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

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**UNITED NATIONS**

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IN A GLOBALIZING WORLD: CHALLENGES FOR LOW-INCOME  
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**Environmental Policy and International Competitiveness in a Globalizing World**

**Abstract**

*A major policy goal of low-income countries is to promote the creation of competitive economic capacities in order to achieve sustained growth and raise the material well being of the population. Economic growth is, however, associated with increasing environmental pressures, and the question is to what extent the costs of more stringent environmental policies will affect the competitiveness of domestic firms. What is the empirical evidence on the impact of environmental protection costs on international trade and FDI location decisions? What are the opportunities that the process of technological upgrading, which is a major driving force of economic development, provides for reducing environmental pressures? What kind of policies and supportive institutional arrangements can help to effectively integrate environmental protection into national economic development strategies and thereby promote sustainable production and consumption patterns?*

*The impact of more stringent environmental policy on overall industrial competitiveness is only marginal, reflecting notably the small share that environmental management costs have, on average, in total production costs in industry. Adequate design of policy instruments, can, moreover, cushion any potential adverse competitiveness effects in pollution-intensive sectors most affected by stricter pollution standards. International cooperation and co-ordination in the design of environmental policies, notably as regards transboundary pollution, can also reduce asymmetric competitiveness effects across countries.*

*Environmental standards are clearly not a major determinant of FDI flows, which are rather factors such as labour costs, quality of labour force and access to infrastructure. Increased environmental awareness and green consumerism has led, moreover, to a global proliferation of increasingly stringent environmental requirements for local firms that want to be part of international production networks organized by multinational firms.*

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

*Given the close linkages between the economy and the environment, there is a need for effective integration of environmental protection in sectoral and broader national industrial development strategies. This requires adequate supportive institutions. An overriding concern must be to ensure that individual environmental policies are worth having and that they are cost-effective.*

## I. INTRODUCTION

Since the inception of environmental policymaking more than three decades ago, competitiveness concerns and associated fears for profits and jobs have regularly 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. A related issue is to what extent more stringent environmental standards might create incentives for firms to relocate production activities to countries with lax policies – so-called pollution havens. In this context, 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 potential economic costs of environmental policies are often viewed through the lens of international competitiveness, the fundamental issue is one of social choice, that is, 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 reduced to sustainable levels. A major case in point is the current intensive discussion about policies to address global climate change, which are seen to have differential impacts on the competitiveness of energy-intensive industries across developed and developing countries.

Although the term “competitiveness” is widely used in national and international policy debates, the concept has remained elusive. It is being applied at the level of both firms and countries. At the level of firms, competitiveness is mainly about the ability to generate sufficient profits and raise market shares for products. A firm’s competitiveness is, however, determined not only 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 innovation and productivity growth and enhance firms’ ability to adjust to changing economic circumstances.

It has been argued that the concept of competitiveness does not apply at the level of countries, because, unlike firms, countries do not compete with each other, and they do not disappear when they are not successful. But that is not the real issue. If governments fail to establish a framework conducive to doing business, then this will affect overall economic growth in the medium and longer term and, related to that, the prospects for raising the living standards of the population.

This shows that firm- and national-level competitiveness are interrelated. Many of the 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, research and development (R&D) and innovation policies, and openness to foreign trade and investment.

## II. THE CHALLENGE FOR LOW-INCOME COUNTRIES: CATCHING UP WITH MORE ADVANCED ECONOMIES IN A USTAINABLE DEVELOPMENT CONTEXT

A key policy objective for the low-income countries of Eastern Europe, Caucasus and Central Asia (EECCA) and South-Eastern Europe (SEE) is to achieve robust growth in output and productivity in order to raise the living standards of the population and catch up with the more advanced economies, that is, to narrow the existing considerable gaps in real incomes. The challenge for policymakers is to reconcile the objective of “going for growth” with the need to ensure sustainable development. 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 will not be given the weight they merit.

Following a deep and prolonged economic crisis at the onset of the transition process, the overall economic performance in EECCA and SEE has improved significantly in recent years. Both regions witnessed buoyant economic growth significantly above the average performance of the developed countries and the world economy at large. Real Gross Domestic Product (GDP) in the EECCA region increased at an annual average rate of 7.5 per cent between 2000 and 2006, fuelled by strong global demand for energy products and other raw materials. In SEE, the corresponding average annual growth rate was about 6 per cent, with robust domestic demand and exports as main driving forces. Rapid growth in economic activity has led to significant increases in the average real incomes of the population, though people at the bottom half of the income distribution have benefited less. Although there has been some narrowing of real income gaps with Western European and other developed countries, the differences in living standards are still sizeable. High unemployment and widespread poverty remain a major preoccupation of policymakers.

But rapid growth of industrial and agricultural activity as well as increasing urbanization pose environmental challenges related to, for instance, air pollution, wastewater, toxic and hazardous solid waste and biodiversity. Poverty-related pollution (due to the use of fuel wood for heating) remains an important problem. The region is, however, very heterogeneous in terms of country size, levels of real incomes, and degree of industrialization and urbanization. Environmental pollution issues tend to be more important in the countries of the western EECCA region (Belarus, Moldova, the Russian Federation and Ukraine) and in large parts of SEE. In the Central Asian countries, where poverty is more widespread, environmental problems are more related to issues of natural resource management.

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 complete.

There has also been uneven progress in the design and implementation of environmental policies, the building of effective environmental protection agencies, and the modernization and extension of the physical infrastructure required to provide adequate environmental services for pollution management. Most of the region's environment ministries have a weak position in government. There is a large gap between the environmental legislation "on the books" and the number of laws and regulations which are effectively enforced. Environmental policies do not rank high among in national economic development and poverty reduction strategies. This reflects to some extent the low levels of real incomes and high levels of unemployment, which entail that citizens' preferences for environmental quality are dominated by the need to ensure a stable regular income.

A major challenge in the EECCA region is to reduce the excessive economic dependence on the commodity sector, which requires designing strategies for greater diversification of economic activities and more broadly based participation in the intensified process of global economic integration. In a similar vein, SEE countries need to pursue economic development strategies that promote international competitiveness as a basis for sustained economic growth and catch-up.

What is important in this context is that international competitiveness in the global economy is increasingly based on knowledge and innovation processes. Not only has globalization led to intensified competitive pressures in the more traditional labour-intensive sectors, but also the knowledge intensity of production in the traditional low-tech segments of industry has increased. With rapid diffusion of new technologies that allow increasing fragmentation of production processes across geographical borders, competitive advantages based on labour costs are increasingly vulnerable to the emergence of other locations where these costs are even lower.

This recalls the importance of knowledge-related variables, such as R&D and innovation, in economic catch-up processes. It is well known that, alongside accumulation of physical and human capital, assimilation has been a key driver of economic growth in the economic development of (former) low-income countries. Assimilation refers to the ability to do things differently by learning from the way things have been done for quite some time in the more advanced economies. These learning processes have different dimensions, such as building skills for the adaptation and imitation of global technologies to local needs and acquiring capabilities for the efficient operation of a plant with a given technology.

These learning processes extend to the design and implementation not only of economic but also of environmental policy, including an integrated consideration of economic and environmental issues. This is important because, in general, plans for the adoption of stricter pollution standards will encounter opposition from the business sector in view of the additional cost burdens and related competitiveness concerns.

### III. COMPETITIVENESS EFFECTS OF NATIONAL ENVIRONMENTAL POLICY

The move to more stringent environmental policies in a country typically raises concerns about how international competitiveness will be affected if other countries do not adopt similarly strict environmental standards. The larger the number of countries that apply similar measures, the more limited the competitiveness effects. This points to the benefits of international cooperation and coordination in the preparation of new environmental policy measures for pollution-intensive industries. This holds especially for environmental protection issues that are of a transboundary or global nature, where multilateral action is required to avoid free-rider problems and suboptimal investments in pollution control and abatement.

Moving ahead of other countries as regards environmental standards does not, however, necessarily have negative impacts on a firm's performance. The reason is that environmental compliance costs are only one among many potential factors that shape competitiveness. There is a broad consensus, based on a large body of empirical research, that environmental policy is not a primary determinant of overall industrial performance, but rather depends mainly on factors such as labour skills and labour costs, access to infrastructure, the production technology used, and the rate of productivity growth.

Given that the share of pollution abatement and control costs in total production cost is very small for all but the high pollution-intensive activities<sup>1</sup>, it is not surprising that in general they do not significantly affect the overall price competitiveness of the industrial sector.<sup>1</sup> 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. Competitiveness effects also depend on the extent to which higher compliance costs can be passed through to final consumer prices without a loss of market share. This depends also on the extent to which non-price factors (e.g. quality aspects, product differentiation) determine demand for a given product. More stringent environmental protection policies can be an important potential source of competitive advantage given that environmental criteria are playing an increasing role in many purchasing decisions of consumers ("green consumerism"). In a more general way, the increasing preference of consumers for green products also entails that firms can benefit from enhanced competitiveness and a marketing edge by developing products which are more environmentally friendly.

The impact of higher costs imposed by more stringent pollution standards also depends on the specific response of the company. Stricter environmental policies can create incentives for reviewing the various stages of the production process and may lead to the discovery of inefficiencies in the use of material and energy. The related cost savings can then largely offset the higher compliance costs.

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

More stringent environmental regulations can also stimulate R&D and innovation processes, which lead to the development of clean technologies that are less costly than traditional end-of-pipe solutions and have additional economic benefits because of material and energy cost savings and increased productivity. These potential positive feedback effects from more stringent environmental policy to innovation and firms' competitiveness and related business advantages are also known as the Porter hypothesis.<sup>2</sup>

The potential adverse competitiveness effects of more stringent environmental policy can be mitigated or offset by adequate policy design. Even if environmental standards in certain countries appear similar at first glance, what matters is the "quality" of the regulation, that is, its cost-effectiveness and the flexibility it provides for meeting the more stringent standards. This points to the need for finding a good mix between traditional regulations and economic instruments. It is important to announce changes in environmental policy well in advance so that firms have enough time to prepare for and adapt to the more stringent standards. Also, the gradual phasing in of more stringent policies over a specified longer time period can help to minimize competitiveness effects. Another frequently used mitigation tool is the (partial) recycling of revenues from emission charges to polluting firms.

It should, however, be recalled that the ultimate goal of environmental policy is to influence the process of structural change in the economy so as to reduce pollution-intensive activities. Reduced pollution, in turn, has wider benefits in terms of improved health among the population, with attendant lower health costs and improved worker productivity. Reduced pollution and improved overall environmental quality will also benefit the tourism sector. More stringent environmental policies can, moreover, create new economic opportunities by stimulating the development of clean technologies, which countries can use to develop new export markets (see section IV below).

The impact of environmental policy on foreign direct investment (FDI) by multinational companies (MNCs) and the effects of FDI on the environment have been the subject of considerable controversy. There have been widespread concerns that countries with lax environmental regulations (typically low-income countries) would provide opportunities for pollution-intensive firms to escape more stringent standards in their home countries (typically developed-market economies). The result would be adverse environmental impacts in the low-income countries and possibly also beyond their borders. The existence of differential environmental standards has also often been suspected of triggering a "race to the bottom" in environmental standards, in which developed countries might lower their own environmental policy ambitions in order to prevent the relocation of pollution-intensive activities (and the accompanying jobs) to other countries. These concerns were to some extent fuelled by major environmental disasters (e.g. the 1984 gas leak in a Union Carbide plant in Bhopal, India, and the 1989 Exxon Valdez oil tanker accident in Alaska), which promoted an image of MNCs' environmental performance record as one of neglect and ignorance.

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<sup>2</sup> Porter, M. E. and C. van der Linde (1995). Towards a new conception of the environment-competitiveness relationship. *Journal of Economic Perspectives* 9 (4): 97–118.



But this contrasts with a more positive assessment of the effects of FDI on environmental performance in recent years. MNCs are now seen rather as having the potential of promoting higher environmental standards in low-income countries by making their subsidiaries apply the environmental standards of the home country. This requires, of course, the transfer of more modern and cleaner technologies and more effective environmental management practices than those being applied by local firms in low-income countries. The main rationale for this behaviour is profit-related, because application of the same technology leads to cost savings due to increases in internal operational efficiency and higher productivity. The use of clean technologies and adherence to strict environmental standards across subsidiaries also bring reputation gains (among consumers) and safeguard against legal liabilities in case of industrial accidents.

It is also noteworthy in this context that MNCs have been increasingly involved in levelling the playing field not only by imposing similar environmental standards on their subsidiaries but also by extending these strict environmental requirements to other local suppliers in low-income countries that want to be part of global production networks. Major driving forces for this have been the growing environmental awareness worldwide (reflected in more stringent environmental standards in major product markets) and increasing consumer preferences for “green products”. In general, these environmental requirements aim at phasing out harmful substances or changing 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. They are quite important for the manufacturing of textiles, clothing, leather, and electrical and electronic products<sup>3</sup>, areas where low-income countries have strong labour cost advantages.

Compliance with the stringent environmental requirements of global production networks requires 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 which have automatic access to knowledge and technology transfer.) Technical assistance and capacity-building are important for helping to overcome these problems. To avoid disruptions in supply links and prevent the emergence of environmental requirements as a barrier to trade for low-income countries, importers in industrialized countries appear to have made greater efforts in recent years 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.

Although costly, successful adaptation to more stringent environmental requirements can be a win-win-process for low-income countries to the extent that they provide the opportunity to develop new export markets and involve improved resource

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<sup>3</sup> MNCs’ policies have been reinforced by two recent environmental market requirements for electronics and electrical products imported into the European Union (EU), namely 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.

efficiency, reduced pollution intensity and improved public health, thereby also contributing to sustainable development. There is evidence that an increasing number of small and medium-sized firms from low-income countries which are integrated into global supply chains have been adopting industrial environmental management and best practice programmes to achieve Environmental Management System certification and ISO 14001 certification.

The empirical evidence on MNCs' environmental behaviour is, however, limited. Evidently not all MNCs are always examples of adequate environmental behaviour in all the countries where their subsidiaries are located. It is also possible that FDI has in some cases indeed been attracted by lax environmental regulation in low-income countries. But it may be surmised that such lax standards mainly attract investors from less advanced countries operating technology that is more pollution-intensive than standard technologies applied in developed countries in the same sectors. Overall, the environmental performance of MNCs (i.e. their subsidiaries) is better than that of local firms in low-income countries. This does, of course, not imply that the environmental performance of MNCs should not be improved further. Home-country governments of MNCs should therefore promote the OECD Guidelines for Multinational Enterprises designed to ensure responsible business conduct in many different areas, including environmental protection, in the countries in which the MNCs operate. Observance of these guidelines by MNCs is especially important in a context of weak governance, i.e. when governments in the host countries are unwilling or unable to adopt and implement appropriate policies required to ensure sustainable development.

There is, however, a broad consensus, 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. Environmental policy is clearly not a primary determinant of plant foreign location choices; chief determinants are factors such as labour costs, geographical proximity of major markets, and quality of transport and communication infrastructure. In other words, lax regulations are not a prerequisite for attracting high-quality FDI.

It is also not very efficient for Governments to use lax environmental standards to attract international investors. There are better instruments for this, such as tax concessions, government contracts, designated land at symbolic prices and so on. 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.

There is a need for adequate policies to benefit from foreign direct investment. It should be recalled in this context that the expected benefits from FDI for economic development in a country are not at all automatic. Rather, these benefits are 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 adopt a more strategic approach to FDI in order to strengthen the national development impact.

In a similar vein, as regards environmental performance, low-income countries should not rely only on the voluntary self-regulation of MNCs (i.e. 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.

#### IV. TECHNOLOGICAL INNOVATIONS AND ENVIRONMENTAL PERFORMANCE

Technological innovations and the associated rise in productivity are a major driving force for economic development of countries. The diffusion of new technologies, which make workers more productive, is in fact at the heart of economic catch-up processes in low-income countries. But new technology is not only a tool for promoting growth and economic development; it is also a major tool for improving environmental protection. New production processes and products, to the extent that they are more environmentally friendly, help improve the trade-off between economic growth and environmental pressures by lowering the pollution intensity of economic activity.

To the extent that new technologies make it possible to achieve 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. Compliance costs may also decrease as a result of a significant reduction in import tariffs for the corresponding machinery and equipments, in cases where these are still quite high.

Technological advances are influenced by economic incentives for inventive activities, that is, the potential size of markets. These incentives can also be shaped by economic and environmental policies. More stringent national and international environmental policies in conjunction with increased consumer preferences for “green products” have, in fact, spurred the development of a global market for cleaner technologies and products with reduced environmental impacts.

The development of “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 also need to adopt. 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. Evidently, this holds mainly for developed countries, where R&D processes are largely aimed at pushing the technological frontier outward.

Low-income countries will in general be mainly engaged in imitating and adapting these new global technologies according to their local economic contexts. The need for further technological upgrading of their productive capital stock, which is an

essential condition for improving international competitiveness and strengthening economic development, thus provides important opportunities for EECCA and SEE to combine improvements in productive efficiency with improved environmental performance. These adaptation and imitation processes can, however, also lead to the development of domestic supply capacities that make it possible to export these adapted technologies to other low-income countries.

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 stages of economic development and varying economic dynamism, not all countries will be able shift to cleaner technologies to the same extent. An adequate mobilization of domestic resources (i.e. higher savings) will play a major role in supporting investment in the renewal and enhancement of productive capacities. This points to the importance of financial sector reform and the development of sound institutions for an efficient provision of financial services.

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

Low-income countries should be promoting the diffusion of environmentally sound technologies as an integral part of a national 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 section V below).

The challenge of technological upgrading puts a high premium on national investments in the education and training of people to create the necessary capabilities. The level of domestic technological capabilities will, in fact, determine to what extent low-income countries can move directly ("leapfrog") to the cutting-edge cleaner technologies developed in industrialized countries rather than mainly imitating and adapting second-best technologies with a strong emphasis on (more costly) end-of-pipe solutions. To the extent that this is possible, low-income countries could then leverage their labour cost advantages even more in international markets. The Clean Development Mechanism under the Kyoto Protocol provides a channel for combining technological upgrading with reduced emissions of greenhouse gases.

To a large extent, domestic firms in low-income countries will have to rely on direct imports of better-performing machinery and equipment from developed countries. FDI policy linked to strict pollution standards will also help to promote the diffusion of these technologies. Trade liberalization may be helpful for the diffusion of these

technologies to the extent that trade barriers are still high. It is noteworthy that under the general heading of “environmental goods and services” these technologies have been on the trade liberalization agenda of the Doha Round of the World Trade Organization (WTO) trade negotiations.<sup>4</sup> But overall progress in negotiations has been slow, partly because there is no internationally agreed definition of the term “environmental goods” and the detailed list of products to be covered by this term.

## V. INTEGRATING ENVIRONMENTAL PROTECTION INTO NATIONAL ECONOMIC DEVELOPMENT STRATEGIES

To be successful, economic catch-up efforts of low-income countries require continuous improvement of productivity accompanied by a dynamic process of technological upgrading and structural change. It is now widely agreed, based inter alia on the experiences of the small East Asian newly industrializing economies (NIEs), that adequately designed proactive industrialization strategies, including strategic integration into the world economy, can play a major role in promoting 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 market-driven economy.

From an environmental policy perspective, it is crucial to ensure that national or industrial development strategies take into account the linkages between economic activity and the environment with the aim of optimizing the inevitable trade-offs from an overall societal point of view. This requires establishing institutional arrangements, which ensure appropriate representation and integration of environmental policy concerns in these development strategies. A related major goal is to integrate the development and diffusion of clean technologies into wider national R&D, innovation and investment promotion policies.

Policies supporting environmental policy integration should aim at promoting the private sector’s technological innovations (by means of fiscal incentives, public loans and subsidies) as well as its efforts to adapt imported technologies to local circumstances. 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.

The specific design of supporting institutional arrangements and industrial and environmental policy measures will, of course, have to take into account the heterogeneity of countries with regard to prevailing economic conditions,

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<sup>4</sup> An informal Working Group formed by the Organisation for Economic co-operation and Development (OECD) and Eurostat 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 ecosystems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use.”

environmental pressures and social norms and traditions. But there are some general principles, which underlie more specific types of policies and policy measures for approaching this set of issues.

Institutions are in general understood to be the formal rules (property rights, rule of law, etc.) and informal constraints (beliefs, social norms and traditions) that shape human interactions. A major function of institutions is to reduce uncertainty, thereby increasing the incentives for individuals to engage in complex forms of cooperation. 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 administrations. The design and successful implementation of national industrial and sustainable development strategies requires a strong, capable, pragmatic and goal-oriented civil service that is not unduly involved in day-to-day politics, but rather retains a sufficient degree of freedom for developing strategies for long-term policymaking. There is no “free lunch” here; the construction of such an apparatus requires the investment of considerable resources, both financial and political, and may take quite a long time.

The establishment of effective environmental protection agencies with adequate levels of skilled and well-trained staff is an essential prerequisite for the monitoring and enforcement of emission and ambient environmental standards. Design and enforcement of effective policies are often hindered by corruption, and it is important to ensure that bribery is adequately penalized so that incentives for corruption are weak. (Not only the offering but also the acceptance of bribes should be penalized).

It is important to foster good relations between government agencies in charge of economic development and those in charge of environmental protection. It is essential to build trust and achieve mutual understanding of the overall objectives of promoting 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.

The determination of economic and environmental policy measures should be based on an intensive dialogue between competent ministries, industry, and research institutions, rather than autonomous decisions of specialized government entities. Governments should contribute to creating a shared vision of a long-term strategy to foster competitiveness and structural change in a context of sustainable development. They should also be involved in discussing potential economic impacts and related competitiveness issues associated with planned environmental policy measures and possible alternative ways of addressing them.

Although it is important for the civil service to be engaged in regular exchange of views with the business sector concerning the design and implementation of policies, the public administration should maintain a neutral relationship and avoid capture. This somewhat contradictory rapport between the state administration and the private sector

(i.e. conducting close consultations but maintaining independence) has been termed “embedded autonomy”, and has been successfully built in the small East Asian NIEs.

Stringent domestic environmental policies have remained key for achieving sustained environmental improvements. But national environmental policies have also to a large extent been supported and driven by international environmental processes as well as multilateral environmental agreements for addressing pollution issues, especially those that are of a transboundary and global nature. In contrast to the EECCA region, countries of the SEE region have, moreover, been benefiting from the EU Stabilization and Association Process, which constitutes a formal anchor for the direction of institutional and legislative reforms.

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 in order to reduce the adjustment costs associated with increased regulatory stringency. This points to the importance of gradual and predictable implementation of policies, and holds also for the removal of environmental harmful subsidies. Firms must be able to realistically achieve fixed pollution targets taking into account the current pollution standards and available technologies. A participatory approach, involving industry, is important for setting realistic targets.

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. In this case, private-sector agents should be clearly informed that these standards will be progressively tightened and enforced over a reasonable specified time period. Public disclosure of information on environmental performance should also raise firms’ environmental management standards. Strong autonomous technological change may require a corresponding increase in stringency of regulations to prevent them from becoming obsolete.

In situations of widespread poverty, it is important to integrate considerations about income distributional issues (regressive effects and social affordability) into the design 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 by, for example, recycling revenues from the environmental taxes to lower income groups. Social affordability issues may be best addressed by direct-targeted subsidies.

The major overriding principle is to make sure that individual environmental policies are worth having – 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. Policies that are worth having should be cost-effective – they should achieve their objectives at least cost. It is therefore important to give firms sufficient advance notice and adaptation time when planning new policy measures. This often allows them to render the measures, which they initially designed for achieving compliance, more cost-effective.

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 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 have built-in rigidity, given the inherent difficulty of changing 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 institutional demands that environmental pollution management creates with regard to human resource skills in government and business, information on pollution and pollution sources, monitoring capacity and so on.

Regulations should focus on environmental outcomes and not prescribe a particular technology or process. They should be designed to stimulate the development 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 a complement to environmental policy, not a substitute for it. 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 best available techniques, 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 in a country.

Voluntary agreements between Governments and industry may help promote innovative environmental practices (such as ISO 14001 and EMAS). In the face of increased consumer preference for “green products”, moreover, eco-labelling programmes have become an integral part of strategies to promote international competitiveness in countries all over the world. But voluntary agreements are no



substitute for stringent environmental policies, though they can play a useful complementary role.

Although the environmental performance of a country reflects to a large extent the specific design of domestic environmental policies and institutions, the latter are also influenced by the need to conform with international environmental agreements adhered to by individual states. 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.

The importance that Governments have attached to addressing a number of serious environmental issues is reflected in various global multilateral environmental agreements (Box 1) which have a direct bearing on product and process standards and international trade flows.

#### Box. 1

##### Selected global multilateral environmental agreements

- (a) Montreal Protocol on Substances That Deplete the Ozone Layer, which stipulates the phasing out of a number of substances held responsible for ozone depletion.
- (b) Kyoto Protocol, an agreement made under the United Nations Framework Convention on Climate Change, which commits countries that ratify it to reducing emissions of greenhouse gases or engaging in emissions trading.
- (c) Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, designed to reduce the movement of hazardous waste between nations.
- (d) Stockholm Convention on persistent organic pollutants, 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”.
- (e) Convention on Biological Diversity, which aims at the sustainable use of biological resources and through its Cartagena Protocol on Biosafety also covers the field of biotechnology.
- (f) 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 are the five environmental conventions negotiated in the framework of the UNECE (Box 2), all of which are in force and have significant impacts on environmental performance. 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. International environmental processes such as the “Environment for Europe” process and the follow-up to major international conferences (e.g. the Rio Declaration on Environment and Development and the the World Summit on Sustainable Development) are also having

an impact on the design and implementation of environmental policies. The same holds for the Millennium Development Goals, agreed in 2000 by all United Nations Member States, which include the need to “Ensure environmental sustainability” (goal 7) and define specific targets to be achieved by 2015 or 2020. 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.

### Box. 2

#### UNECE Environmental Conventions

- (a) Convention on Long-range Transboundary Air Pollution and its eight protocols, which aim at reducing and preventing air pollution, including long-range transboundary air pollution, through the development of policies and strategies and the exchange of information, technologies and techniques.
- (b) Convention on the Protection and Use of Transboundary Watercourses and International Lakes, intended to strengthen national measures for the protection and ecologically sound management of transboundary surface waters and groundwaters.
- (c) Convention on Environmental Impact Assessment in a Transboundary Context (the Espoo Convention), 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.
- (d) Convention on the Transboundary Effects of Industrial Accidents, designed to protect human beings and the environment from industrial accidents by preventing these as far as possible, by reducing their frequency and severity, and by mitigating their effects.
- (e) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the Aarhus Convention), which grants the public rights regarding access to information about and public participation in environmental decision-making, and access to justice in environmental matters. The Kiev Protocol on Pollutant Release and Transfer Registers to the Convention aims to enhance access to information through the establishment of nationwide inventories of pollution from industrial and other sources based on reporting by private enterprises.

International organizations (e.g. OECD, UNECE, the United Nations Environment Programme) working in the field of environment 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 (e.g. conventions and treaties), which aim at reducing pollution burdens and health risks as well as improving environmental management. Key tools include legally binding instruments, recommendations, guidelines and capacity-building activities. Cross-sectoral international cooperation on transport, health and environment, water and health, and education and sustainable development adds a new dimension of integration of environmental concerns into economic and social policies.

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 Environmental Performance Reviews conducted by OECD and UNECE 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 identify strengths and weaknesses of national environmental policies. They are therefore also a mechanism for illustrating the potential benefits of emulating policies and institutional arrangements that have been successful in other countries.

## VI. CONCLUSIONS

Dealing with the trade-offs between economic and environmental objectives requires well-designed policies and effective supporting institutional arrangements for an integrated consideration of economic and environmental issues. This should ensure that competitiveness concerns related to environmental policy measures are adequately addressed at an early enough stage. There is a broad consensus, however, that the additional cost burdens associated with more stringent environmental standards do not significantly affect international trade flows or foreign direct investment location decisions. Environmental policy, appropriately designed, is not a major determinant of international competitiveness. This holds also for the pollution-intensive sectors that are most affected by stricter standards. More stringent environmental protection in low-income countries should therefore not be regarded as a luxury, which can be postponed until higher levels of economic activity and real incomes are achieved.

It would be mistaken for a development strategy to accept the sacrifice of environmental quality today in return for achieving higher growth rates of GDP, *inter alia*, because the cost of reversing the environmental degradation later on are often significantly larger than the costs of avoiding pollution in the first place. It should also be taken into account that there may be irreversible processes associated with environmental degradation beyond a certain threshold. In other words, it is important to compare the costs of implementing an environmental policy with the costs of policy inaction, to avoid that society would risk losing today as well as tomorrow.

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). These are areas where the benefits clearly outweigh the costs even in the poorest countries, and where, moreover, large increases in benefits can be reaped at relatively low cost (“picking the environmental low-hanging fruit”). The increasing awareness 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. This is also reflected in the increasing attention that MNCs pay in improving their internal environmental management practices. There is therefore little to be gained (from a dynamic perspective) for countries that keep environmental standards low to attract FDI.

New technology is a major driver of the economic development process of low-income countries. The process of technological modernization provides at the same time enormous opportunities for improved environmental performance. This points to the benefits of closely integrating environmental policies with national industrial development strategies aiming at technological upgrading and the promotion of innovation and R&D. International organizations and international legal instruments relating to the environment play a major role in promoting the convergence of national environmental policies in order to achieve more stringent standards and adequately protect regional and global public goods. International financial and technical assistance to support the building of domestic institutional and technological capabilities will continue to play an important role in promoting growth and environmental protection in low-income countries, but it can only complement domestic efforts, which need to be underpinned by strong political will.

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