The EU candidate countries have been making vast efforts over the last decade to align their environmental legislation and practice to that of the EU, transposing and implementing over 300 pieces of EU environmental legislation – the environmental acquis communautaire.

This has represented and still represents (see Box 1) a huge challenge to these countries. The acquis communautaire requires not just legislative transposition, but also changes in environmental policies, the development of administrative capacity,¹ changes in information provision and public participation, investment in environmental protection measures in industry and the development of environmental infrastructures.

While the stage of legislative transposition is now close to completion, the other steps continue to represent very significant challenges to the candidate countries – requiring many more years for certain directives to be fully implemented.

In addition to the environmental acquis, the candidate countries have also often been implementing equally demanding “chapters”² of the EU acquis communautaire for all sectors of the economy, representing significant changes in, inter alia, the industrial sectors, agriculture, energy, financial services, regional development and transport.

Discussions on the implementation of the environmental acquis communautaire has to date often focused on the costs of compliance with EU legislation³ and the difficulty of finding sufficient money to fund the necessary investments, especially in light of the investment demands from implementing change in other sectors.

There has, however, been far less discussion about the benefits that EU environmental directives will imply for the candidate countries, in both environmental and economic terms. There has also been insufficient discussion of the benefits to the EU of this enlargement. Finally, not enough has been thought about how to realise these benefits and, of course, how to avoid the costs that can arise from the integration of the candidate country economies within a broadened EU.

This paper summarises and is based on one significant initiative to bring the concept of benefits into the policy discussions and hence support implementation decisions – the study financed by the European Commission’s Environment Directorate: *The Benefits of Compliance with the Environmental Acquis for the Candidate Countries.*⁴

This study assessed the benefits of compliance with the EU environmental acquis by examining the hidden costs to the economy caused by lower environmental standards, a lower level of protection and a lesser availability of environmental infrastructures, goods and services.

² There are 31 chapters; Environment is Chapter 22. For the state of play of negotiations see: http://europa.eu.int/comm/enlargement/negotiations/pdf/state_of_play_08_11_02.pdf.
³ Implementing the environmental acquis has been estimated to require an investment of around EUR 80 to 120 billion for the ten Central and Eastern European countries alone.
⁴ The study was directed by Patrick ten Brink and carried out by the consortium ECOTEC, the Institute for European Environmental Policy (IEEP), EFTEC, Metroeconomica, TME and candidate country experts. It can be found on the European Commission’s web-site: http://europa.eu.int/comm/environment/enlarg/benefits_en.htm. This study was financed by DGENV of the European Commission. The views expressed in this article and in the full Benefits Study do not necessarily reflect those of the Commission.

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The Benefits Study: An Overview

The “Benefits Study” assessed the benefits of the candidate countries’ complying with the EU acquis communautaire, focusing primarily on the directives in the air, waste, water and industrial chapters.

For around 30 key directives, assessments were made of:

- the nature of the changes that implementation would imply
- the extent of the changes (e.g. how many fewer tonnes of sulphur dioxide would be emitted and the related figures concerning the avoidance of ill-health and early mortality)
- the value of the changes (monetisation) for each of the thirteen candidate countries.

These three steps, or evaluation “tiers”, are equally important.

Certain directives or policies could be assessed at all three of these evaluation “tiers” – notably the Large Combustion Plant Directive (LCPD, 1999/31/EC) and linked air pollution directives. Others could only be covered more qualitatively (e.g. Natura 2000). Yet others remained outside the scope of the study, notably the directives on GMOs (genetically modified organisms) and EIA (environmental impact assessment) or chemicals strategy. The main benefit types explored are:

- health benefits: direct benefits to public health, e.g. a reduction of cases of illness and the avoidance of early mortality, notably from respiratory diseases;
- resource benefits: benefits to parts of the environment used commercially, e.g. forestry, agriculture and fisheries;
- ecosystem benefits: benefits to the natural environment with no commercial interest and ecosystem service benefits (where the ecosystem provides services for water supply and purification, carbon storage, or flood control). The disruption of these services can lead to the loss of important resources and necessitate often significant, additional spending;
- social benefits: benefits to society at large, including the safeguarding of and access to natural and cultural heritage (avoided pollution damage to historic buildings or the destruction of historic landscapes), recreational opportunities (e.g. angling and bathing), social cohesion due to support for employment, social learning and the development of civil society (due to increased information provision, consultation and involvement);
- wider economic benefits: knock-on benefits beyond immediate economic exploitation, including local and regional development (attracting investment) often supported by increased employment through environmental investments, eco-efficiency gains, the development of new and existing industries/sectors of the economy, balance of payment and trade effects (reduced imports of primary materials as more waste is reused and recycled), and economic benefits from natural resources (e.g. tourism benefits of beaches recognised to be clean, and eco-tourism).

Of these benefits only some could be valued in economic terms, and it is important to look at the potential benefits (as indeed the costs) at all three levels for a

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Box 1

Transitional Measures Negotiations

The accession negotiations in the environment chapter were opened with most of the Candidate Countries during 1999 to 2001. The negotiations have so far been provisionally closed with ten countries: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. Negotiations are still open with Bulgaria and Romania. Formal negotiations have not yet started with Turkey.

All of the 10 candidate countries which have provisionally closed the environmental chapter have negotiated transitional measures and technical adaptations to give enough time for appropriate full implementation of the directives.

The timetable for full implementation has been extended for many directives (for the rest full implementation is required by accession). Transition bids were sometimes agreed for only an additional year or two (e.g. for volatile organic compound emissions (VOC) from storage of petrol, recycling of packaging waste), and in other cases for longer periods, notably up to 2015 for the investment heavy Drinking Water Directive (e.g. Latvia) and Urban Waste Water Treatment Directive (e.g. Hungary, Latvia, Poland, Slovakia and Slovenia).

1 December 1999.
can lead to between 15,000 and 34,000 fewer cases per year of premature deaths from exposure to air pollution, and between 43,000 and 180,000 fewer cases of chronic bronchitis.

The annual value of all these benefits combined ranges between EUR 12 and 69 billion in the year of full implementation of the environmental acquis. This corresponds to between EUR 80 and 410 per capita. Even the lower figure\(^5\) suggests that the value of benefits is significant and that the importance of the benefits could usefully be explored in more detail for key decisions in the candidate countries.

Improved air quality, resulting from the implementation of EU directives, accounts for around 55% of

\(^5\) While the study did not seek to make an explicit comparison to the costs of implementation, it is clear that the lower bound benefits estimate is of the same order of magnitude as the estimate for investments required to implement the environmental acquis.
the total value of these benefits. The benefits from reducing air pollution relate mainly to improved public health through fewer respiratory diseases and, most importantly, fewer cases of premature deaths. There are also significant benefits from a reduced burden on agricultural crops and avoided damage to buildings.

The benefits of EU directives not only accrue to the candidate countries. *Reductions in trans-boundary air pollution will yield significant cross-border and transnational benefits.* A key result is that the total benefits from the candidate country *acquis* implementation measures for other countries amount to EUR 16 billion a year. The EU member states will benefit by EUR 6.5 billion and other countries, notably the Ukraine, Belarus and Russia, by some EUR 9.5 billion a year. Overall, the benefits of candidate country implementation of the *acquis* will lead to as many benefits outside the candidate countries as within the candidate countries.

The benefits from implementing the EU's *water related directives* include improved access to clean drinking water, bathing water and rivers. Up to 59 million households could benefit from improved drinking water quality, and 10 million households are expected to benefit from new connections to drinking water. River quality will improve, with more rivers being designated as of "good" quality than before. For example, the number of rivers designated as of "good" quality will more than double in Bulgaria through the implementation of the *acquis*. The value of these benefits, together with the benefits of increased recreation from cleaner surface waters, amount to around EUR 5 to 14 billion a year.

The benefits from implementing EU *waste directives* include reduced methane emissions, which benefit public health and reduce greenhouse gas emissions (and hence battle against global warming) and a reduced impact on the environment through increased recycling and the reduced use of primary materials. The level of recycling from the Packaging Directive is likely to increase by around 3.7 million tonnes – or on average around 22 kg per capita. In addition, implementing the Landfill Directive (under the maximum recycling and composting scenario) will lead to around 54 million tonnes of diverted bio-degradable waste being recycled or composted by 2020. The reduction in methane emissions should be between 1 and 6 million tonnes per year. The value of the waste related benefits ranges from EUR 1 to 12 billion a year, with the benefits likely to be higher under the maximum recycling scenario than under the incineration scenario.

In the case of *nature conservation*, EU directives are likely to secure protection of tens of millions of hectares of valuable habitats and hundreds of endangered species. Furthermore, the appropriate development of Natura 2000 sites can lead to the sites becoming important motors for sustainable rural development, addressing part of the agricultural challenge facing the candidate countries.6

In addition, the expenditure on *environmental goods and services* will help develop the eco-industry sector of the economies and support significant jobs within this sector. The Benefits Study order of magnitude estimate suggests that up to 1.8 million jobs could be supported at any given time, of which around 0.5 million would stem from capital expenditure and the remaining 1.3 million from the provision of environmental services and from the operation and maintenance of environmental infrastructure.7

Many benefits of EU directives have not been fully covered when assessing the monetary values. This includes the protection of sensitive ecosystems and biodiversity. Some environmental investments might also lead to benefits not directly related to the environment. They can improve economic efficiency and boost productivity, for example by facilitating the take-up of modern technology, by lowering production and maintenance costs for companies through better water quality and by providing savings in the form of more efficient waste management.

Box 3 presents some key results of benefits assessment – for the general case of accession – to put the benefits study into context.

**Policy Insights and Recommendations**

The range, nature and extent of the benefits that should accrue from the implementation of the EU *acquis* underline that:

Candidate countries’ current efforts to implement EU environmental directives should be maintained, if not strengthened, and efforts are needed to ensure that the environment does not “lose out” in policy and

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4 This notes that there is a significant quantity of “hidden unemployment” in the agricultural sector, which is likely to surface with broader competition. Rural development can lead to some of the lost jobs being supported through other activities in the area.

7 This is a very broad estimate, indicating the level of importance, and depends upon the development of wage rates and share of wages in turnover. See also the recent ECOTEC study noting that 77,000 jobs were supported by environmental expenditure in the candidate countries in 1999: ECOTEC: Analysis of the EU Eco-Industries, their Employment and Export Potential, 2002, *http://europa.eu.int/comm/environment/envaeco/industry_employment/ecotec_exec_sum.pdf*. 

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investment attention to other sectors more classically assumed to offer benefits. Not only should existing budgets for the environment be defended and in many countries increased, but particular effort and attention is also needed to increase effectiveness and benefits.

A greater appreciation of the types of benefit and how these can be achieved needs to be integrated into decisions on implementation planning. All benefits need to be taken into account, and not just those calculable in economic terms. In many cases social benefits are important and impossible to monetise.

The timing of implementation is important for the level and allocation of benefits. Obviously early implementation leads to greater benefits, as the benefits would start to accrue earlier given earlier reductions in emissions, and improvements in air and water quality and waste management practices. Less obviously, the gains in benefits from early implementation are larger than the increase in costs.

Also less obviously, the timing of efforts across different directives is important given the linkages between directives – the upstream or pollution emis-

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**Box 3**

**Benefits Assessments: Other Studies**

The 1997 “Costs and Benefits of Eastern Enlargement” study by the Centre of Economic Policy Research estimates that accession would result in least EUR 10 billion of benefits for existing EU member states and EUR 23 billion of benefits for the candidate countries.

A relatively recent study by the European Commission estimates that enlargement could lead to an increase in GDP growth of between 1.3% and 2.1% per year in the accession countries, and a growth of 0.7% in the existing member states.

In addition, existing work on the benefits of Natura 2000 underline the specific benefits that Natura 2000 can create through its role as a motor for sustainable rural development.

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...sions related directives (e.g. Dangerous Substances Directive, LCPD Directive) could generally be better implemented before the downstream or more environmental quality related directives. Having said this, the interrelationships between directives are strong and the implementation of several of them is needed to ensure full benefits. Implementation plans could valuably reflect this by ensuring that all directives are looked at and that any dangers of prioritising only a small subset of directives are understood and avoided.

The environmental benefits will be enhanced if the implementation of other policy areas such as agriculture, transport and energy takes into account environmental concerns and integrates the principle of sustainable development. Similarly, the implementation of the other policy areas could usefully take on board the knowledge of the likely benefits associated with environmental measures.

The implementation strategy and approach is itself an important factor behind benefits – and the relative impacts under ensuing development paths need to be taken into account in policy decisions. For example, implementing the Landfill Directive with a preference for recycling/composting rather than incineration will lead to greater job creation, given the higher labour intensity of recycling and composting activities.

Prioritisation of investments should reflect not just the key criteria of cost-effectiveness (e.g. the number of households connected to waste water treatment per million euro spent), but also an appreciation of local and regional development needs and their role in encouraging inward investment, foreign direct investment and subsequent economic multiplier effects. This might in some places suggest that implementation in poorer regions could be more beneficial than in richer regions, especially where policy-makers wish to particularly encourage cohesion across regions.

Parallel “enabling” policies are often needed to realise benefits – for example increasing investments in environmental goods and services creates a growing market for environmental goods and services, open to both domestic and foreign firms. This has been estimated at EUR 10.3 billion for the pollution control related market and EUR 13 billion with resource management included. Policies to ensure appropriate offers of goods and services will facilitate benefits – to the domestic and/or foreign suppliers.
Investment programmes in the environment and other sectors need to integrate an appreciation of the benefits and, indeed, in the project selection procedures to ensure that the appropriate pipelines of projects\footnote{See also the Commission Communication: The Challenge of Environmental Financing in the Candidate Countries, COM (2001)304, http://europa.eu.int/eur-lex/en/com/pdf/2001/com2001_0304en01.pdf.} are developed, supported and implemented.

The need for international collaboration, whether cross-border, or through EU funds, should be appreciated not just as a benefit to the countries implementing the acquis, but also for the benefits that accrue to the bordering countries, the EU and third countries.

Taking these insights into account should help lead to a more balanced approach to benefits and costs in the great challenge of implementing the acquis. It is clear that the environmental chapter, and indeed integration of the environment into other sectoral policies, should not be regarded as a cost item in the route to accession and post-accession activities, but as a potentially valuable source of benefits. This includes social, economic and environmental benefits as well as its role as a potential motor for sustainable development.

Furthermore, a proper integration of benefits into policy development, planning and implementation will support the following key challenges facing the candidate countries:

- **Meeting the negotiated promises**: the implementation of many of the directives by the agreed dates, whether the accession date or negotiated transition period, remains in many cases a non-trivial challenge. Political will and policy implementation that reflects a full appreciation of the potential benefits of compliance with the environmental acquis should facilitate this task.

- **Ensuring greatest benefits**: there are different implementation choices and pathways, and the timing of implementation and location of initial investment will have important effects on regional development and the costs of other directives (given interrelationships between upstream and downstream directives).

- **Avoiding new costs potentially arising from integration**: competition, consumer demands and economic growth each offer well-known risks to the environment, which need to be recognised and minimised. Integration of environmental considerations into other sector policies and policy implementation is clearly important here.

Finally, it is important to underline that implementation of the acquis and the benefits do not stop at the date of accession of the candidate countries. Much remains to be done after accession, and appropriate policies and implementation programmes stand to continue to offer significant benefits for at least the decade to come. Only with continued awareness and interest by local, national and international actors will the full benefits be realised and the full opportunity of EU enlargement for both the candidate countries and the EU Member States be realisable.