

Environment and Globalisation: Background Report for Ministers



Meeting of the Environment Policy Committee (EPOC) at Ministerial Level

Environment and Global Competitiveness

28-29 April 2008



For a better world economy

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ENVIRONMENT AND GLOBALISATION: BACKGROUND REPORT FOR MINISTERS [ENV/EPOC(2007)18/FINAL]

EXECUTIVE SUMMARY

This paper examines the relationships between environment and economic globalisation - defined as a process in which the structures of economic markets, technologies and communication patterns become progressively more international over time. These relationships are complex and no global, average or net effect can be measured. In general, globalisation can enhance the effective use of resources, stimulate improved environmental performance and contribute to the diffusion of cleaner technologies - provided that robust environmental policies and institutional frameworks are in place at the local, national, regional and global level. In their absence, globalisation can amplify market and policy failures and intensify environmental pressures. If unchecked, this could damage the environmental basis for sustained economic development in different locations, and alter trade and investment patterns.

It follows that policy matters. The analysis developed in the paper suggests that, in a globalising economy, environmental policies are effective when framed in broader policy frameworks which encompass trade and investment liberalisation, innovation support and dissemination, and environmental co-operation with emerging and developing countries. Such frameworks involve state and non-state actors. The main message from the paper is that further efforts are needed to strengthen environmental governance at all levels and to more effectively harness the forces of globalisation to support environmental policy objectives.

Several features of contemporary globalisation are particularly noteworthy: i) the growing importance of large emerging economies, which now are major trade partners and investors, placing growing pressures on the environment, and consuming a growing share of natural resources; ii) the increasing geographical fragmentation of production with various productive activities off-shored along global value chains; iii) the increased demand for materials to fuel global economic development, and the pressure this is creating for the sustainable use of natural resources; iv) the increasingly complex array of non-state actors who "co-produce" environmental policies (firms, NGOs and social movements); v) a protectionist backlash in some countries in response to the inequitable distribution of the gains from globalisation.

Although trade liberalisation together with effective environmental management can promote the more efficient use of natural resources and diffusion of cleaner technologies, other features of globalisation are counteracting these trends. The growing scale effects associated with trade liberalisation, and structural effects, including the concentration of polluting industries in emerging and developing countries, are undercutting the environmental gains associated with improved efficiency. Environmental clauses in some regional trade agreements are providing some momentum for strengthening environmental policies and institutions. However, multilateral trade negotiations remain an important focus of discussion for integrating trade and environment objectives. Some trade and environment issues may require continued discussion among governments after the conclusion of the Doha Round, including the removal of environmentally-harmful subsidies, stronger environmental requirements for export credits, the use of process and production methods as criteria in certification and related schemes, and trade issues related to resource efficiency, including trade in non-hazardous recyclable materials.

Foreign direct investment (FDI), another vehicle of globalisation, can contribute to environmental performance by transferring cleaner technologies and environmental management know-how. However, FDI is highly concentrated, and largely by-passes most poorer countries. The Policy Framework for Investment (PFI) has been developed by the OECD to help governments improve the quality of their policy environment for investment; work is underway to examine how the environmental component of the PFI could be strengthened. The OECD Guidelines for Multinational Enterprises, which are endorsed by governments and are associated with a network of National Contact Points that may receive reports on instances alleging non-compliance, provide a unique instrument for promoting environmentally- and socially-responsible business conduct. The Guidelines could be even more effective if a larger number of emerging economies were to adhere to them.

One factor holding back the establishment of robust environmental policies is the fear that such policies would adversely affect competitiveness. Although these relationships are difficult to analyse, there is no convincing empirical evidence that environmental standards have had a systematic negative – or positive - impact on competitiveness at the national level. At the same time, environmental requirements have become more stringent, and there has been a decoupling of environmental pressures from economic growth in most OECD countries even as competition has intensified during the most recent phase of globalisation. Fears that countries would compete by maintaining high levels of production and employment at the expense of the environment have not been realised. Indeed, stringent environmental requirements may help rather than hinder the competitiveness of certain sectors which are prompted to innovate to meet such requirements.

Environmental policies inevitably affect production and consumption patterns. As a result, the competitiveness of firms and sectors may be adversely affected. However, these effects are often offset elsewhere in the economy. Better analysis of competitiveness impacts of environmental policy measures is needed. Such analysis should compare the net benefits and costs to the economy, not just the impacts on firms and sectors, and assess how innovation and other measures can reduce these impacts. If not, the magnitude of negative impacts will be overestimated. The need for analysis of competitiveness impacts is especially important for measures to address climate change. As negotiations on a post-2012 arrangement get under way, discussion on this issue is likely to intensify because of the different obligations that countries will assume, the potential stringency of such obligations for some countries, and, as a result, the possible relocation of some sectors from stringent to less stringent jurisdictions.

One response to concerns about the potential negative impacts of environmental policy on competitiveness adopted by some governments has been to promote eco-innovation. Indeed some governments have identified eco innovation as a source of strategic, long-term competitive advantage. Similarly, many companies, encouraged by stakeholders and consumer are investing in eco-innovation as part of their corporate strategies, often achieving levels of environmental performance that exceed current environmental regulatory requirements. However, a strategic approach is needed to tackle at least four policy dilemmas: i) how to balance the incentives to innovate by the diffusion of more environmentally-friendly products? This question triggers debate about the reform of intellectual property rights; ii) how to avoid that poorly-designed support policies for eco-innovation promote technologies that are not necessarily good for the environment? This risk is particularly acute when policies aim to support specific technologies rather than resolve specific environmental problems; iii) how to reconcile national approaches (which may fragment markets for innovative goods and services) and international ones (which may benefit foreign suppliers)? iv) how to more effectively promote technology transfer to developing countries, a priority acknowledged, *inter alia*, in the Bali Strategic Plan for Technology Support and Capacity. OECD is working to strengthen the analysis of, and to identify good practices for, promoting eco-innovation. This will contribute to the development of a broader OECD Innovation Strategy that will be delivered to the 2010 OECD Ministerial Council Meeting.

Although globalisation has helped to lift many millions out of poverty, many of the world's poorest countries have not benefited from globalisation. Many are among the most vulnerable to environmental problems such as climate change, desertification and imports of hazardous wastes. As highlighted in the *OECD Environmental Outlook to 2030*, opportunities to address some global environmental issues are most cost-effective if implemented in developing countries, and require the development of effective burden-sharing arrangements. Development co-operation can disseminate relevant experience to developing countries, and support capacity development and the transfer of clean technologies. However, environmental aid flows have been falling, and available evidence suggests that this may continue in the new paradigm for aid policies that emphasises general budget support over classical approaches to capacity development and technical co-operation. In order to garner more support, developing countries must raise the profile of environment in their poverty reduction and other development strategies. OECD countries can help by providing targeted assistance in this regard, and by implementing coherent trade, investment, agriculture and other policies that affect developing countries. The follow-up to the 2006 meeting of OECD Environment and Development Ministers aims to develop new approaches for better integrating environment into the new development co-operation paradigm.

1. Introduction

This paper has been prepared to serve as a background for the OECD Environment Ministers meeting, "Environment and Global Competitiveness", to be held 28-29 April 2008. It examines some selected issues concerning environment-globalisation linkages; it is not intended to be an exhaustive treatment of the subject. Specifically it deals with:

- recent trends in globalisation
- key issues at the globalisation-environment interface
- trade and environment linkages
- investment and environment linkages
- the impacts of environmental policy on competitiveness
- eco-innovation
- the challenge of environmental governance in developing countries.

2. Environment, globalisation and competitiveness: an update of the *problématique*

"Economic globalisation" has been widely used to describe a process in which the structures of economic markets, technologies and communication patterns become progressively more international over time. Deeper liberalisation of international trade regimes, higher levels of foreign direct investment, intensified competition and rapid technological change, particularly in the area of information technologies, are some of the main drivers of this process.

While economic integration is a dominant feature of globalisation, other dimensions are also important, such as social, cultural, political and institutional aspects. Changes in consumption patterns through growing demands and easier access to goods and services, increased transport and energy needs, global access to innovation and knowledge, all play a role in globalisation – and all have an impact on the environment.

Box 1. Transport, globalisation and environment

The increased, and cheaper, movement of goods and people that underpins globalisation is largely facilitated by aviation and marine transport. Aviation is currently responsible for 4-9% of greenhouse gas emissions, and these emissions have increased by 86% in the period 1990-2004. The integration of aviation into an international agreement on climate change will be difficult because of the different ways that densely and sparsely populated communities rely on this mode of transport.

Maritime transport accounts for about 70% of the EU's, and 95% of the US's cargo traded with the rest of the world. The marine fleet accounts for 2-4% of world fossil fuel consumption. The sector is growing at about 3% per year, and increasing trade volumes are exceeding energy efficiency measures. However, when assessing the environmental impacts of this mode of transport, account should be taken of how it links with domestic freight movements by rail and road.

Reconciling the goals of environment and globalisation requires further efforts to internalise environmental costs in international transport prices. This issue is distinct from the environmental impacts associated with the traded goods themselves.

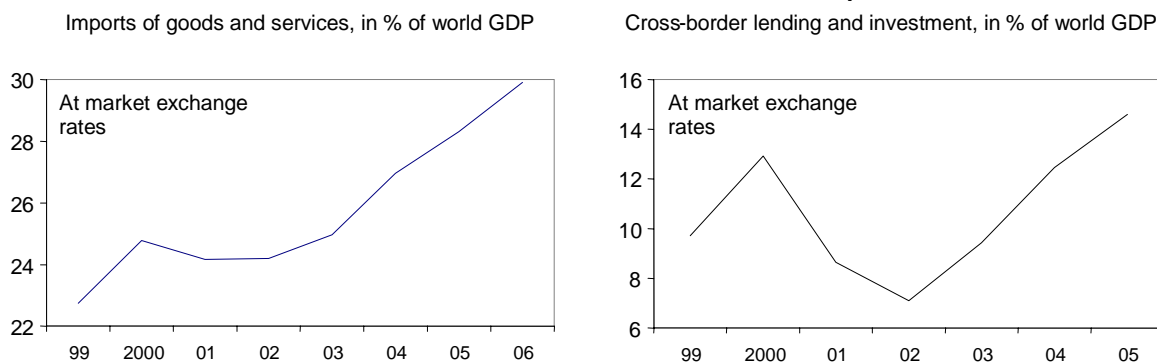
Source: OECD (2006c), EEA (2007).

Five features of contemporary globalisation patterns deserve attention from the perspective of this paper. First, the pace and scale of today's globalisation is without precedent. This is closely linked with the emergence of large players such as, Brazil, Russia, India and China (OECD, 2007a). As a result, competition has intensified and OECD countries must move-up the value chain to remain competitive.

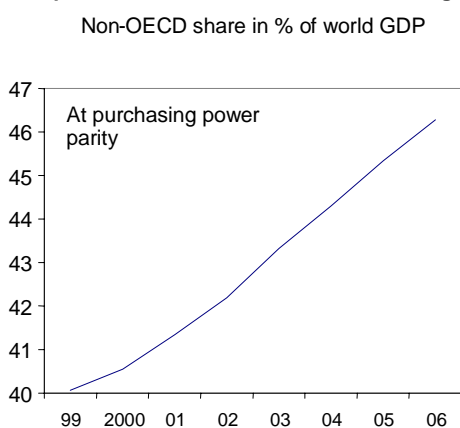
Figure 1 shows that trade (imports of goods and services as a percentage of GDP) and investment (cross-border lending and investment as a percentage of GDP) have grown faster than the world GDP over the last five years. Economic growth in the OECD area in recent years has benefited considerably from the dynamism of large non-Members, especially in Asia, combined with the liberalisation of their domestic markets, in a context of rapidly falling trade, travel and communication costs (OECD, 2007a). If the process of globalisation continues at its current pace, non-OECD economies are projected to account for 60% of world real output (in PPP terms), one-half of nominal world trade (at current market rates) and one third of nominal cross-border asset and liability holdings by 2025 (OECD, 2007b).

Figure 1. Economic integration and growth

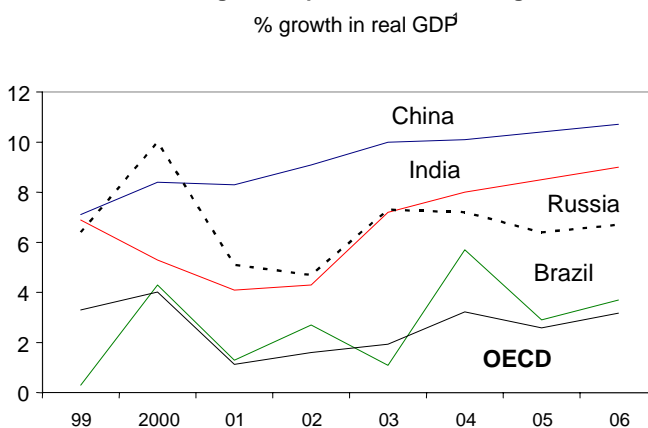
International trade and financial links have deepened



The importance of non-OECD economies has grown



The global expansion is continuing



Source : OECD(2007), Innovation: Advancing the OECD Agenda for Growth and Equity, C/MIN(2007)2.

Second, globalisation has profoundly changed the business environment. Production for many industries is increasingly dispersed with elements of production located in different countries. Final products, and increasingly intermediates, are increasingly off-shored within global value chains, increasing intra-firm trade. This fragmentation of the value chain has led companies to co-ordinate production and distribution across many countries and to set standards throughout the whole chain of

production in order to tie networks of producers and users together. Adhering to high standards facilitates access to world-wide value chains. The fragmentation of value chains is also affecting how and where R&D is located.

Third, the changing nature of production, and its significantly increased scale, has changed the ways in which natural resources are supporting economic development. In recent years, the use of virtually all significant natural resource has been rising and drawing a growing number of countries into value chains. The significantly increased demand, particularly in China, has been accompanied by price rises and concerns about the security of energy and other materials. This in turn has placed emphasis on the efficiency of their use, from extraction to disposal, and on the development of new technologies that could use natural resources more efficiently.

Box 2. The interdependence of China and the rest of the world

“With a low-cost production base and high volume capabilities, China has become the workshop of the world...Export trade rather than domestic consumption is driving China’s growing pollution and resource demands. The average Chinese in fact consumes very little: 48 per cent of Chinese GDP goes to savings. On the other hand, China is the world’s third largest exporter, after the United States and Germany. Tellingly, 40 per cent of China’s energy goes into producing exports for western markets. Thus there is a huge global interdependency, in which most parts of the world benefit from the goods that China produces at hugely competitive prices, while China is left with the “bads” such as pollution and a depleted environment.”

Source: Warburton and Horn (2007).

Fourth, is the increasingly important role that non-state actors – firms, NGOs and social movements - play in “co-producing” policies. Vogel (1995) has argued that some jurisdictions have the power to impose stringent environmental standards on producers and to “upload” them on to trading partners – the so-called “California effect.” At the same time, multi-national enterprises are often more important standard-setters than governments for their suppliers. Beck (2000) documents how a variety of social movements have emerged at local, regional or global level. At the same time, businesses have reorganised to reach global markets, either in the form of multinational enterprises (MNEs), or as smaller entities integrated along global value chains. These developments have required governments to find new ways of working; for example, new forms of partnership have emerged whereby governments, business and NGOs work together to achieve common objectives.

Finally, the gains from globalisation are not distributed equitably, which generates opposition to the main forces of globalisation, including trade and investment liberalisation. The integration of China and India into the world economy has lifted hundreds of million people out of poverty; but others, in these countries and elsewhere, particularly some African countries, have remained untouched. In the US, the macroeconomic gains from globalisation have been estimated at 500 billion USD per year; but the gains are masked by the stagnation (or even a fall) in the earnings of most workers – including those with college degrees (Scheve, Slaughter, 2007). A number of other OECD countries experience similar situations. This results in renewed pressures towards protectionism.

Box 3. Angel Gurría, OECD Secretary-General, on the challenge of globalisation

“Globalisation has brought clear improvements to many, lifting millions out of poverty. But we are losing the debate about the social impact of globalisation. Anxiety about poverty, job losses, lower wages and eroding labour and environmental standards are widespread. In order to stem this growing opposition to globalisation, we need to increase our relevance, efficacy and legitimacy. We need to be much more pro-active and seek to bring together all the stakeholders that can contribute to find solutions to each of the issues we choose to address. And we need to be better at communicating to the world’s public opinion what we are attempting to do, its costs and benefits and the time it will take to gain support for the proposed reform. The collective answer of governments, international institutions and civil society to these pressing challenges cannot be to backtrack from globalisation.”

Source: Statement at a meeting on “Fair overall conditions for a social and open global economy”, Berlin, 19 December, 2007.

3. Economic globalisation and the environment

Views about the environmental impacts of globalisation are as polarised as they are about globalisation in general. Ten years ago, OECD developed a framework for analysing the environmental impacts of globalisation (see OECD, 1997). It suggests that globalisation has both positive and negative environmental impacts, and that the challenge is to establish robust governance systems so that the net effect is positive. Environmental governance systems are needed at local, national, regional and global levels to correct market failures related to the environment. Different types of policy instruments and institutions are needed at each level, but the key challenge is to ensure that environmental policies and those that promote economic globalisation are mutually supportive.

Box 4. Establish a UNEO or strengthen existing international environmental governance?

Environment Ministers discussed globalisation and environment at the February 2007 meeting of the United Nations Environment Programme's (UNEP) Governing Council/Global Ministerial Forum. They recognised that globalisation created and enhanced many opportunities for better promoting sustainable development. At the same time, they agreed that appropriate environmental policies and institutions were required if the opportunities provided by globalisation were to be realised and the risks minimised. There was wide agreement that while the international community had created a variety of bodies to deal with environmental issues, deterioration of natural resources had not been successfully halted or reversed. Uncoordinated approaches at global, regional and national level, as well as duplication and fragmentation of mandates have exacerbated this situation. Lack of co-ordination is not limited to the UN system, but also involves governments, the private sector and civil society.

The current UN reform process provides an opportunity for discussions of how global environmental governance arrangements could be strengthened. However, at this time there is no consensus on how this might be done. Some countries favour the establishment of a "UN Environmental Organisation" to provide better political guidance, legitimacy and effective co-ordination. Others are not convinced that such an organisation is necessary or desirable, and are looking to make the existing arrangements more efficient and better co-ordinated instead.

Since this meeting, further efforts have been made to use existing mechanisms more effectively. These include strengthening co-operation between UNEP and other UN agencies, as well as with the secretariats of Multilateral Environmental Agreements.

Source: UNEP (2007).

By stimulating economic growth, globalisation can have positive and negative *scale effects* on environmental pressures. Growth potentially intensifies environmental pressures. However, accelerated economic growth can also generate demand for a better environment as well as the resources to meet that demand.

Globalisation can promote more efficient use of resources, and reduce the pollution associated with their use. Trade and investment liberalisation concentrate production activities in areas that enjoy comparative advantage. This might be where there are low labour costs, but may also be related to endowments of natural and environmental resources (positive *structural effects*). Investments are attracted to jurisdictions with positive investment climates, many of which have high environmental standards. On the other hand, when markets fail to internalise environmental costs, globalisation may create incentives for pollution-intensive firms to locate in jurisdictions with low environmental standards.

Similarly, globalisation can create economies of scale and facilitate the diffusion of cleaner technologies (positive *technology effects*) and products in use.

The potential effects of globalisation on environmental policy development (*regulatory effects*) are also ambivalent: globalisation can contribute to the dissemination of best practices and more stringent standards for environmental performance; it may also chill environmental regulation, when governments fear that stringent policies will hamper economic competitiveness.

A number of recent developments underline the need to harness the forces of globalisation more effectively to help achieve environmental objectives, and to establish the environmental governance systems that are needed to address current environmental challenges:

- The IPCC 4th assessment report (IPCC, 2007) and Stern Review on the Economics of Climate Change (Stern, 2006) shed new light on the potential adverse environmental and economic impacts of climate change, and intensified debate about the need for cost-effective policies to address this issue while sustaining economic growth; high energy prices, supply volatility, import dependency and concerns about energy security have fuelled these debates;
- The Millennium Ecosystem Assessment (2005) has documented the rapid and serious degradation of the world's major ecosystems over the last 50 years and argued that current policies, institutions and practices are not sufficient to meet this challenge;
- The G-8 meeting in Sea Island, USA, in 2004 launched an initiative on the 3Rs. In 2007, UNEP, supported by the European Commission, established an International Panel on the Sustainable Use of Natural Resources to provide governments with an independent assessment of the environmental impacts of natural resource use. The aim is to increase resource-efficient economic growth globally, and to stimulate sustainable innovation;
- The OECD Environmental Outlook (OECD, 2008b) concludes that if no new policy actions are taken, within the next few decades we risk irreversibly altering the environmental basis for sustained economic prosperity. Strengthened co-operation with the major emerging economies will be essential for this purpose. The Global Environment Outlook (GEO4) by UNEP (2007) and the Fourth Assessment Report (EEA, 2007) have reached similar conclusions.

While expressing concern about current trends, the OECD Environmental Outlook to 2030 also identifies measures that are "do-able" and would not entail excessive costs, particularly compared to the costs of inaction. In the new era of globalisation, some major challenges will have to be overcome to achieve this goal.

The main environmental challenges (climate change, biodiversity, management of water and other resources) are complex, involving a variety of sources and requiring a mix of policy instruments and actions by different stakeholders. Addressing regional and global environmental problems are particularly challenging in view of the uneven costs and benefits involved, the different roles that countries played in causing the problem, and the divergent priorities that governments have at different levels of development. Operationalising "common but differentiated responsibilities" remains difficult.

In most countries, the use of scarce natural resources remains under-priced or even subsidised, and the polluter-pays principle is not fully implemented. Unsustainable subsidies are pervasive in industry, agriculture, transport and the energy sectors. There is still much to be done to make the market work for, and not against, the environment.

The globalisation of economic activity means that individual governments are less "in control" to resolve environmental problems than they used to be. Multinational companies are sometimes more influential than governments in prescribing the standards that their suppliers must meet, but they are not subject to requirements to follow due process. Local consumer demand can lead to certification schemes for sustainable production of goods and services in other jurisdictions, on different continents. While developments such as these may bring environmental benefits, they also raise questions for governments about how they should position themselves and how they should co-operate with their "new partners" in decision-making.

The intensification of competition engendered by globalisation has reinforced the demands of some national interest groups to not strengthen environmental requirements on grounds of competitiveness. Within the entire economy, there will be winners and losers when polluters are required to bear environmental damage costs. Better analysis of competitiveness impacts of

environmental policy measures is needed. Such analysis should compare the net benefits and costs to the economy, not just the impacts on firms and sectors, and assess how innovation and other measures can reduce these impacts. Lack of information, and information asymmetries between government and industry make this difficult, but if these factors are not taken into account, the magnitude of negative impacts will be over-estimated.

A fundamental challenge facing governments today is how they can more effectively mobilise the forces of globalisation to help achieve environmental objectives that are becoming increasingly urgent and challenging. Trade and investment are the main vectors of globalisation. Much has already been done to make these policies compatible with environmental policies (see below), and further efforts are needed. Governments also need to address concerns about competitiveness. Many are doing so by emphasising the links between environmental policies and eco-innovation.

As the group of the world's leading economies, OECD countries have a responsibility to show leadership in addressing environmental challenges, and in promoting environmentally-sustainable growth. To do so, they will need to work more effectively with emerging economies. They will also need to strengthen efforts to support developing countries. Eradicating poverty and promoting environmentally sustainable development requires the integration of developing countries into the world economy, not leaving them vulnerable, without capacity or resources on the margin; suppliers of raw materials for development in the richer parts of the world.

Box 5. OECD's Enhanced Engagement with Emerging Economies

At the May 2007 Meeting of the OECD Council at Ministerial level, OECD Members agreed to open accession discussions with five countries: Chile, Estonia, Israel, the Russian Federation and Slovenia. They also identified several countries with which they wanted to intensify their co-operation, and to enhance their engagement in the work of the Organisation. These are: Brazil, China, India, Indonesia and South Africa. The Chair of the Ministerial meeting explained the need for this as follows:

"To maximise the benefits, and ensure that gains from globalisation are shared equitably, good policies must be in place. The OECD has an important role to play. In order to strengthen its capacity to develop concerted responses to global challenges, the OECD must be more proactive, open and representative. It must be increasingly sensitive to diversity, and display greater understanding for the many different paths that lead to growth and development. It must deepen its engagement with emerging economies who are playing an increasing role in the process of globalisation."

Source: Chair's Summary of 2007 Meeting of the Council at Ministerial Level, C/MIN(2007)6.

4. Environment and trade

From an economic perspective, both international trade and environmental policy work for a common objective of using resources efficiently. Trade allows for specialisation and exchange so that production can take place where it uses fewer resources, permitting consumers to buy the most efficiently-produced goods and services. Environmental policy also works to increase the efficiency of the economic system by ensuring that the full costs of production and consumption, including environmental costs, are reflected in economic decisions. In addition to promoting the more efficient use of resources, effective environmental policies, together with liberalised trade, have the potential to help solve environmental challenges by creating larger markets and generating economies of scale that would facilitate the development and diffusion of cleaner technologies.

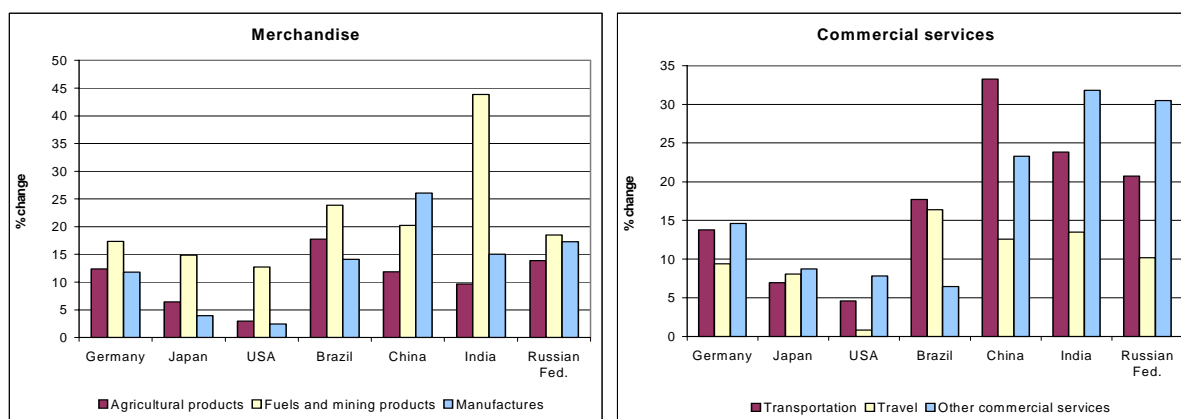
At the same time, increased economic activity generated by trade liberalisation may increase environmental pressures. From a policy perspective, environmental measures may restrict trade, and trade rules may circumscribe the types of environmental regulation that are internationally acceptable. As economies have become increasingly integrated, there have been frictions between the environment and trade systems that have called for efforts to make them compatible and to ensure that the potential synergies that exist are exploited.

In recent years, overall, trade flows have increased faster than global economic production. The trade to GDP ratio¹ has increased from 38 to more than 50% at the world level, from 1985 to 2005; it has increased quicker in emerging economies, from 24 to 69% in China, and from 13 to 45% in India.

Within this overall dynamic, three trends are particularly noteworthy:

1. BRICs have emerged as major trading partners; Figure 2 indicates that in the period 2000-05, the BRICs have outperformed leading OECD economies in exporting almost all broad categories of goods and services;
2. MNEs increasingly trade with foreign subsidiaries along globalising supply chains, thus enhancing the importance of intra-firm trade; and
3. Foreign Direct Investment is increasingly linked to trade. A significant share of foreign direct investment aims at developing production abroad that is then traded. This is particularly the case of FDI in the energy and natural resource sector in developing countries, and in some manufacturing industries in China.

Figure 2. Exports of merchandise and services by selected countries
Annual average growth rate, 2000-05



Source: WTO, Statistics Database, 2007.

In 1991, OECD became the first international organisation to establish a standing body to examine how trade and environmental policies could be made mutually supportive (OECD, 2007j). In the first phase of work, the Joint Session of Trade and Environment Experts (JSTEE) – later the Joint Working Party on Trade and Environment (JWPTE) – instigated some pioneering work including: elaborating a framework for analysing trade and environment linkages; analysing the impacts of environmental policy on competitiveness; integrating trade and environmental policy perspectives on processes and production methods and the use of life-cycle analysis; the trade implications of economic instruments used for environmental purposes; and harmonising environmental standards. One of the main policy conclusions emerging from this work was that, in the absence of effective environmental policies to internalise environmental costs, or the removal of market distortions, particularly subsidies, increased economic activity generated by trade liberalisation was likely to exacerbate environmental problems.

¹ Defined as the sum of exports and imports of goods and services measured as a share of GDP; source: The World Bank, World Development Indicators online database

Box 6. Strategies to reform environmentally-harmful subsidies

Subsidies are pervasive throughout OECD countries and worldwide. Every year, OECD countries transfer at least USD 400 billion to different economic sectors. Much of this support is potentially environmentally harmful.

Reforming environmentally harmful subsidies is a significant policy challenge facing OECD countries. However, untangling and assessing the effects of subsidies on the environment is a complex task. A systematic approach is required to ensure that appropriate policies are developed and the benefits of reform fully realised.

An OECD report on this issue presents sectoral analyses on agriculture, fisheries, water, energy and transport. It proposes a checklist approach to identifying and assessing environmentally harmful subsidies; the checklist focuses on two interrelated issues: the effects of subsidy removal on the decisions of consumers and producers; and the linkages between those decisions and the environment.

It also identifies the key tensions and conflicts that are likely to influence subsidy policy making. These include: strength of special interests and rent-seeking behaviour; false perceptions and fear of change; competitiveness and distributional concerns, particularly with respect to regional interests; lack of transparency; and legal, administrative and technological constraints.

A mix of policy measures is required to reform subsidies. Challenging the misconceptions surrounding the provision of subsidies to particular sectors, recognition that a range of options is available to meet societal objectives are important factors. Other ingredients of successful reform include the diffusion of best practices; better targeting of existing subsidies and improved subsidy design. Political economy considerations are crucial for successful reform, as is transparency.

Source: OECD (2005b).

In 1995 the World Trade Organisation (WTO) was established. The founding statutes of the WTO recognise that trade and environment can and should be mutually supportive. They recognise that trade policies should be conducted in accordance with sustainable development objectives and seek to protect and preserve the environment.

In the period 1995-2001, much of the debate on trade and environment took place in the newly-created WTO Committee on Trade and Environment. Within OECD, analytical work was carried out to support negotiations in this new forum. One of the main issues analysed was the compatibility of WTO disciplines and provisions in Multilateral Environmental Agreements (MEAs). One important conclusion that emerged from this work was that trade regulation could be an appropriate instrument in MEAs. However, trade should be seen in relation to other policy instruments. Trade is not usually the most appropriate choice of instrument and should only be used in specific circumstances: when the international community has agreed to tackle and manage collectively international trade as a part of the environmental problem; when trade controls are needed to make regulatory systems comprehensive in their coverage; to discourage free-riding; and to ensure compliance with the MEA.

Other key projects in this period dealt with sustainable product policies (extended producer responsibility, eco-labelling, greening of public purchasing) ; environmental effects of trade liberalisation in various sectors, including freight transport and fossil fuels; the elaboration of methodologies for conducting environmental assessment of trade liberalisation agreements; and, links between key environmental principles and approaches (precaution, the polluter-pays principle) and trade.

Box 7. Environmental impacts of China's accession to WTO

A study conducted by the China Council for International Co-operation on Environment and Development assessed the environmental impacts of China's accession to the WTO in several sectors. For agriculture, the report considered that the impact could be positive if increased trade liberalisation shifted production from products requiring high levels of land, water and chemical inputs to more labour-intensive products (structural effect). It recommended that this shift should be supported by measures to reduce subsidies for chemical inputs, increase support for advisory services, disseminate information about foreign environmental requirements for agricultural products, and strengthen domestic standards.

Timber imports are projected to increase five-fold from 1995 to 2010, in part to support the production of wood products, notably furniture, for export (scale effect). While this may have a beneficial impact on Chinese forests, particularly if accompanied by improved forest management, it may also contribute to unsustainable forestry practices in supply countries in Asia and beyond. The report recommended that China consider reducing tariffs on finished wood products, and strengthen its international co-operation to promote sustainable forestry throughout the entire product chain (regulatory effect).

WTO accession has contributed to a sharp rise in aquaculture exports whose volume currently is roughly equivalent to China's net imports of agricultural products. Environmental problems have been exacerbated by this trend. However, the report argued that these costs could be outweighed by the economic and environmental benefits if appropriate policies are put in place: ensure high product standards, strengthen control of land-based marine pollution, manage resources effectively to optimise the quality and quantity of products produced, disseminate information, provide technical support (technology effect), and participate in international activities related to standards for aquaculture.

Source: Adapted from CCICED (2004).

In the period after 2001, the JWPTTE's work focused to a large extent on providing analytical support for discussions and negotiations in the WTO, following the adoption of the Doha Development Agenda (DDA) mandate on trade and environment (see box 2). The JWPTTE's new work focused in particular on three issues listed in the DDA: the reduction or, as appropriate, elimination of tariff and non-tariff barriers to *environmental goods and services* [paragraph 31 (iii)]; the *effect of environmental measures on market access*, especially in relation to developing countries [paragraph 32(i)] and *labelling requirements for environmental purposes* [paragraph 32(iii)].

Box 8. The Doha Development Agenda: Excerpts on trade and environment

“31. With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on:

(i) the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental agreements (MEAs). The negotiations shall be limited in scope to the applicability of such existing WTO rules as among parties to the MEA in question. The negotiations shall not prejudice the WTO rights of any Member that is not a party to the MEA in question;

(ii) procedures for regular information exchange between MEA Secretariats and the relevant WTO committees, and the criteria for the granting of observer status;

(iii) the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.

We note that fisheries subsidies form part of the negotiations provided for in paragraph 28.

32. We instruct the Committee on Trade and Environment, in pursuing work on all items on its agenda within its current terms of reference, to give particular attention to:

(i) the effect of environmental measures on market access, especially in relation to developing countries, in particular the least-developed among them, and those situations in which the elimination or reduction of trade restrictions and distortions would benefit trade, the environment and development;

(ii) the relevant provisions of the Agreement on Trade-Related Aspects of Intellectual Property Rights; and

(iii) labelling requirements for environmental purposes.

Work on these issues should include the identification of any need to clarify relevant WTO rules. The Committee shall report to the Fifth Session of the Ministerial Conference, and make recommendations, where appropriate, with respect to future action, including the desirability of negotiations. The outcome of this work as well as the negotiations carried out under paragraph 31(i) and (ii) shall be compatible with the open and non-discriminatory nature of the multilateral trading system, shall not add to or diminish the rights and obligations of members under existing WTO agreements, in particular the Agreement on the Application of Sanitary and Phytosanitary Measures, nor alter the balance of these rights and obligations, and will take into account the needs of developing and least-developed countries.

33. We recognise the importance of technical assistance and capacity building in the field of trade and environment to developing countries, in particular the least-developed among them. We also encourage that expertise and experience be shared with members wishing to perform environmental reviews at the national level. A report shall be prepared on these activities for the Fifth Session.”

Source: www.wto.org; http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm.

The initial work on the liberalisation of environmental goods and services (EGS) emphasised that it was an important but not sufficient condition for achieving environmental benefits: complementary, demand-side measures were also important, particularly: appropriate environmental regulatory frameworks and the choice of policy instruments; ensuring complementarities of environmental goods and environmental services; buttressing the implementation of pollution prevention by avoiding distortions; and fostering diffusion of appropriate technology in emerging economies.

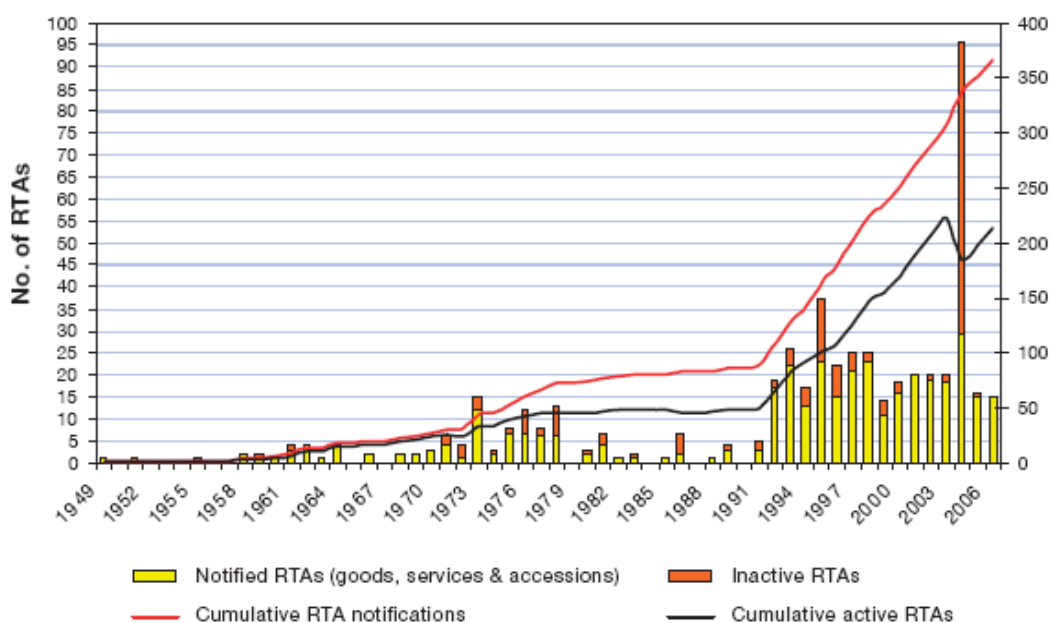
The next phase of work supported negotiations on EGS by analysing a variety of issues: the definition of “environmental goods and services”, including the concept of “environmentally preferable products”; the linkages between “environmental goods” and “environmental services” which are negotiated in different WTO committees; trade in specific “environmental goods” including renewable energy, energy-efficient electrical appliances and monitoring equipment; and the transfer of “environmentally sound technology.” Most recently a survey was conducted of firms exporting environmental goods and services to assess non-tariff barriers to trade. The main conclusion was that the most frequently cited barriers were generic and not environment-specific; for example, product testing and certification procedures, customs procedures, regulation of payments, etc.

The effects of environmental requirements on developing-country exports arising from OECD Members' environmental and health regulations, as well as from standards set by governmental and non-governmental organisations, have long been a subject of trade and environment debate. Developing countries want to boost their income through exports. Importers, particularly industrialised countries, want to ensure that imported goods meet their own established requirements for health, safety and the environment. Awareness of the potential impacts of environmental requirements on trade partners has increased with time, as has information on regulations. Analysis conducted by the JWPTTE showed that effective measures for reconciling exporters' and importers' interests include: early notice of intended actions; opportunities for comment; scientific studies and risk assessments to justify intended actions; taking into account, or adopting, international standards. Technical assistance and capacity building are important means for enabling the poorest exporting countries to become familiar with environmental requirements in export markets.

More recently, the JWPTTE has undertaken work in areas which are not directly linked to negotiations at the WTO. This has included analysis of environmental provisions in regional trade agreements (RTAs). Over the last few years, the number of RTAs has significantly increased, and in addition to tariff reductions, many deal with other issues such as labour and environment. Today, RTAs negotiated by most OECD Members include some type of environmental provision, and provide a potentially important means of making trade and environment policies mutually supportive. The JWPTTE has agreed to monitor these developments and to disseminate the results.

Figure 3. RTAs notified to the GATT/WTO

1948-2006, by year of entry into force



Source: WTO.

Box 9. Environmental clauses in RTAs

Among OECD Members, Canada, the European Union, New Zealand, and the United States have included the most comprehensive environmental provisions in recent RTAs. The agreements by the United States are unique in that they put trade and environmental issues on an equal footing. Among non-OECD countries, Chile's efforts to include environmental provisions in its trade agreements are particularly noteworthy.

So far, the most ambitious agreements, from an environmental point of view, include a comprehensive environmental chapter, or are accompanied by an environmental side agreement, or both. Some countries consider environmental issues before entering into an agreement, by carrying out a prior assessment of its potential environmental impacts. A few RTAs, which did not originally include environmental provisions, have later been complemented by an environmental agreement. This is the case for the Mercado Común del Sur (MERCOSUR) agreement, which has been complemented by a Framework Agreement for Environment.

Environmental elements typically found in many RTAs are environmental co-operation mechanisms. These range from broad arrangements, to co-operation in one specific area of special interest to the Parties. The areas of co-operation in different RTAs vary significantly, and depend on a range of factors, e.g. on whether the trade partners have comparable levels of development or not (in which case, co-operation often focuses on capacity building), or whether they have common borders, as is the case between members of the North American Free Trade Agreement (NAFTA).

Environmental standards also figure in a range of agreements, in various forms. The obligation for Parties to enforce their own environmental laws is included mainly in agreements involving the United States and Canada. A few RTAs refer more generally to the Parties' commitment to maintain high levels of environmental protection. Others, such as those recently negotiated by New Zealand, include references to the inappropriateness of lowering environmental standards. Most RTAs contain clauses reiterating the compatibility between Parties' trade obligations and their right to adopt or maintain environmental regulations and standards. Some also include a reference to the compatibility between the agreement and multilateral or regional environmental agreements.

Source: OECD (2007c).

5. Environment and investment

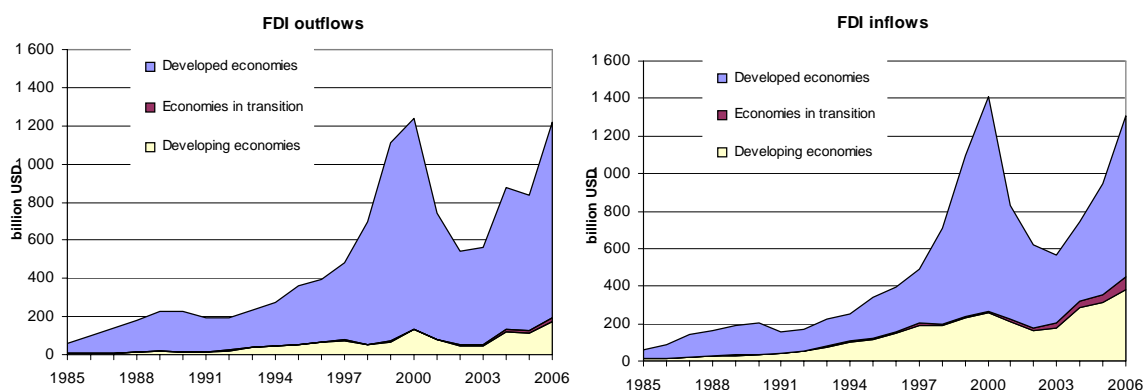
Foreign direct investment (FDI) is one of the driving forces binding countries into closer economic interdependence. It has grown rapidly in recent years, associated with the deeper liberalisation of national and international investment regimes.

The rapid growth of FDI has generated debates about its associated impacts, including on the environment. One view is that FDI encourages countries to lower their environmental standards, or not to raise them, leading to a "race to the bottom" and the emergence of pollution "havens". A counter view is that FDI promotes pollution "halos", that is, it supports the establishment of higher environmental standards through the wider adoption of more resource efficient, cleaner technologies; it improves both economic and environmental performance through the implementation of more efficient operational and management practices within multinational enterprises (MNEs) and their suppliers; and it helps to generate pressure from consumers for goods and services produced in an environmentally responsible manner.

The importance of FDI for environmental purposes was underlined in a recent report by the UNFCCC secretariat (UNFCCC, 2007). The report suggests that the additional estimated amount of investment and financial flows needed in 2030 to address climate change is large compared with the funding currently available under the UNFCCC Convention and its Kyoto Protocol, but small in relation to estimated GDP (0.3-0.5%) and global investment (1.1-1.7%). Private sector investments were estimated to represent more than 80% of these investments and financial flows. Investment decisions being made today will have a crucial bearing on addressing climate change and other environmental issues. The types of investments made in energy, transport, industry, private and commercial property, for example, will "lock-in" greenhouse gas emissions for decades to come.

In the period, 1985 to 2005, FDI flows promoted international economic integration primarily by mergers and acquisitions among OECD countries (see OECD, 2007d). At the same time, FDI remained concentrated in a limited number of countries: in 2005, four countries (US, UK, China² and France) received almost half of FDI flows; developing countries, with the exception of China, receive very little FDI. At the same time, FDI from developing and transition economies has increased rapidly in recent years; developing and transition economies together accounted for 13% of the world's FDI stock in 2005, compared with 7% in 1990 (Aykut, Goldstein, 2007). This results from emerging multinational enterprises growing significantly in size, number and importance (e.g. Indian or Chinese firms investing in Africa, but also in the US and in Europe).

Figure 4. Foreign Direct Investment flows by selected regions 1985-2006 (in billion USD)



Source: UNCTAD, FDI online database, 2007.

In 1999, an OECD conference reviewed the evidence regarding the environmental impacts of investment and recommended that:

- The analytical focus should move beyond pollution havens and halos to examine the net environmental effects of investments, including cumulative and scale effects;
- More attention should be given to the impacts in different sectors, particularly resource-using sectors³; and
- Policy and institutional frameworks for integrating environmental and investment goals should be strengthened, particularly in developing countries.

Corporate strategies have a major bearing on the environmental impacts of FDI. A review of the literature on this issue indicates that environmental requirements usually are a relatively minor factor in location decisions of firms (see for example Vercaemst). More important factors include access to the final market and to strategic resources (e.g. technology, skilled labour, raw materials) and political stability. Moreover there is no single corporate strategy for globalisation. One study (Berger, 2005) that observed 500 companies over five years concluded: “we became sceptical about the notion that globalisation forces any one set of strategies or sets up an inevitable race to the bottom in wages, working conditions, and environmental standards. When we discovered that there were different solutions to the same economic challenges, and found that a number of these solutions are about equally likely to produce success in the market place, we realised we could no longer fall back on “globalisation” as an all-purpose explanation for why a company chooses one strategy over another and for why it does or does not work.”

² Including Hong Kong

³ Subsequently OECD examined the environmental impacts of FDI in the mining sector (OECD, 2002)

At the firm level, many large multinational enterprises claim to follow corporate policies that apply high environmental standards in their global operations. Moreover, many companies are sensitive to the security of supply of energy and natural resources and are putting environmental sustainability at the centre of their long-term corporate strategies. Governments are seeking ways to reinforce this dynamic. For example, the Top Runner schemes initiated in Japan, and considered by the European Commission, aim to progressively readjust standards for environmental performance to the level of the best performers in the industry.

At a global level, firms have committed to a variety of voluntary codes of conduct. The UN Compact and the Global Reporting Initiative are well established initiatives, but it is not clear how such codes apply along value chains. Financial institutions increasingly take into account the social and environmental impacts of corporations and the negative effects of environmental liabilities on stock value. A number of financial indices, such as FTSE4Good or NASDAQ Clean Edge US Index, track the environmental and social performances of publicly traded companies for investors. Among the instruments likely to shape international financial activities are the International Finance Corporation's Performance Standards on Social and Environmental Sustainability, the Equator Principles and the OECD Recommendation on Environment and Export Credits (revised in 2007).

Box 10. Global voluntary codes of conducts at the level of the firm

The United Nations define the Global Compact as a framework for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, the environment and anti-corruption. It is the world's largest, global corporate citizenship initiative. The Global Compact is a voluntary initiative with two objectives:

- Mainstream the ten principles in business activities around the world
- Catalyse actions in support of broader UN goals, such as the Millennium Development Goals (MDGs)

To achieve these objectives, the Global Compact offers facilitation and engagement through several mechanisms: Policy Dialogues, Learning, Country/Regional Networks, and Partnership Projects. The Global Compact relies on public accountability, transparency and the self-interest of companies, labour and civil society to initiate and share substantive action in pursuing the principles upon which the Global Compact is based.

The Global Reporting Initiative is a large multi-stakeholder network of thousands of experts, in dozens of countries worldwide. They contribute to develop the Reporting Framework. The Global Reporting Initiative (GRI) has pioneered the development of the world's most widely used sustainability reporting framework and is committed to its continuous improvement and application worldwide. This framework sets out the principles and indicators that organisations can use to measure and report their economic, environmental, and social performance. The cornerstone of the framework is the Sustainability Reporting Guidelines. The third version of the Guidelines – known as the G3 Guidelines - was published in 2006.

Source: Global Compact and GRI websites (<http://www.unglobalcompact.org>, <http://www.globalreporting.org>).

The OECD Guidelines for Multinational Enterprises contain an environmental chapter (see OECD, 2004b) and a Handbook was prepared identifying tools and instruments that enterprises can use to comply with the chapters' recommendations. The Guidelines are unique in the sense that they are endorsed by governments and each government has set up a National Contact Point which may receive reports of instances alleging non-compliance with the Guidelines. While most instances deal with labour and human rights issues, some have also involved environmental issues.

Box 11. The OECD MNE Guidelines and environment-related specific instances

At their 2007 annual meeting, National Contact Points reported that, since the June 2000 review, there have been over 156 filed requests to consider specific incidents (OECD, 2007g). 134 specific instances had been taken into consideration, out of which 84 had been concluded. 15 specific instances taken into consideration included an environmentally-related instance, usually claims that an OECD MNE was not upholding environmental standards in a non-Member country. Nine of them have been concluded. Further information would be needed to gain more insight into the nature of the environmental instances and how they were dealt with.

Source: OECD (2007g), Annual meeting of national contact points.

A number of non-OECD countries have signed up to the MNE Guidelines⁴, but given the sharp increase in foreign investment by enterprises hosted in emerging economies, the governments of those countries could be encouraged to endorse the MNE Guidelines. For example, the OECD Environmental Performance Review of China recommended the Chinese government should provide more oversight over the environmental performance of Chinese enterprises, perhaps using the MNE Guidelines (OECD, 2007h).

A variety of approaches have recently been developed to promote synergies between environment and investment policies. In the absence of a regime equivalent to the WTO to promote investment liberalisation at the global scale, some countries are entering into bilateral investment agreements. Some of these agreements try to address concerns related to health, safety, and the environment. Such agreements may contribute to create a more sustainable framework for foreign investment. However, as they develop, governments and companies have to deal with a rapidly evolving and increasingly complex set of rules (OECD, forthcoming). The overall impact of such agreements on environmental performance has yet to be assessed.

OECD has developed a Policy Framework for Investment (PFI), which provides guidance for governments, including developing countries, on how to assess whether their policy framework is attractive for private, foreign investors. The PFI covers 10 policy areas: investment policy, investment promotion and facilitation, trade policy, competition policy, tax policy, corporate governance, policies for promoting responsible business conduct (including those recommended in the OECD Guidelines for Multinational Enterprises), human resource development, infrastructure and financial sector development, public governance. Some of these issues have an environmental perspective, but the Framework has no dedicated environmental chapter. Work is underway to fill this gap.

Building on the PFI, Principles for Private Sector Participation in Infrastructure (OECD, 2007k) have been adopted by the OECD Council. Currently work is underway to examine how they could be applied to the water infrastructure, and a discussion is underway with a view to applying them to energy infrastructure.

6. Environment and competitiveness

One factor holding back the establishment of robust environmental policies is the fear that such policies would adversely affect competitiveness. Various empirical studies (Adams, 1997; SQW, 2006; and Pieters, 2007) have concluded that there is no clear evidence that environmental requirements harm – or improve - overall competitiveness. It may do so in certain sectors and under particular circumstances, but these negative impacts usually find positive offsets elsewhere in the economy. Where unfavourable competitive impacts do exist for individual firms or sectors, there are often practical ways of reducing these concerns.

⁴ As of July 2007, Argentina, Brazil, Chile, Egypt, Estonia, Israel, Latvia, Lithuania, Romania and Slovenia had adhered to the OECD Declaration on International Investment and Multinational Enterprises and its Guidelines

Better analysis of competitiveness impacts of environmental policy measures is needed. Such analysis should compare the net benefits and costs to the economy, not just the impacts on firms and sectors, and assess how innovation and other measures can reduce these impacts. If not, the magnitude of negative impacts will be overestimated. Improving public awareness of the overall costs and benefits of proposed measures to address climate change can also make an important contribution to the policy debate.

With negotiations for a post-2012 international climate change framework now underway, discussions on the potential competitiveness impacts of ambitious climate change policies are likely to intensify. The introduction of government policies to mitigate climate change, such as emission reduction targets or caps, emissions trading schemes and carbon taxes, has been hampered in a number of countries by fears of possible negative impacts on industrial competitiveness. There are also concerns that, if policies are put in place in only some countries, there is a risk of “carbon leakage” —or the relocation of firms to countries without strong climate policies. This would distort competition, and also limit the effectiveness of the policies in reducing greenhouse gas emissions.

In cases where the negative impacts of climate change policies on competitiveness are likely to be significant, governments may decide to take action to compensate or mitigate these impacts. In general, announcing measures early, and providing a transition period that allows firms to implement least-cost measures would help to reduce such impacts. Harmonising policy approaches amongst countries, in particular those with trade-exposed affected sectors, can help to level the playing field amongst the competing firms. Integrating measures to address climate issues as part of a broader reform of industry or sectoral policies could also help to off-set negative competitiveness impacts in affected sectors.

In situations where only a few countries implement ambitious policies, additional measures might be considered to address the problem of potential carbon leakage. Some measures that are currently under discussion include:

- When an energy or carbon tax is applied, recycling (some of) the tax revenues back to affected sectors.
- When a permit system is applied, allocating some initial permits to affected sectors free of charge.
- Developing international sectoral agreements or approaches to reduce emissions.
- Applying border tax adjustments, in so far as they are in compliance with WTO regulations.

There is still much debate about the efficiency and environmental effectiveness of such approaches.

While adjusting or fine-tuning the design of climate policies to address competitiveness concerns as discussed above can provide short-term solutions to political bottlenecks, over the longer term the cost of protecting inefficient industries while achieving ambitious emissions reductions is likely to be high. Transitional measures -- such as retraining of workers and compensation to low-income families through social security systems-- could be part of the reform package to smooth the transition of structural changes on particular segments of the economy.

7. Eco-innovation

A number of OECD governments and firms are now placing a strong emphasis on eco-innovation⁵ to address priority environmental issues, including climate change and the sustainable use of natural resources, as a way to address concerns about the competitive impacts of environmental policies and also to access a large and growing market for environmental goods and services (EGS). For example, a recent policy paper by the German Environment Ministry argued, “Those countries and regions that achieve technological leadership in the green markets will gain decisive advantages in the global competition, creating the right conditions for growth and job creation” (BMU, 2006). Japan has placed eco innovation at the centre of its strategy for a sustainable society (Japan).

Box 12. Environmental Goods and Services (EGS) as an economic sector

According to a recent survey, the global EGS market has an estimated turnover of around US\$ 550 billion. The US and the EU share a leading position, each region hosting more than 38% of the global market (Selwyn, Leverett, 2006). The same report predicts global growth in the EGS industry of 45% by 2015. According to this prediction, the EGS industry will have come close to a global value of US\$ 700 billion by 2010 and nearly US \$800 billion by 2015.

Another source estimates the employment of the EGS industry in EU-25 region at just under 3.4 million full-time employees. Solid waste management & recycling and waste water treatment account for more than half (54%) of labour (Ernst & Young, 2006).

The EGS market is growing faster in developing countries than in many OECD countries.

OECD and Eurostat have developed a methodology for measuring the EGS industry that could be used to help compare the various estimates that have recently been produced.

Source: UK CEED (2006); Ernst & Young (2006); OECD (2005a).

While businesses are key actors here, governments have the responsibility to provide a clear and consistent long-term policy framework that provides appropriate incentives for eco innovation. Different policy instruments will affect the incentives for firms and households to develop and adopt environment-friendly technologies in different ways (see Johnstone, 2005). Taxes and permits will affect the relative price of different factor inputs, encouraging firms to save on those factors which are closely linked to environmental damages; performance standards will place binding quantitative limits on the use of particular inputs or generation of particular emissions; technology standards or input bans will directly constrain the choice of technologies which can be used; and information-based measures (e.g. environmental technology verification systems) will affect the firms’ perceptions of the relative merits of alternative choices of environment friendly technologies, production processes or product design.

One challenge that environmental policy makers face in this regard is a potential trade-off between national and international approaches. National standards can best reflect national circumstances, yet they may create barriers to the diffusion of eco-innovation by fragmenting markets and reducing economies of scale. Harmonising standards at the international level may overcome this difficulty, but may result in sub-optimal environmental outcomes or undue costs in some countries; it can also stifle policy experimentation.

⁵ Environment-related innovation (hereafter eco-innovation) includes environmentally sound technologies, i.e. those that “protect the environment, that are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes” (UNEP International Environmental Technology Center, see <http://www.unep.or.jp/ietc/>). Innovation also includes total systems and their component parts, including know-how, goods and services, equipment, and organisational and managerial procedures.

Environmental and other policies can create demand and provide incentives for eco-innovation. However, public support to eco-innovation – the supply side - may be justified insofar as it contributes to helping to provide a public good or to reduce an environmental externality. However, support policies should be designed in such a way that they do not distort (international) competition and are compatible with international trade regimes.

A balance has to be found between the incentives to innovate and the diffusion of innovation, in particular in emerging economies. The debate about intellectual property rights indicates that this is not an easy matter: a strong intellectual property rights regime will secure revenues for innovators, but it may slow the diffusion of innovation. If technology and innovation are major drivers of competitiveness in a globalising economy, developing countries may find it even more challenging to compete (Dahlman, 2007). The Bali Strategic Plan for Technology Support and Capacity-building, approved by UNEP Governing Council in 2005, provides a framework for improving the access of developing countries to environmental technologies. The movement need not necessarily all be one way; the environmental goods and services sector in some developing countries is growing faster than in many OECD countries, underlining the benefits of liberalising trade in environmental goods and services.

SMEs can play an important role in the development and diffusion of environmental technologies. However, they usually lack adequate finance and human resources to improve their technology and innovation capacity to play a role in global value chains (OECD, 2007f). The dissemination of reliable information on the performance of environmental technologies via verification schemes can enable SMEs to provide objective information on the environmental performance of their technologies. However, as more schemes develop, this advantage will not be realised unless there is some recognition of the assessments performed by such schemes. OECD could provide a platform to facilitate the convergence of existing and emerging schemes on a global scale.

Public support must take account of the increasingly international dimension of R&D processes at firm and industry level. In a globalising economy, R&D can involve complex, international networks, including partnerships between governments, the private sector and other stakeholders. Public support for eco-innovation may therefore spill over national boundaries and benefit foreign firms, e.g. when public R&D supports suppliers from another country. From a policy perspective, the question is how much of such a spill-over is a national government ready to accept?

The 2007 Meeting of the OECD Council at Ministerial level called on OECD to develop an Innovation Strategy for OECD countries (OECD, 2008c). Ministers stressed that the way we innovate is changing. Thirty years ago the focus was largely on technological change, finished products and linear progression; innovators today focus on the management of knowledge by interconnected networks, “open” systems of innovation, networks of excellence and communities of practice, and innovation carried out locally but with global reach. Some of the elements underpinning these developments have been:

- i. The increasingly knowledge-driven nature of innovation, with non-technological forms of innovation, such as organisational improvements and changes in business models, becoming an increasingly important element.
- ii. A new way of organising research, driven by informatics and the notion that collaboration and sharing of knowledge can be a positive sum game.
- iii. Rapidly improving connectivity as globalisation accelerates.
- iv. Changes in markets (including the emergence of the Brazil, Russia, India and China as new global players in innovation), the competition environment and technology at a faster rate than ever before, implying that continuous learning and adaptation are essential.
- v. Profound changes in financing and business models to capture the benefits of these changes.

The OECD Innovation Strategy aims to address countries' needs for a more comprehensive, coherent, and timely understanding of how to promote, measure, and assess innovation and the underlying dynamics of change. It is meant to shed light on and catalyse multi-sectoral and whole-of-government approaches to innovation as a driver of sustainable growth, productivity and development, and to help address global challenges. In this connection, Ministers emphasised the importance of addressing eco innovation, *inter alia* to address global environmental challenges like climate change. As a contribution to the development of the Innovation Strategy, it is envisaged that analysis of the environmental component will focus on:

- Measuring eco-innovation
- Identifying good practice approaches, and
- Assessing the impact of different policy instruments, particularly tax instruments, on eco innovation.

8. Strengthening environmental governance: the case for enhanced environmental development co-operation

Reaping the opportunities provided by globalisation requires that the benefits are distributed more equitably. In particular, integrating developing countries into the global economy provides opportunities for them to benefit from trade and investment flows and to lift millions more people out of poverty. Aid alone cannot end poverty or create growth. OECD countries have recognised the need for greater coherence across a range of policies that affect developing countries; for example agriculture, trade, investment, migration (OECD 2004c). At the same time, development co-operation programmes need to integrate the findings and best practices from OECD policies, including environment (see for example OECD 2008b).

Many low-income countries are highly dependent on natural resources for livelihoods and to reduce poverty. As demand for energy and natural resources increases to fuel the growing scale of global economic development, exploitation of such resources in developing countries will increase- with some countries benefiting significantly and others suffering from increased prices. Effective environmental governance is needed to ensure that natural resource management contributes optimally to growth, that economic growth is environmentally sustainable, and that local populations benefit from the exploitation of natural resources. These objectives are frequently not met.

Effective environmental governance systems are also needed, for “brown issues”, for example, to prevent illegal shipments of hazardous wastes and the damage to human health that occurred in 2006 when toxic waste were dumped at eleven unsecured sites around Abidjan, Ivory Coast. In addition, developing countries are particularly vulnerable to the impacts of global environmental problems like climate change. Environment Ministries in those countries need to work with other ministries to develop appropriate adaptation strategies.

OECD countries have pledged their support to help developing countries eradicate poverty, *inter alia* by helping them to achieve the Millennium Development Goals (MDGs). Many OECD countries have also included environment in their development co-operation programmes, often linked to achieving the objectives of MEAs. For developing countries to achieve environmentally-sustainable development, these efforts will need to be reinforced, and more closely related to the poverty-reduction strategies of developing countries.

Box 13. DAC Guidance on Environment and Development

Donor agencies have been working together in the framework of the Development Assistance Committee (DAC) since the early 1990s to integrate environment into development co-operation programmes. In the period 1992-95, the DAC endorsed nine sets of guidelines on a variety of issues including environmental impact assessment, global environmental problems, chemicals and wetlands. The DAC also endorsed Guidelines for Capacity Development for Environment.

Since 2001, a second series of guidance documents related to the environment have been prepared as part of DAC's Guidance and Reference Series:

- Strategies for Sustainable Development: Practical Guidance for Development Co-operation (2001)
- Integrating the Rio Conventions into Development Co-operation (2003)
- Environmental Fiscal Reform for Poverty Reduction (2005)
- Applying Strategic Environmental Assessment: Good Practice Guidance for Development Co-operation (2006)
- Pro-poor Growth and Natural Resources: the Economics and Politics (2008)

Source: www.oecd.org/dac/environment.

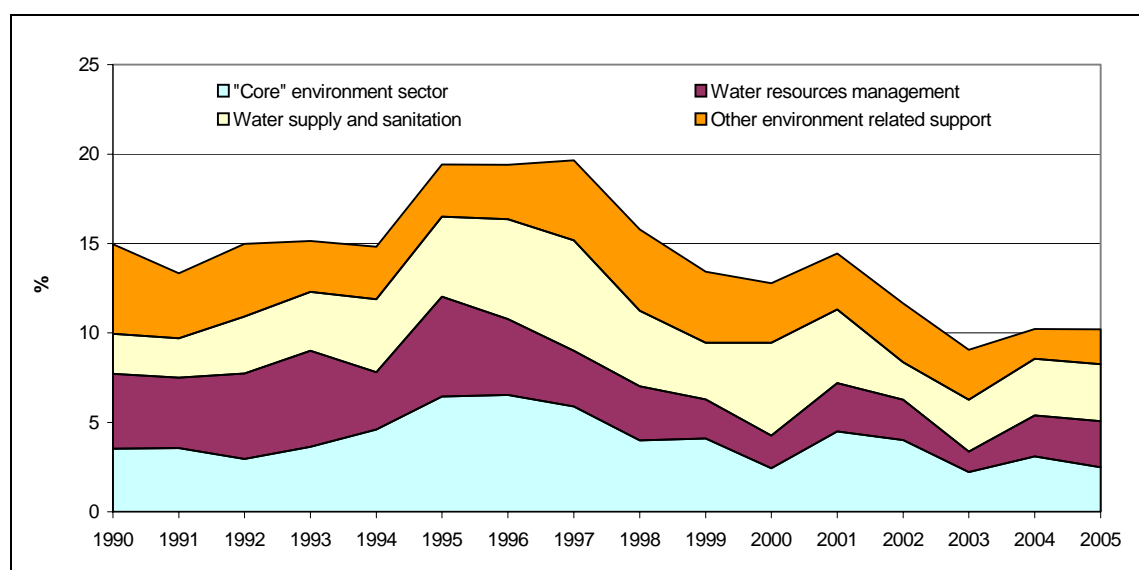
Following the principle of “common but differentiated responsibilities”, addressing global environmental challenges involves establishing mechanisms to facilitate the transfer of finance and technologies, as well as the engagement of the private sector. A key issue in designing such mechanisms is the extent to which they are “additional” to “existing” development co-operation. Thus specific mechanisms have been developed, for example in the context of the Kyoto protocol, or the Bali Strategic Plan for Technology Support and Capacity-building. However, recent OECD work indicates that private investments to support climate change mitigation, not surprisingly, go where there is most security and highest returns for the investor, that is for large industrial projects in a small number of countries (in particular China). Energy efficiency projects which have slower rates of return and projects in Africa receive very little attention (OECD, 2007g).

Recent trends in environmental development co-operation are mixed. In real terms, aid for environment has been relatively stable over the last 15 years when defined in broad terms, but declining when defined narrowly. The decline in “core” environmental aid can be attributed to a 17% reduction in support from bilateral donors (who have traditionally provided over 80% of this aid) between 1996 and 2005. A recent upsurge in “extended” environmental aid⁶ (which peaked in 2005 at over USD 12 billion) is explained by much stronger support of bilateral donors for water-related programmes – it more than doubled between 2003 and 2005, probably because of the inclusion of water-related targets in the MDGs. By any definition, however, environmental aid has been declining as a share of donor country GDP and of total aid.

⁶ Extended environmental aid also includes water resources management, water supply and sanitation and other environment-related support (urban and rural development, forestry and fisheries development).

Figure 5. Aid for environment 1990-2005

Environment-related Official Development Assistance (ODA) as percent of total ODA



Notes: Data refer to bilateral and multilateral ODA.

Core environment sector: general environmental protection (environmental policy, biosphere protection, biodiversity, education/research), waste management, renewable energy, agricultural land resources

Water resources management: water resources protection, flood prevention/control, river development, agricultural water resources.

Water supply and sanitation: basic water supply and sanitation, large systems water supply and sanitation.

Other environment-related support: urban and rural development, forestry and fisheries development.

Source: OECD CRS Aid Activity Database (Creditor Reporting System) at www.oecd.org/dac/stats/idsonline

Bilateral environmental development co-operation is changing both quantitatively and qualitatively. The principles set forth in the Paris Declaration on Aid Effectiveness, endorsed on 2 March 2005 (see [The Paris Declaration](#)) call for OECD Members to move away from project-based approaches to providing general budget and programme support aligned with developing country priorities. The limited information available suggests that environmental development co-operation is undergoing a further decline as a result. Despite some positive examples, there are concerns that aid agencies in donor countries are generally not well-equipped to integrate environmental and natural resource management issues into new aid programmes. Following the 2006 meeting of OECD Environment and Development Co-operation ministers, OECD is now working on this issue.

Box 14. Follow-up to 2006 OECD Environment and Development Ministers' Meeting

A Joint Meeting of the Development Assistance Committee (DAC) and the Environment Policy Committee (EPOC) was organised at Ministerial Level on 4 April 2006 in Paris. The Joint Ministerial Meeting adopted two strategic documents. The first, a Framework for Common Action around Shared Goals, presents a "menu of options" to be pursued by environment and development co-operation agencies, and their partners, to better integrate environment into development co-operation programmes. The second document, a Declaration on Integrating Climate Change Adaptation into Development Co-operation, calls upon the OECD to pursue analytical work to support the integration of climate change into development co-operation activities at various levels. Follow-up work is now focused in three areas:

Climate Change Adaptation (Lead countries: the Netherlands and Switzerland). The main aim of this work is to produce a Guidance Document on Integrating Climate Change Adaptation into Development Co-operation. A survey of existing practices has been prepared.

Financing Water Supply and Sanitation (Lead country: France). This work aims to produce recommendations outlining good practices for conducting finance strategies for the water sector, including on how such strategies could be integrated into public budgets. In addition, an updated version of a computer-based tool (FEASIBLE), as well as two country case studies of finance strategies for the water sector, will be prepared.

Governance and Capacity Development for Natural Resource and Environmental Management (Lead country: Sweden). The overall goal of this activity is to update the DAC Guidelines of Capacity Development for Environment. Several elements are under preparation: guidance on how to integrate environmental programmes into mid-term budgetary processes; a tool for assessing the state of environmental capacity development and how it could be improved; and a review of good practice approaches for "making the economic case for the environment." In addition, survey of Environment Ministries' development co-operation activities is being prepared.

The results of these activities will be reported to Environment and Development Ministers, possibly at a second joint meeting in 2009.

Source: OECD (2006a,b).

9. Conclusions

Globalisation represents an opportunity and a challenge for the environment. Effective environmental policies and institutions are needed to ensure that it becomes a force to support environmentally sustainable development, and not the reverse. The current state of the environment suggests that much more needs to be done in this respect, from the global down to the local level. Further efforts are also needed to harness trade and investment flows to enhance the more efficient use of resources, stimulate improved environmental performance and diffuse cleaner technologies. Business and industry must be fully engaged in this work.

The way in which globalisation is changing the world means that the existing OECD membership will not be able, by itself, to take the actions necessary to foster economic development in an environmentally sustainable way. It is essential to co-operate more closely with the major emerging economies. Some of these countries have been successful in integrating themselves into the world economy, and liberating millions of people from poverty. The lessons learned from this experience will no doubt be valuable for the many developing countries that have yet to make that transition. Effective co-operation and burden-sharing among OECD, emerging and developing countries would enable all to achieve the challenging environmental goals that we all face efficiently and equitably.

Within OECD, EPOC and its Working Parties are examining a range of issues that are intended to make environment and globalisation compatible. These include:

- Measuring and modelling environment and globalisation linkages
- Trade and environment linkages including:
 - Overcoming barriers to trade in technologies to mitigate climate change
 - Liberalising trade in the transport and renewable energy sectors
 - Liberalising trade in environmental goods and services
 - Removing environmentally-harmful subsidies
 - Regional trade agreements and environment
 - Export credits and environment
 - Trade in non-hazardous recyclable materials
- Investment and environment, including
 - Strengthening the environmental component of OECD's Policy Framework for Investment
 - Applying the OECD Principles for Private Sector Participation in Infrastructure to the water and possibly energy sectors
 - Promoting responsible environmental conduct in emerging economies on the basis of the OECD Guidelines for Multinational Enterprises
- Competitiveness and environment, including
 - Reviewing evidence of competitiveness impacts of environmental measures
 - Analysing measures that could help to reduce negative competitiveness impacts
- Innovation and Environment, including
 - Integrating environment into the OECD Innovation Strategy
 - Measuring eco innovation
 - Identifying good practice approaches for promoting eco-innovation
 - Assessing the impact of different policy instruments, particularly tax instruments, on eco innovation,
- Enhancing the integration of environment into development co-operation in the areas of climate change adaptation, financing water supply and sanitation, and governance and capacity development.

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