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**ENVIRONMENTAL POLICY AND INTERNATIONAL COMPETITIVENESS  
IN A GLOBALIZING WORLD:  
CHALLENGES FOR THE LOW-INCOME COUNTRIES IN THE ECE REGION**

Prepared by the UNECE

## **Executive Summary**

### **Objective and scope**

The paper discusses the challenges for environmental policy making in low-income countries in the UNECE region, which have as major priority to achieve sustained rapid growth and increases in living standards and to catch up with the more advanced economies. It aims to explore whether stringent environmental regulations risk restraining domestic growth forces by adversely affecting international competitiveness. What role do environmental standards play in FDI location decisions? Are the increased competitive pressures associated with globalization constraining the scope for stringent national environmental policies? What kind of policies and supportive institutional arrangements can help to improve environmental performance and ensure sustainable development?

### **Main findings**

The overall impact of more stringent environmental policy on industrial competitiveness and FDI location decisions is marginal, reflecting notably that on average the share of environmental protection expenditures in firms' total production costs is rather small. Adequate design of policies can, moreover, cushion any potential adverse competitiveness effects in pollution-intensive sectors.

Environmental standards are clearly not a major determinant of FDI flows, which are rather mainly determined by factors such as labour costs and quality of infrastructure.

More stringent environmental policies in a competitive market context have been an important driver of technological innovations that lead to more environmentally sound production processes and products.

Globalization, by promoting the diffusion of new environmentally sound technologies and levelling the playing field with regard to environmental standards at a high level, is more a solution to improving environmental performance than the source of problems. This requires, however, effective national regulation and adequate international governance of multinational companies.

### **Key message**

Stringent environmental policies are not an obstacle to rapid economic growth, but they contribute to changing the content of growth *via* changes in production and consumption patterns to ensure sustainable development.

Technological change is a major driving force for international competitiveness and improved environmental performance. Low-income countries have to develop appropriate domestic capabilities for adapting new environmentally sound technologies to local circumstances.

A major principle in the design of environmental policies is to ensure cost-effectiveness and allow for a flexible approach by the polluting industries.

International environmental processes and legally binding instruments are important drivers for improving environmental performance.

### **Recommendations**

It is important to design and implement policies and establish institutional arrangements, which ensure an appropriate representation and integration of environmental concerns in national economic or industrial development strategies.

International financial and technical assistance to establish effective domestic environmental institutions and support the development of technological capabilities is key for effective environmental policies.

## **Introduction**

The ability of a low-income country to achieve sustained growth and raise the living standards of citizens is dependent on its international competitiveness. Rising levels of economic activity and progressive industrialization can, however, have serious environmental implications in terms of natural resource use as well as pollution and related adverse health effects. These environmental pressures reflect not only the increasing scale of economic activity but also the shifting content of growth due to structural changes in production and consumption patterns. The challenge is to ensure that these processes are sustainable, i.e. that resource use and pollution do not come at the expense of future generations. This holds also for the low-income countries of Eastern European, Caucasian and Central Asian (EECCA) region and south-eastern Europe (SEE).

There has been further progress in structural and institutional reforms in these regions in recent years, but the extent of advances differs across countries. Despite general progress, reforms dealing with the establishment of market-supporting institutions (large-scale privatization, governance and enterprise restructuring, competition policy, financial sector development and infrastructure) are still far from being complete (EBRD, 2006). There has also been uneven progress in the design and implementation of environmental policies, building of effective environmental protection agencies, as well as the modernization and extension of the physical infrastructure required for providing adequate environmental services for pollution management. A general feature, moreover, is the large gap between the environmental legislation that is “on the books” and the number of laws and regulations, which are effectively enforced.

There has also been varying progress in the modernization of the productive capital stock and improving the efficiency of allocation of productive resources as well as developing new competitive product niches required for a successful integration in the international division of labour. In any case, the overall economic performance in EECCA and SEE has improved significantly in recent years. Both regions witnessed buoyant economic growth significantly above the average growth of the developed countries and the world economy at large. In the EECCA region, growth was fuelled partly by high prices and demand for oil and gas, metals and agricultural commodities in the resource-rich countries. In south-eastern Europe, an upturn of domestic demand and increasing inflows of FDI as well as progress in economic restructuring were main driving forces. In the event, real GDP in the EECCA region increased at an annual average rate of 7.5 per cent between 2000 and 2006. In south-eastern Europe, the corresponding average annual growth rate was about 6 per cent. Rapid growth has led to significant increases in average real incomes of the population, though people at the bottom half of the income distribution have benefited less. Widespread poverty remains therefore a major preoccupation of policy makers. And although there has been some narrowing of real income gaps with western Europe and other developed countries, the differences in living standards are still sizeable. Achieving sustained economic growth remains therefore a major priority.

To some extent, the rise in economic activity has been associated with new investments in modern industrial machinery and equipment, which is likely more efficient in terms of material and energy use and generating less pollution per unit of output. Rapid economic growth has also bolstered government revenues and supported the consolidation of public finances. This has, in principle, enhanced the fiscal policy space for increasing government expenditures designed to strengthen environmental protection and improving the environmental infrastructure (especially in the water sector), which has deteriorated significantly over the past decade or so due to insufficient allocation of funds for repair and maintenance.

But the overall priority accorded to the environment in government policy making is, in general, judged to be quite low. This reflects to some extent the low levels of real incomes, which entail

that citizens' preferences for environmental quality are dominated by the need to ensure a stable regular income. In a more general way, the low priority accorded to the environment appears also to reflect the perception that the costs of environmental protection are a barrier to the establishment of internationally competitive industrial structures, given notably the amplified international competitive pressures associated with the progressive process of economic globalization. But there is ample evidence that the effective design of policies and supportive institutional arrangements, which integrate environmental protection into national industrial or economic development strategies, can help to promote both, economic growth and environmental quality.

## **International competitiveness and environmental protection policy**

### ***Globalization and competitiveness***

Although the term "competitiveness" is widely used in national and international policy debates, the concept has remained elusive. It is being applied at both the level of enterprises and nations. At the enterprise level, competitiveness is mainly about the ability of firms to generate sufficient profits and raise market shares for their products. A firm's competitiveness is, however, not only determined by price but also by non-price factors (such as product quality and consumer preferences for environmental products and production processes).

At the national level, competitiveness has been mainly associated with the international trade performance of countries and the ability to achieve sustained economic growth and higher real per capita incomes. This, in turn, requires specific policies and institutional arrangements that promote productivity growth and the adjustment flexibility of firms to changing economic circumstances. Competitiveness at the national level and at the enterprise level is interrelated. Many of the underlying factors shaping the competitiveness at the enterprise level are, in fact, determined at the level of the national economy, such as the provision of infrastructure (including environmental infrastructure such as water pipes, wastewater treatment facilities and landfills for waste), human capital formation, R&D policies, and openness to foreign trade and investment.

The process of globalization has led to an increasing international integration of markets for goods, services and financial capital. The main drivers have been liberalization of trade and investment, rapid technological progress (notably as regards information and communication technologies), falling transportation costs, and economies of scale associated with increasing market size. Main features of globalization are an increasing fragmentation of production processes across national borders (mirrored in a rapid growth of trade in intermediate products) and, related to that, a growing importance of production-sharing networks.

Increased international integration of markets has gone along with intensifying international competitive pressures facing firms in major markets for tradable goods and services. These pressures are expected to accentuate with the emergence of a new growth pole in the world economy, centred in Asian Newly Industrialized Countries, China and India. But rapid growth in that region will at the same time also provide increased export opportunities for other countries, both developed and lower-income countries such as EECCA and southern European countries.<sup>1</sup>

International competitiveness in the global economy is increasingly based on knowledge and innovation. But the existing production and trade patterns in low-income countries offer in general only very limited opportunities for meeting the demanding conditions for access to

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<sup>1</sup> The term lower-income countries comprises evidently also the group of developing countries.

international markets. At the same time, globalization has also led to intensified competitive pressures in the more traditional sectors; the knowledge intensity of production has, moreover, not only increased in high-tech sectors but also in the traditional low-tech segments of industry. This implies that knowledge accumulation and the development of technological capabilities have become key for development strategies of low-income countries given that competitive advantages based on low labour costs and price competitiveness have become increasingly vulnerable to the emergence of other locations where labour costs are even lower. This has also implications for the design of environmental policy and the way it is linked to national industrialization strategies.

Against this background, the question is how the objective of “going for growth” in the low-income countries and the required strengthening of competitiveness can be reconciled with the need to ensure sustainable development. More rapid economic growth will tend to go along with increased environmental pressures, which to contain require more stringent policies. Economic and environmental problems can, in general, not be addressed by so-called “win-win” situations. The standard case is, rather, that there are trade-offs between economic and environmental objectives, requiring complex social choices. In this context concerns about the adverse impact of more stringent environmental standards on international competitiveness are also looming large. There is therefore always a risk that in the face of competing objectives, environmental problems are not being given the weight they would merit. This risk may be more acute in countries with low levels of real incomes (as is the case in the EECCA region and south-eastern Europe), but it is also omni-present in the developed countries. The important issue is therefore, what is the empirical evidence concerning the competitiveness effects of more stringent national environmental policy?

### ***Competitiveness effects of national environmental policy***

Since the inception of environmental policy more than three decades ago, it has been a regular feature that competitiveness concerns and associated fears for profits and jobs have been mentioned as a reason for not moving to more stringent policies. It is argued in this context that more stringent policies create additional cost burdens for domestic firms, which put them at a disadvantage compared with major foreign competitors that do not face a similar increase in environmental standards. The consequence is a fall in domestic output and exports and a loss of jobs. A related issue, mainly of relevance to pollution intensive industries, is to what extent more stringent environmental standards might trigger a relocation of production activities to countries with less stringent policies, which become so-called “pollution havens”. It has also been speculated that globalization may lead to regulatory competition between states to attract mobile capital, entailing the risk of a ‘race to the bottom’ in environmental standards.

Although the economic costs of environmental policies are often discussed through the lens of international competitiveness, the fundamental issue is, however, one of social choice, i.e. the need to address the trade-off between the value of environmental improvements (degradation) and the associated social costs (benefits). It is, in fact, the very purpose of environmental policy measures to promote structural change in the economy by altering consumption and/or production patterns in such a way that environmental pressures are being reduced to sustainable levels. A major case in point is the current intensive discussion about policies to address global climate change, which will affect the competitiveness of energy-intensive sectors in developed countries (Stern Review, 2006).

The competitiveness effects of more stringent environmental policy depend, of course, to a large degree on whether a similar measure is also applied in other countries where major competitors are located. The larger the number of countries that apply similar measures, the more limited the

international competitiveness effects. This argues, in principle, in favour of international cooperation and co-ordination in the preparation of new environmental policy measures for pollution-intensive industries.

It is not easy to empirically quantify the impact of environmental policy on industrial competitiveness. But there is a broad consensus that environmental policy is not a primary determinant of overall industrial performance (Jaffe et. al, 1995; Copeland, Taylor, 2004; ECE 2006). Industrial price competitiveness depends mainly on factors such as labour and capital costs and exchange rate movements as well as the rate of productivity growth. Given that the share of pollution abatement and control expenditures in total production cost is very small for all but the high pollution-intensive activities<sup>2</sup>, it is not surprising that in general they do not matter significantly for the overall price competitiveness of the industrial sector. There is therefore also a broad consensus that environmental protection costs are not a primary determinant of job losses that have occurred in industrial sectors around the world.

In case that there is a legitimate fear that a significant increase in the level of environmental standards may adversely affect price competitiveness it is often largely a matter of policy design to cushion the impacts on output and jobs. The early announcement of changes in environmental policy, so that firms have sufficient time for preparing and adapting to the more stringent standards, is of great importance in this context. A supplementary tool is the gradual phasing in of more stringent policies over a specified longer time period.

In case of introduction of environmental taxes, OECD countries have, moreover, often granted polluting industries, especially energy-intensive industries, total or partial exemptions from tax payments in view of compelling competitiveness concerns (OECD 2001; 2006) *before* the measure was implemented. This runs, of course, counter to the polluter pays principle. Other mitigation tools (partial recycling of tax revenues; border tax adjustments) have been used as well.<sup>3</sup>

For the more pollution-intensive sectors the impact of stricter environmental standards will mainly depend on the degree of international competition in the markets where they operate and the possibility to use alternative technologies that are less polluting than existing ones, but are at the same time cost competitive. (These are so-called 'environmentally sound technologies'.) In this context, the Porter-hypothesis (Porter, 1991; Porter, van der Linde, 1995) claims while strict and well-designed regulations in a competitive market environment impose additional costs on firms in the short-run, it will generate incentives for increased R&D activities that lead to the development of more efficient, environmentally friendly technologies that will boost their competitiveness in the longer run.

While the Porter hypothesis may not hold as a matter of generality, it draws attention to the fact that regulatory and other government policies, which increase the intensity of competition in product markets, have an impact on business technological innovation efforts. And these technological innovations can help improving the trade-off between growth and environmental pressures (see below).

### ***Foreign direct investment and environmental protection***

There have been widespread concerns that globalization and the associated increased mobility of capital would create incentives for multinational companies (MNCs) to relocate pollution-

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<sup>2</sup> At the industry level, environmental protection expenditures correspond on average to some 0.5 per cent of total costs; but this proportion can be higher (1 per cent and more) in pollution-intensive sectors (ECE 2006).

<sup>3</sup> Mitigation policies raise the question about the benchmark that was used for gauging competitiveness effects and about the *ex post* evaluation of such measures.

intensive activities from countries with stringent environmental standards (typically developed countries) to countries with lax environmental standards (typically low-income countries), which would become “pollution havens”. Low-income countries may be willing to offer low environmental standards because of fears to lose FDI, which is seen to promote economic growth and create urgently needed jobs.<sup>4</sup> In this perspective, FDI could be a potential source of environmental degradation in low-income countries and possibly beyond.

In contrast, MNCs have also been seen as a solution to environmental degradation in low-income countries, to the extent that they are transferring modern clean technologies and possess more effective environmental management capacities. This more sanguine view about the role of MNCs and FDI for sustainable development is largely based on the rationale that for reasons of internal efficiency and related cost savings, MNCs prefer to apply the same production technologies, independent of the location of the subsidiary. This technology will also in general tend to be more productive, while being at the same time less pollution intensive compared with outdated equipment that would “fit” to the lower environmental standards in the host country. MNCs are also seen to base their technology decisions not only on current regulations but also on what they expect in the future, derived from emerging regulatory trends and pressures in their home country. This avoids the costs of retrofitting of equipment and expensive use of end-of-pipe solutions. The use of clean technologies and adherence to stringent environmental standards across subsidiaries is also explained with reputation gains (among consumers) and as a safeguard to legal liabilities in case of industrial accidents.

On balance, it seems that this rather positive assessment has not been in conflict with the predominant behaviour of MNCs in recent years. But evidently, there is always evidence of exceptions that are testing the rule. It can, of course, also not be excluded that FDI in some cases has indeed been also attracted by lax environmental regulation in low-income countries. But it may be surmised that such lax standards attract mainly investors from less advanced countries operating technology that is more pollution intensive than standard technologies applied in developed countries in the same sectors.

There is a broad consensus, however, based on findings from empirical studies, that differential degrees of environmental policy have in general only a marginal effect on firms’ foreign investment location decisions.<sup>5</sup> Environmental policy is clearly not a primary determinant of plant foreign location choices, which are, rather factors such as labour costs, geographical proximity of major markets and market access. In other words, lax regulations are not a prerequisite for attracting good quality FDI. It is also not very efficient for governments to use lax environmental standards for attracting international investors. There are better instruments for this such as tax concessions, government contracts, designated land at symbolic prices etc. (Nordstrom/Vaughan, 2003). Firms from developed economies may also be attracted to countries with stringent environmental standards to the extent that these are seen as a quality indicator for the overall infrastructure and other services that the local environment provides to the investor.<sup>6</sup>

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<sup>4</sup> There have been fears that the threat of relocation would lead developed countries to lower their environmental standards, with the risk of a ‘race to the bottom’. But this is not supported by the empirical evidence.

<sup>5</sup> Xing and Kolstad (2002); Eskeland and Harrison (2003); Becker and Henderson (1997). Among the recent studies, there is only one (*Smarzynska, Wei, 2001*) dealing with the relevance of the pollution policies for FDI flows to central and eastern Europe and EECCA, and the authors conclude that they failed to discover robust evidence that location decisions were influenced by environmental policy considerations.

<sup>6</sup> This is the main conclusion from a study (Dean et. al., 2006) on FDI inflows to provinces in China, which distinguishes between investors from the OECD region and from Chinese regions (Macau, Hong Kong, Taiwan).

It is important in this context to recall that the expected benefits from foreign direct investment for economic development in a country are not at all automatic. The economic benefits are, rather contingent on a set of well crafted domestic policies and institutional arrangements designed to strengthen national innovation systems, improve the absorption or adaptive capabilities of local enterprises and adopting a more strategic approach to FDI in order to strengthen the national development impact (ECE 2001). In a similar vein, as regards the environmental performance, low-income countries should not rely only on the voluntary self-regulation of MNCs (such as corporate social responsibility) but rather adopt and enforce strict national regulations, which are the major driving force for reducing environmental pressures. Cooperation with other countries at a similar stage of development may be also helpful in this context. In this context the disciplinary-cum-supportive role of international cooperation, coordination and legislation is also very important (see below).

It is also noteworthy in this context that multinational companies have been increasingly involved in levelling the playing field by imposing similar environmental standards across all subsidiaries and other firms involved in their global supply chain in both developed and developing countries. A major driving force for this has been the growing environmental awareness worldwide and increasing consumer preferences for “green products”. In general, these requirements aim at a phasing out of harmful substances or changes in processes and production methods. These commercial environmental requirements are *de jure* voluntary, but are *de facto* mandatory for a supplier to be integrated in a production-sharing network. Environmental requirements are quite important for textiles, clothing, leather, electrical and electronic products<sup>7</sup>, i.e. sectors where developing countries have strong comparative advantages due to low labour costs.

Compliance with these stringent requirements requires, however, adequate local adaptation capacities, which may not always be available, especially for small- and medium-sized firms, in low-income countries. The main exceptions are affiliates of MNCs for which access to knowledge and technology transfer are rather automatic. Technical assistance and capacity building is important for helping to overcome these problems. To ensure disruptions in supply links and prevent that environmental requirements become a barrier to trade for low-income countries, importers in industrialized countries appear in recent years to have made greater efforts to more systematically anticipate potential adaptation problems of exporters in low-income countries, but the established channels for facilitating the adaptation process are generally recognized to be perfectible (OECD, 2005).

Although costly, successful adaptation to more stringent environmental requirements can be a *win-win-process* if they provide the opportunity to develop new export markets and involve improved resource efficiency, reduced pollution intensity and improved public health, thereby also contributing to sustainable development in the exporting countries. There is evidence that an increasing number of small and medium-sized firms from low-income countries, which are integrated in global supply chains, have been adopting industrial environmental management and best practice programmes to achieve Environmental Management System certification and ISO 14001 certification.

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<sup>7</sup> MNCs policies have been reinforced by two recent environmental market requirements for electronics and electrical products imported into the European Union, viz. the Directive on *Waste Electrical Products and Electronic Equipment (WEEE)*, which sets collection, recycling and recovery targets and the Directive on the Restriction of the Use of Hazardous Substances (*RoHS*), which restricts the use of six hazardous materials in the manufacture of various electrical and electronic products.

## **Technical change and environmental performance**

Technological innovations are major engines of economic development. They also help to generate production processes and products, which are “environmentally sound” in the sense that they are less polluting and use resources in a more sustainable manner. In a more general way, they help improving the trade-off between economic growth and environmental pressures. In fact, more stringent national and international environmental policies in conjunction with increased consumer preferences for “green products” have spurred the global development of cleaner technologies and products with reduced environmental impacts.

The development of these “environmentally sound technological innovations” in a context of rapidly growing international demand confers both economic and environmental benefits, and is thus a good example of a “win-win” situation. Competitive advantages result mainly from “first mover advantages” in the development of environmental technologies that other countries will eventually need to adopt. Evidently, this holds mainly for developed countries, where R&D and innovation aim at pushing the technological frontier further outward. Low-income countries will be mainly engaged in imitating and adapting the technologies used in developed countries according to their local economic contexts. In any case, reduced communication and transportation costs, which are underlying globalization, have increased the potential speed of diffusion of these new technologies.

The development of environmental technologies has emerged as a new and rapidly growing activity in many countries of the world economy. Under the general heading of “environmental goods and services”<sup>8</sup> they have been on the trade liberalisation agenda of the DOHA Round of WTO trade negotiations, which was launched in November 2001 but suspended in July 2006. Paragraph 31(iii) of the DOHA Development Agenda (DDA) calls for the “reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.” Trade negotiations on the opening of markets in this area have, however, progressed only slowly, partly also because there is still no internationally agreed definition of the term environmental goods and the detailed list of products to be covered by this term.<sup>9</sup> Such a list is, however, required for establishing current levels of tariff and non-tariff barriers to trade and for agreeing on the extent of trade liberalization. A main difficulty is that many “environmental goods” have a dual use, i.e. they do not only serve for environmental protection purposes.<sup>10</sup>

Trade liberalization may be helpful for the diffusion of these technologies, but the main driving force will be the increasing demand associated with the adoption and enforcement of more stringent national policies. To the extent that new technologies allow achieving compliance with established environmental standards at significantly lower costs, this may provide scope for governments to introduce even more stringent regulations and standards, or, at least, it may make it easier to enforce existing regulations (Howse, 2006). Such a lowering of compliance

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<sup>8</sup> An informal OECD/Eurostat Working Group (in 1998) defined the environmental goods and services industry as consisting of “activities which produce goods and services to measure, prevent, limit or correct environmental damage to water, air and soil, as well as problems related to waste, noise and the eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use.”

<sup>9</sup> There are currently two main lists of environmental goods, which helped to frame the WTO negotiations. The Organization of Economic Co-operation and Development (OECD) compiled a list of 164 goods that provide functions corresponding to the above-mentioned definition of “environmental goods and services industries”. This list was adopted by OECD member states in 1999 to serve as the basis for collecting consistent statistical information on this sector. The Asia-Pacific Economic Cooperation (APEC) established a separate list of 109 environmental goods in 1998 for which its member states envisaged trade liberalization. The two lists have, however, only 54 goods in common, reflecting to a large extent the different purposes for which they were designed (UNCTAD 2003; Steenblik 2005).

<sup>10</sup> For example, centrifuges are required for wastewater treatment, but they have also wide industrial applications, especially in food processing and medicines (Steenblik 2005a).

costs may also be brought about as a result of a significant reduction in import tariffs, in cases where these are still quite high. The need for further technological upgrading of the productive capital stock, which is a *conditio sine qua non* for international competitiveness, provides therefore important opportunities for EECCA and SEE countries to simultaneously improve their environmental performance.

To a large extent domestic firms in low-income countries will have to rely on direct imports of the more performing machinery and equipment from developed countries, but FDI policy linked to exigent pollution standards will also help to promote the diffusion of these technologies. The Clean Development Mechanism (CDM) under the Kyoto Protocol provides also a channel for combining technological upgrading with reduced emissions of GHG.

Low-income countries should be promoting the diffusion of environmentally sound technologies as an integral part of a general competitiveness strategy designed to foster the technological upgrading of productive capacities in the economy. But this will also require developing institutions and policies to promote knowledge accumulation; technological learning and innovation as well as technology transfer in these countries in order to increase their technological absorption capacity (see below).

The level of domestic technological capabilities will, in fact, determine to what extent low-income countries can directly move (“leapfrog”) to the cutting-edge cleaner technologies developed in industrialised countries rather than mainly imitating and adapting second-best technologies with a strong emphasis on end-of-pipe solutions. To the extent that this is possible, low-income countries could then even more leverage their labour cost advantages in international markets. The pace of technological upgrading is, however, also determined by the overall dynamism of economic growth and related to that the growth of domestic investments in more modern and more profitable machinery and equipment. Given their different stage of economic development and varying economic dynamism, not all countries will be able to do this “leapfrogging” and will have to continue for some time with traditional pollution management.

One channel for stimulating the development and diffusion of environmental technology is a proper design of environmental policy instruments, i.e. regulations and economic instruments. Another channel is to directly support R&D policies that aim at the development and diffusion of environmentally friendly technologies (Jaffe et. al., 2004). The attention that a firm’s management pays to the potential benefits of environmental innovations may also be raised by adherence to strict standards for environmental management, such as ISO 14001, or the voluntary EU Environmental Management and Audit Scheme (EMAS).

### **Institutional arrangements and policies in support of environmental protection**

To be successful, economic catch-up efforts of low-income countries require a continuous improvement of productivity and associated with that a dynamic process of technological upgrading and structural change. It is now widely agreed, also based on the experiences of Asian NIEs, that adequately designed proactive industrialization strategies, including strategic integration into the world economy, can play a major role in the development process of a country. This requires, however, a set of coherent policies and effective institutional arrangements that support the process of economic restructuring and technological change in the context of a private sector dominated market-driven economy (UNCTAD 2006).

From an environmental policy perspective, it is of overriding importance to ensure that such national or industrial development strategies fully integrate the complex linkages between economic activity and the environment with the aim to optimizing the inevitable trade-offs. This

requires to design policies and establish institutional arrangements, which ensure an appropriate representation and integration of environmental policy concerns in industrial development strategies. A related major goal is to integrate the innovation and diffusion of environmentally sound technologies and products required for the compliance with more stringent standards into wider national investment promotion strategies.

The design of institutional arrangements and the formulation of any prescription for specific industrial and environmental policy measures will, of course, have to take into account the heterogeneity of countries with regard to prevailing economic conditions and environmental pressures. But there are some general principles for the approach to this *problématique*, which are underlying more specific types of policies and policy measures.

### ***Supportive institutional arrangements at the national level***

Institutions have been often understood as the formal and informal “rules of the game” that are constraining political, economic and social interactions. Among the main functions of institutions are the transmission of information; the establishment and enforcement of property rights and contracts; and ensuring an adequate functioning of markets. There is, moreover, a need for ‘enabling institutions’ that support the domestic process of investment, technological upgrading and structural change as well as the design and implementation of economic and environmental policies.

A first major challenge in low-income countries is the building of more effective, meritocratic and well-paid public bureaucracies. The design and successful implementation of national industrial and sustainable development strategies requires a strong, capable and pragmatic goal-oriented civil service, that is not too involved in day-to-day politics but rather retains a sufficient degree of freedom for developing strategies for long-term policy making. There is no “free lunch” here; the construction of such an apparatus requires the investment of considerable resources, both economic and political, and may take quite a long time. It goes without saying that the establishment of effective environmental protection agencies, which are adequately resourced with skilled and well-trained staff, is a *conditio sine qua non* for monitoring and enforcement of emission and ambient environmental standards. Design and enforcement of effective policies is often hindered by corruption and it is important to ensure that bribes are adequately sanctioned so that incentives for corruption are weak. (Not only the person accepting the bribe should be sanctioned, but also the one offering it.)

It is important to foster good relations between government agencies in charge of economic development and those in charge of environmental protection (UNIDO 2006). It is essential to build trust and achieve a mutual understanding about the overall objective to promote economic development and raise levels of real income and to ensure that this is done in such a way as to minimize adverse environmental impacts, i.e., ensure sustainable development.

The determination of environmental policy measures should be based on an intensive dialogue between competent ministries, industry associations and research institutions, rather than autonomous decisions of specialized government entities. The general aim is to exchange information on the government’s vision regarding industrial development, investment opportunities, technology developments and the economic impacts of more stringent environmental standards as well as the sustainability of production and consumption patterns. Such a forum could also help in identifying cost-effective technological options for reducing energy and material intensity and adverse environmental impacts. It should also be involved in discussing economic impacts and related competitiveness issues associated with environmental policy measures and possible alternative ways of addressing them.

Although it is important for the civil service to be engaged in regular consultations with the business sector concerning the design and implementation of policies, it is a *conditio sine qua non* for the administration to maintain a neutral relationship and to avoid capture. This somewhat contradictory rapport between the state administration and the private sector (close consultations but maintain independence) has e.g. been successfully build in the small East Asian NIEs and called “embedded autonomy” (Evans, P., 1998).

Policies supporting environmental policy integration should aim at promoting private sector technological innovations (by means of fiscal incentives, public loans and subsidies) as well as their efforts to adapt imported technologies to local circumstances. In a similar vein, there is also a need to support R&D undertaken at public research institutes. Other policy measures include selective liberalization (if not yet done) of imports of specialized environmental goods and services. Policy support should not be open-ended. It should be tied to clear operational and achievable environmental goals, observable criteria for monitoring and specific time horizons.

### ***Designing effective environmental protection policies***

Globalization has not altered the main responsibility of the nation state to design and implement effective environmental regulations and other policy instruments. Domestic policies have remained key for achieving sustained environmental improvements. But domestic policies in both SEE and EECCA have also been supported and driven by international environmental processes as well as international legal instruments in the field of environmental protection. In contrast to the EECCA region, however, countries of the SEE region have been benefiting from EU candidate status, which provides an institutional anchor for the direction of institutional and legislative reform measures.

### ***Some general principles***

The major overriding principle is to make sure that individual environmental policies are worth having, i.e. that they pass an impact assessment (cost-benefit analysis) concerning their economic, social and environmental consequences. The conduct of such an assessment should involve a balanced participation of all major stakeholders (see above). And those policies that are worth having should be cost-effective, i.e. they should achieve their objectives at least cost.

The main concern should be curbing pollutants that have major adverse effects on the quality of the environment in a medium and longer-term perspective, both nationally and globally. (This does not mean ignoring less important pollutants, but rather getting the priorities right.) This holds especially in a context of very scarce resources for policy design, implementation, monitoring and enforcement, as is the case in SEE and EECCA.

It is important in the design of environmental policies to set short-, medium-, and long-term objectives for anchoring the performance expected from the private sector. Firms want to operate in a stable and predictable regulatory policy framework. This means that unanticipated large policy shifts should be avoided to reduce adjustment costs associated with increased regulatory stringency. This points to the importance of gradual and predictable (as announced) implementation of policies. This holds also for the removal of environmental harmful subsidies. It is important to provide firms with sufficient advance notice and adaptation time that often allow them to render the measures, which they initially designed for reducing pollution more cost-effective.

Firms must be able to realistically achieve targets fixed taking into account the current pollution standards and available technologies. A participatory approach, involving industry, is important

for setting realistic targets. Strong autonomous technological change may require a corresponding increase in stringency of regulations to prevent them from becoming obsolete.

Depending on the overall economic and technological conditions and prevailing competitive pressures it may not always be adequate to leapfrog to “best practice” emission standards in a given sector but rather to start from a lower level. But private sector agents should be clearly informed that these standards would be progressively tightened and enforced over a reasonable given time period. Public disclosure of information on environmental performance should also raise firms’ environmental management standards.

In view of widespread poverty, it is important to integrate considerations about income distributional issues (regressive effects and social affordability) in the design process of environmental taxes and charges to ensure political acceptance and full implementation of the measures. The main challenge is to preserve abatement incentives and incentives for economical use of resources (energy and water) for the households concerned. Regressive effects may be offset e.g. by a recycling of revenues from the environmental taxes to lower income groups (OECD 2006). Social affordability issues may be addressed best by direct-targeted subsidies.

Although there is no significant evidence that environmental policies have overall adversely affected the international competitiveness of countries in the past, this is no reason for complacency. There are always opportunity costs of private and public environmental expenditures, measured by foregone returns from alternative investments in private productive capital or public infrastructure (Palmer et. al, 1995). This points to the importance of ensuring cost-effectiveness in the design and implementation of environmental policies.

Improving cost-effectiveness requires understanding the advantages and disadvantages of the range of available environmental policy instruments under given specific circumstances and objectives. In a more general way, the challenge is to find the appropriate mix of tools for environmental policy management. A greater reliance on economic instruments (such as tradable emission permits, emission taxes, deposit-refund schemes) is one way of improving cost-effectiveness.

But it should be recalled that even in the developed countries regulations are still the major instrument for controlling emissions or resource extractions. Depending on the circumstances, an economic instrument may be able to fully replace a regulation or fulfil a complementary function when used in combination with it. It should be noted, however, that some economic instruments such as taxes or charges also have a built-in rigidity, given the inherent difficulties to change them and they also involve administrative costs (as do regulations).

The potential efficiency gains from the use of market-based policy instruments may, moreover, not be easy to reap in a low-income country context given the exigent institutional demands on environmental pollution management as regards human resource skills in government and business, information on pollution and pollution sources; monitoring capacity etc. (Greenspan Bell 2003; Russell and Vaughan; 2004).

Regulations should focus on environmental outcomes and not prescribe a particular technology or process. Regulations should be designed so as to stimulate innovations of more environmentally friendly processes and products, but the approach to innovation should be left to companies and not the regulating agency. Government innovation policies should support the development of more performing environmental technologies. But technology policy is only a complement to environmental policy and not a substitute.

Cost-effectiveness requires that regulations be kept as simple as possible to reduce monitoring and reporting costs. It should also be explored to what extent stringency of emission standards (or prescribed BAT, if any) can be allowed to deviate from a national standard in case of significant variations in the assimilative capacity of the local and regional environment within a country.

Voluntary agreements between governments and industry may help promoting innovative environmental practices (such as ISO 14001 and EMAS), possibly as complementary measures to existing command-and-control measures. In the face of increased consumer preference for “green products”, eco-labelling programs have become an integral part of strategies to promote international competitiveness in countries all over the world.

### ***The role of international institutions and international legal instruments on the environment***

It was noted above that the environmental performance of a country reflects to a large extent the specific design of domestic environmental policies and institutions. But economic and environmental performance is also significantly shaped by the need to conform with international environmental standards, which enables low-income countries to access international markets and provides specific trade opportunities in the global economy. International pressures for more stringent environmental standards stem also from the integration of environmental performance criteria into lending policies of bilateral donors and international financial institutions.

International environmental processes such as the Environment for Europe process and the follow up to major international conferences (e.g. Rio declaration on environment; World Summit of Sustainable Development) are also having an impact on the design and implementation of environmental policies. The same holds for the Millennium Development Goals (MDGs) agreed in 2000 by all UN member states, which also stipulate the need to “Ensure environmental sustainability” (goal 7) *inter alia* by integrating the principles of sustainable development into country policies and programs; reverse loss of environmental resources; reduce by half the proportion of people without sustainable access to safe drinking water; and achieve significant improvement in the lives of at least one hundred million slum dwellers, by 2020.

International organisations (e.g. UNECE; OECD; UNEP) working in the field of environment, moreover, are mechanisms for promoting the diffusion of environmental policy innovations as well as information on environmentally sound technologies, thereby fostering the convergence of national environmental policies at a more stringent level of standards. Major driving forces for this are international environmental agreements (conventions, treaties), which aim at reducing pollution burdens, health risks and improving environmental management. Main tools are legally binding instruments, recommendations, guidelines and capacity building activities. Cross-sectoral international cooperation on health and environment, water and health, and education and sustainable development add, moreover, a new dimension of integration of environmental concerns in economic and social policies.

In a more general way, international institutions and international cooperation and coordination of policies will be required on issues related to transboundary or global public goods (such as climate change) in order to avoid free-rider problems and suboptimal investments in environmental protection.

Among the main global international environmentally agreements, which have a direct bearing on product and process standards and international trade flows, are

- the Montreal Protocol on Substances that Deplete the Ozone Layer, which stipulates the phasing out of a number of substances held responsible for the ozone depletion;
- the Kyoto Protocol, an agreement made under the United Nations Framework Convention on Climate Change (UNFCCC), which commits countries that ratify it to reduce emissions of greenhouse gases or engage in emissions trading;
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, which was designed to reduce the movement of hazardous waste between nations;
- the Stockholm Convention on persistent organic pollutants (POPs), defined as “chemical substances that persist in the environment, bio-accumulate through the food web, and pose a risk of causing adverse effects to human health and the environment”.
- the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which limits international trade in specimens of wild animals and plants;

Among the main international legal instruments applied widely in the UNECE region are also the five environmental treaties negotiated within the framework of the ECE, all of which are in force and have significant impacts on environmental performance:

- *Convention on Long-range Transboundary Air Pollution (CLTRAP)* and its eight protocols that aim at reducing and preventing air pollution including long-range transboundary air pollution based on the development of policies and strategies, exchange of information, technologies and techniques;
- *Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention)*, which is intended to strengthen national measures for the protection and ecologically sound management of transboundary surface waters and groundwaters;
- *Convention on Environmental Impact Assessment in a Transboundary Context*, which lays down the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across borders;
- *Convention on the Transboundary Effects of Industrial Accidents*, which is designed at protecting human beings and the environment against industrial accidents by preventing them as far as possible, by reducing their frequency and severity and by mitigating their effects;
- *Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters*, (known as Aarhus Convention), which grants the public rights regarding access to information and public participation and access to justice in environmental matters.

But many EECCA countries still have to ratify these conventions and related protocols to be able to benefit from technical and financial assistance for effective implementation.

Information on the state of the national and international environment is a very important public good. It is essential for the design of effective environmental policies and for raising public awareness about environmental problems. The Kiev Protocol on Pollutant Release and Transfer Registers (PRTRs) to the Aarhus Convention aims, moreover, to enhance access to information through the establishment of nationwide inventories of pollution from industrial and other sources based on reporting by private enterprises.

The Environmental Performance Reviews (EPR) conducted by OECD and UNECE, moreover, provide not only in-depth knowledge about the environmental situation in a given country as a basis for recommendations for improvements, they also make available information on the diversity of policy instruments used in the various countries and help identifying strength and weaknesses of national environmental policies. This is therefore also a mechanism for illustrating the potential benefits of emulating policies and institutional arrangements that have been successful in other countries.

### **Conclusions**

Issues related to international competitiveness and the integration in the international division of labour have always played a key role in the discussions about economic development strategies of lower-income countries. In this context, stringent environmental protection is sometimes regarded as a 'luxury', which can be postponed until higher levels of output and living standards are achieved.

It would be mistaken, however, for a development strategy to accept the sacrifice of environmental quality today for achieving larger growth rates of GDP. "Society can loose today and lose tomorrow, especially as the cost of clean-up are often a multiple of the costs of avoiding pollution (air, water, toxic wastes) in the first place." (Stern, Stiglitz, 1997).

There is also little justification for not addressing early on those major sources of pollution that have significant adverse effects on health, e.g. due to insufficient quality of drinking water or air pollution. This are policies where benefits clearly outweigh the costs even in the poorest countries, and were, moreover, large increases in benefits can be reaped at relatively low cost. It should also be taken into account that there may be irreversible processes associated with environmental degradation beyond a certain threshold.

The increasing consciousness of environmental issues on the part of consumers worldwide means, moreover, that high environmental process and product standards have become an important component of international competitiveness. In other words, there are many very good economic reasons for stringent environmental policies also in low-income countries.

The available empirical evidence, moreover, clearly suggests that environmental pollution abatement costs are too small to matter significantly for the overall industrial competitiveness of a country. Pollution standards also play in general only a marginal role in FDI location decisions of multinational companies. Given the stringent global environmental performance criteria of MNCs, there is little to be gained (in a dynamic perspective) from keeping environmental standards low to attract FDI.

The intensified competitive pressures from globalization have not reduced the need for stringent national environmental policies, rather they have increased it. Globalization and modern communication tools have facilitated the diffusion of innovations in the area of environmental technologies and the provision of environmental services. But the challenge for low-income countries is to imitate and adapt these technologies so that they work well under their specific local conditions. Depending on their level of development, the rapidly growing international market for environmental goods and services provides opportunities not only for more or less large technological "leapfrogging" as regards productive and environmental performance but also for fostering domestic productive capacities and competitive niches in these goods and services.

It is important for low-income countries to closely integrate environmental policies with national industrial development strategies aiming at technological upgrading and the promotion of innovation and R&D. This requires, however, a set of supportive domestic institutional arrangements, notably a capable civil service.

International organizations and international legal instruments on the environment play a major role in promoting the convergence of national environmental policies at a level of more stringent standards and for adequate protection of regional and global public goods. International financial and technical assistance designed to support the building of domestic institutional and technological capabilities will continue to play an important role for promoting growth and environmental protection in low-income countries but they can only be complementary to domestic efforts, which need to be underpinned by strong political will.

### **Some issues for discussion**

How is the issue of competitiveness effects related to environmental policy measures addressed in specific national contexts? How has this affected the degree of stringency of environmental standards?

How are domestic firms coping with environmental requirements for international market access and integration in global supply chains?

To what extent are environmental issues effectively integrated in wider industrial or sectoral policies? What are the main institutional arrangements for supporting policy integration and how can it be ensured that environmental issues are given an appropriate weight? What are the main obstacles for policy integration?

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