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**THE CHALLENGE OF ENVIRONMENTAL FINANCING IN THE CANDIDATE
COUNTRIES**

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
Introduction	4
1. The Investment Challenge for Environmental Infrastructure.....	6
Key ‘Investment-Heavy’ Directives	6
Environmental Infrastructure.....	6
The Investment Challenge.....	7
2. Setting Priorities.....	7
Prioritisation at the Strategic Level.....	7
Prioritisation at the Project level.....	8
National and trans-boundary pressures for environmental investment priorities.....	10
3. Developing an Environmental Investment Programme.....	11
The Role of an Environmental Investment Programme.....	11
Strategic Investment Planning	11
Where to begin.....	11
4. The Challenge of Identifying and Securing Finance.....	13
Income and Affordability	13
Involving the Private Sector.....	14
The Role of Grant Funding.....	15
Project funding strategies	15
Capacity building	16
5. Conclusion	16
ANNEX 1	
The Investment Implications of the Key “Investment Heavy Directives”.....	18
ANNEX 2	
Estimated Environmental Financing Needs in Candidate Countries	21
ANNEX 3	
Directive Specific Implementation and Financing Plans.....	22

EXECUTIVE SUMMARY

The Commission's 1998 Communication on Accession Strategies for the Environment¹ called on Candidate Countries to develop investment strategies for the implementation of the *acquis communautaire*, along with their legislative approximation strategies. Such investment strategies are requested by the Commission and Council as an integral part of the implementation plans required to support the requests for transition periods. Investment strategies are also essential tools for the countries themselves to clearly show governments the scale and timing of the expenditure needed for accession in terms of administration, staff, monitoring equipment as well as infrastructure. Such strategies are equally important for the post-accession period, to support future applications for Structural/Cohesion Fund assistance.

Developing such accession investment strategies is a major task for the Candidate Countries. It is clear that in some countries the necessary information on compliance gaps is still not available, and prioritising investment needs for specific directives is therefore a problem.

Compliance cost estimates presented in 1998 have been further refined in 2000, and although they now fall within a smaller range than before, operational and maintenance costs are higher than predicted. The new *acquis* adopted in 2000 and expected in 2001 will add to the investment needs. It is therefore more important than ever to use available funds effectively, and to ensure that grant assistance leverages finance from all other sources, whether private, public or commercial.

The Priority Environmental Programme for Accession (PEPA) has been designed by the Commission to assist countries to develop prioritised environmental investment strategies. Guidance documents have been prepared including a format for a directive specific implementation plan and a checklist of the investment-heavy directives. A database of environmental projects in the Candidate Countries is also being developed, to help them identify and prepare priority projects for the medium and long term.

This Communication sets out the strategic objectives for such investment plans. It revisits the investment challenge in the Candidate Countries, looks at ways of enhancing and leveraging available finance, and gives guidance on how to develop an investment programme for accession. It describes how Community technical assistance will now focus on gaps, such as air pollution projects and directives involving private sector expenditure, and work closely with Candidate Countries on their directive specific financing plans for problem areas in waste and air pollution and training for local authorities. In preparing this paper, the Commission has consulted both Candidate Countries and Member State authorities (including the Environment Policy Review Group and the ISPA Management Committee). As part of this process the data contained in this paper has been checked and corrected by the Candidate Countries.

¹ COM(1998)294.

The final aim of this Communication is to assist Candidate Countries to define clear and credible financing plans for their accession needs, including identification of possible sources of finance and revenue generation for the necessary environmental investments.

INTRODUCTION

Approximation of the EU environmental requirements poses a major challenge to the countries now preparing for accession to the European Union.² *Agenda 2000*³ and the Commission's subsequent *Communication on Accession Strategies for Environment*⁴ recognised that the gap in environmental protection in Central and Eastern Europe, compared with the Member States, makes the task of preparing for accession in the environment sector different from that of previous accessions. Initial estimates of the cost of all investments needed to comply with the EU environmental requirements for drinking water supply, wastewater management, large combustion plants, and waste management were around 120 billion € for the ten countries of Central and Eastern Europe alone.

The Commission therefore has stressed the need for realistic national, long-term strategies for implementation of the *acquis* and has encouraged countries to mobilise significant domestic and foreign financial resources - especially private funding - to ensure compliance. *Agenda 2000* proposed further that the Union would allocate substantial Community financial assistance for environmental investments in Candidate Countries, particularly through the new Instrument for Structural Policies for Pre-Accession (ISPA) as well as the revised Phare programme and the new pre-accession instrument for agriculture and rural development (SAPARD). ISPA, which started operation in 2000, will grant over 500 Mio € per year for environmental investments over the period 2000-06.

Nevertheless, EU support and other external assistance will only meet a small proportion of total needs. Ministries of Environment in the Candidate Countries are usually responsible for preparing the implementation plans that are then presented by the governments of their respective countries. However, in many Candidate Countries, Ministries of Environment have traditionally not been responsible for identifying compliance gaps and preparing such detailed investment plans. This has added to the difficulties Candidate Countries face in preparing concrete and realistic implementation strategies. Expenditure on environmental protection has increased in most Candidate Countries in recent years or is planned to increase. However, this expenditure for most countries is still only a fraction of the needed investments. Commission services have estimated that Candidate Countries need to spend on average between 2 and 3% of GDP in the coming years for full implementation. For several countries this does not present major problems, especially given the high growth rates beginning to emerge. But investment needs differ considerably between countries: a recent study estimates that the proportion of GDP needed ranges between

² Cyprus and Malta applied for EU membership in 1990. Hungary and Poland submitted their applications in 1994, followed shortly by Czech Republic, Romania, Slovakia, Lithuania, Latvia, Estonia, and Bulgaria in 1995, and Slovenia in 1996. In 1999, Turkey's application was also formally accepted.

³ COM (1997) 2000.

⁴ COM (1998) 294 final.

2% for the Czech Republic and 11% for Bulgaria⁵. Currently, GDP investment expenditure ranges from 0.6 to 3%. Sources of funding include loans from the international financial institutions, bilateral grants and credit schemes, commercial bank loans, foreign direct investment, and revenue generated from consumer charges, fees or taxes.

Post-accession periods of transition will be necessary for the heavy-investment directives. However, the transition requests have to be supported by implementation programmes, which need to include intermediate targets and milestones which can be monitored after the date of accession.

To date, several Candidate Countries have prepared the financing plans necessary for the accession negotiations. Moreover, sectoral plans, together with their National Programmes for the Adoption of the Acquis, form the blueprints for countries' pre-accession efforts. In addition, Candidate Countries benefiting from ISPA have prepared national ISPA strategies for infrastructure in the environment and transport sectors. These strategies often represent a first step towards implementation planning for the environmental acquis.

Despite this, considerable gaps remain in the Candidate Countries' programmes for implementation. The process of identifying, preparing, financing and implementing the many environmental investment projects needed for EU membership is going slowly. Furthermore, the establishment of new institutions and administrative systems to carry out the measures necessary for achieving compliance with the environmental acquis is also lagging. Therefore, Candidate Countries need to intensify efforts to produce detailed and realistic alignment and investment schedules.

The Commission's technical assistance to help with the development of implementation and environmental financing strategies includes the so-called 'PEPA' programme: 'Priority Environmental Programme for Accession'. Launched in 1999, the main role of the programme is to support the development of implementation plans for the investment-heavy directives and ensure that countries have a prioritised list of projects to be implemented over the next few years. The directives concerned are listed in table 1 below. The first year of the PEPA programme focused on investment planning, and in subsequent years the focus will move towards the development of long-term priority project lists. These overall objectives were endorsed by Candidate Country environment ministers at their informal meeting with Commissioner Wallström in November 1999.

This paper reviews the progress in developing financing strategies for environmental investments and suggests several key steps to be taken by countries and the Commission to accelerate this work. Section 1 summarises the results of ongoing work to identify and assess the gaps in compliance of environmental infrastructure, including the investment needs. Section 2 addresses priority setting in the development of investment programmes at the strategic and project levels, including examples from Candidate Countries. Section 3 presents an outline structure of an environmental investment programme. Section 4 looks at financing and affordability issues, while Section 5 suggests conclusions and next steps.

⁵ 'Bulgaria: the Challenges of Complying with EU Environmental Directives', World Bank, October 2000, p 8.

1. THE INVESTMENT CHALLENGE FOR ENVIRONMENTAL INFRASTRUCTURE

Key ‘Investment-Heavy’ Directives

Certain environment directives will be particularly difficult to implement, given the current status of infrastructure in the Candidate Countries and the financial resources available. In addition, experience in the Member States in implementing these directives provides additional evidence of the scope of the challenge. These “investment-heavy” directives are listed in Table 1. These are not the only directives for which investment will be needed, but they are those which pose the greatest problems in terms of the number of projects needed and the scale of the investment.

Table 1: Key ‘Investment-Heavy’ Directives

Water Supply/Wastewater Treatment Urban Wastewater Treatment Directive Drinking Water Directive Dangerous Substances into Water Directives Nitrates Directive	Waste Management Landfill Directive Municipal Waste Incineration Directives Hazardous Waste Incineration Directive Packaging Waste Directive
Air Pollution Control Large Combustion Plants Directive Fuel Quality Directives Air Quality Directives	Industrial Pollution Control IPPC Directive VOC Solvents Directive

Annex 1 presents in more detail the main investment implications of the above directives and the types of likely investors.

Environmental Infrastructure

The first step in the development of an investment programme should be an assessment of the current situation and gaps. More data on environmental infrastructure in Candidate Countries is now available, although the picture is far from complete. Table 2 presents a summary of existing environmental infrastructure in the Candidate Countries and, where information is available, the current compliance status of this infrastructure with the relevant directives listed above. This inventory gives an idea about the compliance gap related to the existing infrastructure, such as IPPC installations, landfill and water supply connections, that will need to be put in place in the coming years. The wide range of problems between different countries is noticeable; where there are one hundred and forty-one IPPC installations in Estonia, there are four thousand in Poland. There are five landfills in Cyprus, but over a thousand non-compliant waste dumps in Romania. Percentages of wastewater treated range from 30 per cent to 77 percent: some countries which are advanced in transposition and general planning show surprisingly low levels of investment here. There are large gaps still between towns and rural areas in sewage and drinking water facilities.

The Investment Challenge

The data on the financial challenge that the countries face for the implementation of these directives was refined in 2000 by several studies. Annex 2 presents estimates of the financing needs for compliance with the environmental acquis. Overall, the results show that the estimates of 1997 still remain valid. The widely cited figure of 120 billion € for total compliance with the environmental acquis published in 1997 was estimated using a number of techniques, but basically built on unit costs and per capita expected costs of infrastructure per sector. Subsequent assessments, which have focused mainly on the costs of specific directives, indicate lower values of between 80 billion € - 110 billion €. Unit costs are lower than predicted, while substantial investment in some Candidate Countries since 1997 has reduced the estimated gaps. On the other hand, the figure does not include the investment needs for some important new and forthcoming legislation such as the Water Framework Directive and the planned revisions to the Large Combustion Plant Directive. Furthermore, some of the estimates to date have excluded operation and maintenance costs. Private sector investment has not always been included. This is now changing, with an increasing number of studies looking at operation and maintenance costs and cost-recovery. Only thus is it possible to assess the sustainability of financing investments, especially given the crucial role of households and consumers in financing operation and maintenance. Many of the estimates for specific directives are therefore being again upgraded accordingly.

2. SETTING PRIORITIES

Prioritisation at the Strategic Level

The issue of prioritisation is crucial to the development of an environmental investment programme. Although in the short term it makes sense to present for grant funding projects which are the most ready and financially viable, in the medium to long term the Candidate Countries need to prioritise their investment needs systematically. This need will extend far beyond accession.

Setting priorities is a complex process that incorporates a wide range of impacts at regional/transnational, national or local levels. Prioritised investment plans are currently needed to support requests for transition periods and to help raise awareness within governments of the investment needs of the accession process. For example, in May 2000 the Czech Ministry of Environment presented to the government a 'Cost of Implementation' plan which included staffing and administrative needs, to complete compliance with all the directives. This document was based on the Handbook on Implementation, published by the Commission in April 2000. It convinced the government to respond with a substantial proportion of the sums requested. A similar exercise could usefully be carried out by all Candidate Countries, to ensure that they have the necessary staff and resources needed to administer and enforce the new laws.

Developing priorities is not only a task for accession. Plans developed now will help make the most of post-accession Community Structural and Cohesion Funds. The Commission's second report on Cohesion (COM(2001)24) indicates that support for environmental investments through the Community's structural instruments will be an important priority for the new Member States. Furthermore, the implementation plans

presented by Candidate Countries to justify transition requests will be monitored after accession. For all these reasons, a prioritisation strategy is needed in order that investments can have the maximum possible impact.

Prioritisation is needed at several stages of the investment strategy. Firstly, countries need to prioritise between sectors, and secondly to choose within a sector. For example, Lithuania chose to focus on water and waste for its financing strategy⁶ but, in order to turn the strategy into reality, hard choices will need to be made for priority investments within those sectors.

Like Lithuania, Latvia opted for prioritising water and waste, with its broadly based programmes for municipalities. The waste programme is operational, but lacked a framework of overall waste management. The Latvian government is now developing a waste management strategy to help select and co-ordinate the individual investments.

For a number of directives, investments will be the responsibility of the private sector (e.g. Air Quality Framework): here government planning and prioritisation will need to focus on ensuring that appropriate monitoring and enforcement mechanisms are in place to stimulate the required investments. The regulatory structure needed to encourage investment should be in place too. A good example of this is Slovakia, where the development of a sound regulatory structure for handling solid waste encouraged private sector landfills to develop rapidly, and where the solid waste management system is now entirely privatised.

Prioritisation at the Project level

An initial ‘top down’ investment assessment may result from an analysis of areas where compliance is missing – the gap analysis. However, project definition will most likely come ‘from below’, from the municipalities and other actors who are responsible for the final investments. Priority-setting at this stage must involve both national and local level, to ensure that policy targets set at national level match investment needs at local level. Furthermore, good communication here helps to ensure that investment plans conform realistically to national affordability/borrowing. Apart from accession relevance and environmental benefit, criteria such as financial viability and cost effectiveness should be included. Some possible criteria are suggested below.

⁶ See ‘Environmental Financing Strategy’, October, 2000, financed by DANCEE. In the early ‘90s, Lithuania prioritised investments to meet the Helsinki Convention.

Table. 2 Current Status of Environmental Infrastructure in the Accession Countries: information from Candidate Countries

Infrastructure	BULGARIA	CYPRUS	CZECH REPUBLIC	ESTONIA	HUNGARY	LATVIA	LITHUANIA	MALTA	POLAND	ROMANIA	SLOVAKIA	SLOVENIA	TURKEY
AIR													
Large Combustion Plants	36 2 extended after 1997	3	~ 125	24 (existing) & 3 (planned)	95	27	48	2	200	35	88	8	Appx 15
WASTE													
Landfills: total	C 2500	5	340	263	~ 2,000 (total illegal) 800 municipal and industrial	550	800	2	998	1113 municipal and industrial	141	87	2111
Landfills: sanitary	:	0	288	2	728	:	:	:	998 municipal	:	106	60	7 sanitary landfills 2 composting
Incinerators: total	8	5 (small, clinical waste)	75-8	2 (incinerators) 1 (co-incinerator)	1 municipal 52 hazardous	0	0	6 (small)	23 + 5 co-incinerators	3 (industrial)	67	5	
Incinerators: compliant	:	0	6	0	1 municipal 41 hazardous	0	0	0	:	:	17	5	1
WATER													
Sewage connection rates (% of population connected to sewage systems)	72%	45%	74.6%	77%	61.00%	76.9%	59%	100%	82.8% (towns) 9.9% (rural)	51%	54.3%	53%	62%
Wastewater treatment plants (WWTPs): total	61	4 (31%)	959 (Urban WWTPs)	826	496	346	785	1	1,675 (industry) & 2209 (municipal)	1,000	334	132	16 completed 16 under construction
Wastewater treatment (% of population connected to WWTPs)	63%	45%	68.6%	77%	34%	64%	52%	8%	78% (towns) 8.5% (rural)	:30%	50.8%	35%	12%
Drinking water connection rates (% of population connected to drinking water supply systems)	99%	99%	86.9%	77%	93%	83%	75%	99%	91.5% (towns)	~54%	82.6%	85%	78% (urban) 62% (rural)
INDUSTRIAL POLLUTION													
IPPC installations	380 – 400	20-25	1,000-1,500	141	1000	110-130	:	60	4000	:	646	108	:
Seveso installations	150	12	110	21 (10 (A) + 11 (B))	319	40-50	150	7	150 (Seveso II)	:	123 (45 upper tier)	50 (30 upper tier)	:

Table 3: Criteria for Prioritisation at the Strategic Level and Project Level

<p>Accession Issues</p> <ul style="list-style-type: none"> • Priority allocated to the directive in the context of accession e.g. if transition period requested • Status of transposition & enforcement of relevant legislation • Priority of the sector in national environmental strategies/plans (e.g. NPAA, Accession Partnerships, sectoral strategies) 	<p>Environmental Issues</p> <ul style="list-style-type: none"> • Severity of problem • Health impacts • Trans-boundary impact • Urgency of problem • Cost-effectiveness of proposed solution • Part of long-term strategy, e.g. sustainability,
<p>Financial Issues</p> <ul style="list-style-type: none"> • Availability and sources of finance • Operating & maintenance costs • Level of income expected (e.g. from charges) 	<p>Economic Issues</p> <ul style="list-style-type: none"> • Affordability of proposed charges • Affordability of proposed investment • Wider economic benefits (and costs) of project
<p>Technical Issues</p> <ul style="list-style-type: none"> • Complexity of project & technology used • Current status of project development • Resources available for project development 	<p>Institutional Issues</p> <ul style="list-style-type: none"> • Environmental Impact Assessment if needed • Necessary permits for construction/operation in place
<p>Commercial Issues</p> <ul style="list-style-type: none"> • Responsibilities for development & implementation clearly defined • Commercial framework established (e.g. contract for public-private partnership) 	<p>Timing Issues</p> <ul style="list-style-type: none"> • Timing of finance (grant windows etc)

National and trans-boundary pressures for environmental investment priorities

In the 1990s, almost every Candidate Country undertook some form of national environmental planning and priority-setting exercise, resulting in National Environmental Strategies or National Environmental Action Programmes. These documents were typically accompanied by long lists of actions, including investment projects. Many of these were initiated in response to urgent local problems, such as the clean-up of toxic ‘hot spots’. The Environmental Action Plan guidelines presented at the Ministerial Conference in Lucerne in 1993 recommended a cost-effective approach to industrial pollution clean-up. With the privatisation programmes, direct responsibility for such investments passed to the private sector, and depended on the effectiveness of the regulatory and enforcement agencies. The driving force behind this prioritisation exercise was that national interests should come first: and that a rational consideration of cost-benefits in pollution should outweigh international pressures.

However, there were several cases where Central and Eastern European countries bought into regional, trans-boundary programmes and committed substantial sums towards them. The Helsinki Convention and the Black Triangle region, for example, both attracted substantial investments from the Central and Eastern European countries involved. The river basin approach contained in the Framework Water Directive encourages Member States to establish

trans-boundary management bodies for international rivers. This should ensure a higher priority for the Danube and Black Sea programmes, both of which are now implemented in the framework of a Convention⁷. Priority-setting should take account of these trans-boundary Conventions and programmes. The impact of the National Environmental Action Plans carried out in both Slovakia and Romania, for example, has meant a good level of awareness of local environmental problems; but finding finance for the investment projects has proved more difficult.

3. DEVELOPING AN ENVIRONMENTAL INVESTMENT PROGRAMME

The Role of an Environmental Investment Programme

An environmental investment programme for accession plays a number of important roles. First, it should define the projects needed to achieve compliance with specific directives. The programme should try to assess the overall level of investment needed as well as cost estimates for typical or specific projects. Second, it considers affordability issues, both nationally and for specific projects. Third, it should propose a credible time frame for implementation.

Development of a national environmental investment programme for accession is a dynamic process, requiring regular review and updating. Some investments will be included where there is pressure to take action because of EU or other international obligations, or because of local health/environmental risks. On the other hand, an investment programme needs a long-term perspective so as to include, for example, those investment needs that will flow from new EU directives.

Strategic Investment Planning

The environmental investment programme needs to be driven by the accession process and to be comprehensive in its coverage. It should be co-ordinated with the other tasks required for completing the process of approximation, including transposition and implementation. It should cover all stages in the process from strategic planning and project identification, through investment planning and project preparation to project implementation and monitoring. An outline of a directive specific implementation and financing plan is included in Annex 3, and was circulated to the Candidate Countries earlier in 2000. The outline is not prescriptive, but draws from implementation and action plans presented by Candidate Countries.

Where to begin

The starting point is an assessment of each Directive's requirements, to determine the current status of compliance and identify gaps where investment projects are needed to achieve compliance with EU obligations. The Czech Republic carried out a detailed compliance gap assessment for all the environmental directives, and calculated the 'add-on' costs, in administration and personnel as well as infrastructure. They allocated the costs to public and private sectors. This implementation plan has formed a good basis for preparing the investment plans for specific directives where a transition time is needed. For the IPPC Directive, Slovenia made an inventory of all plants falling under the Annexes to the directive,

⁷ The Union is a signatory to the Danube Convention (1994), but not to the Bucharest Convention for the Black Sea (1992).

and committed themselves to ensuring that Best Available Technology standards would be reached for each industrial sector by a specific time; they also estimated the cost to industry of compliance.

The gap assessment process should be linked to transposition and implementation/enforcement. It is easier to develop investments at local level when the necessary legislation and standards are in place, while Candidate Country governments need to know the add-on costs for monitoring, administration and enforcement, as well as operating and maintenance costs.

This gap assessment should lead to a list of the investments needed to secure compliance with each directive. This will mean moving from a 'top down' assessment of policy gaps to a 'bottom up' approach, based on the identification of the need for individual plants in cities, towns and villages. For a number of directives the private sector is responsible for investments. This applies not only to energy or air quality, but to waste and water provision, which in several Candidate Countries has been privatised. Here, the government's role is to enforce and monitor the requirements. Finding out what investment needs exist at local level has to be done pro-actively and with reference to the directive's standards and requirements.

For some directives, investment requirements were not known until after an initial assessment or planning exercise had taken place, for example, a national waste management plan setting forth a strategy for regional landfills, or an inventory of non-compliant emissions from municipal waste incinerators. In the case of the Air Quality Framework Directive and its Daughter Directives, investment needs will become clear only after preliminary assessments have defined zones where limit values for specific pollutants are exceeded. The next step is for action plans to be prepared identifying sources of polluting emissions as well as least-cost options for achieving emission reductions. For example, a high level of small particulates could be linked to diesel engines in buses, necessitating investment in new public transport equipment, or to the use of coal in household heating installations, which could require conversion to natural gas.

The focus of an accession-driven investment programme will be the capital-intensive environmental infrastructure projects required under the investment-heavy directives. However, smaller scale investments needed for compliance, such as monitoring systems and laboratories, need to be assessed also. For effective implementation and enforcement, additional environmental inspectors will be needed, as well as new information management systems, communication equipment and motor vehicles. If these mechanisms are not in place, the difficulty of implementing the investment-heavy directives will increase, especially where they involve the private sector⁸.

⁸ The investment implications of the EU requirements in the water, waste management, air quality and industrial pollution control sectors are summarised in Annex 1. The Handbook on the Implementation of EC Environment Legislation (Commission working document, April 2000) is a useful source of information on all the steps required for implementing the directives' requirements.

Box 1 Implementation planning in Czech Republic and Slovenia

For its negotiation of the Environment Chapter, the Czech Ministry of Environment prepared detailed implementation plans for each EU environmental act. The plans identify the institutions responsible for implementing each EU act, the act's requirements, steps for implementation including deadlines for specific requirements, the main constraints to implementation and proposals for solutions, financial needs (institutional strengthening, public sector investments, private sector needs), and the list of concrete projects for implementation.

Slovenia's Ministry of Environment prepared detailed implementation plans for its accession negotiations, followed by Action Plans and estimates of investment costs, to justify transition bids. These action plans, and their time frames, have been accepted by the European Council. They can be found on the web site of the Slovenian government.

The implementation plan needs to identify who will be responsible for carrying out the actual investment project and for compliance with the EU requirements. Project 'owners' range from utility companies to farmers, from private companies to environmental agencies. Some proponents will be responsible for projects under more than one directive. For example, municipalities will often be responsible for complying with EU standards for such municipal services as supply of drinking water, urban wastewater treatment and management of waste. Municipal-level assessment and planning will be needed to determine the additional infrastructure needed to comply with these multiple requirements.

Preliminary cost estimates should be prepared for the proposed infrastructure, including operation and maintenance costs. Though most Candidate Countries have carried out some cost estimation exercises, additional information and analysis may be required to determine the most cost-effective strategies for compliance or to consider affordability at national, municipal or household levels. Potential sources of finance - including government budgets, grants, international and commercial loans - should also be identified at this stage. This information can then form the foundation for a comprehensive financing strategy that defines investment needs, finance sources and timing of the individual projects necessary for achieving compliance.

This process will differ in large countries from what is possible in small ones. Obviously the level of detail that can be developed in a country with nearly forty million people is less than that of Slovenia. On the other hand, accession planning and compliance and project information need to be linked at some level: in large countries, the information flow to and from regional level needs to be enhanced. In any case, the level of detail is less important than ensuring that the investment planning is clearly based on aggregated information, and is credible in its forecasts.

4. THE CHALLENGE OF IDENTIFYING AND SECURING FINANCE

Income and Affordability

Affordability is an important issue at the programme level in relation to overall national expenditure. At the project level, income streams should be identified that will contribute to the financial viability and sustainability of the project. These will generally take the form of charges for environmental services, such as water supply or waste disposal. A project

'affordability analysis' will help assess the ability of consumers to pay at least a share of the proposed charges and contribute to operating a maintenance expenditure, as well as assess the effect of the charges on demand. There is little general guidance that can be given on what constitutes an affordable level, but a Polish study has estimated that 4% of household income for water use is the upper limit of affordability for consumers, while the EBRD has internal guidance notes on this subject. Increasing the level of charges and taxes can also lead to significant reductions in the resource use, and hence reduce the need for new investments. For example, charging for water in the Candidate Countries has cut demand by an average 40%, leaving wastewater plants designed in the 1980s with surplus capacity and unnecessarily high running costs.

A preliminary financial analysis incorporating this information will establish the broad financial parameters of the project, such as the investment needed and the return on investment. All Candidate Countries in the CEE have set up environmental funds, whose revenue base comes from environmental resource taxes, charges and fines for excessive pollution. These instruments signal an economic incentive to users to reduce pollution levels or natural resource use and hence can encourage environmental investments, although care must be taken not to breach the Community's State Aid rules. The revenues raised from these sources, and particularly from charges and taxes, since these are relatively predictable, provide a valuable revenue stream for many environmental investments. Ideally charge and tax levels should move towards compliance with the 'Polluter Pays' principle. Charges for resource use and full-cost recovery for use of environmental infrastructures (such as water supply, wastewater treatment and sewage networks, and waste), should be an integral part of project financing.

Involving the Private Sector

According to the 'Polluter Pays' principle, the financing burden should lie as closely as possible on investor and polluter. The importance of private investment can be seen from the World Bank study on Bulgaria, quoted above. According to this, 46% of responsibility for environmental investment lies with the private sector, while 43% lies with municipalities, and only 11% with central government. Furthermore, the National Environmental Action Plans of both Slovakia and Romania have estimated independently that almost 70% of pollution finance needed will be in the private sector. There are many different ways of involving the private sector in investments in environmental infrastructure in sectors that have historically in many of the Member States been the responsibility of the public sector. In Slovakia, waste disposal was privatised in 1995, with a firm legal framework to control standards for landfills, and financed by municipal taxes on residents. In most Candidate Countries, municipal water services are partly privatised, usually with a joint stock company wholly owned by the municipality, with equity participation from investors and/or commercial banks.

Levels of private sector involvement range from contracting out project preparation to full 'privatisation' of the environmental service, including responsibility for collecting charges. Private sector involvement models which stop short of full privatisation include 'Build, Operate and Transfer', 'Build, Own and Operate', and 'Build, Own, Operate and Transfer' projects. Such models need to allocate responsibilities (both legal and financial) clearly and fairly; a Commission Communication published in 2000 summarises the principles of public-private sector partnerships as those of transparency, equal treatment and competition⁹.

⁹ *Commission Interpretative Communication on Concessions under Community Law* (OJ C 121, 29.4.2000).

A bank or financial institution may be able to offer assistance with project preparation as part of a loan package, and commercial banks have implemented projects on behalf of international financing institutions and grant programmes¹⁰. A contractor responsible for the whole project (a 'turnkey' arrangement) may be able to offer finance for project implementation. Equipment can be leased from the supplier. Equity investment is becoming more common, with a number of venture capital funds seeking equity shares of municipal investments in waste and wastewater.

The Role of Grant Funding

Discussion of financial engineering for public sector environmental projects in the Candidate Countries has focused primarily on grant finance. However, most national environmental funds lend at soft rates as well as give grants, and there are arguments for adopting a long-term strategy away from grants, towards loans. While grants are not always consistent with the polluter pays, user pays and full cost recovery principles, they allow gaps in true affordability to be addressed, enabling more projects to be implemented more rapidly than would otherwise be the case. Grants have also played a valuable role in capitalising revolving funds, that is, funds which lend at a subsidised interest rate and re-lend the re-paid loans. In the early 1990s, with an undeveloped capital market in the Candidate Countries, a commercial lending market hampered by inflation and poor regulatory framework, grants were crucial in catalysing and leveraging concrete investments. In the framework of accession needs, well-targeted grants could help shorten the implementation period, and thus benefit Europe's environment and health. Grants will be needed for post-accession 'cohesion', helping bridge the gap between less developed regions and others, where the Community has a mandate to take account of the 'social and economic development of the Community and the balanced development of its regions'. It also has a mandate to use the Cohesion Fund for financial support for the environment¹¹. In the longer term, grants could be reserved for specific, clearly defined situations where they would act as a catalyst, and not replace equity or loan funding. In any case, the Community rules on State Aid must be complied with¹².

There are, however, problems connected to reliance on grants. Firstly, without the discipline of market pressures to act as a check and balance, special care needs to be taken to ensure the cost-effectiveness of the investment. Secondly, some forms of grant funding are linked to deadlines for proposal submission, which can lead to the creation of a highly unstable 'cyclic' market for the companies supplying goods and services. Thirdly, grant funding is not 'free', but can impose significant financial and management obligations on the receiver of the funds. Fourthly, a lower proportion of grant funding leverages a higher proportion of non-grant funding. However, too much stress should not be put on this latter point. It is important not to crowd out non-grant funding by supplying too high a proportion of grant funding. The affordability of the financial package is the key factor here. Capital can always be found for projects where there is sufficient possibility of payback or of capital growth over the years.

Project funding strategies

There will be circumstances in which it is appropriate to negotiate loans from the commercial banking sector. Some banks in EU Member States specialise in funding environmental infrastructure projects in Candidate Countries. In many cases, debt finance (grants loans or

¹⁰ Loans here means commercial loans and not tied aid credits, which on the basis of an OECD Decision (on 'Softban') of 1991 should be avoided for countries in transition.

¹¹ Article 174, cl 3 and Article 175, cl 4, Treaty of the European Communities.

¹² See in particular the Guidelines on State Aid for environmental protection (OJ C 37/3 3.2.2001)

bonds) may be complemented by equity participation. The benefit here is that the equity owner usually looks for a capital gain rather than for an annual income. Generally this is only possible where there is a specific company or venture in which the donor can invest. A number of municipalities have created wholly owned joint-stock companies that can attract such participation. On the whole, though, this option is easier for projects that are private-sector ventures (including privatised utilities) or public-private partnerships.

The overall investment strategy for a project has important implications for project preparation. Each investor will require specific information, and will probably expect that information to be presented in a particular way. This is a difficult and time-consuming task, particularly where several funding organisations are involved. It also emphasises the desirability of developing a long-term relationship with a number of key funding organisations which are not only familiar with the situation in the country but also use familiar application procedures. Since it can be difficult to identify relevant sources of funding without researching many that prove to be unsuitable, a PEPA Fund Fiche has been developed to assist project 'owners' in the Candidate Countries. These fiches explain the different aims and operational methods of the major international funding institutions.

Capacity building

Developing a successful financing strategy involves not only access to funds but improved management and other 'softer' elements. Networking, training and the exchange of best practices can contribute greatly to such success. The PEPA programme has brought together representatives of Ministries of Environment, municipalities and managers of national environmental funds in the region, and publicised success stories. In its next stage, local and regional authorities will be encouraged to develop financing strategies which are tied to accession policies. Already the Phare programme has contributed significantly to capacity building in developing projects for ISPA and Phare programmes for the pre-structural funds. Some Candidate Countries have joined the LIFE programme, which can help with pilot projects. The Danish government supported a detailed financing strategy for Lithuania, which analyses affordability from a survey of all municipal investment means. Given the large number of 'actors' involved, bilateral donors are urged to offer further assistance, through twinning or other means.

5. CONCLUSION

An analysis of investment plans presented by Candidate Countries shows that while some countries have now developed implementation and financing plans, and others are planned for the coming months, there is still work to be done, in particular to flesh out implementation plans with actual projects and actions. Furthermore, attention needs to be paid to the preparation of financing strategies for the post accession period when Community structural instruments will be available.

Larger countries with different levels of administration responsible for implementing investment in environmental infrastructure are finding it harder to develop investment plans. There is, however, ample scope to prepare clear and thought-through strategies without necessarily covering the level of detail that a small country can produce at central level. Instead, information from the regions should be aggregated as the basis of central or nationally developed policies and financing plans. Improved communications and dialogue with the regions are necessary to ensure effective results.

Following the criteria proposed for priority setting presented in Section 2 can help improve the quality of the investment plans. Exchanging experience can help accelerate the process. Candidate Countries are increasingly willing to share their long-term investment plans with other countries, as the Czech Republic, Slovenia and Lithuania have done. There are numerous examples of good practice to be disseminated. Investment plans that have been accepted could be circulated to contacts in national Ministries of Environment in the Candidate Countries. Here the PEPA programme could reinforce its role as a catalyst and facilitator for the exchange of experience by signposting existing information and presenting it in a manner that makes it more immediately accessible.

Member States could also focus more of their bilateral technical assistance to Candidate Countries on developing financial strategies and sharing their own experience. More support (through Community technical assistance programmes) should be given to activities that link the 'top down' accession driven policy with 'bottom up' project identification. Training for regional and local administrators is needed.

The Commission will continue to collect and refine information on investment and infrastructure needs, together with information on projects: the PEPA data base already contains over a thousand projects, from compliance gaps to project ideas to mature projects. Community technical assistance will focus on some of the issues outlined above: on developing projects to fill gaps identified in the investment-heavy directives, and advising on priority projects. Assistance to develop implementation plans for specific directives will be reinforced.

In the final analysis, however, the onus is on the Candidate Countries to prepare and present financing strategies. Given the timetable for accession¹³ the need is now even more urgent.

¹³ COM(2000)700

ANNEX 1

THE INVESTMENT IMPLICATIONS OF THE KEY ‘INVESTMENT-HEAVY’ DIRECTIVES

1. WATER SECTOR REQUIREMENTS

SECTOR/DIRECTIVE	LIKELY INVESTOR	HEAVY INVESTMENT	OTHER INVESTMENT
Water Quality			
Drinking Water Directive	Municipalities, water utilities/companies	Water collection/abstraction Water treatment plants Water delivery/supply systems	Surface water monitoring DW quality monitoring (at treatment plant & at tap)
Urban Wastewater Treatment Directive	Municipalities, water utilities/companies Industrial companies	Wastewater collection systems Wastewater treatment plants	Effluent monitoring
Sewage Sludge Directive	Industrial companies Public or privatised water companies	Sludge dewatering systems Sewage sludge incinerators Composting/treatment plants Pre-treatment of industrial discharges to sewers	Sludge transport systems Land spreading systems Monitoring systems
Urban Wastewater Treatment Directive	Industrial companies	Wastewater treatment systems New processes (cleaner techs.)	Water quality monitoring Modelling systems
Dangerous Substances into Water Directive	Industrial companies Municipalities	Wastewater treatment systems New processes (cleaner techs.)	Water quality monitoring Modelling systems
Nitrates Directive	Agricultural enterprises	Animal waste storage facilities Wastewater treatment systems	Water quality monitoring Modelling systems
Water Framework Directive	Regional governments (river basin authorities) Industrial companies Agricultural enterprises	Wastewater treatment plants (municipal/industrial), animal waste storage facilities, etc.	Water quality monitoring
Bathing Water Directive	Municipalities, water utilities/companies	Wastewater treatment plants	Water quality monitoring

- *Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption*
- *Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment*
- *Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community, as amended by Council Directive 91/692/EEC, and its “daughter” Directives*
- *Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources*
- *Directive 2000/.../EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy*
- *Council Directive 76/160/EEC of 8 December 1975 concerning the quality of bathing water*

2. WASTE MANAGEMENT SECTOR REQUIREMENTS

SECTOR/DIRECTIVE	LIKELY INVESTOR	HEAVY INVESTMENT	OTHER INVESTMENT
Waste Management			
Landfill Directive	Municipalities, waste utilities/companies, industry	Municipal waste landfill sites Hazardous waste landfill sites Closure of old landfills	Waste collection/transport Water/groundwater monitoring
Municipal Waste Incineration Directives	Municipalities, waste utilities/companies	Municipal waste incinerators	Waste collection/transport Air quality monitoring
Hazardous Waste Incineration Directive	Industry, waste utilities, hospitals	Hazardous waste incinerators	Waste collection/transport Air quality monitoring
Waste Framework Directive	Municipalities, waste utilities/companies waste transporters	Waste collection/transport Integrated waste disposal system (incinerators, landfills)	Waste collection/transport Air quality monitoring Water/groundwater mon.
Hazardous Waste Directive	Municipalities, waste utilities/companies, industry	Hazardous waste landfills Hazardous waste incinerators	Waste collection/transport Air quality monitoring Water/groundwater mon.
Sewage Sludge Directive	Municipalities, water utilities/companies	Landfills for sewage sludge that cannot be used on ag land	Laboratories for testing sewage sludge

- *Council Directive 1999/31/EC on the landfill of waste*
- *Council Directive 89/369/EEC of 8 June 1989 on the prevention of air pollution from new municipal waste incineration plants*
- *Council Directive 94/67/EC of 16 December 1994 on incineration of hazardous waste*
- *Common Position (EC) No 7/2000 adopted by the Council on 25 November 1999 with a view to adopting Directive 2000/.../EC of the European Parliament and of the Council of...on the incineration of waste)*
- *Council Directive 75/442/EEC of 15 July 1975 on **waste** (as amended by Council Directive 91/156/EEC)*
- *Council Directive 91/689/EEC of 12 December 1991 on **hazardous waste** (as amended by Council Decision 94/31/EC)*
- *Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture*

3. AIR QUALITY SECTOR REQUIREMENTS

SECTOR/DIRECTIVE	LIKELY INVESTOR	HEAVY INVESTMENT	OTHER INVESTMENT
Air Quality			
Air Quality Framework Directive & the Daughter Directives	Local & regional governments; industry	Controls over point sources of air emissions; controls over vehicle traffic flows	Air quality monitoring AQ modelling capacity
Fuel Quality Directives	Oil refineries	Process changes	Testing systems
VOCs "Stage I" Directive	Oil terminals, petrol transporters, petrol distribution stations	Vapour seals, VOC recovery units, fittings to enable VOC collection during filling	

- *Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management*
- *Council Directive 99/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air*
- *Directive of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (98/70/EC)*
- *Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC*
- *Council Directive 94/63/EC of 20 December 1994 on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations*

4. INDUSTRIAL POLLUTION CONTROL SECTOR REQUIREMENTS

SECTOR/DIRECTIVE	LIKELY INVESTOR	HEAVY INVESTMENT	OTHER INVESTMENT
Industrial Pollution Control			
Integrated Pollution Prevention & Control Directive	Industry, agri-industry, waste utilities	New processes (cleaner techs.) Pollution control systems	Air/water/groundwater monitoring
Large Combustion Plant Directive	Industry, energy utilities	New processes (cleaner techs.) Air pollution control systems	Air quality monitoring
Solvents Directive	Industry incl. SMEs	New processes (cleaner techs.) Air pollution control systems	Air quality monitoring
Seveso II (COMAH) Directive	Industry	Accident prevention measure	

- *Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control (IPPC)*
- *Council Directive 88/609/EEC of 24 November 1988 on the limitation of emission of certain pollutants into the air from large combustion plants (as amended by Council Directive 94/66/EC)*
- *Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations*
- *Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances*

ANNEX 2

ESTIMATED ENVIRONMENTAL FINANCING NEEDS IN CANDIDATE COUNTRIES

Country	BG	CY	CZ	EE	H	LV	LT	MT	PL	RO	SK	SI	Total
Total Cost 1997 Estimate Mio € ¹⁴	15000	1118-1264	13400	1500	13700	1710	2380	NA	35200	22000	5400	1840	122618-122764
Recent Figures Total Cost Mio €	8610 ¹⁵	1086 ¹⁶	6600-9400 ¹⁷	4406 ¹⁸	4118-10000 ¹⁹	1480-2360 ²⁰	1600 ²¹	130 ²²	22100-42800 ²³	22000 ²⁴	4809 ²⁵	2430 ²⁶	79260-110001

¹⁴ EDC (1997) *Compliance Costing for Approximation of EU Environmental Legislation in the CEEC*, EDC (1999) *Approximation of Environmental Legislation - Role of Compliance Costing for Approximation of EU Environmental Legislation in Cyprus*.

¹⁵ Environmental Resources Management (2000) *Development of Implementation Strategies for Approximation in Environment Final Reports of Mini-Projects March 2000*.

¹⁶ The Government of the Republic of Cyprus (8/3/2000) *Explanatory Memorandum on Chapter 22 Environment*.

¹⁷ 6,600-9,000: The World Bank (1999) *Czech Republic. Toward EU Accession*. Washington DC. 9,400: RIVM, EFTEC, NTUA, IIASA (1999) *European Environmental Priorities: an Integrated Economic and Environmental Assessment*.

¹⁸ Estonian Ministry of Environment, July 2000.

¹⁹ 4,118-9,318: The World Bank (1999) *Hungary. On the Road to the European Union*. Washington DC. 10,000: Hungarian Ministry of Environment, July 2000.

²⁰ 1,480-2,360: Latvian Ministry of Environment, July 2000. 1,505-1,942: Latvia Regular Report (1999).

²¹ RIVM, EFTEC, NTUA, IIASA. (1999) *European Environmental Priorities: An Integrated Economic & Environmental Assessment*.

²² Maltese Ministry of Environment (2000) *Paper presented at the IBC Conference in Budapest, 13-14 June 2000*.

²³ 22,100-42,800: The World Bank (2000) *Poland Toward EU Accession*. Washington DC. 24,900: RIVM, EFTEC, NTUA, IIASA. (1999) *European Environmental Priorities: an Integrated Economic and Environmental Assessment*.

²⁴ Romanian Ministry of Waters, Forests and Environmental Protection, (2000) *National Plan for Environment ISPA Implementation*.

²⁵ Slovak government (2000) National Programme for the Adoption of the Acquis.

²⁶ Slovenian government (1999) National Programme for the Adoption of the Acquis.

ANNEX 3

DIRECTIVE SPECIFIC IMPLEMENTATION AND FINANCING PLANS

Candidate Countries are required to prepare Directive Specific Implementation and Financing Plans for all directives for which they are seeking transition periods in their accession negotiations. Directive Specific Implementation and Financing Plans may also be helpful in planning implementation of other directives. Where supporting a transition bid, the plan will need to present a defensible case for the additional time period for implementation. Candidate Countries will develop their own structures for Directive Specific Implementation and Financing Plans. A possible structure is presented below.

Executive Summary

Summary of the main steps and timescale for implementation, and justification for the additional time requested for implementation

1. Introduction

- *Requirements of the directive*
- *Summary of transition time required*

2. Steps Required for Full Implementation

- *Current status of practical compliance, legislative, institutional, gaps in implementation*
- *To complete legislative transposition*
- *To complete institutional arrangements to comply with directive's requirements*
- *"Long list" of projects required to fully implement the directive*
- *Balance between public and private investment needed*

3. Strategy for Implementation

- *Context for the strategy: socio-economic issues and institutional factors*
- *Proposed scenario(s) for full implementation, and assumptions*
- *Roles of the various actors and responsibilities for investments*
- *Institutional development plan*
- *Approach to project prioritisation and implementation*

4. Financing Costs of Implementation

- *Estimated costs of implementation under selected scenario*
- *Timetable for implementation*
- *Annual costs over proposed period of implementation of investment capital, operation & maintenance costs*
- *Sources of finance*
- *Analysis of affordability issues on national, municipal, and household levels*

5. Implementation Plan

- *Key steps and assumptions*
- *Short term, medium term and long term initiatives (including short list of priority projects)*
- *Timetable for full implementation (target date and milestones)*
- *Measures for supervising and monitoring implementation*