largest share of exports from Mexico. The total trade balance in this category is not positive due to large imports of US resource recovery EQSGS; however, trade in some resource segments (including sustainable agriculture, tourism and, to lesser extent, sustainable forestry) show export potential. In terms of trade with other regions, there is export potential for Mexican-produced equipment and resources in the Latin American markets. As for the rest of the world, exports reached two digits only (as a percentage of the total Mexican exports to the rest of the world) in the sustainable agriculture and eco-tourism segments.

The study by Richardson (2004) points out that Mexico is globally competitive in equipment to monitor air quality and atmospheric emissions and in services to optimise energy use in industrial processes. Richardson notes that, between 1989 and 2002, the leading export sector from Mexico to Canada was engine parts, followed closely by filtering or purifying machinery and apparatus for gases. This is followed, at about half the value of these top two categories, by automatic regulating or controlling instruments, other taps, cocks and valves, engines parts, and machines and mechanical appliances. The study further notes that it is in these categories that steady increases in exports of environmental goods between 1989 and 2002 have been seen. Particularly noteworthy has been the strong 2002 export surge in engine parts and automatic regulating or controlling instruments. Mexico is also a significant supplier to the global market of energy efficient consumer goods including, *inter alia*, florescent lamps and multi-layered insulating glass windows (UNCTAD, 2003b). The study adds that progress can be made in lowering non-tariff barriers related to such products, especially those related to certification requirements.

**Table 5.1: Mexican EGS Trade with the US in 2001 (US\$ millions)**

	IMPORTS	%	EXPORTS	%	BALANCE
<b>Equipment</b>					
Water Equipment & Chemicals	300.5	32.71	1.3	1.11	-299.2
Air Pollution Control	98.4	10.71	1.3	1.11	-97.1
Instruments & Info. Systems	35.0	3.81	0.0	0.00	-35
Waste Mgmt Equipment	62.1	6.76	10.5	9.01	-51.6
Process & Prevention Tech.	3.2	0.35	0.2	0.17	-3
<b>Services</b>					
Solid Waste Management	40.8	4.44	3.3	2.83	-37.5
Hazardous Waste Mgmt	31.8	3.46	0.4	0.34	-31.4
Consulting & Engineering	58.7	6.39	0.5	0.43	-58.2
Remediation/Industrial Services	23.8	2.59	0.7	0.60	-23.1
Analytical Services	3.7	0.40	0.0	0.00	-3.7
Water Treatment Works	46.9	5.11	5.4	4.63	-41.5
<b>Resources*</b>					
Water Utilities	26.1	2.84	0.3	0.26	-25.8
Resource Recovery	142.2	15.48	0.3	0.26	-141.9
Clean Energy Systems & Power	41.1	4.47	1.1	0.94	-40
Sustainable Agriculture	4.3	0.47	32.1	27.53	27.8
Sustainable Forestry	0.0	0.00	5.6	4.80	5.6
Eco-tourism	0.1	0.01	53.6	45.97	53.5
<b>Total</b>	<b>918.7</b>	<b>100.00</b>	<b>116.6</b>	<b>100</b>	<b>-802.1</b>

Source: CEC, 2004c.

\*Including both environmental quality support goods and environmentally preferable products, see Table 4.4.

**Table 5.2: Mexican EGS Trade with Canada in 2001 (US\$ millions)**

	IMPORTS	%	EXPORTS	%	Balance
<b>Equipment</b>					
Water Equipment & Chemicals	4.44	23.45	0.09	0.70	-4.35
Air Pollution Control	4.47	23.61	0.13	1.01	-4.34
Instruments & Info. Systems	0.16	0.85	0.00	0.00	-0.16
Waste Mgmt Equipment	4.26	22.50	1.62	12.62	-2.64
Process & Prevention Tech.	0.02	0.11	0.02	0.16	0
<b>Services</b>					
Solid Waste Management	0.59	3.12	0.00	0.00	-0.59
Hazardous Waste Mgmt	0.13	0.69	0.00	0.00	-0.13
Consulting & Engineering	0.59	3.12	0.05	0.39	-0.54
Remediation/Industrial Services	0.90	4.75	0.34	2.65	-0.56
Analytical Services	0.19	1.00	0.00	0.00	-0.19
Water Treatment Works	0.08	0.42	0.00	0.00	-0.08
<b>Resources*</b>					
Water Utilities	0.07	0.37	0.00	0.00	-0.07
Resource Recovery	1.15	6.08	0.07	0.55	-1.08
Clean Energy Systems & Power	0.29	1.53	0.01	0.08	-0.28
Sustainable Agriculture	1.26	6.66	4.45	34.66	3.19
Sustainable Forestry	0.00	0.00	0.70	5.45	0.7
Eco-tourism	0.33	1.74	5.36	41.74	5.03
<b>Total</b>	<b>18.93</b>	<b>100.00</b>	<b>12.84</b>	<b>100.00</b>	<b>-6.09</b>

Source: CEC, 2004c.

\*Including both environmental quality support goods and environmentally preferable products, see Table 4.4.

## 6. ASSESSING THE SUSTAINABLE DEVELOPMENT IMPACTS OF EGS TRADE LIBERALISATION IN MEXICO

The sustainable development impacts of trade liberalisation constitute one of the main concerns of the international community in the new millennium. In the last decades, national governments, research institutions and non-governmental and international organisations have developed methodologies to assess different economic, welfare and environmental variables that might be related to trade liberalisation. For the purposes of this study, suitably adapted versions of two such methodologies – the first developed by Kirkpatrick, Lee and Morrissey (KLM) (Kirkpatrick et. al., 1999) and the second by Bisset, Flint, Kirkpatrick, Mitlin and Westlake (BFMKW) (Bisset et. al., 2003) – have been applied in order to assess the sustainable development impacts of EGS trade liberalisation based on different definitions (for a detailed explanation of these methodologies refer to Annex VII). In brief, the KLM methodology is based on a four-step process (i.e. screening, scoping, preliminary assessment and flanking measures). This model is useful for assessing general sustainability impacts from trade liberalisation. The BFMKW methodology for the liberalisation of environmental services is based on a causal chain analysis.

Based on a combination of these methodologies, this section presents an assessment of the qualitative sustainability impact assessment (SIA) of the liberalisation of trade in EGS in Mexico. The SIA is *qualitative* as it is not based on actual or revealed data or econometric modelling results, but rather on a hypothetical process logically linking liberalisation in environmental goods and services under alternative definitions of EGS and a number of national sustainable development goals and strategies impacted under each definition. A quantitative analysis would need to be based on an *ex-ante*, or, more likely, an *ex-post* assessment and analysis of quantitative data and indicators subsequent to liberalisation. In addition, most quantitative methodologies in this area are still being developed and they are not robust enough to generate consensus for their use – neither by the international trade community nor by national environmental authorities in most developing countries. This is the reason why the analysis in the present study is also only a preliminary one.

This study differs from the KLM and BFMKW methodologies in two ways. *First*, it seeks to assess the general sustainable development impacts from comparable EGS definition/classification approaches, as opposed to specific EGS categories under a single definition/classification. *Second*, the study addresses the sustainable development impacts for the specific case of Mexico in light of its sustainable development goals and strategies, as opposed to broader goals, either defined by international instruments or the literature. The impacts – based on Mexico’s own sustainable development goals and strategies – are assessed against two comparable definition/classification approaches to environmental goods and services (i.e. the OECD traditional definition/classification versus a broad definition/classification, which includes environmentally preferable products).

### 6.1 Screening and Scoping

This section identifies the definition and scope of trade measures to be included in the SIA. It also addresses trade policy scenarios, country groupings, sustainability indicators and the significance<sup>43</sup> of criteria to be used.

#### a) Trade Measures

The introduction and Chapter 2 of this study addressed the mandates from several international forums regarding EGS liberalisation and market expansion. The Doha Round of multilateral trade negotiations in the WTO is likely to have the most significant impact on trade liberalisation. Paragraph 31(iii) of the Doha Ministerial Declaration sets out the following mandate for EGS: “With a view to enhancing mutual supportiveness of trade

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<sup>43</sup> According to the KLM methodology, the factors that need to be taken into account in assessing significance are: a) the extent of existing economic, social and environmental stress in affected areas; b) the direction of changes to baseline conditions; c) the nature, order of magnitude, geographical extent and reversibility/duration of changes; and d) the regulatory and institutional capacity to implement mitigation and enhancing measures.

and environment, we agree to negotiations, without prejudging their outcome, on the reduction or as appropriate elimination of tariff and non-tariff barriers to environmental goods and services.”

In order to build scenarios for its negotiation and implementation, Paragraph 31(iii) can be broken down as follows.

#### *Goals*

- Direct: To enhance the mutual supportiveness of trade and environment.
- Indirect: To support the implementation of other paragraphs of the Doha Declaration, such as Paragraph 6, which states: “We strongly reaffirm our commitment to the objective of sustainable development as stated in the preamble to the Marrakech Agreement. We are convinced that the aims of upholding and safeguarding an open and non-discriminatory multilateral trading system and acting for the protection of the environment and the promotion of sustainable development can and must be mutually supportive”.

#### *Degree of Liberalisation*

- Reduction
- Elimination

#### *Policy Instruments Targeted*

- Tariffs
- Non-tariff barriers

#### *Subject of the Measure*

- Environmental goods
- Environmental services

Paragraph 31(iii) is part of a broader mandate in the Doha Round of WTO trade negotiations, which is to be negotiated as a ‘single undertaking’. The concept of a single undertaking signifies that WTO Members are to engage in a process of simultaneous negotiations, with the end product of these negotiations adopted by all as a ‘package’. The single undertaking could enhance the sustainable development benefits accruing from the liberalisation of EGS given that environmental policy is a horizontal issue *par excellence*. Public services and private activities cut through the various areas of environmental activities. These activities also cut across almost every area of the WTO negotiating mandate (UNCTAD, 2003c), including:

- Market access (for agricultural and industrial goods)
- Special and differentiated treatment for developing countries
- Rules (e.g. emergency safeguards)
- Subsidies
- Government procurement
- Intellectual property rights (e.g. rights to use a given technology)
- Services in a wider context

Given that the above areas might have an impact on the effective and equitable liberalisation of the EGS sector (e.g. large sustainable development impacts for all Members), they should also be taken into consideration in developing a comprehensive strategy for negotiations in this sector.

#### b) Scenarios

One of the major outcomes of the WTO negotiations under Paragraph 31(iii) relates to procedure. At the beginning of 2002, Members decided to undertake the EGS negotiations in three separate WTO bodies.

Environmental goods are being addressed within the framework of the Negotiating Group on Non-agricultural Market Access (NAMA) and environmental services are being addressed in the Council for Trade in Services. The Special Session of the Committee on Trade and Environment (CTE) will follow up on the negotiations of the other two bodies and discuss cross-cutting issues, such as the scope and definitional aspects of the mandate. This procedural outcome sets the basis for eight scenarios to take into consideration when undertaking an SIA, including two for goods, two for services and four for the cross-cutting issues.

#### *Depth of Liberalisation Measures*

- Base scenario: Assumes that no new commitments are made, but provisions for existing commitments are fully met (i.e. EGS are not distinguished or given preference over other goods in the current WTO negotiations).
- Liberalisation scenario: Assumes substantial reduction and/or elimination of tariff and non-tariff barriers to trade in environmental goods from an agreed list, and substantial market access and national treatment commitments in the four modes of supply for environmental services.<sup>44</sup>

As for cross-cutting issues, there are two major areas to address: one for definitional aspects and the other for concomitant liberalisation of goods and services.

#### *Definition Scenarios*

- Traditionally defined EGS: including only EQSGS (e.g. environmental quality support goods and services included in the OECD definition/classification list).
- Broadly defined EGS: including EPPs (e.g. environmentally preferable products according to their: a) extraction and production criteria and b) use, characteristics and disposal criteria).

#### *Sequence of Liberalisation for Goods and Services*

- Concomitant liberalisation of goods and services
- Different temporal approaches

The issue of traditional versus broader definitions was addressed in detail in Chapter 3 and constitutes the major focus of the current study. The main purpose of this SIA is to compare the relative gains under two alternative definition/classification approaches of EGS for the case of Mexico.

Finally, the other potential scenario that the CTE will need to consider is the concomitant versus separate liberalisation of environmental goods and services. It is generally understood that the environmental sector will obtain larger gains from the concomitant liberalisation of goods and services since efficiency gains from the latter (software) will also benefit from lower prices in the former (hardware).

For modelling purposes, the current study will assume that: (i) the *complete liberalisation scenario* for both goods and services (i.e. tariff reduction, market access, national treatment) and (ii) the *concomitant liberalisation scenario* for sequencing to focus the analysis on the relative gains from two definitional approaches.

#### c) Country Groups

The sustainable development impacts of three country groups will be considered in the current study given their participation in the Mexican trade structure and associated impact potential.

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<sup>44</sup> The GATS considers four modes of supply for the provision of services all subject to liberalisation: cross-border trade, consumption abroad, commercial presence, and presence of natural persons.

- North America
- Latin America
- Rest of the World

d) Sustainability Criteria and Indicators

The introduction and Chapter 2 discussed sustainable development issues and the criteria for undertaking an SIA for Mexico, emphasising the importance of using Mexico’s own sustainable development goals and strategies as contained in the 2001-2006 PND and the National Environment and Natural Resources Programme 2001-2006 (PNMARN). The benefits of using these documents are two-fold. *First*, their elaboration was the result of a large-scale democratic consultative process, which involved stakeholders from all sectors. In this regard, they represent the will and priorities of Mexican society. *Second*, they are concrete and classified in a useful manner for the current SIA.

In 1999, the Ministry of Environment and the National Statistical Authority (INEGI) completed a report on Mexican sustainable development indicators based on the methodologies proposed by the United Nations Commission on Sustainable Development (CSD). Eighty percent of the indicators considered in that report met the CSD methodology originally designed to assess the implementation of *Agenda 21* commitments. These indicators were elaborated using national data sources, which can be easily updated for the purposes of the current study.

The BFKMW methodology proposes a set of core and second tier indicators for an SIA of trade liberalisation of environmental services. Core indicators are general and can be replicated from the BFKMW proposal. However, for the current study the second tier indicators will be based on the methodology proposed by INEGI-SEMARNAT because these indicators rely on national data sources and can be used for quantitative analysis.

Table 6.1 summarises the sustainable development criteria and indicators necessary for undertaking an SIA of liberalising trade in environmental goods and services for Mexico.

**Table 6.1: Sustainable Development Criteria and Indicators Necessary for an SIA**

Goal/Criteria in Mexico	Core Indicator	Second Tier Indicator considered by Mexican Statistics
<b>Economic Development</b> 1. ACHIEVE A SOUND MACROECONOMIC ENVIRONMENT 2. INCREASE AND EXPAND COMPETITIVENESS 3. ENSURE INCLUSIVE DEVELOPMENT 4. PROMOTE BALANCED REGIONAL DEVELOPMENT 5. CREATE THE CONDITIONS FOR SUSTAINABLE DEVELOPMENT	Production	GDP per capita, sectoral GDP, ecological GDP.
	Fixed Capital Formation	Foreign direct investment (FDI), participation of investment in GDP, components of fixed capital formation.
	Real Income	Net domestic savings per capita, annual energy consumption, expenses in environmental protection as a percentage of GDP.
	Energy and Mineral Resources	Tested fossil fuel reserves, tested mineral reserves, participation in the consumption of renewable energy resources.
	Trade	Import to export rate, import of capital goods.
	Employment	Unemployment rate, self-employment rate, employment in the informal sector.

Goal/Criteria in Mexico	Core Indicator	Second Tier Indicator considered by Mexican Statistics
<b>Social Development</b> 1. IMPROVE EDUCATION AND WELFARE 2. ENHANCE EQUITY AND EQUALITY OPPORTUNITIES 3. PROMOTE EDUCATION 4. STRENGTHEN COHESION AND SOCIAL CAPITAL 5. ACHIEVE SOCIAL AND HUMAN DEVELOPMENT IN HARMONY WITH NATURE 6. ENHANCE THE RESPONSIVE CAPACITY OF THE GOVERNMENT	Poverty	General poverty index, number of families under the extreme poverty line, access to basic services (potable water, sanitation, electric power services).
	Health	Infant mortality, maternal mortality, life expectancy, total fertility rate, intoxication rates from pollutants, respiratory diseases.
	Education	Rate of children in school as a percentage of total population, gross rate of primary school enrolment, adult literacy rate, school expectancy.
	Equity	GINI index, relation between average salaries for men and women, women for each 200 men in the workplace, welfare of indigenous population income versus other groups.
	Urbanisation Regional Development	Net migration rate by place of residence, net migration rate by place of birth, population density.
	<b>Environmental Sustainability</b> 1. HALT AND REVERSE POLLUTION OF SYSTEMS THAT SUPPORT LIFE 2. HALT AND REVERSE LOSS OF NATURAL CAPITAL 3. PRESERVE ECOSYSTEMS AND BIODIVERSITY 4. PROMOTE SUSTAINABLE DEVELOPMENT 5. NATIONAL CAMPAIGN FOR FORESTS AND WATER 6. NATIONAL CAMPAIGN FOR A CLEAN MEXICO	Biodiversity
Environmental Quality		Biochemical oxygen demand in water, air emissions (GHGs, SO <sub>x</sub> , NO <sub>x</sub> , ozone, particulate matter), industrial and municipal solid waste generation, expenditures in waste management, expenditures in hazardous waste, solid waste recycling and reuse, land affected by agricultural pesticide use, fertilizer use, deforestation, soil contaminated by hazardous waste.
Natural Resources		Annual extraction of subterranean water, per-capita domestic water consumption, maximum sustainable yield of fisheries, land use change, percentage of protected forest.

Sources: Developed by the author on the basis of Bisset, et. al., 2003 and INEGI-SEMARNAT, 1999.

## 6.2 Preliminary Impact Assessment

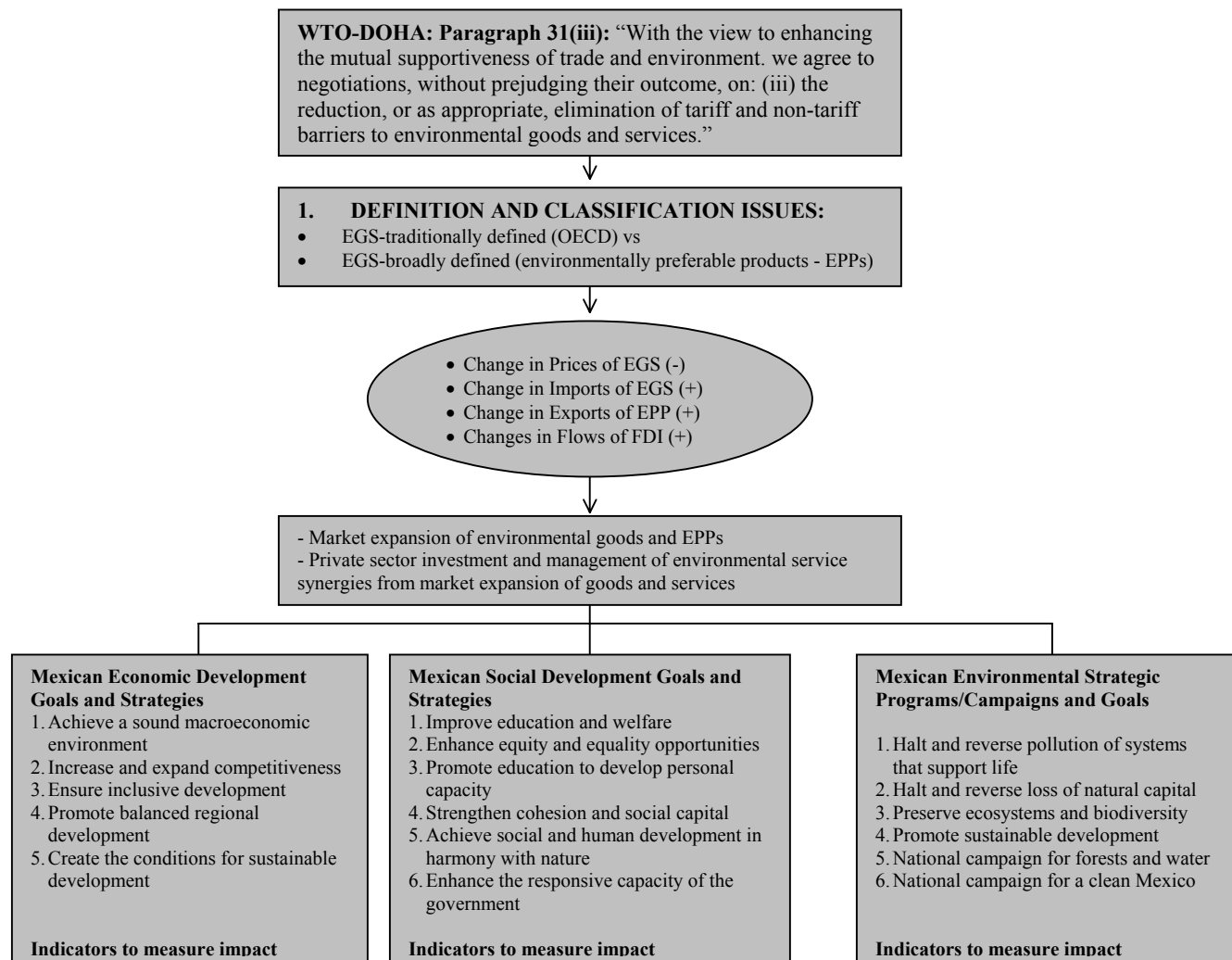
As noted above, a comprehensive sustainability impact analysis for each of the EGS included in the traditional and broad definition/classification approaches goes beyond the scope of the current study. However, for purposes of policy guidance, it is possible to undertake a Preliminary Impact Assessment based on Mexico's own goals and strategies. Such a preliminary assessment comprises two steps:

- i. A *causal chain analysis* that provides the context or setting for the potential impact analysis by showing the logical cause-and-effect interplay among various variables that lead to different sustainable development outcomes.
- ii. A *potential impact analysis* that actually estimates the number of Mexican sustainable development goals and strategies that are impacted by liberalisation under both a ‘traditional’ and ‘broad’ EGS definitions and the likely direction of such impacts.

### 6.2.1 Causal Chain Analysis

Diagram 6.1 below includes the main components of a causal chain analysis (CCA) for Mexico. (For a detailed explanation of the various trade measures and scenarios, refer to Section 6.1 on “Screening and Scoping”). The *trade policy change* under consideration is Paragraph 31(iii) of the Doha Ministerial Declaration, which instructs WTO Members to reduce tariff and non-tariff trade barriers to EGS. The *direct goal* of that mandate is to enhance the mutual supportiveness of trade and environment and the likely *indirect goal* is to reaffirm the WTO’s commitment to sustainable development, pursuant to Paragraph 6 of the Doha Declaration. By lowering prices of environmental goods and services through the reduction/elimination of tariff and non-tariff barriers, WTO Members seek both to enhance environmental quality in their countries and to create new business opportunities (market expansion in the EGS sector).

**Diagram 6.1: Causal Chain Analysis Applied to Mexico under Two EGS Definitions**



Under the traditional (OECD) definition/classification of EGS, a reduction in tariffs will increase exports of countries with a comparative advantage in the production of environmental quality support goods and the provision of high-skill-support services (mainly developed countries) and increase imports for countries without such a comparative advantage (mainly developing countries). In this regard, gains for developing countries will be associated with the reduction of compliance cost with environmental regulations and other environmental quality initiatives. Opportunities to realise *economies of scale* and the effects of *increased competition* on efficiency can be expected to lead to welfare gains. Advanced know-how and environmental technologies will become more readily available, since trade in services and capital goods is an effective channel for transferring technology. Government institutions at the federal, state and local levels in charge of environmental policy will likely have a *wider range of options* (and prices) of goods and services to choose from in order to meet their policy goals with potential *efficiency gains* in their budgets. Likewise, private companies and individuals will be faced with more options and lower prices in order to comply with environmental regulations. Private participation in the provision of certain services will be needed and reinforced by the liberalisation process. Of course, this price differential rests on the assumption that EGS are liberalised first.

In sum, the net benefit for developing countries from the EQSGS liberalisation under the traditional definition will centre on the environmental dimension of sustainable development. ***A broadly defined list of EGS, on the other hand, will permit the inclusion of goods and services of export interest to developing countries.*** For instance, some developing countries have a comparative advantage in the production and provision of goods and services derived from sustainable agriculture and fisheries, sustainable forest management, biodiversity and sustainable tourism. In addition to the typical environmental and potential social gains from the traditionally defined list, ***the broadly defined approach that considers EPPs should enhance benefits to the economic and social dimensions of sustainable development.*** Markets for EPPs should expand with direct, positive impacts on equity, regional development, poverty and employment, among other variables.

#### 6.2.2 Implications for Mexico

Chapters 3, 4 and 5 addressed the market and trade structure for the Mexican EGS sector. Mexico is a net importer of environmental equipment and high-skill services, most of which come from North America (notably the US) under NAFTA, a free trade agreement that contains specific schedules for the reduction of tariffs and expansion of market access for most goods and services. However, in the multilateral context, Mexico's average tariff levels for environmental goods were bound at 25.2 percent at the end of the Uruguay Round. The average applied most favoured nation (MFN) tariff is 8.9 percent (OECD, 2001). In this regard, there is a potential for lowering prices of environmental goods coming from non-NAFTA countries. The discussion in Chapter 5 also emphasised the fact that the most demanded categories of environmental goods are water equipment and chemicals, air pollution control and waste management equipment under Group A (Pollution Management), and resource recovery under Group C (Resource Management). Hence, gains from potential price reduction and increased competition are likely to occur in these segments of the market.

The findings from Chapter 5 indicate that the environmental services sector represents a small fraction of Mexico's total trade in EGS (about 12 and 20 percent of Canadian and US imports respectively). Moreover, Mexico did not make commitments under this sector during the Uruguay Round. Hence, the potential gains from liberalisation in the EGS sector will be shaped by commitments undertaken at the end of the Doha Round.

##### a) Traditional Definition/Classification for EGS

The efficiency gains from trade liberalisation under a traditional definition/classification of EGS – environmental quality support goods and services (EQSGS) – will not be homogenous across and within categories of environmental goods and services.

Under Group A of the OECD classification (Pollution Control), the net benefits from price reductions will depend in part on the regulations in place. For example, PROAIRE, the air pollution control programme for Mexico City and its metropolitan area, considers a wide range of policies, including technology-based standards

(emission scrubbers for fixed sources and catalytic converters for mobile sources), as well as emissions-based standards. In the former case, compliance cost reduction will depend on the consideration of the specific technologies in the list of environmental goods, while compliance with emissions standards will benefit from a wider range of available technologies, as well as from price reductions.

With regard to Group B (Cleaner Technologies and Products), a reduction in prices of cleaner/efficient technologies should in general have a positive impact on the production process of different sectors of the economy, enhancing their competitiveness in international markets. However, definition challenges in this case are significant since the terms ‘efficient’ and ‘cleaner’ are relative and dynamic. ***Hence, a potential list of goods or schedules for market access commitments under this category will need to take technological progress into consideration.***

***As for services, benefits will depend on the market structure and opportunities for private participation.*** As an illustration, in the case of PROAIRE, vehicle emission check-up services can be contracted out to the private sector, but the regulatory framework for private contracts and concessions (including pricing and length of participation) is not homogeneous across local and state governments. In this regard, some municipal governments might have restrictions for market access and national treatment, limiting business opportunities for foreign suppliers and providers of services.

Gains from price reductions in Group C (Resource Management) will depend on the market structure and the availability of opportunities for private sector participation. In most cases, services considered under this Group are still provided by the public sector. For some services, such as water, sanitation and electricity, it is more efficient to have a single provider for reasons of economies of scale. Water and sanitation services in Mexico are provided by the National Water Commission (a government body) on economic, social and environmental grounds. The likely gains from trade liberalisation in this Group will be related to social goals, such as access to basic services as efficiency gains in certain sub-sectors opened to private participation (e.g. water services operation at the local level in urban areas) will divert public resources needed to finance potable water and sanitation projects in isolated communities.

***For the water, sanitation and electricity sectors, budget issues would appear to be more significant than price efficiency.*** The application of subsidies and cross-subsidies in the water and energy sectors is still common practice and has placed a significant burden on the federal budget. For instance, water and sanitation services account for more than 80 percent of the federal government’s environmental budget. On the other hand, the enormous investment needed in the electricity network to keep up with demand for the next 30 years will have to rely on finances other than public sources. For this reason, both sectors have undertaken private participation initiatives in different areas in the last few years.

***Trade liberalisation will not necessarily generate a change in FDI flows.*** International experience has demonstrated that commitments in trade and investment agreements are less significant than other variables, such as the business environment (including predictable and transparent institutional frameworks) and rates of return on FDI in other countries (World Bank, 2003). Investors from one country will allocate their resources in countries in which the ratio return/risk is the highest, regardless of whether their home country has contracted free trade agreements with the destination countries. Transparent and solid institutional frameworks tend to improve the business environment and reduce economic volatility.

***There are potential export opportunities in Latin American markets for EQSGS.*** Despite the fact that trade flows show a positive trade balance in areas such as waste management equipment, remediation industrial services and water utilities, under a multilateral liberalisation process, Mexican companies would have to compete with companies from developed countries that might have a greater comparative advantage.

Other economic and social variables are expected to face moderate or low impacts from trade liberalisation of the EQSGS sector under the traditional definition/classification approach. Chapter 4 presented the approximate size of the market, number of companies and labour force, which is small relative to other sectors of the

economy.<sup>45</sup> In theory, liberalisation will increase competition and generate efficiency gains in the EQSGS sector. Some companies might go out of business with the associated impacts on the labour force, at least in the short term. These negative impacts will be higher in sectors where services traditionally provided by the government (public services) are opened to private participation. Privatisation processes undertaken in Mexico during the last three decades in such sectors as financial services and telecommunications have resulted in the downsizing of companies. It is generally perceived that government-run companies providing energy and water-related services, to mention just two, are overstaffed. It is, thus, likely that the privatisation of some environmental services will entail a reduction in the number of workers. Aside from the impacts of privatisation, the labour force will be affected by increased foreign competition. In the long run, however, the market should reallocate labour to sectors with the highest rate of return. Nevertheless, provisions to allow domestic industry (especially SMEs) to adapt might be considered (see the section on “Enhancing and Flanking Measures” below).

### *b) Broad Definition*

Under a broad definition/classification approach for the EGS sector, the potential for positive impacts on the economic and social dimensions of sustainable development increases substantially. As discussed in Chapter 3, a likely approach to broadening the definition/classification would be to amend the OECD proposal in order to consider goods and services of trade interest to Mexico, such as EPPs derived from sustainable agriculture and fisheries, forestry and tourism. On the other hand, Chapter 5 addressed both the export potential and associated economic, social and environmental benefits from the expansion of EPP markets. Data from field studies<sup>46</sup> suggests that the expansion of these markets should bring significant sustainable development benefits since they are, in most cases, labour-intensive and their production/provision processes take place in low-income areas, including indigenous communities.

Moreover, the trade flows presented in Tables 5.1 and 5.2 of Chapter 5, and the figures presented in the case studies in the same chapter, indicate that Mexico is already a net exporter in these sectors. Hence, trade liberalisation at the multilateral level has the potential to increase market penetration of the sectors in other countries.

### *6.2.3 Challenges in Achieving EPP Trade Liberalisation Benefits*

Despite the considerable promise for Mexican EPPs to benefit from trade liberalisation, there are two major challenges to the full realisation of this potential.

The *first* is related to definitional aspects. In most cases, the only means to identify environmentally preferable products at the border is through labelling and certification schemes. While WTO law considers disciplines to address such schemes,<sup>47</sup> developing countries, in particular, tend to consider labelling and certification as sensitive issues in the context of market access. In Mexico, however, the market for labelling and certification schemes has grown exponentially over the last decade and there are initiatives underway to create disciplines for their regulation at the national level. In addition, Mexico is an active participant in various initiatives for mutual recognition, equivalency and international standardisation of labelling and certification, including for environmental purposes. A complementary study recently completed for the CEC addresses in detail the market potential and institutional feasibility for labelling and certification schemes in Mexico. The section on “Flanking/Enhancing Measures” below addresses some labelling policy issues that need more attention.

The *second* challenge regarding market expansion for Mexican EPPs is related to non-tariff barriers to trade (NTBs). Given that the current international tariff structure does not distinguish between EPPs – such as

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<sup>45</sup> Table 9 of Chapter 4 shows that the personnel occupied in the Mexican EGS sector increased from 589, 650 workers in 1993 to 661, 638 in 1998. This figure might highly overestimate the total size of the market and number of workers due to the production of multiple-use goods.

<sup>46</sup> Mexican national statistics do not keep track of EPP sectors. However, Chapter 5 presents the finding from field studies on selected EPP sectors.

<sup>47</sup> Notably the WTO Agreements on Technical Barriers to Trade (TBT) and on Sanitary and Phytosanitary Measures (SPS).

sustainable agriculture, fisheries and forest products – and their non-sustainable counterparts, both goods usually face the same tariff and non-tariff barriers to trade. While tariff barriers in the main destination markets are relatively low, some NTBs are significant. Agricultural subsidies and unilaterally designed labelling and certification schemes (including both environmental requirements and sanitary and phytosanitary measures) constitute the most significant NTBs for Mexican EPPs in the US and European markets. Although the potential impact of those measures on Mexican EPP exports has not been estimated, it is expected to be quite significant. For further details on this issue, see the Section 6.3 on “Enhancing and Flanking Measures”.

#### 6.2.4 Potential Impact Analysis

The Potential Impact Analysis estimates the likely direction of impacts for each category of EGS under the traditional and the broad definition/classification approaches in relation to each sustainable development goal and strategy (economic, social and environmental) considered in the Mexican National Development Plan 2001–2006 (Plan Nacional de Desarrollo (PND)) and its respective National Environment and Natural Resources Programme 2001–2006 (Programa Nacional de Medio Ambiente y Recursos Naturales (PNMARN)).<sup>48</sup> These goals and strategies are presented in Tables 2.1 to 2.3.

The summary of a comprehensive Potential Impact Analysis of two comparable definition/classification approaches for the liberalisation of the EGS sector is presented in Tables 6.2 to 6.5. A comprehensive sustainability impact analysis for each of the goods and services included in the traditional and broad definition/classification approaches to EGS is beyond the scope of the current study. Assessing the actual sustainability impacts would require extensive quantitative modelling and significant quality data requirements. In addition, most quantitative methodologies in this area are still being developed and they are not robust enough to generate consensus for their use, neither by the international trade community nor by national environmental authorities in most developing countries.

The economic dimension of sustainable development includes five goals and 36 strategies; the social dimension embraces six goals and 40 strategies; and the environmental dimension has six strategic programmes/campaigns and 21 goals. The percentage figures presented in Tables 6.2 to 6.5 are derived by dividing the potential number of goals and strategies, which might be impacted by the policy change (tariff reduction/elimination of EGS and EPPs) into the total number of goals and strategies included in Tables 2.1 to 2.3 for the three dimensions of sustainable development.

For example, a liberalisation/tariff reduction of category 1 (air pollution control) of Group A (Pollution Management) has the potential to impact positively three of the PND economic development goals (60 percent of total), three of the PND social development goals (50 percent of the total) and two of the PNMARN environmental strategic programmes (33 percent of the total). Then, the total number of goals/strategic programmes with a potential positive impact is added up and divided into the total number of economic, social and environmental goals/strategic programmes considered in the PND and PNMARN to obtain the potential sustainable development impact (41 percent of the total). This exercise is undertaken for each of categories included in the three groups of the OECD classification list in relation to all the goals and strategies of the PND and PNMARN, and the positive percentage results are presented in Tables 6.2 and 6.3 below.

Annex VI sets out the impacts of each goal and strategy of the PND and PNMARN for each category of the three OECD classification groups.

Once the definition/classification approach is broadened, the exercise is undertaken again only for the Resource Management Group, since this is the only group where definition changes have been proposed. The results from this latter exercise are presented in Table 6.4.

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<sup>48</sup> This is a common practice for the Mexican government planning process since the strategies and goals from each government body and programme at the federal level need to be related to the goals and strategies of the PND.

Then, the weighted average of positive potential impacts is calculated for each of the dimensions of sustainable development (also presented in Tables 6.2 to 6.4). The impact potential (IP) index is derived by adding the weighted average of likely positive impacts from the trade policy change in relation to the total goals and strategies of the PND and PNMARN for each of the dimensions of sustainable development (see Tables 2.1 to 2.3). The sum of potential impacts from those dimensions equals the sustainable development impact potential (SDIP).

$$\text{SDIP} = \text{EIP} + \text{SIP} + \text{EVIP}$$

Where,

IP = Impact Potential

SD = Sustainable Development

E = Economic

S = Social

EV = Environmental

Finally, the net gain from the definition/classification approach change is calculated by subtracting the weighted averages of potential impacts for each dimension of sustainable development under the traditional definition from the same figures under the broad definition (Table 6.5). This exercise is undertaken both for the total list of EGS (weighted average of Groups A, B and C) and again in detail for Group C (Resource Management) – which is the category with maximum scope for including goods and services of export interest to Mexico (particularly EPPs) – in order to assess the potential gains from changing the definitional approach in this particular group.

**Table 6.2: Impact Potential of EQSGS Liberalisation in Relation to Mexico's Sustainable Development Goals**

EGS	Sustainable Development IP %	Economic IP %	Social IP %	Environmental IP %
<b>A. POLLUTION MANAGEMENT GROUP</b>				
1 Air Pollution Control	41	60	50	33
2. Waste Water Management	64	60	50	66
3. Waste Management	47	40	50	50
4. Remediation and Clean-up of Soil, Surface Water and Ground Water	64	60	67	67
5. Noise and Vibration Abatement	29	20	33	33
6. Environmental Monitoring Analysis and Assessment	64	60	67	67
7. Environmental R&D	70	60	50	100
8. Environmental Contracting and Engineering	60	80	50	50
9. Education, Training, Information	71	50	50	83
10. Construction and Installation	76	80	67	67
<b>TOTAL AVERAGE</b>	<b>58.5</b>	<b>57</b>	<b>53.7</b>	<b>61.6</b>
<b>B. CLEANER TECHNOLOGIES AND PRODUCTS</b>				
1. Cleaner/Resource-efficient Technologies and Processes	67	60	50	83
2. Cleaner/Resource-efficient Products	67	60	50	83
<b>TOTAL AVERAGE</b>	<b>67</b>	<b>60</b>	<b>50</b>	<b>83</b>
<b>C. RESOURCE MANAGEMENT</b>				
1. Indoor Air Pollution Control	29	0	50	33
2. Water Supply	76	100	67	67
3. Recycled Materials	65	80	33	83
4. Renewable Energy Plant	65	100	50	50
5. Heat/energy Saving and Management	53	60	50	50
6. Sustainable Agriculture and Fisheries	65	80	50	67
7. Sustainable Forestry	71	80	50	83
8. Natural Risk Management	70	60	50	83
9. Eco-tourism	76	80	100	83
<b>TOTAL AVERAGE</b>	<b>63</b>	<b>71</b>	<b>56</b>	<b>67</b>
<b>AVERAGE SDIP-GOALS FROM EGS (Groups A+B+C)</b>	<b>63</b>	<b>63</b>	<b>53</b>	<b>70</b>

*Source:* Developed by the author with data from the OECD, 1999a; Mexico's National Development Plan 2001-2006 and Mexico's National Environment and Natural Resources Programme 2001-2006.

**Table 6.3: Impact Potential of EQSGS Liberalisation in Relation to Mexico's Sustainable Development Strategies**

EGS	Sustainable Development Impact Potential (SDIP) %	Economic Impact Potential %	Social Impact Potential %	Environmental Impact Potential %
<b>A. POLLUTION MANAGEMENT GROUP</b>				
1. Air Pollution Control	10	5	8	14
2. Waste Water Management	17	8	13	38
3. Waste Management	11	6	8	33
4. Remediation and Clean-up of Soil, Surface Water and Ground Water	14	6	15	29
5. Noise and Vibration Abatement	4	0	5	10
6. Environmental Monitoring Analysis and Assessment	16	14	13	29
7. Environmental R&D	15	6	13	40
8. Environmental Contracting & Engineering	16	14	13	24
9. Education, Training, Information	27	11	20	60
10. Construction and Installation	12	11	10	19
TOTAL AVERAGE	14	8	12	30
<b>B. CLEANER TECHNOLOGIES AND PRODUCTS</b>				
1. Cleaner/Resource-efficient Technologies and Processes	23	14	18	43
2. Cleaner/Resource-efficient Products	21	11	15	43
TOTAL AVERAGE	22	12.5	16.5	43
<b>C. RESOURCE MANAGEMENT</b>				
1. Indoor Air Pollution Control	8	0	10	19
2. Water Supply	12	11	10	19
3. Recycled Materials	12	6	5	43
4. Renewable Energy Plant	14	17	10	19
5. Heat/energy Saving & Management	18	14	13	29
6. Sustainable Agriculture & Fisheries	13	8	5	38
7. Sustainable Forestry	14	8	5	43
8. Natural Risk Management	14	11	15	43
9. Eco-tourism	16	31	25	60
TOTAL AVERAGE	13	12	11	35
<b>AVERAGE SDIP-STRATEGIES FROM EGS (Groups A+B+C)</b>	<b>17</b>	<b>11</b>	<b>13</b>	<b>36</b>

Sources: Developed by the author with data from the OECD, 1999a; Mexico's National Development Plan 2001-2006 and Mexico's National Environment and Natural Resources Programme 2001-2006.

**Table 6.4: Impact Potential in the Resource Management Group (C) under a Broader Definition/Classification of EGS (EQSGS+EPPs) in Relation to Mexico's Sustainable Development Strategies and Goals<sup>49</sup>**

EGS	Sustainable Development Impact Potential (SDIP)	Economic Impact Potential	Social Impact Potential	Environmental Impact Potential
<b>SUSTAINABLE DEVELOPMENT STRATEGIES</b>				
<b>C. RESOURCE MANAGEMENT</b>				
	%	%	%	%
1. Indoor Air Pollution Control	8	0	10	19
2. Water Supply and <i>Sustainable Water Management</i>	40	28	28	78
3. Recycled Materials	12	6	5	43
4. Renewable Energy Plant	14	17	10	19
5. Heat/energy Saving & Management	18	14	13	29
6. <i>Sustainable Agriculture and Fisheries</i>	40	33	38	62
7. <i>Sustainable Forestry</i>	40	36	33	67
8. <i>Sustainable Biodiversity and Landscape Management</i>	41	33	40	62
9. Natural Risk Management	14	11	15	43
10. <i>Sustainable Tourism</i>	24	30	33	67
TOTAL AVERAGE	25	21	23	49
TOTAL SDIP FROM EGS+EPP	20	14	17	41
<b>SUSTAINABLE DEVELOPMENT GOALS</b>				
<b>C. RESOURCE MANAGEMENT GOALS</b>				
	%	%	%	%
1. Indoor Air Pollution Control	29	0	50	33
2. Water Supply and <i>Sustainable Water Management</i>	80	100	100	83
3. Recycled Materials	65	80	33	83
4. Renewable Energy Plant	65	100	50	50
5. Heat/energy Saving and Management	53	60	50	50
6. <i>Sustainable Agriculture &amp; Fisheries</i>	82	80	100	67
7. <i>Sustainable Forestry</i>	88	80	100	83
8. <i>Sustainable Biodiversity and Landscape Management</i>	88	80	100	83
9. Natural Risk Management	70	60	50	83
10. <i>Sustainable Tourism</i>	76	80	100	83
TOTAL AVERAGE	70	72	73	70
TOTAL SDIP FROM EGS+EPPs	65	63	59	71

Sources: Developed by the author with data from the OECD, 1999a; Mexico's National Development Plan 2001-2006 and Mexico's National Environment and Natural Resources Programme 2001-2006.

<sup>49</sup> Amendment proposals from the OECD are in bolded italics. See Chapter 3 for more information on this proposal.

**Table 6.5: Gains in Sustainable Development Impact Potential (SDIP)  
from a Adopting a Broader Definition of EGS**

Sustainable Development Goal and Strategies	EGS (Traditionally defined Impact Potential)	EGS+EPP (Broadly defined Impact Potential)	EPP-EGS (Deferential)
<b>TOTAL LIST OF EGS</b>	%	%	%
Total Sustainable Development Goals (Economic + Social + Environmental)	62.94	65.03	3
Total Economic Goals	62.70	63.00	0
Total Social Goals	53.09	59.00	11
Total Environmental Goals	70.39	71.47	2
Total Sustainable Development Strategies (Economic + Social + Environmental)	16.55	20.43	23
Total Economic Strategies	10.79	13.80	28
Total Social Strategies	13.06	16.93	30
Total Environmental Strategies	35.79	40.50	13
<b>B. RESOURCE MANAGEMENT GROUP</b>			
Total Sustainable Development Goals (Economic + Social + Environmental)	63.33	69.60	10
Total Economic Goals	71.11	72.00	1
Total Social Goals	55.56	73.30	32
Total Environmental Goals	66.56	69.80	5
Total Sustainable Development Strategies (Economic + Social + Environmental)	13.44	25.1	87
Total Economic Strategies	11.78	20.8	77
Total Social Strategies	10.89	22.5	107
Total Environmental Strategies	34.78	48.9	41

Sources: Developed by the author with data from the OECD, 1999a; Mexico's National Development Plan 2001-2006 and Mexico's National Environment and Natural Resources Programme 2001-2006.

### 6.2.5 Findings from the Potential Impact Analysis

Tables 6.2 and 6.3 present the results from the Potential Impact Analysis (PIA) given the traditional definition/classification approach of EGS. The relative impact potential was estimated for each of the three groups in the OECD classification list (Pollution Management, Cleaner Technologies and Products and Resource Management). The tables indicate that, on average, EGS liberalisation under the OECD definition could have a potential positive impact on 63 percent of Mexico's total sustainable development goals (Table 6.2) and 17 percent of its total sustainable development strategies (Table 6.3). Those figures are composed of a 63 percent potential impact on the economic goals, a 53 percent potential impact on the social goals and a 70 percent potential impact on the environmental goals. The potential impact on the economic, social and environmental strategies was, respectively, 11, 13 and 36 percent.

Under the traditional definition/classification approach, the average potential impacts are fairly balanced across the groups with the exception of Group B (Cleaner Technologies and Products), in which the policy change could imply a positive impact on 83 percent of the goals and 43 percent of the strategies.

Liberalisation, under the traditional definition of EGS that includes only EQSGS, still produces sustainable development benefits in the form of positive impacts on Mexico's sustainable development goals and strategies. Liberalisation of Group B (Cleaner Technologies and Products) in EQSGS has a slightly larger overall sustainable development impact (67 percent) on Mexico's sustainable development *goals* followed by Group C (Resource Management) with 63 percent and Group A (Pollution Management) with 58.5 percent. For sustainable development *goals*, impacts seem to vary widely with regard to economic, social and environmental

components within each Group. Thus, the average economic, social and environmental impacts, respectively, for Group A are 57, 53.7 and 61.6 percent, for Group B: 60, 50 and 83 percent and Group C: 71, 56 and 67 percent. Thus, it is only in Group A and particularly Group B that the average environmental impact is greater relative to economic and social impacts. On average, however, the impact on the environmental dimension is the highest in Groups B, while economic benefits are highest with regard to Group C. The impact on the social dimension is relatively lower in all three Groups, but does better within Group C than under Groups A or B.

With regard to Mexico's sustainable development *strategies*, liberalisation had a greater overall sustainable impact relative within Group B (22 percent) followed by Groups A (14 percent) and C (13 percent). The average economic, social and environmental impacts for Group A are 8, 12 and 30 percent, for Group B: 12.5, 16.5 and 43 percent and for Group C: 12, 11 and 35 percent respectively. Thus, in terms of Mexico's *strategies*, the environment fares better than the social and economic dimensions in all three categories, but particularly in Group B. In Group C, it is interesting to note that only 11 percent of social strategies are impacted by EQSGS liberalisation, as compared to 16.5 percent of strategies for Group B. Thus, for Group C, it can be said that EQSGS liberalisation impacts a greater percentage of social goals as compared to social strategies.

By applying the broader approach, as proposed in Chapter 3, in order to include EPPs of export interest to Mexico, the PIA was undertaken one more time only for Group C (Resource Management), since it is the only OECD group where amendments are recommended. The impacts from changing the definition/classification approach are presented in Table 6.4. The PIA shows that, by broadening the OECD approach to include EPPs of trade interest to Mexico, the impact potential on the country's sustainable development strategies and goals increases 23 and 3 percent respectively. This is most evident in Group C, where the impact potential increases by 10 percent for sustainable development goals and 87 percent for sustainable development strategies. Overall, the impact of broadening the EGS definition was greatest with regard to the social goals (11 percent) and social strategies (30 percent). Interestingly, in the economic dimension the impact was high in terms of strategies (28 percent), but non-existent with regard to the goals (0 percent). The environmental impacts amounted to 13 percent in terms of strategies and 2 percent in terms of goals. Thus, with regard to Mexico's *sustainable development goals*, broadening the EGS definitions had the most impact on the social followed by the environmental dimension, but none on the economic dimension. On the other hand, with regard to the *sustainable development strategies*, a broader definition had the greatest impact again on the social dimension followed by the economic and, lastly, the environmental dimension.

Within the specific category of the Resource Management Group, this trend is magnified with the impact on *social goals* being greatest (32 percent) followed by environmental (5 percent) and economic (1 percent) goals. The wide gap between the impacts on social goals, on the one hand, and the economic and environmental goals, on the other, is thus quite significant. The divergence is less marked in terms of *strategies*, which experiences the greatest impact on the social (107 percent) and economic (77 percent) strategies followed by environmental (41 percent).

The specific goals and strategies potentially affected by the change are included in Annex VI. Table 6.4 shows that, under the broad definition, the policy change could more than double the impact potential on Mexico's sustainable development strategies, and make a considerable contribution to realising its sustainable development goals. These gains are explained by significant increases in the impact potential for the social and economic dimensions of sustainable development (107 percent for the social dimension and 77 percent for the economic dimension).

Finally, Table 6.5 summarises the potential sustainable development impact gains from broadening the definition of EGS. The figures in this Table do not look as impressive as those presented in Table 6.4 because the gains from the Resource Management Group have been weighted with the IP of the other two groups that remain

unaffected by the change in definition.<sup>50</sup> Nevertheless, the weighted IP gains from adopting a broader definition for the EGS sector account for three percent in the case of Mexico's sustainable development goals and 23 percent in the case of its sustainable development strategies. While gains are concentrated in the social and economic dimensions of sustainable development, the environmental dimension would also benefit.

### 6.3 Enhancing and Flanking Measures

While the overall sustainable development gains of a broader EGS seem quite clear, there are, however, challenges associated with turning such impact potential into actual gains. In this regard, enhancing and flanking measures will play a major role. Some of the measures could include the following suggestions.

***The use of flexible and integrated instruments for environmental protection in a strengthened institutional setting.*** To enhance market expansion achieved through trade liberalisation, policy makers should favour flexible instruments and integrated solutions for environmental protection. The net benefits from the reduction/elimination of tariff and non-tariff barriers to environmental compliance costs will depend on the regulations in place. The more regulations rely on integrated solutions to environmental problems (including measures at all stages of the life cycle of products) and flexible approaches for compliance (e.g. market instruments and emissions-based standards, as opposed to command and control and technology-based standards), the larger the expansion of the traditionally defined EGS market (including the total number and diversity of products and services). More competitors will enter the market and the net welfare gains are expected to be larger.

Simply designing integrated and flexible environmental policy instruments will not be sufficient to foster market expansion in EGS. Instruments need to be implemented and compliance must be assured. In order to estimate the demand for EGS in the market place, a typical consumer of those products and services will assess both the relative price and the enforcement capacity of the environmental authority. The risk of being sanctioned for non-compliance with a given environmental regulation will be a key component in the demand of EGS associated with that regulation. While enforcement capacity in Mexico varies depending on, *inter alia*, the media/natural resource, the specific policy instrument and financial capacity, the liberalisation strategy of environmental goods and services should take this variable into consideration. In general terms, the stronger the institutional environmental capacity, the larger the market expansion of the EGS sector as a result of trade liberalisation.

***The strengthening of regulatory capacity to allow for environmental enforcement and private participation in the EGS sector.*** In most cases, particularly on the services side, market expansion will depend on business opportunities for private parties. Yet, privatisation should be addressed carefully. Within the structural reform process, the Mexican government has undertaken major initiatives for the privatisation and deregulation of different sectors, including telecommunications, rail transportation, ports, financial services, petrochemical and agro-industries, among others. While the experiences vary from sector-to-sector, it is important to stress that in some cases, potential welfare gains have been limited due to regulatory failures leading to market concentration and significant distribution effects.

Within the EGS sector, the regulatory framework for private participation is not homogeneous and, in some cases, lacks transparency. Comprehensive environmental and natural resource management regulations (e.g. LEGEPA) fail to consider disciplines for private participation while implementing different regulatory instruments. Environmental regulations affecting private participation are varied and can be based either on specific environmental media or resources, particular regulatory instruments, or, more generally, economic regulations related to the private sector and foreign investment. While sectoral regulations, such as the Water Law and the Law for the Prevention and Integrated Management of Waste, include provisions for private participation, others do not even address this issue. The establishment of a general regulatory framework for

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<sup>50</sup> Since Groups A and B from the OECD definition have not been amended, their sustainable development impact potential remains unchanged. In this regard, the overall gain (A+B+C) from the change in the definitional approach comes from Group C. This is:  $\Delta SDIP = \Delta A + \Delta B + \Delta C$ , where  $\Delta A = 0$ ,  $\Delta B = 0$  and  $\Delta C > 1$ .

private participation in the EGS sector is challenging,<sup>51</sup> but sound regulations are necessary to ensure that liberalisation leads to positive sustainable development impacts in Mexico.

***The adoption of WTO-compatible limitations and safeguards in the liberalisation commitments, particularly in environmental services.*** Commitment schedules for environmental services liberalisation under the GATS need to consider the particular characteristics of the Mexican regulatory framework, including the competence of local authorities to deliver certain environmental services categories, such as water operation, sewage services, solid waste management and ambient air pollution. The private participation schemes applied by local authorities are not always based on a strict economic rationale, but on the achievement of social development goals. In this respect, it is important to stress that GATS disciplines recognise the right of Members to regulate services supply and place limitations on national treatment in their schedules of commitments. Other useful clarifications for water, sanitation and other public services might include the cross-subsidisation, price regulation and universal service provision to address the needs of vulnerable groups.

***The adjustment of EGS lists/liberalisation commitments to match national sustainable development goals.*** The selection of EGS to be included in the lists of goods or commitment schedules should reflect national priorities and particular circumstances. For instance, the PIA presented in the previous section of this study showed higher impact potential ratios for some categories than for others in terms of Mexico's sustainable development goals and strategies. Figures from the PIA were moderately higher for knowledge-based<sup>52</sup> and infrastructure-based<sup>53</sup> traditionally defined EGS, as well as cleaner technologies and products, than for raw equipment (e.g. air pollution control, waste management and noise vibration equipment). As for EPPs, gains from broadening the definition/classification in social and economic variables were evident. Policy makers could choose to favour these EGS/EPPs over others when proposing lists/commitment schedules for negotiation. On the other hand, the lists and commitment schedules for EGS under Group B of the OECD proposal should also capture both the relative as well as dynamic nature of cleaner technologies and products. In Mexico, for example, energy efficiency standards are regularly reviewed in light of technological progress.

***The sequencing of the liberalisation process.*** As in other sectors responsible for the provision of public goods, lack of sound regulatory frameworks for private participation in EGS might generate diversion from public to private interest and regulatory capture, in which regulations would serve the interests of the industry rather than the interests of consumers or the environment. As an illustration, in the water sector, increasing private participation in the absence of sound regulations might lead to higher average water tariffs for all users and to investment in infrastructure development only in areas with over-the-cost rates of return (mainly urban areas). Some isolated and low-income communities might be left out of the overall welfare gains. In order to avoid/reduce the negative impacts on vulnerable income groups, sectors and media/resources, the liberalisation process should be sequenced by initially liberalising only services where sound regulatory frameworks exist and allowing the rule making process to strengthen regulatory frameworks for others sectors, which can be liberalised at a later stage.

***The use of complementary measures to foster FDI.*** One of the main drivers for private participation initiatives in Mexico in recent years, especially in the water and energy sectors, is the need to reduce the increasing stress on government funds. For example, the National Water Commission estimates that to meet the targets set out in the Millennium Development Goals and the WSSD Plan of Implementation for water and sanitation, it will need to more than double the current water sector budget, which already accounts for over 80 percent of the total environmental budget. While international trade liberalisation might be one of the drivers for the FDI needed to finance the expansion of the Mexican water sector, it is not the only one and, therefore, should be only one of the components within a comprehensive strategy for FDI promotion. Other key components include a solid business environment based on predictable and transparent institutional frameworks and attractive returns to investment

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<sup>51</sup> This is due to the fact that some environmental regulatory instruments are still being developed and responsibility for their implementation are disseminated across government levels, including the central, state and local authorities and, in some cases, regional commissions.

<sup>52</sup> i.e. environmental R&D, contracting and engineering and environmental education.

<sup>53</sup> i.e. water supply, water management, construction and installation.

based on correct pricing for services (e.g. price schemes that, at least, recover the cost of production and provision of goods and services).

***The design of policy instruments to address the impacts on labour from liberalisation of the EGS sector.*** The impacts on labour from liberalisation of the traditionally defined EGS sector are imprecise. For environmental goods, the likely impact will be pressure on domestic companies from foreign competition and corresponding impacts on the labour force. However, these impacts might not be significant overall since, according to the estimations presented in Table 4.6 (Chapter 4), the total labour force in that segment is relatively small.<sup>54</sup>

Official statistics fail to consider labour factors (aside from other components) in the services sector. However, as the total number of companies and expenditures is small relative to other sectors of the economy, the impact of liberalisation on labour in domestic environmental services firms is also expected to be small. According to some industry databases, the total number of environmental service firms throughout the country was less than 1,000 for all categories (ECODIR, 2003). On the other hand, the total expenditures in the environmental sector were roughly one percent of Mexico's GDP and most of this was directly spent by the government (OECD, 2003c). Trade liberalisation in the environmental services sector might, however, have two major impacts. On the one hand, increasing pressure within domestic private firms, which – if combined with business opportunities (e.g. private participation opportunities and deregulation), attraction of FDI and Mode 3 commitments under the GATS, could have positive impacts on the labour force (more jobs created in firms entering the market and government companies being privatised). On the other hand, the adjustment of government-operated companies and authorities to allow for private provision of certain services might have a negative impact on the labour force. While the net impact in the short term is imprecise, in the long term, factors of production should be reallocated to their most efficient use. Some adjustment schemes<sup>55</sup> (already in place in other sectors) to reduce the stress from EGS trade liberalisation on labour might be worth considering.

A labour issue with social implications also exists in the waste management sector. Currently, between 25,000 and 30,000 low-income families (over 50 percent of this total located in Mexico City) live from the informal waste collection and recycling business (OECD, 2003c). These families are usually located in the landfills themselves and, thus, exposed to poor sanitary conditions. The majority of the family members are women whose education levels are below the national average. The privatisation/liberalisation process should address the specific circumstances of these low-income groups and consider implementing flexible mechanisms to incorporate this potentially competitive labour force within the formal sector prior to liberalisation.

***The application of multilaterally agreed labelling and certification schemes to facilitate the consideration of EPPs in the liberalisation process.*** As discussed in Chapter 3, EPPs rely on certification and labelling schemes for their identification at the border. The two major challenges for the development of labelling schemes in Mexico are related to recognition and cost issues. In general, schemes designed in developed countries are too expensive for Mexican small and medium-sized enterprises, limiting their export potential. On the other hand, domestically developed schemes lack credibility in international markets. In this context, and due to the potential that some Mexican EPPs have to boost sustainable development gains from trade liberalisation, a comprehensive strategy for the market expansion and development of regulatory and institutional frameworks for environmental certification and labelling schemes in Mexico should be considered. A sound strategy in this area would include capacity building, technical and financial assistance for labelling and certification, regulatory development, as well as measures to promote their international recognition (e.g. through mutual recognition, equivalency and international standardisation). In the international trade context, the Doha mandate for the CTE addresses environmental labelling as an issue for special attention. Mexico and other countries with export interest in EPPs could take advantage of this mandate to discuss approaches for the development of sound, transparent,

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<sup>54</sup> According to Table 4.6 in Chapter 4, the total labour force in the environmental goods sector was a little over 600,000 in 1998. This figure might overestimate the personnel dedicated to the production of goods strictly targeted for environmental purposes due to the multiple-use problems inherent to this sector.

<sup>55</sup> Including temporal employment programmes, scholarships, unemployment insurance and early retirement programmes (common in the government sector).

internationally recognised and (technically and economically) feasible schemes to support the export potential of these products.

***The elaboration of a comprehensive (beyond the environmental mandate) negotiating strategy to overcome barriers associated with a truly sustainable development driven liberalisation process.*** The second enhancing measure for the effective development of EPP markets is related to non-tariff barriers (NTBs) to trade. Unilaterally set technical standards and regulations, particularly related to agricultural products, constitute the main NTBs for the export of Mexican EPPs. In this regard, negotiations under a broadly defined approach for environmental goods and services should go beyond the environmental mandate under Paragraph 31(iii) of the Doha Round. As mentioned in the previous section, a decision under this paragraph with high sustainable development impacts would necessarily imply a comprehensive negotiating strategy that addresses systemic issues, including market access, technical and sanitary barriers, special and differentiated treatment, rules (e.g. emergency safeguards), government procurement, intellectual property rights (e.g. the right to use a given technology) and services in a wider context.

#### **6.4 Consideration of Tariff and Non-tariff Barriers**

Some important Mexican environmentally preferable products and services, including in the agriculture, forestry and fisheries sectors, continue to face a range of tariff and non-tariff measures in the country's most important export markets. Annex VII provides an illustration of some of the key tariff and non-tariff barriers (NTBs) facing Mexican EGS exports in its most important export markets – notably Canada, the US, the EU and the European Free Trade Area (EFTA) countries. Mexico has signed free trade agreements with these countries and also negotiated one with Japan. Tariffs are particularly significant for agricultural products as compared to forestry and fisheries products, which enter duty free in most FTA markets. In the EU and EFTA markets, agricultural tariffs are higher than in NAFTA and liberalisation is selective to products. The current average tariff structures for Mexican agricultural, fisheries and forestry goods entering the EU and some EFTA countries are difficult to calculate due to a complex reduction schedule included in their liberalisation lists. While European countries, including the EU, had generally higher tariff levels on agricultural products as compared to the US and Canada, the EU tariff level was slightly lower on fisheries products.

NTBs pose an even greater challenge, comprising, *inter alia*, sanitary and phytosanitary standards, technical regulations, and mandatory and voluntary labelling schemes for environmental goods (including those based on PPMs), residue tolerance levels on agricultural products, prior informed consent mechanisms, phytosanitary certificates, safety and quality checks and import licensing prohibitions.

In the case of services, such as eco-tourism, for which the tourism sector as a whole has been taken up for illustrative purposes, NTBs include requirements to obtain authorisation, licenses or permits in order to market or supply a service; establishment of full commercial presence (in specific territories); legal requirements for the constitution of a company; limitation on the number of concessions to operate; licenses to operate; definitions of personnel, agents and operators permitted to enter; and limits on the time length or number of entrants per visit. In the EU, certain member states have placed their own individual restrictions, which further complicate the situation.

While it is difficult to present exhaustive data on tariff and non-tariff barriers in the various other non-FTA trading partners that include big developing countries like China and India, they will certainly be more restrictive relative to FTA partners, particularly in terms of tariff levels. These markets could potentially be attractive for Mexico to consider with regard to EGS exports. Lowering of barriers in non-FTA trading partners could then be one of the most important gains that Mexico might consider achieving through the WTO negotiations.

## 7. WAYS FORWARD FOR EGS NEGOTIATIONS AT THE WTO

One way forward in terms of definition and classification of environmental goods and services is neither to disregard the approaches, notably the OECD and APEC proposals, supported by some developed countries, nor to redesign the whole concept, as suggested by some developing countries. The current study has demonstrated that the OECD definition/classification approach can be reconciled with the sustainable development goals of Mexico by amending some of its categories and adding others (i.e. broadening the traditional definition of EGS). In this way, goods and services of trade interest to Mexico can be added to liberalisation lists and commitment schedules as part of its negotiating strategy.

Based on Mexico's own goals and strategies, a Potential Impact Analysis has been carried out in this study with notable results. By broadening the OECD approach to include EPPs of trade interest to Mexico, the impact potential on the country's sustainable development strategies and goals increases by 23 and three percent respectively. However, there are challenges associated with turning such impact potential into actual gains. In this regard, enhancing and flanking measures will play a major role, as detailed in Section 5.3 above.

In sum, there is potential to foster sustainable development through the liberalisation of the EGS sector at the WTO. However, definition and classification approaches need to address, to the extent possible, the circumstances and trade potential of all Members. In terms of impact assessments, the analysis presented in this Study could be complemented with empirical evidence at a later stage.

This Study has pointed to the potential sustainable development benefits accruing to Mexico from pursuing a broad definition for EGS for trade negotiations. The challenge remains to translate this potential into an effective negotiating strategy at the WTO. Based on the preliminary conclusions from the study, this chapter outlines a possible strategy that Mexico might consider with regard to EGS negotiations at the WTO. A brief state of play of these negotiations is also outlined in order to place this strategic approach in context.

Given the potential sustainable development impacts of a broad definition of EGS for Mexico, what are the implications for Mexico's negotiating strategy for the EGS negotiations in the WTO? Since the launch of the Doha Round, negotiators have been grappling with the mandate contained in Paragraph 31(iii) of the Doha Ministerial Declaration that aims at "the reduction, or as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services". Negotiations on environmental goods have been taking place in the Special Session of the Committee on Trade and Environment (CTE), which is responsible for identifying what constitutes environmental goods, as well as the Negotiating Group on Non-Agricultural Market Access (NAMA), which is looking at the actual modalities. Negotiations on environmental services are under the auspices of the Special Session of the Council for Trade in Services (CTS).<sup>56</sup>

The confusion as well as the relatively slow pace of progress in the negotiations on EGS may be attributed first and foremost to a lack of clarity in the Paragraph 31(iii) mandate, which does not contain a formal timeline for negotiations on EGS, apart from the overall deadline for the single undertaking of the Doha negotiations. The mandate does not specify what EGS constitute, nor does it specify the extent of liberalisation sought to be attained. This study assesses the negotiations on EGS to date, based on the proposals on the table and statements made in the negotiating bodies of the WTO, which reveal some of the main issues and challenges confronting WTO Members, particularly with respect to Mexico.

### 7.1 Key Issues in the Environmental Goods Negotiations

#### *Diversity of Approaches to Classification of Environmental Goods*

While the OECD and APEC definitions of environmental goods have been used as a starting point for the environmental goods negotiations, the lack of a clear definition has prompted WTO Members also to consider a

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<sup>56</sup> TN/TE/1.

“list” approach, whereby Members would propose specific items they would like to see included in a list of environmental goods. Several WTO Members, including Canada, Chinese-Taipei, the EC, Japan, Korea, New Zealand, Qatar, Switzerland and the US have proposed concrete lists of goods.<sup>57</sup>

In this respect, developing countries have called for development concerns to be incorporated into the negotiations, specifically with respect to the “list” approach, and have questioned the adequacy of the OECD and APEC lists. Brazil has proposed that developing country interests be considered through the prism of special and differential treatment (S&D) and, in particular, through improved market access for products with low environmental impacts, which are derived from or incorporate cleaner technologies.<sup>58</sup> In addition, Brazil proposes to adopt the approach of the UNCTAD on EPPs as a basis for the negotiations.<sup>59</sup>

The EC list includes products with high environmental performance and/or low environmental impact, as well as eco-labelled products.<sup>60</sup> While not explicitly recognising EPPs as a category for negotiations, the US list includes several EPPs from the UNCTAD list.<sup>61</sup> The US has proposed a “core” list (on which consensus exists) for accelerated liberalisation and a “complementary list”, for which individual countries could nominate products enjoying a wide degree of support.<sup>62</sup> China has put forward a proposal calling for a “common” list, including environmental goods of export interest to both developed and developing countries and a “development” list, derived from the “common” list, eligible for special and differential treatment in the form of lower levels of reduction commitments for developing countries.<sup>63</sup> China has also stressed the need to facilitate technology transfer to developing and least-developed country Members when liberalising environmental goods. The EU has mentioned the possibility of including environmental goods relevant to biodiversity. Since environmental goods are an evolving category, New Zealand has also proposed that any list established be a “living” list that would reflect the emergence of new types of environmental goods and technologies.<sup>64</sup>

India has pointed out the special problems of small and medium-sized enterprises (SMEs) and the adverse effect on SMEs in developing countries of unrestricted concessional duty imports of environmental goods and services. Instead of a ‘list-based’ approach, India has proposed an “environmental-project” approach, whereby a project, which meets criteria agreed by the Special Session of the CTE to ensure transparency, would be considered by a Designated National Authority (DNA).<sup>65</sup> If approved, the goods and services included in a project would qualify for specified concessions for the duration of the project. They would include, *inter alia*, equipment, parts and components, consumables, services, investment, financial aid and transfer of technology. The commitments that Members agree to undertake may include: (a) reduction or elimination of tariffs on import of all project related goods; (b) reduction, elimination or appropriate treatment of standards, licensing restrictions, non-tariff barriers and other related issues; and (c) specific commitments required in all modes of service delivery.”<sup>66</sup> India considers that its approach would ensure that approved EGS were used for environmental purposes, whereas under the “list” approach products receiving tariff concessions could instead be used for a “dual” non-environmental purpose.

India points out that the “environmental-project” approach would enable the transfer of environmentally sound technologies as mandated by *Agenda 21* and facilitate compliance with technical and sanitary requirements,

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<sup>57</sup> For a list of Members’ members submissions see <http://www.trade-environment.org/page/theme/tewto/para31iii.htm>.

<sup>58</sup> TN/TE/W/59.

<sup>59</sup> UNCTAD, 2003d.

<sup>60</sup> TN/TE/W/56.

<sup>61</sup> TN/TE/W/52.

<sup>62</sup> TN/TE/W/38.

<sup>63</sup> TN/TE/W/42. According to China, the exemption would enable the reflection of the principle of less than full reciprocity, taking into consideration the needs of economic development in developing countries and the vulnerability of their relevant domestic environmental goods industries.

<sup>64</sup> TN/TE/W/49 and Suppl.1.

<sup>65</sup> TN/TE/W/54.

<sup>66</sup> TN/TE/W/51.

which would in turn improve the export potential of developing countries. This approach would also facilitate compliance with MEAs.

Japan's list includes products from both the APEC and OECD lists plus some additional products.<sup>67</sup> Notable in this list is energy-efficient consumer equipment. Many WTO Members, however, have raised the issue of appropriate customs classification of these products, which may require further inputs from organisations, such as the World Customs Organisation (WCO). Qatar has proposed efficient, lower carbon pollution emitting fuels and technologies.<sup>68</sup> Chinese-Taipei's submission focuses on pollution control equipment.<sup>69</sup> Kenya and other African countries have emphasised their comparative advantage in environmental products based on agriculture.<sup>70</sup>

### ***Process and Production Methods***

Many developing countries, however, have yet to submit lists covering environmental goods. Much of the hesitation stems from the fact that most environmental goods of export interest to developing countries – as also shown in this study – would likely be based on process and production method (PPM) criteria. This is an element, which many, if not most, Members, in particular developing countries, wish to avoid; they fear that PPM-based distinctions could be misused for “green protectionism” and could open the door for other PPM-based criteria, such as labour standards, to be brought into the WTO. New Zealand and Switzerland have proposed an alternative approach focusing only on those EPPs that are identified by “end-use or disposal characteristics”.<sup>71</sup> This issue will also be important in the Mexican context, particularly as the study identifies sustainable agriculture as one of the key sectors where potential sustainable development gains could be made.

### ***Evolving Technology Issues for Certain EPPs***

Other challenging issues that Mexico would need to consider when developing its EGS negotiating strategy are raised by Japan's proposed list of goods with regard to giving trade preferences to energy-efficient products, which is a category subject to continuously evolving technology. For example, what would happen to a tariff preference granted to energy-efficient washing machines when a superior version is produced? Tariff preferences once granted (and possibly bound) may be difficult to roll back. Similarly, Qatar's list, which proposes natural gas and gas-based technologies for the environmental goods negotiations, raises the issue of relativism. This is because natural gas may claim a trade preference for environmental benefits — say, in relation to coal — but not, for example, in relation to solar technologies or hydrogen fuel. Natural gas also raises the question of whether commodities, *per se*, could qualify as environmental goods owing to their inherent environmentally friendly properties.

### ***Eco-labelling***

As shown in this study, a practical way of trying to distinguish EPPs from their non-environmental counterparts could be through the use of labels based on various criteria. However, these labels would have to be widely accepted amongst the WTO Membership as a mark of recognition that a product is an environmental good. It may be noted that discussions on eco-labelling, particularly voluntary labelling schemes, have yet to make much headway in the WTO. Consensus and monitoring of labelling schemes may be easier to achieve in the context of regional trading arrangements.

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<sup>67</sup> TN/MA/W/15.

<sup>68</sup> TN/TE/W/27 and TN/TE/W/19.

<sup>69</sup> TN/TE/W/44.

<sup>70</sup> TN/MA/W/40.

<sup>71</sup> TN/TE/W/49 and Suppl.1 and TN/TE/W/57.

## ***Pace of Liberalisation***

Some WTO Members, such as Chile<sup>72</sup>, have advocated against any preferential liberalisation of environmental goods, including any environmentally preferable products (EPPs), arguing, for instance that liberalisation should extend to *all* products of export interest to developing countries. Any additional reduction should be ‘compensated’ by concessions in other areas. In this sense, an export benefit for many environmental goods may depend on a ‘preferential’ market access margin is maintained vis-à-vis their ‘non-environmental’ counterparts, as ultimately the objective of the WTO is to liberalise tariff and non-tariff barriers on *all* goods and services.

## ***Classification Issues and Dual-use Goods***

Questions have been raised regarding treatment of “dual-use” goods, when a product such as pipes may be used for both environmental and non-environmental purposes. The issue of tariff classification is also an important one. Separate tariff headings may need to be created in order to grant tariff preferences to environmental goods if they have a less environmentally preferable “like” counterpart, such as hybrid-technology cars versus gasoline-powered cars. In many cases, environmental goods are classified in the HS under broad six-digit headings, which may also include other ‘non-environmental’ goods. For example, meters for environmental measuring and monitoring equipment may be classified under the broader heading of ‘measuring and monitoring’ equipment. In such cases, the six-digit classification may need to be split in order for the environmental monitoring equipment – and not all such equipment – to benefit from tariff and NTB reduction/elimination. In other cases, it may not be easy to make such a division as the same product may have multiple uses, some of which may be non-environmental. Lead pipes imported as part of a sewage treatment plant, for example, could also be used for other “non-environmental” purposes.

## ***Negotiating Forum for Agricultural Environmental Goods***

Apart from substantive questions, some WTO Members have also raised the question of an appropriate negotiating forum for agricultural environmental goods. Annex B of the General Council Decision of 1 August 2004 encourages the Negotiating Group on NAMA to work closely with the CTE Special Session with a view to addressing the issue of “non-agricultural environmental goods” covered in Paragraph 31(iii) of the Doha Ministerial Declaration. This does not clarify if and where agricultural environmental goods would be addressed. If WTO Members decide to negotiate these goods in the Committee on Agriculture, it is likely that these discussions would then not be guided by Paragraph 16 of the Doha mandate and would instead become intertwined with the broader, more complex agricultural negotiations, raising the likelihood of trade-offs within the agricultural negotiations themselves.

## **7.2 Consideration for Mexico on Environmental Goods**

As elaborated in this study, Mexico could play a proactive role in translating the sustainable development impact assessments of the “traditional” and “broad” approaches on EGS into a strategy that would be acceptable to the broader WTO Membership. Moreover, Mexico may also need to tailor such a strategy in light of its bilateral and regional agreements.

Following from the conclusions of this study, as well as an assessment of the issues and state of play for the environmental goods negotiations, Mexico could consider the following options:

***Exploring classification and definitional issues.*** A suitably amended OECD definition of the environmental industry could be proposed in the Special Session of the CTE. Presently, the OECD definition states that the environmental industry comprises “activities which produce goods and services to measure, prevent, limit, or minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and

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<sup>72</sup> TN/MA/W/17.

ecosystems”. As detailed in the study, this definition may need to be amended in order to incorporate a broader definition of EGS, which includes *outputs* emerging from sustainable activities of export interest to Mexico.

Developing countries, including (as the study shows) Mexico, have a comparative advantage in non-traditional environmental goods, particularly those based on sustainable agriculture, forestry and fisheries that would fall under a “broader” definition of environmental goods. Among the options open to Mexico would be to propose a list at the WTO that takes account of these goods. However, as with most other developing countries, the PPM issue, as well as the issue of relevant tariffs and non-tariff barriers (including standards and labelling) for these products in various markets, may need to be tackled, particularly where Mexico does not have access under an FTA.

An expansion of the OECD list could serve as an initial framework that reflects the interests and priorities of Members and also serves to operationalise Paragraph 16 of the Doha mandate for goods negotiated in the Negotiating Group on NAMA.<sup>73</sup> The list could be further amended after consultations with industry and other stakeholders in Mexico, as well as other WTO Members. A specific list of goods could be derived from this “broader list”, which responds to the sustainable development goals and strategies of Mexico from both an export as well as import perspective. The lists of UNCTAD and suggestions by Brazil include EPPs of interest to Mexico (as noted in the study), such as natural fibres and colourants and other non-timber forest products.

Cuba has raised issues of importance to Mexico, such as the actual benefits of the negotiations given the complexities involved in “dual-use” goods, when a product may be used for both environmental and non-environmental purposes, and the issue of NTBs relating to certification and labelling.<sup>74</sup>

Given the prevalence of NTBs faced by Mexican EPPs, such as technical and sanitary requirements in their export markets, Mexico has an interest in considering the Indian “environmental-project” approach in determining its negotiating strategy.<sup>75</sup> This study has illustrated the relevance of SMEs in the EGS sector in Mexico. The Indian proposal also notes the need to safeguard SMEs. The integrated nature of environmental goods and services, as embodied in a specific environmental project, may be an important aspect to consider both from the export as well as import perspectives. While the “environmental-project” approach is conceptually interesting, the extent to which it would actually benefit SMEs needs to be assessed.

***Identifying the implications of lowering import barriers to non-NAFTA partners.*** Given the already relatively open trade with its NAFTA partners (the US and Canada), Mexico may wish to assess the implications of lowering import barriers to non-NAFTA partners, such as the EU and Japan, in terms of imports of environmental quality support goods. In this respect, it would be useful to consider potential trade creation and trade diversion from existing intra-NAFTA trade. Mexico could explore the trade and sustainable development impacts of greater market access not only in the developed world, but also in other developing countries with growing markets, such as Brazil, India and China. This could help Mexico in formulating tariff-cut proposals that would deliver the maximum benefits based on a study of existing bound and applied tariff-levels for Mexican environmental goods in these countries, as well as the prevalence of NTBs.

For EPPs with close substitutes, there may be a need to assess the depth of preferential liberalisation and the margin that they would need to enjoy over their “non-environmental” counterparts in order for market access to be meaningful. In this respect, it could be useful for Mexico to assess the nature of barriers facing EPPs and their “non-EPP” counterparts both in FTAs as well as in the WTO.

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<sup>73</sup> Paragraph 16 of the Doha Declaration provides the mandate for the negotiations on market access for non-agricultural products, which requires: reduction or elimination of tariff peaks, tariff escalation, as well as non-tariff barriers with emphasis on products of export interest to developing countries; take fully into account the special needs and interests of developing and least-developed country participants including through less than full reciprocity in reduction commitments. Paragraph 50 states: take fully into account the principle of special and differential treatment for developing and least-developed countries.

<sup>74</sup> TN/TE/W/55.

<sup>75</sup> TN/TE/W/51 and TN/TE/W/54.

### 7.3 Key Issues in the Environmental Services Negotiations

#### *Diversity of Approaches to Classification Issues*

Negotiations on services in the WTO precede the start of the Doha Round with discussions focusing on negotiating formats and procedures. The Doha Round set deadlines for submitting requests (June 2002) and offers (March 2003), which were not met by most Members, as well as for concluding the negotiations in 2005. The General Council Decision of 1 August 2004 adopted the recommendations set out by the Special Session of the CTS (contained in Annex C of the General Council Decision) and called for revised offers to be tabled by May 2005. Annex C of the 1 August 2004 General Council Decision also states, among other things, that “Members shall strive to ensure a high quality of offers, particularly in sectors and modes of supply of export interest to developing countries, with special attention to be given to least-developed countries”.

Most developing countries have received requests to undertake specific commitments in all environmental services, principally from developed countries. Among them, the EU proposal on including “water for human use” as an environmental service has raised some concerns regarding control of water as a resource, as well as issues of equitable access to clean water among the poorer sections of the population. At the same time, developing countries have followed a cautious approach, having made relatively few commitments in infrastructural environmental services to date, particularly with regard to water management. This is also reflective of the diverse approaches to update the existing classification of environmental services (based on the WTO Services Sectoral Classification list (W/120) derived from the UN Provisional Central Product Classification (CPC)) being proposed by WTO Members. The W/120 list aims at preserving the mutually exclusive character of services and seeks to avoid an overlap between services in various sectors. From a legal perspective, a WTO Member can choose to adopt this classification model or the CPC, or schedule commitments for a specific activity under a particular sector in whatever manner it deems fit.<sup>76</sup>

WTO Members agree that the W/120 classification needs to be updated or adapted to the needs of the market. One of the suggestions has been a “core” and “cluster” approach proposed by the EU with regard to environmental services. This proposal seeks to take account of the evolving, dynamic and inter-related nature of environmental services industries. According to the EU, “core” services are those which can undisputedly be classified as “purely” environmental and where the services are classified according to the environmental media (i.e. air, water, solid and hazardous waste, noise, etc.). Thus, the mutually exclusive character of the W/120 list is preserved. In addition, subsequent EU submissions in 2000 also propose a ‘cluster’ approach, whereby conceptual services, such as design, engineering, research and development (R&D) and consulting services that have an environmental “end-use” would be subject to a special “cluster” or “checklist”.<sup>77</sup> This “cluster” or “checklist” approach would be used as an *aide-memoire* during the other sectoral negotiations.

While this approach could enable Members to classify as a single category all services with an “environmental end-use”, it may create confusion through an overlap of services sub-categories under various headings and result in a non-coherent listing of sectoral commitments. Some countries fear that unless commitments are carefully tailored, adopting such an approach could result in unintended commitments being made as any request for liberalisation under environmental services would implicitly include any service that has an “environmental end-use”, such as engineering, construction or R&D.

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<sup>76</sup> The most commonly used classification system, reflected in MTN.GNS/W/120 (10 July 1991), is explicitly stated to be non-legally binding and purely voluntary. While there is a strong tendency among the WTO membership to encourage scheduling according to W/120, there is an equally strong advocacy by certain Members to revise the classification of certain sectors on the basis that W/120 no longer reflects business reality in these sectors. Among the sectors being examined by the membership, and being targeted by certain Members for revision, are environmental and tourism services. Even if the new proposals are adopted and incorporated into W/120, or at least recognized as ‘model’ schedules, these would still not be legally binding or obligatory. Members will still be free to schedule commitments according to the classification system they deem best.

<sup>77</sup> S/CSS/W/3 and S/CSS/W/38.

An alternative concept is the one of “regulatory clustering” that has been proposed by certain Central American and Caribbean countries.<sup>78</sup> These countries propose that services sharing the same characteristics be grouped under a single cluster for the purpose of developing regulatory disciplines or principles applicable to the particular sector being subject to liberalisation. For example, they propose the need to create a set of disciplines that could apply to “tourism-characteristic” services that are considered as part of a “tourism cluster”, such as foreign exchange services and hotel and restaurant services. This approach would allow for market access, but also for setting environmental regulatory principles in eco-tourism activities.

### ***Sustainable Tourism***

Under the concept of the “cluster” approach as proposed by the EU, Mexico could keep in mind the broadened OECD definition of environmental services that includes “sustainable tourism”. However, this does not imply it will need to make this commitment under “environmental services”. Instead, Mexico could specify “sustainable tourism” as a sub-sector of tourism and consider making liberalisation commitments only in this sub-sector.

A careful and precise definition of sustainable tourism will be desirable when making or seeking liberalisation commitments. In the event of a WTO dispute, a panel or the Appellate Body will be compelled to interpret the commitment in accordance with the exact terms of what Mexico has entered in its definition of “sustainable tourism”. A clear definition thus avoids the risks of a generally-worded entry, which proved to be the pitfall for the US, for instance, in the *US – Gambling* dispute.<sup>79</sup>

Thus far, sectors such as sustainable tourism have not yet been formally proposed as part of an environmental services classification. Scheduling eco-tourism under environmental services would mean that Mexico should be prepared to favourably consider requests from Members to schedule other environment-related activities, such as R&D or consultancy under environmental services. At the very least, it may weaken Mexico’s leverage in resisting such requests. Furthermore, it may set a precedent for implicit acceptance of the ‘cluster approach’ in other sectors. It may be worth considering whether such systemic implications are to an extent unavoidable. It is also important to bear in mind that the classification under the “cluster” approach does not necessarily match the manner by which many services providers act commercially (which in many cases do not differentiate in the provision of services by “end-uses”).

Inputs into sustainable tourism could possibly be classified under other services, such as “construction” and “engineering”, but, here again, Mexico might need to consider carefully tailoring its commitments if it does not wish to liberalise these sectors as a whole on a most favoured nation (MFN) basis.

### ***Domestic Regulations and Disciplines***

Domestic regulations, such as those laying down criteria for educational and technical qualifications, can affect the quality of market access granted. For example, regulations relating to educational qualifications can impair the movement of natural persons as service providers, although, technically, the market may have been fully opened under the General Agreement on Trade in Services (GATS). Moreover, government procurement, an important channel of demand for environmental goods and services, particularly in municipal projects, such as sewage systems and water supply purification, does not yet have rules and disciplines under the GATS. Rules and disciplines on both domestic regulation and government procurement have yet to be clarified as part of the GATS negotiations, as well as in the WTO Working Party on Domestic Regulation. This introduces an element of uncertainty into the negotiations.

Developing countries have expressed the need for a clearer understanding of liberalisation and its various implications, particularly for “regulatory policy space” before making formal binding commitments. The nature of sustainable development problems, such as access to clean water and sanitation, have been referred to in the

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<sup>78</sup> S/CSS/W/9 and S/CSS/W/19.

<sup>79</sup> WT/DS285/R and WT/DS285/AB/R.

study; any GATS approach to “regulatory policy space” at the WTO could seek to ensure equitable and broad-based access to these essential services to the Mexican population. Such an approach could also be informed by the experience arising from Mexican participation in Regional Trade Agreements.

### ***Environmental Services of Interest to Developing Countries***

Environmental services of export interest to developing countries are presently limited, despite increasing opportunities for South-South trade. Most of these opportunities may lie in the realm of Mode 4 (movement of natural persons), where immigration restrictions constitute a major barrier. On Mode 2 (consumption abroad), sustainable tourism, as the study has shown, could bring about sustainable development benefits, but WTO Member, including Mexico, have yet formally to bring it onto the EGS agenda. Furthermore, the GATS mandates timely completion of the negotiations on disciplines related to domestic regulation, emergency safeguards, government procurement and subsidies. These have yet to be completed and have an important bearing on the actual value of market access concessions that Mexico and other developing countries could obtain during the course of the GATS negotiations.

### **7.4 Considerations for Mexico on Environmental Services**

This study has shown that Mexico may have a trade interest in a number of services listed in the traditional OECD definition (i.e. environmental quality support services) due to the presence and concentration of firms already well established in this sector. While the difficulty of identifying firms in activities such as eco-tourism has been mentioned in the study, the labour-intensive sections of the tourism sector, as well as other activities, such as biodiversity and landscape protection could have positive sustainable development impacts for the environment, as well as local populations and indigenous people.

The importance of sectors, such as water and sanitation, has been highlighted in the study. This is where Mexico may need to tailor market access commitments carefully so as to ensure a balance between the creation of infrastructure and efficiency, on the one hand, and ensuring affordable and universal access to these important services, on the other. In translating these goals into a strategy for WTO negotiations, Mexico may wish to consider the following:

***Classification issues in services*** are important to Mexico’s negotiating strategy. Eco-tourism, for instance, is listed in the OECD definition, but more as an *input* into tourism that makes it more environmentally friendly, including designing, constructing, installing and managing. However, a broader “OECD plus” list could cover *environmentally preferable tourism services*. From an export perspective, this would imply that a Mexican tour operator who runs an “eco-tourism” package would have as much right to market access in the EU as a Mexican construction firm that specialises in building ecofriendly hotels. It may be useful to consider the EU proposal to “cluster” negotiations given that Mexican companies are efficient in providing the inputs (i.e. design and construction), as well as providing the “eco-tourism” package. This would mean that the reduction of tariffs and NTBs, as mandated by Paragraph 31(iii), would extend not only to “core” environmental services, but also “other” services with an environmental end-use, such as construction.

***Safeguarding public policy objectives and “regulatory space”***. The importance of public services and domestic regulations has been highlighted. The study has noted the problem of over-regulation, high transport and communication costs as factors weakening competition in the domestic economy despite the lowering of tariffs and NTBs under NAFTA. In determining a negotiating strategy, Mexico will have to consider its domestic regulations and their impacts on market access, as well as the attainment of public policy objectives. In this respect, various laws, including environmental regulations, will impact on the operation of firms in the Mexican economy. The challenge is to frame domestic regulation in a manner so as to create a climate conducive to attracting foreign investment, while ensuring that the regulatory framework advances public policy and sustainable development objectives. Economic and other policy instruments, which play an important role in ensuring, for instance, access to water for poorer socio-economic groups and remote areas, may need to be exempted from the GATS obligation of national treatment. Such exemptions also may be particularly relevant in

light of any new disciplines that may be negotiated related to domestic regulation, emergency safeguards, government procurement and subsidies. Mexico's experiences with the NAFTA liberalisation may also provide important lessons in this context for the WTO negotiations.

***Identifying and pushing for liberalisation in environmental services of export interest to Mexico.*** As the study points out, the bulk of Mexico's trade in EGS is with the NAFTA countries, where Mexico is a net importer of EGS and trade in services is not a very significant portion of the total trade. However, Mexican exports to the rest of the world (excluding Latin America) in environmental quality support services seem to be the most significant within the category of 'remediation and industrial services', followed by 'consulting and engineering' and, to a lesser extent, 'analytical services'. While Mexican exports of "water treatment services" and "remediation and industrial services" are only in their infancy, potential exists to expand exports to new and emerging markets, particularly in Latin America, as well as other developing countries, such as China and India, where barriers to trade in such services are higher than in developed countries. Therefore, benefits could accrue to Mexico through further liberalisation in these services from its trading partners.

Eco-tourism has been by far the largest revenue earner in 2001, surpassing the gains from sustainable agriculture. This is a sector where Mexico already enjoys a positive trade balance with the US and Canada as compared to most other EGS sectors (see Tables 5.1 and 5.2). Therefore, from an export perspective, *sustainable tourism* would be high on the list of negotiating priorities for Mexico at the WTO. As mentioned earlier, classification issues will need to be resolved while tackling barriers to potential exports of Mexican eco-tourism services.

## 7.5 Cross-cutting Issues

In addition to issues specific to environmental goods and environmental services negotiations, Mexico could keep in mind certain cross-cutting issues while defining a strategy for EGS negotiations. These could include:

***Adopting a co-ordinated strategy for EGS at various WTO negotiating bodies.*** As mentioned in Chapter 6, environmental policy is a horizontal issue, which cuts across a number of WTO negotiating areas, such as market access, special and differential treatment, rules, subsidies, government procurement, intellectual property rights (which may be relevant to technology transfer issues in EGS) and the broader services negotiations, as well as work of other Committees, such as TBT and SPS. Rules and commitments made in these negotiating bodies have the potential to impact EGS trade and, consequently, sustainable development. Hence, a co-ordinated EGS strategy would enable Mexico to monitor developments in all these relevant areas, as well as to work towards rules and commitments in each that would maximise the sustainable development impacts from EGS trade.

***Addressing the issue of tariffs and non-tariff barriers, especially those relevant to Mexican EGS exports – and specifically those prevailing in non-FTA trading partners.*** A listing of some of these barriers was provided in Chapter 6 and a detailed description is laid out in Annex VII. It is important that WTO Members reach an agreement with clear disciplines related to domestic regulation, emergency safeguards, government procurement and subsidies in order to assess the actual value of the market access concession that Mexico and other developing countries could obtain during the GATS negotiations. The nature of barriers in Mexico's most important export markets, despite the existence of FTA Agreements, reveals the challenge of accessing markets of non-FTA partners, such as China and India, where MFN tariff levels are higher and numerous NTBs exist.

***Adopting trade policies that facilitate the creation of domestic EGS capacities, particularly for Mexican SMEs.*** While Mexico benefits from free trade with the US and Canada in most, if not all EGS sectors, the study points to the potential to increase productivity and efficiency in various firms in the EGS sector. Given that the supply of EGS in Mexico is dominated by small firms, except in certain environmental infrastructure sectors, policy measures could be adopted to ensure that these firms improve their productivity and efficiency, particularly in the environmental quality goods and services sector. In order to enhance domestic EGS capacities, regulatory policies, such as joint ventures, training and technology transfer requirements come usefully be

explored. Mexico's negotiating strategy at the WTO in this regard could also be informed by its experience with building domestic SME capacities in the EGS sector in the context of regional free trade agreements.

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Encouraging International Technology Transfer.  
Issue Paper No. 7 by Keith E. Maskus, 2004.

Nutrition and Technology Transfer Policies.  
Issue Paper No. 6 by John H. Barton, 2004.

Non-Voluntary Licensing of Patented Inventions: Historical Perspective, Legal Framework under TRIPS, and an Overview of the Practice in Canada and the United States of America.  
Issue paper No.5 by Jerome H. Reichman and Catherine Hasenzahl, 2003.

Geographical Indications: A Review of Proposals at the TRIPS Council, Extending Article 23 to Products other than Wines and Spirits.  
Issue paper No.4 by Dwijen Rangnekar, 2003.

Indicators of the Relative Importance of IPRs in Developing Countries.  
Issue paper No.3 by Sanjaya Lall, with the collaboration of Manuel Albaladejo, 2003.

Technology Transfer and Intellectual Property Rights: Lessons from Korea's Experience.  
Issue paper No.2 by Linsu Kim, 2003.

Protecting Traditional Knowledge and Folklore: A review of Progress in Diplomacy and Policy Formulation.  
Issue paper No.1 by Graham Dutfield, 2003.

### **International Trade in Agriculture and Sustainable Development**

Lessons from the Experience with Special Products and Safeguard Mechanisms in Bilateral Trade Agreements.  
Issue Paper No. 5 by Dr. Carlos Pomareda, forthcoming.

Methodology for the Identification of Special Products (SP) and Products for Eligibility Under Special Safeguard Mechanism (SSM) by Developing Countries.  
Issue Paper No. 4 by Luisa Bernal, 2005.

Special Products: Options for Negotiating Modalities.  
Issue Paper No. 3 by Anwarul Hoda, 2005.

Tariff Reduction, Special Products and Special Safeguards: An Analysis of the Agricultural Tariff Structures of G-33 Countries.  
Issue Paper No. 2 by Mario Jales, 2005.

The New SSM: A Price Floor Mechanism for Developing Countries.  
Issue Paper No. 1 by Alberto Valdés and William Foster, 2005.

### **Trade in Services and Sustainable Development**

Opportunities and Risks in Liberalising Trade in Services: Case Study on Bangladesh.  
Issue Paper No. 3 by Ananya Raihan and Mabroor Mahmood, forthcoming.

Opportunities and Risks of Liberalising Trade in Services: Case Study on South Africa.  
Issue Paper No. 2 by Ian Steuart and Rashad Cassim, 2005.

Subsidies, Services and Sustainable Development.  
Issue Paper No. 1 by Marc Benitah, with David Vivas-Eugui, Alexander Werth and Mahesh Sugathan, 2005.

The ICTSD project on *Bridging Trade and Sustainable Development in Environmental Goods and Services* aims at enhancing developing countries' capacity to understand trade and sustainable development issue linkages with respect to environmental goods and services and reflect regional perspectives and priorities in regional and multilateral trade negotiations. The current phase of the project got underway in January 2005 and will continue until June 2006. Other project activities and resources include:

- Options for Liberalisation of Trade in Environmental Goods in the Doha Round. By Robert Howse and Petrus B. van Bork, November 2005.
- The Economics Of Trade In Environmental Services: The Implications For Developing Countries In The GATS. By Colin Kirkpatrick, forthcoming.
- Technology transfer Issues in environmental goods: Will the Doha Round of negotiations facilitate access? By Lynn Matelka, forthcoming.
- Latin American Consultation on Environmental Goods and Services, Diálogo regional sudamericano sobre bienes y servicios ambientales, Cartagena de Indias, Colombia, 1-2 June 2005.

For further information, visit [http://www.trade-environment.org/page/ictsdp/projects/egs\\_desc.htm](http://www.trade-environment.org/page/ictsdp/projects/egs_desc.htm).

One of the mandates of the CEC is to conduct an ongoing assessment of the environmental impacts of trade liberalisation in North America. This assessment work shows that liberalised trading rules under NAFTA do not in and of themselves lead to the increased use of environmentally preferable products. The CEC's project on *Trade in Environmental Goods and Services* (alternatively, *Greening Trade in North America*) seeks to understand what constrain this development. That work aims to break down barriers to environmentally preferable goods and services, including low consumer awareness of the environmental effects of purchasing habits, confusion about eco-labelling, difficulties in financing small companies in this field, lack of understanding about the best use of market-based approaches to support environmental protection and the conservation and sustainable use of biodiversity; and supporting cooperative efforts to increase these programs (e.g., renewable energy and energy efficiency, shade coffee, eco-palm fronds, grass-fed bison). It also aims to connect the growing numbers of suppliers and consumers of greener goods and services throughout North America.

A **complete listing of CEC publications on trade and environment** in general, and on environmental goods and services, is available at <http://www.cec.org/bibliographies>.