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EU Accession: Negotiating “Environmental Dumping”?

“Environmental dumping” is a concern frequently raised in discussions on the potential risks involved in the eastern enlargement of the European Union¹ (EU).² There is a general concern that the Central and Eastern European accession countries may be neither willing nor able to fully apply the EU’s environmental acquis communautaire, the body of Community environmental legislation, once they have joined the EU. As a result, these countries would benefit from a competitive advantage when selling their goods on the Internal Market. This article asks whether, and in which specific cases, such concerns may be justified.

The so-called Copenhagen criteria constitute the general conditions under which the accession countries may join the EU. Among other things, they require the candidates to be able to “take on the obligations of membership”. In practical terms the EU interprets this to mean that, in general, the accession countries must fully apply EU legislation from the date of accession. Consequently, the EU will only allow for transitional periods in a strictly limited number of cases. In the framework of the ongoing accession negotiations the EU and the accession countries identify these cases and agree on the concrete terms under which transitional periods will be granted.

Against this background we focus on those pieces of EU environmental legislation for which the Czech Republic, Estonia, Hungary, Poland or Slovenia have so far applied for transitional periods. These candidates belong to the “first wave” of accession countries, the so-called Luxembourg countries (LCs). Accession negotiations with the LCs started in March 1998 and are significantly more advanced than the negotiations with the second group of candidates, the so-called Helsinki countries.³ The LCs are officially aiming to join the EU in January 2003, although it is generally believed that the first accessions are unlikely to take place before January 2005.

We shall first discuss the problems which the LCs face in implementing those directives for which they

have applied for transitional periods. On the one hand, there are a number of directives for which the EU will probably grant transitional periods. On the other hand, the LCs have also applied for transitional periods for several directives for which it seems unlikely that transitional periods will be allowed. In theory both sets of directives may cause distortions of competition and, therefore, give rise to “environmental dumping”. We shall then provide a brief overview of the literature dealing with the effects of differing environmental standards on trade flows. In addition to the economic implications we shall also consider the potential environmental effects. Against this background we give a preliminary general assessment of whether, and to what extent, transitional periods may lead to distortions of competition or negative transboundary environmental effects.

The Need for Transitional Periods

As mentioned above, the EU uses various criteria to decide whether, and under which conditions, a transitional period may be granted. Generally, the EU insists that “all requests for transitional measures [...] be limited in time and scope and be accompanied by a

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¹ In the following the term “European Union” will be used for reasons of simplicity, although in several cases the term “European Community” (EC) would be the correct one from a historical or legal perspective.

² Cf. European Commission: Strategy Paper, Regular Reports from the Commission on Progress towards Accession by Each of the Candidate Countries, Brussels 8 November 2000, European Commission, p. 5.

³ In addition to the five Central and Eastern European countries Cyprus also belongs to the LCs. Bulgaria, Latvia, Lithuania, Malta, Romania and Slovakia are Helsinki countries. Although Turkey is also an official candidate for EU membership accession negotiations with Turkey have not yet begun.

Table 1
Requests by the LCs for Transitional Periods for Community Environmental Directives

	CZ	EST	HU	PL	SVN
Nature Conservation					
Habitats Directive (92/43/EEC)	1.12.2005	–	–	–	–
Water Quality					
Urban Waste Water Directive (91/271/EEC)	31.12.2010	31.12.2010	31.12.2015	31.12.2015	31.12.2017
Groundwater Directive (80/68/EEC)	–	31.12.2006	30.10.2007	–	–
Nitrate Pollution from Agricultural Sources (91/676/EEC)	31.12.2006	2008	–	31.12.2010	–
Discharge of Dangerous Substances (76/464/EEC)	31.12.2008	31.12.2006	31.12.2009	2007	–
Abstraction of Drinking Water (75/440/EEC)	–	–	–	31.12.2010	–
Drinking Water Directive (80/778/EEC)	31.12.2006	31.12.2013	–	–	–
Industrial Pollution and Risk Management					
Integrated Pollution Prevention and Control (96/61/EC)	30.10.2012	–	–	31.12.2010	31.12.2011
Air Pollution from Industrial Plants (84/360/EEC)	–	–	30.10.2007	–	–
Large Combustion Plants (88/609/EEC)	–	–	31.12.2008	–	–
Chemicals and Genetically Modified Organisms (GMOs)					
Control of Major Accident Hazards (Seveso II) (96/82/EC)	–	–	31.12.2004	–	–
Air Quality					
Ozone Depleting Substances (EC/3093/94)	–	–	–	31.12.2005	–
VOC Emissions from Petrol (94/63/EEC)	–	1.1.2007	–	31.12.2009	2005
Quality of Petrol and Diesel Fuels (98/70/EEC)	–	–	–	31.12.2009	31.12.2004
Waste Management					
Waste Framework (75/442/EEC)	–	–	–	2012	–
Hazardous Waste (91/689/EEC)	–	–	–	2012	–
Hazardous Waste Incineration (94/67/EC)	–	–	30.6.2005	–	–
Landfill (99/31/EEC)	**	16.7.2013	**	**	**
Packaging and Packaging Waste (94/62/EC)	31.12.2005	–	31.12.2005	31.12.2007	31.12.2007
Shipment of Waste (EEC/259/93)	–	–	–	31.12.2012	–
Disposal of Waste Oils (75/439/EEC)	–	–	–	31.12.2005	–

As of November 2000, ©Ecologic 2001.

* Hungary seeks to apply a different cut-off-date. This would result in a permanent derogation from certain requirements for certain installations.

** The Landfill Directive has only recently been adopted. Some LCs may still decide to apply for a transitional period.

plan with clearly defined stages for application".⁴ In addition, the EU has specified several cases in which transitional periods will not be accepted: transitional periods will not be granted for legal transposition of the *acquis* into national law and for the administrative capacity-building that is necessary to implement European legislation; they must neither hinder the functioning of the Internal Market nor lead to a distortion of competition; in cases where transitional periods have negative effects on transboundary environmental pollution, they will be denied; finally,

they must not undermine the EU's international obligations. Whereas there is a long list of circumstances restricting the acceptability of transitional periods, the EU has also stated during the accession negotiations that transitional periods may be granted if the expected costs of implementing particular provisions of EU environmental legislation are very high.⁵

Table 1 lists the directives and regulations for which the LCs have indicated during the accession negotiations that transitional periods will be necessary.⁶ The

⁴ See, for example, Council of the European Union: European Union Common Position, Conference on Accession to the European Union – Czech Republic, CONF-H 63/99, Brussels 1999, Council of the European Union, p. 2.

⁵ These conditions were drawn up on the basis of the Common Positions of the European Council for the accession negotiations (the EU negotiating positions).

⁶ The table is based on the LCs' Position Papers for the accession negotiations and the EU's Common Positions.

requests for transitional periods are based on the LCs' official working assumption that accession takes place in January 2003. The Commission of the European Communities (CEC) has already made it clear that transitional measures will usually not be granted for the implementation of a directive as a whole. If, as is often the case, a request for a transitional period only refers to particular provisions of a directive, the date given in the table reflects the longest transitional period. Poland, for example, requests three different transitional periods for the implementation of the requirements of the Urban Waste Water Treatment Directive (UWWT). The period shown in the table is the longest one: it lasts until the end of 2015 and applies to the construction of waste water treatment plants for small and medium-sized towns.

Potentially Successful Bids

Investment requirements constitute the most severe problem which the LCs face in implementing the environmental acquis. The EU has already indicated that it may allow for transitional periods for those cases where the compliance costs are very high. In addition, as illustrated further below, the accession negotiations so far suggest that in exceptional cases – e.g. the Packaging and Packaging Waste Directive – transitional periods may also be granted for other problems.

The CEC estimates that the financial resources needed for full implementation of the environmental acquis amount to about € 120 billion for all ten accession countries, of which about € 65 billion are for the LCs.⁷ The bulk of the resources will have to be invested in air pollution abatement, water and waste management.⁸ Implementation of the UWWT Directive

is expected to be particularly expensive.⁹ The directive requires the extension of sewerage systems and waste water treatment facilities. All LCs are requesting transitional periods for some requirements of the directive. For example, the costs of implementing the UWWT Directive in the Czech Republic are estimated at CZK 70 billion (€ 1.9 billion).¹⁰ The Czech Government has requested a transitional period until 2010. However, it seems questionable whether the Czech Republic will be able to fully implement the directive by the end of 2010. According to the World Bank a "further expansion of the accession period and deadlines up to 2016-2017 will most probably be needed"¹¹ because sharply rising water prices would otherwise result in socially unacceptable costs for private households, industry and, in particular, agriculture.¹² Against this background, Slovenian plans to implement the UWWT Directive may be more realistic. Although Slovenia has the highest per capita income of all the accession countries, it has applied for a particularly long transitional period until 2017.

Compared to the resources needed to implement the UWWT Directive in the LCs, the investment requirements for the Nitrates Directive are relatively moderate. However, implementation of this directive will require the building or upgrading of a large number of storage containers for fertilisers. As a consequence, the bulk of investment costs will have to be borne by farmers. Given the structural weaknesses of the agricultural sector in Central and Eastern Europe (CEE) which is caused, among other things, by the large number of small, relatively inefficient farms, the Czech Republic, Estonia and Poland have applied for transitional periods. Implementation is particularly difficult in Poland, where more than 25% of the workforce are still employed in the agricultural sector. The Polish government, which has

⁷ There are several methodological problems involved in estimating compliance costs. The most difficult one is probably the problem of constructing a hypothetical "baseline scenario" which provides for an estimate of costs for environmental protection in the absence of accession. See A. Carius, I. von Homeyer, S. Bär: The Eastern Enlargement of the European Union and Environmental Policy: Challenges, Expectations, Speeds and Flexibility, in: K. Holzinger, P. Knoepfel (eds.): *Environmental Policy in a European Union of Variable Geometry? The Challenge of the Next Enlargement*, Basle 2000, Helbig & Lichtenhahn, pp. 161-162. Soil and Water Ltd.: *Development of Synthesis Reports for Approximation of EU Environmental Legislation*, Final Report DISAE MC-112, Vantaa 2000.

⁸ European Commission: *Communication from the Commission on Accession Strategies for Environment: Meeting the Challenge of Enlargement with the Candidate Countries in Central and Eastern Europe*, COM(98) 294, Brussels 1998, European Commission, p. 4. It should be pointed out that cost estimates for environmental approximation are inherently problematic. For a discussion of this point, see A. Carius, I. von Homeyer, S. Bär, *op. cit.*, pp. 163-164, note 7.

⁹ Cf. Soil and Water Ltd.: *Development of Synthesis Reports for Approximation of EU Environmental Legislation*, Final Report DISAE MC-112, Vantaa 2000, p. 70.

¹⁰ Government of the Czech Republic: *Additional Information provided by the Czech Republic on the Common Position of the European Union, Chapter 22 – Environment, Conference on Accession to the European Union – Czech Republic*, CONF-CZ 73/00, Brussels 2000, p. 17.

¹¹ Carl Bro et al.: *Pre-Accession Planning to Meet the Requirements of EU Legislation in the Water Sector in the Czech Republic*, Final Report, Prague 1999, p. 150.

¹² The "affordability criterion" applied in the study is based on the assumption that no category of households can afford an increase in tariffs representing more than five per cent of the household's income. The study does not provide a systematic survey for the industrial sector. Cf. Carl Bro et al., *op. cit.*, p.126, note 11.

applied for a transitional period until 2010, expects implementation costs to amount to € 200 million annually until 2002 and another € 2 billion between 2002 and 2010.¹³ The World Bank cost estimates are somewhat higher at US \$ 2.6 to 3.3 billion.¹⁴

The Drinking Water Directive also requires significant investment in systems which do not yet meet the quality standards set by the directive.¹⁵ The Czech Republic (2006) and Estonia (2013) have therefore applied for transitional periods.

While the direct costs of implementing the directives mentioned above largely fall on the public sector, meeting the standards set out by the Dangerous Substances Directive and its daughter directives will require considerable investment by the private sector which will have to reduce or halt emissions into waters. It will be particularly difficult for smaller firms to cover the investment costs. Estonia (2006), Poland (2007), the Czech Republic (2008), and Hungary (2009) have applied for transitional periods for the full implementation of this directive.

Except for Estonia, which will have to invest very heavily in air pollution abatement due to the fact that the country relies strongly on oil shale burning for energy production,¹⁶ the costs of implementing European environmental legislation dealing with air pollution are gauged to be significantly lower than those for improving water quality.

The Large Combustion Plants Directive requires particularly high levels of investment. To meet the requirements large combustion plants must be equipped with desulphurisation facilities. However, so far there has only been one request for a transitional period. This may be explained by the fact that the LCs have already invested heavily in the upgrading of most plants as a result of their commitments under the Sulphur Protocols of the United Nations Economic Commission for Europe (UN-ECE) Convention on Long Range Transboundary Air Pollution. A need for transitional periods may nevertheless arise because, in addition to meeting the stricter requirements of the latest Sulphur Protocol, the LCs will also have to comply with a revised version of the Large Combustion Plants Directive which is about to be adopted by the EU.

Several LCs have applied for transitional periods for implementation of the Directive on Volatile Organic

Compounds (VOC). Although the absolute costs for meeting the requirements of the directive are moderate, they are concentrated in a specific economic sector, the oil industry. Compliance requires, for example, investment in the upgrading of storage containers for petrol to limit emissions of VOC. Estonia (2007), Poland (2009) and Slovenia (2004) have requested transitional measures. For similar reasons Poland (2009) and Slovenia (2004) are also requesting transitional periods for the Directive on the Quality of Petrol and Diesel Fuels. In both countries practical implementation of the directive is additionally hampered by ongoing processes of restructuring and privatisation in the oil industry.

The Integrated Pollution Prevention and Control (IPPC) Directive constitutes a special case as its scope is not confined to a particular kind of pollution, such as water pollution, but covers all environmental media. It is a framework directive which seeks to integrate many of the directives listed in the table into a single licensing procedure, but which also contains additional requirements, in particular for the application of "Best Available Techniques" (BAT). The directive only applies to large industrial plants, including agri-industrial facilities, and requires considerable investment. However, there is a strong overlap of the costs of implementing the IPPC Directive with the costs of meeting the requirements of its daughter directives, such as the UWWT Directive, the Large Combustion Plants Directive or the Dangerous Substances Directive. In the LCs many of the facilities covered by the IPPC Directive belong to sectors suffering from structural economic problems, in particular heavy industries. Moreover, the respective plants are often located in regions characterised by high unemployment, such as the Ostrava region in the Czech Republic. Consequently, in some cases a timely implementation of the directive may, at least in the short to medium term and in the absence of complementary measures, have negative social effects. Most LCs have applied for transitional periods for so-called existing installations which were licensed before 1999, although these installations do not have to comply with the directive until 2007. For example, the Czech Republic has applied for a transitional period until the end of 2012 for so-called existing

¹³ Government of Poland: Poland's Reply to the Common Position, Chapter 22: Environment, Conference on Accession to the European Union – Poland, CONF-PL 53/00, Brussels 2000, p. 13.

¹⁴ G. Hughes, J. Bucknall: Poland, Complying with EU Environmental Legislation, World Bank Technical Paper No. 454, Washington 2000, World Bank, p. 26.

¹⁵ Cf. Soil and Water Ltd., op. cit., p. 40, note 9.

¹⁶ Cf. Soil and Water Ltd., op. cit., p. 89, note 9.

installations. The justification provided by the Czech government refers to investment requirements of about € 2 billion.¹⁷

The sector which has so far been most strongly neglected in the LCs is waste management. Nevertheless, the overall costs of implementing the environmental acquis relating to waste management are lower than those for water management or air pollution control. Table 1 shows that the LCs have nevertheless applied for several transitional periods for directives dealing with waste management. In some cases transitional periods may be granted on the grounds of high investment requirements. Relevant cases include, in particular, the Directives on Waste and Hazardous Waste Incineration and the Landfill Directive.

With the exception of Estonia, all LCs have requested transitional periods of three to five years for full implementation of the Packaging and Packaging Waste Directive which, among other things, requires the setting up of effective recovery and recycling systems. As mentioned above, the EU indicated during the accession negotiations that transitional measures might be granted for this directive. In contrast to the other directives already mentioned organisational problems rather than costs are the main implementation problem.

Although the CEC has, at least in some of the cases mentioned above, indicated that a transitional period may under certain conditions be acceptable, as of January 2001 no transitional measures have yet been agreed. The main problems which have inhibited faster progress in the accession negotiations are the lack of sufficiently detailed information on investment needs and costs, the lack of precise timetables for compliance, and the lack of information on environmental quality and on sources of emissions.

For example, implementation of the UWWT Directive requires the designation of sensitive areas where stricter standards requiring considerably higher investment apply. However, as long as these areas have not yet been identified, it is difficult to agree on the conditions under which a transitional period may be granted because investment needs remain unclear and detailed implementation plans cannot be drawn up. Poland appears to be a particularly difficult case. The CEC has urged the country to designate its entire territory as sensitive due to the eutrophication of the Baltic Sea. However, the Polish government has indicated that it will probably only designate a few areas along the coast.¹⁸ If the entire territory is desig-

nated as sensitive, then it is estimated that capital investment needs will be about 60 per cent higher than if only selected areas are designated as sensitive.¹⁹

For similar reasons, the identification of vulnerable zones under the Nitrates Directive is a precondition for agreement on transitional periods. However, the Czech Republic, Estonia and Poland, all of which have applied for transitional periods, have not yet completed the identification of vulnerable zones.

As mentioned above, the CEC insists that transitional periods must not negatively affect competition in the Internal Market and transboundary pollution. These aspects are particularly relevant in the context of negotiating transitional periods for the large industrial installations falling under the IPPC Directive. The CEC has indicated that it will not accept requests for transitional periods summarily covering all so-called existing IPPC installations. Rather, transitional periods may only be agreed for individual plants. However, most LCs have not yet been able to prepare complete inventories of all installations covered by the IPPC Directive. For example, in the case of Poland, estimates of the number of installations range from 4,000²⁰ to 5,000.²¹ In addition, the CEC has requested information on the expected impact of specific transitional periods on competition and transboundary pollution. So far, Slovenia is the only country which has been able to provide a complete list of the so-called existing installations for which it has asked for transitional periods, including export data and investment plans for each installation. The EU has indicated that it may accept the Slovenian request under a number of relatively strict conditions.

Further Implementation Problems

Given the comments of the CEC on the requests for the transitional periods mentioned above and the fact that the LCs justify most of the requests in terms of high investment needs, the chances that the CEC will, under certain conditions, agree to a considerable number of these requests appear to be high.

¹⁷ Government of the Czech Republic, *op. cit.*, p. 33, note 10.

¹⁸ European Commission: Poland – Screening Results, Chapter 22 – Environment, MD 287/99, Brussels 1999, European Commission, p. 22.

¹⁹ Cf. the different costing estimates of the World Bank in: G. Hughes, J. Bucknall, *op. cit.*, p. 29, note 14.

²⁰ European Commission, *op. cit.*, p. 9, note 18.

²¹ Halcrow Group Ltd.: Assessment of Environmental Enforcement Structures and Practices in Estonia and Poland, Final Report DISAE-Project MC-111, Polane 1999, Halcrow Group Ltd.

However, the LCs have not justified all of their requests for transitional periods in terms of high investment requirements. For example, the Czech Republic is asking for a transitional period for the implementation of the Habitats Directive arguing that it will not be possible to collect the scientific data necessary for the identification of protected areas by the date of accession.²² In most of these cases the CEC is unlikely to agree to transitional periods.

More importantly, a number of serious implementation problems are not, or only partly, covered by the requests for transitional periods. In all LCs it seems likely that it will not be possible to fully apply a number of directives at the date of accession due to lack of administrative capacities. The accession countries generally suffer from weak administrative structures, in particular regarding monitoring and enforcement. The most significant deficits concern the environmental inspectorates and the local and regional levels of administration.²³ Relevant environmental directives include cross-sectoral horizontal legislation, in particular the Directive on Environmental Impact Assessment. The procedural provisions of this directive for evaluation of projects and public participation require competent staff and efficient administrative structures. Furthermore, a fully developed civil society comprising, among other things, effective environmental and industry associations, is necessary to practically apply the directive. However, the LCs are still in a process of economic and societal transition and the development of civil societies has frequently not yet reached western European levels.²⁴ Similar problems are likely to render implementation of the Directive on Access to Environmental Information difficult.

The practical application of several other directives is likely to be negatively affected by weak administrative capacities in the LCs. As mentioned above, the IPPC Directive provides for an integrated permitting procedure. This requires close co-operation between the administrative units which are in charge of the

various environmental media. In addition the IPPC Directive contains several provisions dealing with comprehensive reporting procedures, public information and participation.²⁵ In many LCs the implementation of other framework directives, in particular the recently adopted Water Framework Directive, is running into problems because of weak administrative capacities.

Implementation of the environmental *acquis* also requires capacity-building in the private sector. For example, according to the Seveso II Directive, enterprises dealing with dangerous substances have to develop emergency plans in close cooperation with the competent authorities. In many cases it is not yet clear whether it will be possible to prepare these plans in time for accession.

In addition to the lack of administrative capacities and the weakness of civil societies in the LCs, the process of implementing Community environmental legislation is further complicated by the fact that several LCs are undergoing processes of administrative reform. For example, Poland and the Czech Republic have both recently introduced a new regional level of government. Although the new regional levels of government have already been introduced in the Czech Republic, important decisions regarding their competencies and financial and personnel resources are still pending.²⁶ In Poland the reform process has already been completed. Yet, the CEC has recently given a rather sceptical assessment of the effects of the new structures on administrative capacities.²⁷

Against this background of insufficient information, administrative problems and the continuous evolution of the *acquis* it seems possible that in some cases additional transitional periods may be needed. For example, Slovenia's implementation programmes for the Nitrates and the Seveso II Directives may have to be supplemented by transitional periods. However, in other cases new information or a more efficient allocation of resources may allow some transitional periods to be significantly shortened or completely withdrawn. This may, for example, happen to the Czech request for a transitional period for the Nitrates Directive.

²² Government of the Czech Republic, *op. cit.*, pp. 29-30, note 10.

²³ OECD: *Environment in the Transition to a Market Economy, Progress in Central and Eastern Europe and the New Independent States*, Paris 1999, OECD, Centre for Co-operation with Non-Members, p. 64. A. Carius, I. von Homeyer, S. Bär, *op. cit.*, pp., 163-164, note 7.

²⁴ Susan Baker, Petr Jehlička: *Dilemmas of Transition: The Environment, Democracy and Economic Reform in East Central Europe - An Introduction*, in: Susan Baker, Petr Jehlička, (eds.): *Dilemmas of Transition: The Environment, Democracy and Economic Reform in East Central Europe*, Ilford 1998, Frank Cass, pp. 11-13.

²⁵ Cf. Soil and Water Ltd., *op. cit.*, p. 39, note 9.

²⁶ Cf. Carl Bro *et al.*, *op. cit.*, p. 13, note 11.

²⁷ Europäische Kommission: *Regelmäßiger Bericht 2000 der Kommission über die Fortschritte Polens auf dem Weg zum Beitritt*, Brüssel 2000, Europäische Kommission, pp. 80-81.

While the accession countries are trying to transpose and implement EU environmental legislation, the EU continues to adopt new laws. The fact that Community legislation is a "moving target" constitutes yet another factor which negatively affects the ability of accession countries to fully apply European environmental legislation by the date of accession. For instance, in 2001 the EU is expected to adopt a revised version of the Large Combustion Plants Directive. In 1999 and 2000 the EU adopted, among other things, the Water Framework Directive and the Landfill Directive. Implementation of each of these legal acts requires additional major investment and/or administrative capacity-building.

Given the financial and administrative problems, immediate and complete implementation of the environmental acquis in the LCs does not appear to be feasible. Against this background, the EU has three options: it can delay accession, increase financial and technical assistance to the LCs, or accept a considerable number of transitional periods. Given that both a further delay to accession and increased assistance appear politically unacceptable, the EU is likely to opt for the last possibility. In the following areas transitional periods seem to be most probable:

- ☐ water protection: UWWT Directive, Nitrates Directive, and Drinking Water Directive;
- ☐ industrial pollution: IPPC Directive (so-called existing installations in certain sectors), Directive on Large Combustion Plants (Hungary);
- ☐ air quality: VOC Directive, Directive on the Quality of Petrol and Diesel Fuels;
- ☐ a limited number of directives in the area of waste management (e.g. certain regulations under the Waste Framework Directive and the Hazardous Waste Directive, Directive on Packaging and Packaging Waste), in particular in Poland.

Effects on Competitiveness

The process of negotiating transitional measures has triggered concerns about economic competitiveness in both the LCs and the EU. The LCs argue that a refusal of transitional periods would lead to an erosion of their overall ability to compete with modern industries in the EU Member States. Conversely, the present Member States also fear a loss of competitiveness caused by lower environmental standards in the LCs.

State of the art empirical research provides little evidence to support these concerns. Studies measuring the effects of environmental regulation on

trade flows and industrial location show that the overall effects are not significant.²⁸ Even in industries with relatively high compliance costs environmental regulations seem to have no significant influence on the direction or magnitude of trade and investment flows. Multinational firms, for example, base their investment decisions on many local factors (investment climate, labour costs, human capital, market access etc.), but the level of costs for environmental protection appears to be a relatively insignificant factor.²⁹ In general, environmental regulation does not lead to significant cost differentials among countries which introduce similar standards at roughly the same time. But even trade and investment in countries with significant differences in environmental standards are only marginally affected by factors which are related to these differences.

Some LCs (e.g. Poland, Hungary, Czech Republic) still have comparative advantages in pollution-intensive sectors. But recent empirical studies suggest that trade flows between these countries and, for example, Germany have tended to develop more dynamically in less pollution-intensive sectors.³⁰ Similarly, the inflow of foreign direct investment to Poland, the Czech Republic, Hungary and Slovenia is increasingly directed towards sectors with lower environmental impact. Interestingly, trade between Mexico and the United States is to some extent comparable with EU trade with the accession countries due to a long common border, significant differences in environmental standards and extensive trade relations. Available empirical evidence suggests that high pollution abatement costs in the USA have not significantly affected US imports from Mexico.³¹

Against this background, negative impacts of transitional periods on the competitiveness of industry in the existing Member States should, if anything, be limited to certain cases and sectors. For example,

²⁸ Cf. M. Rauscher: *International Trade, Factor Movements and the Environment*, Oxford 1997, Clarendon Press; A. Jaffe, S. Peterson, P. Portney, R. Stavins: *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What does the Evidence Tell Us?*, in: *Journal of Economic Literature*, Vol. 33, 1995, pp. 132-163; J. Dean: *Testing the Impact of Trade Liberalisation on the Environment*, Seminar Paper, Adelaide 1996, University of Adelaide, Centre for International Economic Studies.

²⁹ Cf. T. Panayotou, J. R. Vincent: *Environment and Competitiveness*, Global Competitiveness Report, Geneva 1997.

³⁰ Cf. J. Horbach, T. Meißner, J. Rothfels, K. Holst, P. Voigt: *Umweltschutz und Wettbewerbsfähigkeit*, Baden-Baden 1998, Nomos, pp. 60-81.

³¹ See G. M. Grossman, A. B. Krueger: *Environmental Impacts of a North American Free Trade Agreement*, in: P. M. Garber (ed.): *The Mexico-US Free Trade Agreement*, Cambridge, MA 1993, MIT Press, pp. 13-56.

there may be some negative impact on the power sector which would not, however, affect the economy as a whole.³² Of course, energy costs constitute an important share of overall production costs for certain sectors of the economy. However, the longest transitional periods requested by the LCs do not concern the power sector but the area of water management. In the years ahead, water prices in the accession countries will be influenced by the implementation of the UWWT Directive and other water related EU legislation. LCs argue that long transitional periods for the relevant water related directives are inevitable, among other things, to avoid unacceptable effects on competitiveness caused by sharply rising water prices. However, present Member States are reluctant to agree to long transitional periods. Yet, even in those economic sectors which are vulnerable to water price increases elasticity of output with respect to the price of water is relatively low and significant impacts on the LCs' exports are unlikely. Because an increase in water prices leads to more efficient water consumption, the introduction of full-cost recovery water prices and increased competitiveness tend to go hand in hand. However, these marginal and long-term effects appear insufficient to justify the present Member States' concerns over competitiveness.

Furthermore, the diversification of trade patterns seems to provide a certain safeguard against major effects on competitiveness.³³ The EU as a large, relatively wealthy economic entity with a highly diversified export structure is therefore unlikely to suffer significant economic losses from transitional periods. Conversely, it is more likely that small accession countries showing little diversification of exports will be negatively affected by any refusal of transitional periods. However even for the LCs economic effects should be limited, not least because the necessary investments would have to be made in the context of a rapidly developing market for cleaner production techniques and abatement technologies. This means, for example, that costs for the accession countries would be significantly lower than expenditures in the Member States, which often had to meet the same standards with less developed technologies several years ago.

The assumption of a general loss of competitiveness in the present Member States as a result of higher environmental standards is also not compelling in theoretical terms. Traditional trade theory suggests that countries with stricter environmental standards experience a loss of competitiveness in high-emission goods. But trade flows between the EU and the

accession countries are increasingly characterised by intra-industry trade.³⁴ The new trade theory helps to study the effects of differing environmental standards because it takes product differentiation and, consequently, increasing returns to scale and imperfect competition into account. Relevant models show that the effects of environmental regulation on trade and investment flows depend on various, often competing, factors. Therefore there is no general or systematic relationship between environmental standards and competitiveness in theoretical terms.³⁵

Since substantial fixed costs in conjunction with transport costs are considered to constitute crucial and lasting location factors by the new trade theorists, location decisions taken by industrial actors heavily depend on expectations of future costs.³⁶ Therefore, firms tend to locate in countries which pursue a calculable environmental policy. Initially somewhat higher investment costs due to environmental requirements may frequently be offset by the positive effects of calculability, changes in the degree of competition between producers, and the creation of new markets for "green" technologies. Although there is a certain lack of clarity in the new trade theory models, these models succeed in explaining the empirical observation that an active environmental policy does not simply cause negative growth or trade effects. Against this background, transitional measures should not generally be considered a competitive advantage for industries in the accession countries but, rather, should be recognised as leading to effects which may even result in a decrease in the medium and long-term competitiveness of industries in the LCs.

Product and Process Standards

To assess the impact of transitional periods on competitiveness it is also necessary to differentiate between environmental product standards and

³² Cf. W. Hager: *The Environment in European Enlargement*, Report of a CEPS Working Party, Centre for European Policy Studies, Brussels 2000.

³³ Cf. J. Albrecht: *Environmental Regulation, Comparative Advantage and the Porter Hypothesis*, FEEM Working Paper, No. 59, Milan 1998, Fondazione Eni Enrico Mattei.

³⁴ For an early assessment, see C. Aturupane, S. Djankov, B. Hoekman: *Determinants of Intra-Industry Trade between East and West Europe*, World Bank Working Paper, No. 1850, Washington 1997, World Bank.

³⁵ Cf. S. U. Schmid: *Umweltpolitik und internationale Wettbewerbsfähigkeit*, Kieler Working Papers, No. 823, Kiel 1997.

³⁶ K. W. Steininger: *Trade and Environment: The Regulatory Controversy and a Theoretical and Empirical Assessment of Unilateral Environmental Action*, Heidelberg 1994, Physica, pp. 74-77.

environmental process standards. Transitional periods for product standards directly affect the functioning of the EU's Internal Market and may erect technical barriers to trade. Economies of scale cannot be fully exhausted because several versions of products must be produced by the exporting industries to meet the requirements of differing environmental product standards. The EU therefore insists that transitional periods cannot be granted for product standards. The issue is particularly pertinent for certain pieces of EU waste legislation. For example, Poland has requested a transitional period regarding the limit values for heavy metal concentration prescribed by the Packaging and Packaging Waste Directive. Such a transitional period would be problematic because it would not only affect the Internal Market but would also create environmental pressures in other Member States.

Transitional periods for the implementation of the EU directives which harmonise process standards and licensing procedures, for example the IPPC Directive or the Directive on Large Combustion Plants, could lead to (temporary) barriers to market entry and the segmentation of the markets for the respective abatement technologies and production activities.³⁷ However, these potential effects should not be over-emphasised for three reasons.

First, the EU will not accept transitional measures for new installations and the most serious implementation problems in the LCs mostly concern older installations. However, many older installations are not internationally competitive and will sooner or later have to be closed or upgraded in any case. Second, even full implementation of the relevant EU directives will not lead to complete harmonisation of licensing procedures throughout the EU. Among other things, relevant directives (e.g. the IPPC Directive) often use vague language and provide guidelines or quality objectives rather than strict limit values. Consequently, they leave considerable leeway for interpretation and implementation by national authorities. Many

directives, for example the Large Combustion Plants Directive and the Packaging and Packaging Waste Directive, also contain exceptions for certain Member States, often with long transitional periods for meeting certain standards.³⁸ Furthermore, EU environmental legislation, for example the UWWT Directive, does not specify how the necessary investment must be financed. The choice of financial instruments affects not only the total costs of implementation, but also distribution of these costs across industries, economic sectors and households. Therefore water prices would not necessarily rise dramatically even if the "user pays" principle was applied. Third, even fully harmonised process standards would not result in a level playing-field in an enlarged Union due to differing price levels and compliance costs between countries and regions.³⁹ In addition, EU environmental legislation, for example the new Water Framework Directive or the IPPC Directive, is increasingly characterised by a "combined" approach using limit values and environmental quality standards. This means that compliance costs also depend on regional environmental quality. Therefore transitional periods are more likely to affect competitiveness in regions with a high concentration of economic activity such as Upper Silesia in Poland, whereas the effects will be less significant in less polluted regions.

Two further issues are worth mentioning because they offer ways to reduce the financial burden on accession countries resulting from implementation of the environmental acquis.

First, case studies on meeting SO₂ emission limits and reduction targets and on certain requirements in the water sector in Poland suggest that longer transitional periods and "least cost" planning of public investment⁴⁰ could lead to considerable cost-savings. For instance, it may be advisable to accept a number of longer transitional periods on the condition that selected environmental objectives are met. In the water sector, for instance, financial resources for the implementation of the UWWT Directive could be channelled into the construction of sewers and treatment plants in strategic locations. This could be combined with a significantly faster implementation of the financially less demanding Nitrates Directive.

Second, additional financial resources will be necessary to meet EU requirements. In Poland, public

³⁷ See H. Siebert: Environmental Policy and European Integration, in: H. Siebert (ed.): Environmental Scarcity: The International Dimension, Tübingen 1991, Mohr, pp. 59-70.

³⁸ For a detailed discussion of the flexibility of Community environmental legislation, see I. von Homeyer, A. Carius, S. Bär: Flexibility or Renationalization, Effects of Enlargement on EC Environmental Policy, in: M. G. Cowles, M. Smith (eds.): The State of the European Union, Risks, Reform, Resistance and Revival, Vol. V, Oxford 2000, Oxford University Press, pp. 364-366. See also K. Holzinger: Optimal Regulatory Units: A Concept of Regional Differentiation of Environmental Standards in the European Union, in: K. Holzinger, P. Knoepfel (eds.): Environmental Policy in a European Union of Variable Geometry? Basel, Geneva, Munich 2000, Helbing & Licherhahn, pp. 65-107.

³⁹ Cf. Siebert, op. cit., pp. 59-70, note 37.

⁴⁰ See G. Hughes, J. Bucknall: Poland, Complying with EU Environmental Legislation, World Bank Technical Paper No. 454, Washington 2000, World Bank.

funds (the national budget, municipal budgets and environmental funds) have so far covered between 60 and 70 per cent of the total costs of implementing the environmental acquis.⁴¹ However, the environmental subsidies which were mostly channelled through environmental funds are generally considered inefficient.⁴² In addition, compatibility of the funds with EU competition rules is not yet clear. Privatisation of utilities and the introduction of energy and water prices which cover costs offer many possibilities to reduce the financial burden on public budgets. Additional time gained through transitional periods should therefore be used to reform ownership structures and work towards adequate resource pricing.

Environmental Effects

Since 1989 environment quality in the accession countries has improved considerably as a result of environmental policy reforms and the transition to a market economy, which led to a significant fall in production, particularly in pollution-intensive industries. Nevertheless serious environmental damage persists in most LCs.⁴³ The heavy industries and substantial coal-based energy production are among the key sources of pollution. While air pollution and water quality are the most frequently cited environmental problems, solid waste management, increasing pollution from the transport sector, low energy efficiency, and environmental degradation related to changing land-use patterns also constitute major challenges.

However, it is difficult to predict the environmental effects of EU enlargement. On the one hand, environmental risks stem, among other things, from increasing economic and transport activities. On the other hand intensifying competition, accelerating capital rejuvenation and an expected further shift away from heavy industries towards less pollution and material intensive production may contribute to a reduction of environmental stress.⁴⁴ In addition, the expected improvement in real incomes is likely to raise the level of acceptance of environmental measures.

The ambiguous environmental effects of enlargement pose the question whether the overall result of regional integration on welfare remains positive, in particular given the fact that trade relations are increasingly characterised by intra-industry exchange. Relevant theoretical discussions are still in their infancy and do not provide clear answers. Recent models suggest that the general economic effects of regional integration are always positive,

while environmental effects depend on the degree of competition and the nature of pollution (i.e. whether pollution is mainly local or transboundary).⁴⁵ As a general rule, environmental consequences of regional integration vary significantly when increasing trade is attributable to intra-industry trade rather than comparative advantage. Under certain conditions environmental quality in previously relatively "clean" countries decreases. This may be caused by the availability of specialised inputs or technological spillover effects in these countries which lead, for example, to a relocation and regional concentration of polluting production activities. Similarly, trade liberalisation may also alter production patterns in previously relatively polluted countries due to the composition effect of trade. As a result transboundary pollution affecting environmental quality in the formerly "clean" countries may increase.

From the perspective of existing Member States, transitional periods for EU environmental directives are less problematic if their negative environmental effects are confined to the LCs. For illustrative purposes the following rough assessment of potential transitional periods focuses on legislation which reduces transboundary environmental pollution. Prominent examples for problems of transboundary pollution tackled by EU environmental regulation are the pollution of international watercourses and long-range air pollution (carbon dioxide emissions and other greenhouse gases, nitrogen oxide, sulphur dioxide etc.) Other EU environmental directives seek to "produce" international or European environmental goods. For example, the Habitats Directive may be considered an instrument for the in-situ protection of biological diversity in Europe. By contrast, the implementation of certain other directives appears to be less urgent because they have no effects, or only weak ones, on transboundary pollution. Examples include the Groundwater Directive, the Waste Framework Directive and the Directive on Hazardous

⁴¹ G. Hughes, J. Bucknall, *op. cit.*, p. 44, note 40.

⁴² For an empirical assessment of the Polish environmental funds, see G. Anderson, T. Zyllicz: *The Role of Polish Environmental Funds: too Generous or too Restrictive?*, in: *Environmental and Development Economics*, Vol. 4, pp. 413-448.

⁴³ European Environmental Agency (EEA): *Environment in the European Union at the Turn of the Century*, Copenhagen 1999.

⁴⁴ W. Hager, *op. cit.*, p. 17, note 32.

⁴⁵ For an assessment of these effects on the basis of a simple model of intra-industry trade with factor movement, see K. C. Fung, A. M. Maechler: *The Impact of Intra-Industry Trade on the Environment*, SCCIE Working Paper 00-4, Santa Cruz 2000, University of California, Santa Cruz Centre for International Economics.

Waste, the Drinking Water Directive, the IPPC Directive (depending on sectors, location of plants and the nature of emissions) and the UWWT Directive (in cases where international watercourses or seas are not seriously affected).

Transboundary pollution and the provision of European environmental goods are tackled by the Directive on Large Combustion Plants, some requirements of the IPPC Directive (in particular by provisions on bilateral consultation in case of transboundary effects), the Seveso II Directive, the Landfill Directive (the intended reduction of methane emissions from landfill will contribute towards efforts to curb global climate change), the Nitrates Directive, the UWWT Directive (in particular, reduction of nitrate and phosphorus inflows to the Baltic and Black Seas), the Directive on Discharge of Dangerous Substances and the Hazardous Waste Incineration Directive (both depending on the location of plants and the nature of emissions), the Directive on VOC Emissions from Petrol, the Regulation on Ozone Depleting Substances, and the Habitats Directive. Furthermore, from an environmental point of view transitional periods should be avoided for product standards for mobile sources of emissions and for market entry of hazardous products.

Implementation of EU environmental legislation in the accession countries will contribute to a further reduction of transboundary pollution (e.g. air emissions⁴⁶) but the overall benefits should not be overestimated. In general, the marginal environmental benefits of better environmental protection in the LCs will continue to decrease. Some of the more spectacular improvements in environmental quality over the last decade resulted from the particular historical situation. Furthermore, many emission standards in the accession countries are already similar to EU requirements as the LCs are also signatories to several international conventions obliging them to reduce certain types of transboundary pollution. Even if EU legislation imposes even stricter environmental standards, it will often remain difficult to monitor and enforce effective implementation in the accession countries.

Conclusion

Concerns over a loss of competitiveness as a result of transitional periods for the implementation of the environmental acquis in the LCs appear to be largely unfounded. First, the EU tends to handle the requests for transitional periods restrictively, in particular if negative effects on the functioning of the Internal

Market or on competitiveness cannot be excluded. Second, most of the requests for particularly long transitional periods concern EU legislation that tends to have a relatively small impact on competitiveness, e.g. water-related directives. Third, empirical findings and theoretical models suggest that the impact of environmental standards on competitiveness is generally small. If anything, a significant impact can be expected in certain sectors, for example heavy industry or energy production. However, the most vulnerable production facilities in the LCs are technically outdated and will have to be closed or modernised in any case to make them internationally competitive. In addition, energy efficiency is still very low in the LCs. Against this background transitional periods may even have a negative impact on the medium to long-term competitiveness of the most vulnerable industries in the LCs because they lead to a delay of the introduction of higher environmental standards, which generally create incentives for modernisation and increased efficiency.

Given the small or contradictory effects of environmental standards on competitiveness it seems difficult to use this criterion to decide on transitional periods in the accession negotiations. Criteria and methods such as the impact on transboundary environmental pollution and the selection of transitional periods on the basis of an optimal allocation of financial resources in terms of environmental benefits appear to be better suited as a basis for decisions on transitional periods.

Finally, it should be pointed out that an exclusive focus on transitional periods tends to obscure a number of difficulties in implementing the environmental acquis in the LCs. The CEC has made it clear that transitional periods will not be granted for administrative capacity building which, in addition to capital investment, is also necessary for the effective implementation of European environmental legislation. Given that strong administrative capacity is crucial for the practical application of industry-related directives such as the IPPC Directive, the Seveso II Directive and the Directive on Environmental Impact Assessment, it cannot be excluded that impacts on competitiveness stemming from weak administrative capacities in the LCs will be similar or even larger than impacts caused by transitional periods.

⁴⁶ See, for example, European Environmental Agency (EEA): *Prospects and Scenarios*, No. 1, Environment and European Enlargement: Air Emissions, Environmental Issues Series, Vol. 8, Copenhagen 1999.