ENLARGEMENT
PAYING FOR THE GREEN *ACQUIS*

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CHAPTER 1
INTRODUCTION

This study examines the economic and policy context for environmental investments in the countries of Central and Eastern Europe that are candidates for membership in the European Union. This context is created by macroeconomic constraints, the unfinished process of transition and the requirements of membership. The task is to identify these constraints and point to policy options for decision-makers on both sides of the enlargement process.

1.1 The looming negotiating impasse

Benefiting from its experience in previous enlargements, the Commission will not be satisfied with the legal transposition of the environmental *acquis* (the existing regulations) into national laws by the new candidates for accession. Rather, it has established a triple test of *acquis* compliance, giving equal importance to 1) legal transposition, 2) administrative enforcement capacity and 3) physical investments needed to comply with the directives.

Progress has been unsatisfactory on all three levels. As regards legal transposition, the simple option of adopting (translating) the body of EU regulation without changing a comma has not been chosen by most of the candidate countries, although a look across the western border would have shown that any specific national needs could have been accommodated, not in the language of the laws, but in the timing and method of implementing directives.

The candidate countries themselves see the second *acquis* test – building the administrative capacity to enforce the environmental *acquis* on the ground – as increasingly problematical. The explanation is part budgetary – state salaries no longer attract qualified personnel – and part political.

First, responsibility for environmental matters in the Central and Eastern European countries (CEECs) is widely distributed among half a dozen ministries,[1] of which the environment ministry is usually the weakest. Coalition governments make the re-assignment of responsibilities especially difficult.

[1] Agriculture, Health, Energy, Atomic Energy, Industry, Environment, Prime Minister's Office, etc.

Secondly, effective environmental inspectorates and the issuance of permits require the empowerment, including funding, of regional and local levels of administration. Decentralisation is an ongoing process in most candidate countries that extends well beyond environmental matters. Nevertheless, decision-making remains difficult while the bigger picture is being defined.

This study deals primarily with the third *acquis* test: investment in physical plant needed to comply with the *acquis*. Here, progress was always expected to be slow, since there is both a shortage of money and inherent technical delays in planning and executing works. However, the tight-budget explanation for the slow pace[2] of environmental investments could not explain why there is still only a trickle in the "project pipeline".

It would seem that some of the problems with this third test of conformity are not unrelated to those of the second: unclear administrative lines of responsibility. In the case of investments, however, the municipal level is particularly important, notably as regards water, wastewater and waste management.

It would also appear that this immobility is not entirely unwelcome to the governments. They have been told that the major part of the needed investment must come from local, not European, sources. Thus, any project delayed is an expenditure avoided. There are, of course, EU grants available, but much of Union "assistance" takes the form of loans from the international financial institutions (IFIs). While such loans are granted at relatively advantageous rates, especially by the European Investment bank (EIB), which offers grace periods of up to five years, they are generally not soft loans and almost always require sovereign guarantees.[3]

Such guarantees are considered on the same footing as direct government debt. The ability of CEEC governments to assume debt themselves is limited both by the EU's macroeconomic accession ("Maastricht"[4]) criteria and by precise ceilings negotiated with the International Monetary Fund (IMF). In other words, environmental projects not only compete in current budgetary terms with other social needs – education, health and

[2] European Commission (2001, pp. 4-5).

[3] The EBRD has begun to arrange non-recourse (non-sovereign guarantee) environmental project finance in the CEECs.

[4] Although two existing member states have negotiated "opt-outs" as regards the Maastricht targets.

defence – but also in terms of a finite annual limit on debt-financed public investment.

In this competition, candidate governments generally give higher priority to investment in transport infrastructure, notably roads. These are politically popular and yield short-term economic gains. Socio-economic returns as high as 200% on some projects have been calculated by the World Bank. Motorway projects are also larger than environmental ones, and technically often more straightforward. On both counts they are easier to administer in an international context.

In 2000, the Commission launched an initiative called PEPA (Priority Environmental Projects for Accession) to look into the reasons for the low rate of project proposals and to help both the candidates and the Commission to get a detailed and accurate view of their own *acquis*-related project preparation. The significance of this programme goes beyond technical assistance: it is also a step towards the end-game of entry negotiations, when decisions on transition periods have to be taken.

Experts originally estimated the investment cost for the CEECs to achieve compliance with the environmental *acquis* at around 3-4% of GDP over 20 years. The Commission now assumes they need to spend between 2 and 3% of GDP "in the coming years".[5] But, as will be explained below, these are largely crude investment costs and do not include operational and financial follow-on costs which may be borne by the public budget. Common accepted prudential limits on public spending for the CEEC economies suggest a maximum expenditure on environment – investment, financial charges and operational costs added together – of around 2.5% of GDP per annum. This translates into a mathematical necessity for transition periods expressed in decades rather than years.

1.2 A path towards economically sustainable *acquis* investment

This study argues that there are policy options available to substantially reduce the gap between the desirable and the possible. The present impasse results in part from a planning and forecast exercise which, like the discredited socialist planning of the past, is based on multiplying quantities, taken as given, with equipment and operating costs, taken as given.

This study seeks to demonstrate that:

[5] European Commission (2001, p. 4).

- The main constraint is budgetary rather than macroeconomic. The full scope for *off-budget* investments therefore needs to be exploited.
- There is a large scope for policies directed at improving *efficiency*: achieving the greatest environmental benefit from a given amount of resources.

Major efficiency reserves lie in the following areas:

- using the (near-) full *cost recovery principle* to reduce demand for power, water and waste;
- optimising management efficiencies through *shifting economic responsibilities to public or private agents*;
- creating a context in which *municipalities take efficient investment decisions;* and
- making use of provisions in the directives that allow *derogations for investments with high marginal costs.*

In order to promote an environmental efficiency-oriented agenda, the candidate countries should:

- privatise polluting industries still in public ownership;
- fully commit to effective inspectorates; and
- re-organise the utility sector, especially water, to form geographically optimal and economically strong entities.

The Commission should:

- review its legalistic stance on standards to take account of marginal cost/benefit ratios;
- enlarge the concept of "administrative capacity" to include management structures;
- refrain from using the ISPA 75% ceiling on grant finance in favour of a 10-20% contribution to any single project; and
- integrate broader policy options into investment planning.

CHAPTER 2
THE INVESTMENT CHALLENGE

This chapter provides an overview of the scope of investment requirements that Central and East European countries are facing in the area of the environment.

2.1 *Acquis*-related investment

Major investments are related to relatively few directives, with the most costly ones related to water and power. They include:

- Large Combustion Plant Directive (1988)
- Urban Wastewater Directive (1991) } Water Framework
- Drinking Water Directive (1980) } Directive (2001)
- Air Quality Framework Directive (1996) and its daughter directives
- Integrated Pollution Prevention and Control (IPPC) Directive (1996)
- Hazardous Waste Incineration Directive (1994)
- Municipal Waste Incineration Directives (1989)
- Landfill Directive (1999)
- Several directives related to solid waste management and recycling schemes.

Physical investment will also be required, under the heading "administrative capacity" for monitoring stations, laboratory equipment, etc. The details of these investments are summarised in Table 1.

2.2 The €100 million question

In the past, accession to the European Union required mainly the adoption of existing regulations in all areas of the Union's competence, including the environment. In earlier rounds of enlargement, involving i.a. Greece, Spain and Portugal, the Union had been content to consider the transposition into national laws of this *acquis* as sufficient for entry. As regards the environment, however, regulations could not effectively be implemented as long as old polluting capital stock (notably manufacturing and utilities) had not been replaced or upgraded and new end-of-pipe investment made. It was found that after a seemingly successful completion of entry negotiations, the legal *acquis* merely set up a strong claim by the new members for massive transfers (notably through the Cohesion Fund) to enable them to abide by the laws.

Table 1. The structure of acquis *-related investment*

Sector/Directive	Likely investor	Heavy investment	Other investment
Air quality			
Fuel Quality Directives (see also IPPC Directive, below)	Oil refineries	Process changes	Testing systems
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	Wastewater collection systems Wastewater treatment plants	Effluent monitoring
Sewage Sludge Directive		Sludge de-watering systems Sewage sludge incinerators Composting/treatment plants	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		Wastewater treatment systems New processes (cleaner techs.)	Water quality monitoring Modelling systems
Nitrates Directive	Agricultural enterprises	Animal waste storage facilities Waste treatment systems	Water quality monitoring Modelling systems
Waste management			
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
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
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

Source: ECOTEC internal working documents (PEPA project).

The EU Commission drew the lesson from the previous enlargement not to take "yes" for an answer but to require proof, *ex ante*, of the ability to observe Community law in practice. In the context of CEEC enlargement, the problem of raising capital plant to the required standard could be expected to be much larger, not only because of relatively high degrees of industrialisation – and hence a high number of pollution sources – and the historical neglect of socialist economies of the environment, but also because per capita GDP was half the level of the candidates of the previous round of enlargement.

Thus, in order to mobilise local resources early on, the Commission needed 1) to make a credible physical investment level part of the environmental *acquis* test and 2) convince both the candidate countries and the Western donor community of the magnitude of the task.

To achieve these aims, the Commission staged what can be described as a successful public relations coup with the publication of a study entitled *Compliance Costing for Approximation of EU Environmental Legislation in the CEECs* (EDF, 1997), showing the need to invest between 110 and 120 billion ecu to meet the *acquis* (see Table 2). In spite of considerable methodological weaknesses – pointed out in the study itself – this result still stood until 2001 and was accepted by the candidate countries.

The exercise put the candidate countries on notice that a major investment effort was needed. However, there was and is a danger associated with these "headline" numbers – they seem impossibly large. A (political) hurdle that cannot be overcome lacks credibility. Another problem with the large figure is that it leaves no intermediate and therefore enforceable target even in the pre-accession phase.

In response to this problem, The Commission is exerting general pressure through an unprecedented annual screening, in which public judgement is passed on all three elements of the *acquis*-readiness test, including investment. Progress on the legal and administrative elements of the *acquis,* however, is easier to diagnose than progress on investment, especially for projects in various planning stages. Nevertheless, much like the practice in schools, the screening process allows "grades" to be given for "effort" without using precise tests of achievement. Unfortunately, this practice also suggests that "effort" is all that is needed, ignoring fundamental constraints and avoiding a comprehensive look at real options.

Table 2. The 1997 study: Investment for approximation in the CEECs (billions of ECU)[a]

	Water			Air	Waste		Total investment		
	Supply	**Waste-water**	**Total**		**Min**	**Max**	**Total min**[b]	**Total max**[b]	**Total/ capita**
Poland	4.4	13.7	18.1	13.9	2.2	3.3	34.1	35.2	927
Hungary	3.5	3.1	6.6	2.7	2.1	4.4	11.5	13.7	1306
Czech Rep.	2.2	1.1	3.3	6.4	8[d]	3.8[d]	10.4	13.4	1427
Slovakia	1.0	0.9	1.9	1.9	0.3[d]	1.60[d]	4.1	5.4	760
Bulgaria	2.2	2.7	4.9	5.1	1.8	5.1	11.7	15.0	1668
Romania	3.8	6.3	10.1	9.1	1.0	2.7	20.2	22.0	943
Baltic total				8.45	0.45	0.85	8.90	9.30	1148
Estonia	0.13	1.38	1.50				1.50	1.50	N/A
Latvia	0.11	1.60	1.71				1.71	1.71	N/A
Lithuania	0.11	2.27	2.38				2.38	2.38	N/A
Slovenia	N/A[c]	N/A	N/A	0.69	1.15	1.15	1.84	1.84	N/A
Total	17.5	33.1	50.5	48.2	9.7	22.7	108.4	121.5	1140
% of total	14	27	42	40		19		100	

[a] Figures for water supply, air and waste are based on IFO; for wastewater on IFO and WRC.

[b] Total minimum includes the minimum estimate for landfill; total maximum includes the maximum estimate for waste management.

[c] N/A = Not available.

[d] 70% of the total estimate of the IFO Institute for the Czech and Slovak Republics can be attributed to the Czech Republic and 30% to the Slovak Republic.

Source: EDC (1997, p. 104).

As a partial response to the slow pace of implementation of investment strategies, the Commission established a new pre-accession condition: the presentation of a timetable and a comprehensive and "funded" strategy for investments to be undertaken after accession.

This requires a considerable planning effort on the part of the candidate countries, as well as clear and transparent standards on what constitutes a credible strategy. In particular, it forces candidates to list expected sources of funding for each type of investment. There are two sources that are particularly interesting: EU transfers and private investment.

Specifying expected funding (from Phare/ISPA/SAPARD) is relatively straightforward in the pre-accession phase, as there is no choice other than to accept the financial framework of Agenda 2000 for the time being. It puts the candidate countries in an awkward position, however, as regards the post-accession phase, as the re-distribution of the Regional and Cohesion Funds is itself a matter for negotiation – indeed perhaps the single most important one from the standpoint of both the candidates and present beneficiaries.

As regards private finance, there is the temptation (on both sides) to use it as a residual that is assumed to cover all expenditure that cannot be funded by domestic budgets and European transfers. As will be discussed below, private finance is, however, a less than straightforward notion in the world of utilities where much of the heavy investment burden falls. In particular, it is usually part of a mix in which IFI financing plays a critical role. That kind of funding either directly (revenue contracts) or indirectly (guarantees) creates a charge on the public budget and a deficit to which it is supposed to be an alternative.

This situation creates a political and financial trap for the Union. The more realistic and detailed the long-range plan submitted by the candidate countries, the more clearly the objective limits to the accession efforts will be revealed, whether expressed as a share in GDP, a share of current budgetary spending or additions to public debt. It will then be for the Union to argue that this effort is not enough and delay entry *sine die*; or accept the *de facto* transition periods that are revealed by the expenditure estimates and that can only be undertaken after accession. The balance of the moral and technical arguments – financial prudence – will favour the candidate countries, putting the onus of acceleration of the investment programme back to the issue of EU transfers.

A more recent (June 2001) estimate by the Commission (European Commission, 2001), largely based on detailed national planning in the candidate countries, lowered the estimate by 10 to 20%. See Table 3.

Table 3. 1997 figures compared with revised financing costs (2001) (€ billions)

	BG	**CY**	**CZ**	**EE**	**H**	**LV**	**LT**	**MT**	**PL**	**RO**	**SK**	**SI**	**Total**
Total cost estimates (1997 study)	15.0	1.1-1.3	13.4	1.5	13.7	1.7	2.4	N/A	35.2	22.0	5.4	1.84	122.6-122.7
Total costs (recent figures)	8.6	1.09	6.6-9.4	4.4	4.1-10.0	1.5-2.4	1.6	0.13	22.1-42.8	22.0	4.8	2.4	79.3-110.0

Sources: EDF (1997) and European Commission (2001).

In order to devise timely policy responses, it is necessary to look in detail at the aggregate figures, understand the microeconomic choices hidden behind "working assumptions" and focus pre-accession cooperation much more directly on the broader institutional context in which microeconomic decisions on environmental investments are taken.

Since the newer figures are not based on a common methodology, some of the following discussion of the assumptions is based on the previous 1997 study.

2.3 Putting investment costs into perspective

The headline figure for needed investments – some €110 billion – is both too high and too low. It is misleadingly low because the follow-on costs, especially for public budgets, are not properly counted: financial costs, routine operating costs and maintenance. The estimates are, however, unnecessarily high as regards the *initial* investment, as they reflect a world of traditional public planning and pricing that leaves large efficiency reserves unexploited. This is the core concern of this study.

The following table shows that in the case of Poland at least, the estimates of investment costs of the EDC study are roughly twice those of two other studies undertaken at roughly the same time.[6] More precisely, the EDC estimate corresponds to the upper range of the World Bank estimate, but is twice the lower range. *The difference between these two describes the scope for policy.*

Table 4. Comparison of investment costs for compliance, Poland

Sector	WB estimate ($ billion)	TME estimate ($ billion)	EDC estimate ($ billion)
Drinking water	3-8	0.1	5
Wastewater collection and treatment	9-13	8	16
Local and long-range air pollution	5-14	5	16
Waste	3-4	4	3-4
TOTAL	**19-39**	**17**	**40**

Source: World Bank (1999b, Table 3.2, p. 16).

[6] On the other hand, studies undertaken by Hungary, Estonia and others reportedly confirm the EDC estimates. One can only speculate as to possible methodological and even political reasons for these latter results.

2.3.1 Unit costs

The baseline figure for all approximation cost calculations is the unit cost of installations and works required to treat sewage, retro-fit power stations, etc. By way of example, the following table shows truly striking cost ranges found in various studies for one particularly technology-intensive item, the control of air pollution from "heavy combustion" sources.

Table 5. Unit costs for air pollution control technology

		Cost/unit (NLG/kg)	
		Low	**high**
SO_2	Power retrofit (85%)	1.00	1.80
	Power retrofit (85-95%)	2.50	6.0
	Power new (85%)	0.90	1.50
	Power new (85-95%)	2.10	4.50
	Industry (limestone washing/fluidised bed)	1.10	1.70
	Process		
	Degussa	3.40	12.20
	Limestone	10.00	25.00
	Lye stripping	3.00	9.00
NOx	Fireplace adjustment		
	Gas	0.40	3.20
	Coal	0.40	3.80
	Low NOx burner		
	Industry	0.80	4.20
	Small boilers	6.60	13.30
	Gas turbines	0.80	2.50
	Steam injection turbines	2.80	20.00
NOx -OUT	Ureum	0.70	2.50
SCR	Gas	7.00	55.00
	Coal	17.00	140.00
Flue gas recirculation(NOx)	Industry	1.70	13.00
	Small boilers	25.00	55.00
Gas cyclone (particulates)	Coal	0.04	0.12
	Brown coal	0.05	0.15
2-step electro filter	Coal	0.00	0.46
	Brown coal	0.00	0.57
3-step electro or cloth/fabric filter	Coal	0.57	5.70
	Brown coal	0.64	10.00

Source: EDC (1997, p. 73).

The figures indicated in Table 5 show at least a range of 1:2 between the lowest and highest estimate; many show a range of 1:3; and some show a difference of 1:6 between the lowest and the highest figure!

These differences can be partially explained by scale economies and differences in technology and performance. More important are differences in the prices charged by different manufacturers. These differences point to the importance of transparency and sophistication in the procurement process. In policy terms, this suggests:

- the need for true international tenders, unconstrained by the promise of national or corporate supplier credits, and
- the importance of associating third parties, in particular banks, as sources of techno-economic know-how.

The good news is that these 1997 prices, whether high or low, are falling in real terms[7] over the period relevant for *acquis* compliance. In engineering, real unit prices tend to fall as manufacturers streamline their processes and write off initial development costs over larger deliveries.

This relationship is pointed out in most studies, but is then ignored in modelling the future capital costs of accession.

Unit cost data provide, however, an incomplete picture of the possible technical cost savings. They take the size of the plant as given, although sensible policies may reduce demand for power, water or waste treatment. In the power sector, the seeming need for costly retrofitting an old plant may simply be avoided by shutting it down. In the water sector, the most dramatic savings derive from the scale of the plants. These can be both too large, compromising the technical efficiency especially of bio-mechanical processes, or too small, i.e. below the most efficient scale.

At this stage of the argument, the general point to make is that the initial purchase price of capital goods is not a fixed sum and leaves a large, in some cases very large, scope for cost savings. A second cost factor, which may already be prejudiced by poor choices in the initial investment, is annual operating costs – labour, maintenance, energy consumption, etc. The knowledge with which to make efficient decisions can be obtained or purchased. The critical point is the incentive to do so, i.e. creating a framework that imposes economic discipline in a full, life-cycle perspective. Equally important, especially for scale economies, is to

[7] European Commission (2001, p. 7).

place decision-making power at the appropriate level – which may not be the municipalities which are often the most readily available project promoters.

Therefore, the preliminary conclusion to draw is that it is very short-sighted and, as will be shown, counterproductive, to consider finding finance for investment as the main critical variable for public authorities – local, national or European. The (economic) quality of investment should itself be considered a strategic vector, requiring attention to the framework in which decisions are taken, i.e. to institutional issues.

2.3.2 Investment costs and true costs

The initial purchase of equipment or construction cost is only part of the real cost to either the economy or the budget. The broader, more realistic measure of spending on the environment imposed by the *acquis* is the sum of:

- the initial investment,
- financing costs and
- current operating costs.

Current operating costs can be divided into: 1) the daily management of the facility, including manpower, raw materials and energy where applicable; and 2) annual maintenance and major maintenance cycles, and associated spare parts expenditure.

The usual method used to estimate the true costs of investment is to take the initial investment cost and to add a sector-specific percentage of operating costs and a cost-of-finance charge. This approach has two drawbacks.

First, the operating costs are themselves potential targets for policy. In the public sector, for instance, high manpower levels and unrealised outsourcing opportunities often double the costs compared to those obtainable under efficient management regimes.

Secondly, counting all operating costs of new investment as additional to the status quo neglects the cost of operating existing facilities under an implied no-investment reference case. Old power or water plants in the CEECs have inordinately high maintenance costs, not least because the replacement rate of worn-out parts is very high and constitutes a disguised and permanent form of "investment". These plants may also have a technically determined low-labour productivity, which is added to the politically imposed over-manning.

The table below seeks to show schematically how a new plant, by adding 30 cost units to the headline *acquis* investment account, may actually save 10 units of public expenditure over the life of the investment. The logic is the same that causes capital equipment to be so rapidly replaced in the private sector – cycles of five years for productive machinery are not uncommon in manufacturing. But even in the slower-moving world of heavy utilities, capital rejuvenation pays for itself over time in productivity – with the environmental improvement as merely a bonus.

Table 6. Net savings through investment

	Capital cost	Maintenance	Operation (15 years)	Total
Status quo	0	40	50	90
New facility	30	20	30	80

The lower operational costs assumed are derived from technical progress inevitably incorporated into new plant:

- a modest 3% compound labour productivity improvement over 20 years, and
- a substantial savings in energy efficiency and use of raw materials where applicable.

However, this sort of calculation provides some comfort only as regards replacement investment, e.g. of old power stations. For the single most important sector of expenditure, water, this is less relevant. The treatment facilities and sewerage systems mandated by the *acquis* are often additional to what exists today, so that associated operating costs must be fully counted. The same applies to waste facilities, whether discharges or incinerators, that replace "costless" unregulated dumps.

2.3.3 The cost of finance

In calculating the annualised costs reproduced elsewhere in this study, the World Bank used a 12% rate for the cost of money. This method of calculation is questionable, since it is partially derived from a different decision-making context. When judging the economic viability of a single project, *including social economic returns,* the Bank applies a threshold, which used to be 10% and now is 12% for the CEECs. This helps the public sector to think in terms of opportunity costs and thus to use public money prudently.

A desirable rate of return, however, does not equal the actual cost of money, especially in an area where sovereign-guarantee loans are available. A more common assumption, which is reasonable for at least the more politically stable and larger countries, for much of the forecast 15-year period would be a 3% real interest rate for money largely borrowed by central government and/or obtained through IFI credits. The difference between the two rates, assuming a 15-year payback period, is 58% of the total capital cost. That is, a plant costing €100 million would require a total budget outlay of either €196 or €124 million – a difference of almost 60%.

In one World Bank country report (World Bank, 1999a, p. 173), the 12% interest rate is assumed specifically for the Czech water sector, with the argument that investors in the privatised (and comparatively low-risk) UK water sector are claiming 6-9% as their cost of capital. But not only are these UK rates presumably nominal rates and combine bank debt with expensive equity, they also apply to a non-recourse, i.e. non-sovereign guarantee, environment without access to preferential IFI lending.

2.3.4 The *acquis* cost/GDP ratio

One of the striking features of studies estimating environmental *acquis* costs is that total costs (investment plus operating costs) are only shown on a per capita annual basis and not expressed as a percentage of GDP. Only the crude initial investment costs are shown in per GDP ratios. In the only case where total annual costs have been expressed in terms of GDP, it is as a percentage of 2015 GDP. This still yields a high figure, although GDP will have more than doubled by then. The true picture emerges if one compares these annualised expenditures to the GDP of the early years.

Recalculating a World Bank estimate that shows a 3.7% share of total environmental accession costs in 2015 GDP for (only!) the three most important areas yields a cost of compliance of over 7% of GDP in 2000! (see Table 7).

Even with the caveats on possible overestimation regarding unit costs, financing costs and net operating costs, these figures are truly daunting, especially as they exclude non-compliance-related spending from environmental and administrative expenditures. Assuming a "reasonable" expenditure on the environment at double the average EU figure of 1% of GDP, they suggest something like a 30-year transition period.

[8] World Bank (1999a), p. 173.

The usual representation of *acquis* costs in terms of per capita thus hides from view a crucial magnitude, which must be faced squarely by policy-makers. The implicit strategic issue cannot be settled in "chapter" screenings, but requires an early and comprehensive look at the figures before the Agenda 2000 review exercises in 2002 and 2003 and, *a fortiori,* assessing "Maastricht" compliance at the moment of accession and planning post-accession Regional Fund spending.

Table 7. Compliance costs as a share of GDP: Poland

Year	Air		Water		Total*	
	Low	High	Low	High	Low	High
2000	1.13	3.63	1.48	2.51	3.4	7.34
2001	1.08	3.46	1.41	2.4	3.24	7
2002	1.02	3.29	1.34	2.27	3.07	6.64
2003	0.97	3.15	1.28	2.18	2.92	6.36
2004	0.93	2.98	1.22	2.06	2.79	6.03
2005	0.88	2.85	1.16	1.97	2.66	5.76
2006	0.84	2.72	1.1	1.88	2.52	5.49
2007	0.80	2.58	1.05	1.79	2.41	5.22
2008	0.76	2.46	1	1.7	2.29	4.97
2009	0.73	2.34	0.95	1.62	2.19	4.72
2010	0.69	2.23	0.91	1.54	2.08	4.5
2011	0.66	2.13	0.86	1.47	1.98	4.3
2012	0.62	2.02	0.82	1.4	1.88	4.08
2013	0.59	1.93	0.78	1.33	1.79	3.9
2014	0.57	1.83	0.75	1.27	1.71	3.71
2015	0.54	1.75	0.71	1.21	1.63	3.53

* Includes additional sectors, such as solid waste management.

Source: Recalculated from World Bank (1999b, Table 3.1, p. 15). Assumed GDP growth is 5% per annum from 2000-15.

In the following sections, two approaches are used to reduce these numbers to tolerable proportions, keeping in mind the promise of savings at the level of unit costs (Table 5) and the wide spread in estimates in aggregate costs (Table 6). The first is to look at the share of these costs which occur in the market (tradeables) sector, where they all but disappear in a broader competitiveness perspective. The second approach is to look at public-sector spending and explore ways to lower the costs of compliance through improved management and efficiency-oriented policies.

Before turning to these matters, two short comments may serve to provide a preliminary measure of comfort when faced with the discouraging numbers of Table 7. The first concerns the impact of growth

on expenditures; the second points out economic and even budgetary benefits to be derived from environmental investment.

2.3.5 Macroeconomic factors

Economic growth assumptions have a misleadingly perverse effect on numbers for the cost of *acquis* investment. Thus, a 5% compound growth rate almost doubles the calculated energy needs for industry by 2015 and hence the cost of associated abatement investments. For cars, it almost triples the numbers and thus the notional costs of "adding" catalytic converters.

In fact, the real financial problem of meeting the *acquis* is more manageable under a high-growth scenario. The rate of capital rejuvenation – i.e. closure of older capacity – accelerates under higher growth, allowing investment in new capacity with built-in pollution abatement. Tax receipts rise faster than growth itself (higher incomes and profits yield more than proportionally higher tax receipts), thus making the provision of quality public services more affordable. Moreover, in the case of one heavy-investment sector, water, private demand would rise only modestly under a high-growth scenario, i.e. more money would be available to pay for the same physical investment.

This does, however, underline the need for "sustainability", i.e. the adoption of environmental policies that do not damage economic growth either through a general rise in costs or through an induced permanent fiscal crisis which would lead to a permanent austerity stance in economic management.

2.3.6 Benefits

Some representations of the environmental cost of accession treat these costs as a deadweight loss on the economy – a kind of accession tax paid to satisfy the preoccupations and values of rich Protestant countries in the EU. Even the IFIs speak of long-term benefits that are difficult to explain to cash-strapped consumers who may have to pay more for their daily needs.

The Commission is about to publish a study that examines the benefits side in some detail. In our effort to put the "headline" figure of accession costs into perspective, it is worth flagging some of these benefits – i.e. those that translate into cash savings and/or improved tax returns for public authorities from a more productive private economy. First among these monetary socio-economic benefits is health. Public expenditure is avoided by a reduced incidence of sickness, such as that caused by

lowered resistance through an ambient cocktail of chemicals, respiratory illnesses, hygiene compromised by a lack of sewerage, etc. The economy benefits from fewer work days lost and the higher productivity associated with wellness. This same study estimates these benefits at around 3% of GDP annually.[9]

Another sector likely to benefit is tourism, both in urban and natural settings, where less grime on buildings and better air quality add to the attractiveness of the urban and rural patrimony in the CEECs. Foreign investment has been shown to respond to the attractiveness and safety of competing locations.

It is likely that all these benefits together may add up to at least 0.2% of GDP, which would net out one-tenth of an assumed 2% of GDP spent on the environment. Other benefits of an improved environment, however, take the form of a direct, if non-monetary consumer benefit – cleaner air, safe drinking water, a landscape free from unsightly and dangerous landfills. These benefits do not show up in GDP, but represent as much real value as a better consumer product commanding a premium price. (Many of these benefits are, of course, actually paid for through higher user charges and cannot be double-counted in a non-monetary benefit argument.)

[9] These numbers are not directly relevant in a public finance perspective, as they use i.a. value-of-life estimates based on individual preferences rather than, say, human-capital productivity.

CHAPTER 3
INVESTMENT BY PRIVATE INDUSTRY

As stated in the introductory chapter, only the public budget (deficit) constitutes an absolute, non-negotiable constraint on the candidate countries' ability to carry out *acquis* investments. A considerable share of the total investment charge falls, however, on manufacturing industry. Thus, data for the Czech Republic show that half of the "big-ticket" expenditures in the field of air pollution and waste management can be shifted off the public budget under certain assumptions.

An even-larger private share is obtained if the power (generating) sector is also counted in this category, as electricity is now becoming an internationally traded sector. The industrial tradables sector as a whole thus represents the single-best hope to shift *acquis* investment off-budget.

In this chapter it is argued that it would be wrong to consider these investments as a "charge" on the nation in the same way that investments by public utilities are often regarded. However, in reality, many heavy engineering and large chemical companies in the CEECs are still under public ownership or, even if formally privatised, depend on the public banking sector for working and investment capital – effectively subsidies. In both cases, environmental investment ultimately generates a charge on public accounts. This may be one reason why both CEEC and EU *acquis*-compliance estimates do not clearly distinguish between public and private costs of compliance.

By 2005, however, with few exceptions, private or mixed ownership of industry will be the rule in countries seriously considering accession, if only because the reform of the banking system will remove the means of subsidising such enterprises by the backdoor.[10] In a more long-term perspective, the assumption that "industry" means private, and hence off-budget investment, stands.

The case of power is a special one, as this sector shares some of the characteristics of (other, public) utilities considered in Chapter 5. However, as is explained in section 4.2 below, it can and should largely be treated like manufacturing industry, at least as regards generation.

[10] For a description of state subsidies via the banking sector and government guarantees, see e.g. World Bank (1999a, Chapter III on "Contingent Liabilities" and Chapter VII, "The Financial Sector").

3.1 Investment by manufacturing industry

The main directives relevant to the manufacturing industry and their associated investment costs are summarised in Table 8 below.

Table 8. Private sector acquis *investment*

Directives	Heavy investment	Other investment
Nitrates Directives	Animal waste storage facilities Waste treatment systems	Water quality monitoring Modelling systems
IPPC Directive	Pollution control systems New processes (cleaner technologies)	Air/water/groundwater monitoring
Dangerous Substances into Water Directive	Wastewater treatment systems New processes (cleaner technologies)	Water quality monitoring Modelling systems
Hazardous Waste Incineration Directive	Hazardous waste incinerators	Waste collection/transport Air quality monitoring
Solvents Directive	New processes (cleaner technologies) Air pollution control systems	Air quality monitoring
Large Combustion Plant Directive	New processes (cleaner technologies) Air pollution control systems	Air quality monitoring

Source: ECOTEC, Internal working paper, PEPA project.

There are no global estimates for compliance costs to industry as such. Some figures can help, however, to illustrate the nature and size of the investment effort.

Table 9 refers to *annualised* costs of compliance with the waste directives for Polish industry. It shows that the largest costs arise from responsible management of industrial waste in the non-ferrous metal industry and hazardous waste for the chemical industry.

The costs of compliance to the EU *acquis* to be borne by industry are not limited to investments. Water and electricity tariffs will rise significantly, as will the cost of waste disposal by third parties. From an internal market perspective, this rise in costs is desirable – much of the fear of

environmental dumping ("distortion of competition") relates to potentially lower current costs.

Under a rigorous privatisation scenario, the cost of investment itself is taken off the public budget but the administrative cost of insuring compliance rises. This not only involves public spending on qualified manpower, but also physical investment in monitoring and testing equipment.

This is eminently an area where 75% grant funding from ISPA could play a role. Provided demands for such equipment are bundled so as to exceed the €5 million threshold operated by ISPA, linking such demands for funding to integrated plans, such as basin development, would greatly strengthen the chances of receiving funding. More generally, however, the upgrading of "administrative capacity" required under the *acquis* should be given high priority, if only because the presence of an effective inspection mechanism is the only credible signal for many, especially smaller industries, that controls are serious. "Cowboy" investments, including those by foreign SMEs hoping to benefit from transitional weaknesses of enforcement structures, can thus be discouraged.

Table 9. Annual costs for the Polish Environmental Policy Plan, 2000, additional costs in comparison with 1991. "High-growth market-based policy" scenario (MECU)

Sector	SO_2	NOx	Particles	Total
Paper	5.78	0.94	10.63	17.34
Refineries	24.65	5.10	0.85	30.60
Org. chemicals	17.77	1.70	12.07	31.54
Fertiliser	6.55	0.34	5.36	12.24
Other chemicals	43.35	3.15	65.28	111.78
Iron and steel	125.89	4.08	35.28	165.24
Non-ferrous metals	33.83	0.34	9.61	43.78
Power	263.25	96.63	349.44	708.31
Total	521.05	111.27	488.5	1,120.81

Source: EDC (1997, Table 5.4, p. 74).

The budgetary expenditures for enforcement are, however, partially offset by savings from the public budget derived from effective enforcement itself. Thus, to the extent that industries treat their effluents before discharge, both the *public costs of drinking water purification and sewage treatment* can be reduced. Similarly, the cost of cleaning up waste dumps and managing existing ones is not unrelated to the enforcement of directives dealing with solid and hazardous wastes from private industry.

There should thus be strong resistance by the candidate countries' negotiating teams to pleas for transition periods from domestic industries, or to collusion in non-enforcement once *acquis*-conforming legislation is adopted. It is not just the environment minister who should object, but the finance and health ministers as well.

> Initially, mass "privatisation" has not necessarily led to better economic or environmental performance in enterprises. In some countries governments hold minimum shares in enterprises and sometimes provide credits and subsidies that shield these enterprises from competition. In other countries, the new owners are former managers from the period of state ownership who have found it easier to maximise personal wealth by selling corporate assets and obtaining subsidies than by improving corporate performance in the marketplace. In addition, political will to enforce environmental requirements has been weak in many countries (OECD, 1998).

3.2 The Internal Market

The Internal Market is one of the most powerful driving forces of environmental policy-making in the Union, as concerns over market distortions require EU-level action related to environmental problems that might otherwise have been left to national action.[11]

National environmental policies can distort the market in two principal ways:

- The regulation of process technology to the extent that this affects costs, and
- product standards.

Initial concerns over environmental dumping as a result of Eastern enlargement were chiefly related to process-relevant regulations. The effect of varying product standards on the Internal Market is subtler. Business incurs costs when it has to adjust products to different markets. This is not only true for exports, but may also occur when producing

[11] This can have a downside in holding back environmentally advanced countries which, on the other hand, have an interest in the adoption of their potentially costly standards at the Community level. Whatever the balance as regards environmental protection, it remains true that without the Internal Market there would be far fewer binding rules at Community level.

locally (FDI) and when design, capital equipment and supply chains have to be adjusted to suit different requirements.

In the enlargement negotiations, the concerns of the Industry Directorate as expressed in its White Paper on the Internal Market and the Environment seem to be limited to this aspect:

> The White Paper includes legislation which directly affects the free movement of good and services, leaving out legislation which relates to pollution from stationary sources and to *processes rather than products*...[emphasis added]. The result is that most environmental legislation is not covered.[12]

By implication, this larger share of the environmental *acquis* is a matter for environmental policy as such.

The consensus of the business community closely parallels this assessment. It insists that the environmental *acquis* related to product standards must be implemented in full before accession, while the implementation of process standards is negotiable from an Internal Market point of view.[13]

Both of these stances seem to conflict with a diffuse concern over competitiveness present in both the candidate countries and the Union. Some in the present EU fear that permissive process standards within a larger single market would lead to environmental dumping. For the candidate countries, there is a fear of being forced to make costly additional investments that would erode their ability to compete and, at the margin, force them to take some plant out of production altogether.

3.2.1 The environmental effects of competitive capital rejuvenation

Both sets of fears are largely unfounded. In making this argument, one needs to distinguish between the manufacture of finished products on the one hand, and bulk commodities such as steel, aluminium and other metals, bulk petrochemicals, etc. on the other.

As regards finished products, the option of gaining market share through cost advantages from "dirty" production methods is not really available. Old, polluting capital equipment *is also inefficient with respect to energy*

[12] http://europa.eu.int/comm/internal_market/en/update/general/263en.pdf (June 1999).

[13] An exception is electric power generation; see section 3.2.2 below.

and labour productivity, outweighing any advantage from polluting practices. Secondly, such plant cannot deliver the product quality (precision, uniformity and reliability) required in an increasingly sophisticated market for capital goods, components and consumer goods. Such plant will therefore be scrapped after enlargement, if not before.

When such outdated plant is replaced by modern equipment, this has to be procured from Western capital goods producers, which have "internalised" decades of environmental legislation. Such plant may not fulfil the criteria of "clean technology", but it is designed to minimise environmental impacts as imposed by current law.

Perhaps surprisingly, some of the same mechanism applies to much of the lower end of manufacturing, i.e. processed or semi-finished commodities. Here too, product-quality standards and consistency demanded by industrial customers are of growing importance and require new, sophisticated process technology. Another powerful economic force requiring the scrapping of old, polluting plant is the price of energy.

Since 1997, the EU Commission has insisted that all new investment in the candidate countries had to fully comply with the regulatory *acquis.* This means that the very notion of transition periods for the *acquis* as regards the regulation of industrial processes can only relate to older capital stock, which is rapidly shrinking anyway and indeed is condemned to be replaced in an enlarged market by competitive forces. "Grandfathering" existing plant beyond the date of accession would just delay the inevitable. In practice, these plants would need to be subsidised and their markets limited to non-OECD customers.

Thus, if candidate countries are concerned over the gap between the environmental performance of their industries and the *acquis*, and worried about the cost of meeting the *acquis*, they are simply underestimating the much larger process of capital rejuvenation triggered by integration into the European market, and hence overestimating the cost of environmental compliance.

Does this mean that the roughly one-third of estimated compliance costs that occur in the tradable sector can be removed entirely from the calculus? Yes, as regards the public budget, assuming full privatisation and/or the full application of EU rules regarding subsidies. No, to the extent that the built-in *acquis*-conformity of modern productive plant does not cover "optional" end-of-pipe treatment of effluents or emissions.

To survive in the pricing and quality environment of the Internal Market, these plants have to be closed down or refitted in any case. Privatisation prior to environmental investment may mean that the government

receives little or no money for the sale of large physical assets. But this low market value simply reflects reality. Hiding that reality through the public banking system will, at any rate, not be an option much longer. Under status quo practices, these industries and power stations are a liability for the economy, for the budget and most certainly for the environment-*acquis*-readiness of the countries concerned.

3.2.2 Power generation

The problem is more complex in the power sector. Here, effective EU liberalisation is a near-term prospect. However, the market perversely rewards old polluting plant – the reverse of the situation in manufacturing. This advantage derives chiefly from the fact that these are older plants whose capital cost has been written off, while newer plants in the EU that conform to the *acquis* must still amortise their cost of capital. In this area, therefore, Internal Market requirements strongly suggest the need for a 100% technical compliance at the moment of entry. (For the purpose of competitiveness, it may be sufficient to have "financial closure" of investment projects, as this would affect pricing immediately.)

This would either require retrofitting old power stations, or replacing them with new, e.g. gas-powered, plants. In either case, any power station still in public ownership would pose a major burden on public budgets. There is thus a strong case for transferring power generation totally to the private sector – a process far advanced in many candidate countries.

The importance of the power sector in the overall expenditure for air pollution control appears from the following table for the Czech Republic. More importantly, this shows that the quasi-totality of expenditures for *acquis* compliance would fall on the private sector under a radical privatisation scenario. The estimate by the World Bank assumes a roughly 50/50 split between the public and private sectors, in part because district heating – typically municipal utilities – requires extensive interventions. With a privatised power sector, the split would be about 30/70, taking two-thirds of this large item off the public accounts.

Table 10. Cost estimates for air pollution control in the Czech Republic (in millions of €)

Item	Investment		Recurrent	
	Low	High	Low	High
Extension of the state administration	-	-	1	2
Monitoring improvement	-	-	6	6
Stationary pollution sources (adapting incinerators)[a]	28	28	6	6
Stationary pollution sources (new incinerators)[a]	275	413	55	83
Avoiding water pollution around incinerators	8	8	-	-
Improving oil production technology[b]	275	275	28	28
Elimination of asbestos	17	17	-	-
Elimination of ozone-damaging compounds	28	28	-	-
Finishing effective salvage network	14	28	-	-
Improving forest protection against air pollution	-	-	1	2
District heating[c]	250	623	44	125
Power sector[d]	182	182	27	27
Overall cost	**1,074**	**1,628**	**164**	**274**
Of which financed by local government (%)	41	48		
Of which financed by private sector (%)	58	52		

[a] Recurrent expenditures were estimated at 20% of capital costs.

[b] Recurrent expenditures were estimated at 10% of capital costs.

[c] These calculations are based on the need for 3,600 MW new generating capacity (380,000 households living in 60-square meter apartments consuming 0.16 kW per square meter). The high estimate assumes that all of this capacity will be coal-fired and the cost of fitting pollution control equipment is $150 million/1,000 MW for SO_2 reduction and $20 million/1,000 MW for NO_x reduction. The low estimate assumes that half of the new generating capacity will be gas-fired, which requires no additional expenditure to comply with environmental standards, and that the cost of meeting both SO_2 and NO_x standards on the coal-fired portion of the new plant will be $120 million/1,000 MW.

[d] It includes additional strictly environmental investments by the Czech Power Company, CEZ.

Source: World Bank (1999a, p. 181).

3.2.3 Waste management

Similar comfort can be drawn from the table below on waste management. Here, too, half the expenditure – in the particular case of the Czech Republic – would fall on the private sector.

Table 11. Waste management investment and recurrent costs (millions of €)

Element	Cost type		Financed by[c]
	Investment[a]	Recurrent[b]	
General directives			
-Reinforcement of state administration		3.3	S
-Building	2.8		S
Waste management installations			
-Reconstruction of hazardous waste incinerators	15.2	1.5	P
-Process 50% of landfilled bio-degradable waste	84.6	11.7	M
Specific types of wastes (including packing waste)			
-Elimination of oil waste – shutdown Ostrava Plant	8.3	1.7	P
-System for collection and landfilling of oil waste	13.8	1.2	P/M
-System for collection and landfilling of household waste	13.8	1.2	P/M
-Disposal of PCB waste	82.6	22.0	P
-Collection and recovery of packing waste	33.1	16.5	P/M
Total	**254.0**	**59.2**	
Municipal budget (%)	51	38	
Private sector (%)	**48**	**56**	

[a] This represents a low estimate. A high estimate can bring the total investment cost to about €392 million, with the difference being borne by the private sector.

[b] This represents a low estimate. A high can bring the total recurrent cost to about €97 million, with the difference being borne by the private sector.

[c] It indicates source of financing, i.e. S means state budget, P means private, and M means municipal or local government budget.

Source: World Bank (1999a, p. 179).

CHAPTER 4
MARKET EFFICIENCY AND THE COLLECTIVE INTEREST

The evidence presented in the first three chapters suggests *inter alia* that a) there is considerable scope for techno-economic efficiency savings and b) some of the public-budget constraint can be avoided by the privatisation and competitive modernisation of (manufacturing) industry. But most of the investment burden falls on the water and waste sector, i.e. public service utilities, as well as on power, which combines market and public service elements. Thus, optimising investments in utilities – achieving the largest environmental impact for the least cost – becomes a strategic policy vector for matching the legal and environmental ambitions of the European Union with available resources.

The remaining chapters argue that, to alter the status quo, EU policy should not be limited to enforcing quantitative targets, but should focus directly on the microeconomic and institutional context in which investment decisions are taken. More specifically, minimising the true cost of these investments, i.e. including follow-on operational costs, requires institutional structures for decision-making that are subject to real economic disciplines and take into account the full life-cycle cost of investment decisions. Last but not least, this section points to the need for policy at national and EU level to encourage administrative structures and levels of decision-making that correspond to geographical, ecological and technical scale requirements. In particular, the size of undertakings, and hence of physical plant and networks, should not be defined by the formal devolution of responsibility to hundreds of municipal governments that typically dominate the public utility market.

The importance of the institutional framework as a crucial vector for achieving the ambitious environmental investment targets required for *acquis* compliance is not currently recognised in the policy thinking of the European Union. Rather, its thinking is bound on one side by law-defined investment and quantitative targets and by administrative tests of compliance based on sector expenditures on the other. The notion of sustainability – i.e. of long-term social, economic and environmental viability of political choices – has not found its way from EU rhetoric to the daily work of environmental *acquis* compliance in the CEECs.

4.1 Efficiency and collective purpose

In theory, economic activities that are under public control or ownership could be expected to lead to the implementation of public interest goals

such as protection of the environment. The evidence shows that paradoxically, it may be much more difficult to deliver environmental improvements in certain public utilities than imposing them on the market sector.

At a general level the reasons are similar to those explaining the dismal performance of the pre-1989 socialist economies in environmental matters as compared to the capitalist west. In the west, there was an arms-length relationship between the public and the private sectors which, however compromised by corporate lobbying, managed to define the public interest and set and enforced standards. In the pre-reform east, the producer and the controller were part of one institution, government, with the producer view easily winning.

Devolution of effective ownership of utilities to the municipal level has in theory improved chances for (regulatory) arms-length control by a central government agency. But financial leverage of the centre has been reduced by greater administrative and financial autonomy granted to municipalities. Leverage has also been reduced by the substantial cuts in subsidies from central government. As regards investment in water and waste management, therefore, short-term expediency – bad projects are better than none – have taken the place of comprehensive planning. Expensive western suppliers armed with ready-made financial packages have been chosen over intrinsically cheaper solutions. As will be argued in Chapter 6, section 3, the Union's own need to disburse IPSA grants as quickly as possible, and the CEEC governments' need to demonstrate "action" as regards pre-accession compliance, also act as support for existing institutional structures.

Devolution of responsibility of supplying water services to the municipal level led, for instance, to the creation of 300 water companies in Hungary, destroying effective levers of government planning at the requisite geographical and technical scale. Experience in Western Europe shows that local governments can cooperate to establish water (and public transport) services which respect physical rather than administrative borders. But on a voluntary basis, this may take decades, given the loss of patronage involved. The CEECs are not promising grounds for such self-denial by politicians.

Thus, as regards municipal utilities, the old socialist stress on productive output over other social concerns is no longer the main obstacle to environmental investment. Here, the "producer" interest takes the form of institutional interests – the nexus between politics and public economic agents. At its most straightforward, social goals other than the

environment are assigned higher priority, notably employment in the utilities (which crowds out investment funding) and low prices to consumers. At a less respectable level, utilities are an important source of patronage for politicians. One way to persuade politicians to give up this precious asset through privatisation is, of course, corruption, which is endemic in the water and waste sectors, worldwide.[14]

Paradoxically, the traditional socialist priority of producer interest over the environment is now *de facto* shared by western institutions concerned with financial sustainability and growth. Thus, in both the IMF's and the Commission's macroeconomic models, public investment is assumed to "crowd out" private investment and reduce growth. While the road from modelling to concrete policy is not direct, the bias against public investment is institutionalised, resulting not only in a general squeeze on public investment, but also support for private investment in utilities even where it results in high long-term costs to public budgets and/or citizens.

4.2 Off-budget finance

This section examines the implications for investment efficiency of different forms of financing other than public budgets. "Private finance" is generally discussed either as an alternative source of money or used synonymously with privatisation. A closer look at the models being practised in the world of public-private partnerships (PPPs) shows that only second-best options are available. Nevertheless, the potential for financing methods to improve the economics of environmental investments is considerable.

Table 12. The investment strategy of the Czech Republic: Environment approximation (2000-05)

Source of financing	Year (mil. CZK)					
	2000	**2001**	**2002**	**2003**	**2004**	**2005**
Private sector	18 713	24 815	28 465	19 690	16 880	14 500
State budget	1 906	4 045	3 165	2 147	1 865	1 659
State programmes	1	60	60	60	50	50
National Property Fund	5 000	5 000	4 700	0	0	0
Local budgets	2 320	5 400	5 500	3 200	2 700	1 800
Foreign grants	1 120	1 230	1 045	1 045	1 040	1 010
Foreign loans	1 100	2 710	1 210	1 210	600	0
State Env. Fund	2 000	2 290	2 310	1 850	1 500	1 000

Source: Czech Republic (1999).

[14] See e.g. Hall (1999).

Table 13. The investment strategy for the Czech Republic, allocation by source and destination

Area of Intervention	**Private sector**	**State budget**	**State programmes**	**National Property Fund**	**Local budgets**	**Foreign loans**	**State Environment Fund**	**Total**
Horizontal measures	0	71	0	0	0	0	0	71
Air quality	10 340	115	30	0	0	30	0	10 515
Waste management	19 830	100	0	0	1 500	0	250	21 730
Water quality	69 293	14 012	251	14 700	19 420	6 800	10 700	141 706
Nature protection	0	241	0	0	0	0	0	241
Industrial pollution and control risk management	22 200	0	0	0	0	0	0	22 200
Chemical substances and genetically modified organisms	1 400	200	0	0	0	0	0	1 600
Civil defence	0	48	0	0	0	0	0	48
	123 063	14 787	281	14 700	20 920	6 830	10 950	**198 111**

Source: This table is composed from data taken from Czech Republic (1999).

Table 12 above has been re-calculated from data contained in a recent document submitted to the European Commission by the Czech Environment Ministry. It shows the private sector meeting over half the planned investment cost in the pre-accession period. This is all the more surprising when read together with the figures in Table 13, which shows the bulk of this investment going to the water utility which remains wholly in the public sector. Clearly, the term "private financing" is used, as sometimes in the west, as a synonym for bank financing.

The above figures imply, however, that three-fifth of investments are being shifted from the public budget or government funds, relying on para-fiscal revenues. In utilities,[15] however, such a shift to the private sector usually involves debt – whether domestic or foreign – backed by public guarantees and is thus counted as part of the national debt both by the IMF and the EU. Moreover, even current public budget deficits are exacerbated for the duration of the investment by the (subsidised) operational costs of new treatment plants, sewage systems, etc. "Private finance" that is understood as bank finance for traditional public utilities may thus contribute less than appears at first sight towards alleviating the long-term budgetary and debt burden of *acquis* compliance. As will be pointed out below, however, non-traditional finance is an often-necessary but not sufficient condition for introducing a framework for investment decisions which, through improved efficiency, does in fact save money.

4.2.1 The limits of private investment

True private investment comes in two forms, which are often combined in infrastructure investment. The normal form of financing productive investment in our economies is through corporate finance – debt or equity that is issued against the earnings of an enterprise and guaranteed by all its assets. Project finance, by contrast, is issued for a particular investment ("project") and against the earnings stream of that investment only.

Genuine "non-recourse" project financing is extremely rare in the sectors traditionally served by public utilities, whether transport, downstream energy, or water and waste. Project promoters usually contribute only symbolic amounts of equity, say 10% of total costs, which in turn is

[15] Improvements in "air quality", assigned 100% financing in the above table, will, as implied in Chapter 2, largely rely on normal corporate financing by manufacturing and privatised power companies, as will "industrial pollution control" and "chemical substances".

guaranteed by their corporate assets.[16] The rest is financed by a combination of loans, including some from the IFIs, which benefit from public guarantees ("recourse") and public grants. Under modern public accounting, as is required under the Maastricht criteria for economic and monetary union (and hence accession), public guarantees are counted as part of the public debt. However, the expenditure does not present a charge on current budgets. (Subsidies for) follow-on costs or social pricing do, however, fall on current public budgets.

The difficulty of applying genuinely private financing structures, whether in the form of corporate or project finance, is linked to two fundamental characteristics of these sectors. The weakness of the market (monopoly) and the regulation of prices (which reflects the "political" elements in these markets).

This is not the place to discuss in detail the different models developed especially in France and Britain to cope with the monopoly problem while allocating a large role to private enterprise in the provision of public services, e.g. concessions. Rather, we will discuss ways in which the form of finance can influence the economic quality of environmental investments even within a largely public (ownership) context.

In the ideological juxtaposition of private vs. public, the private sector is considered superior as regards cost control, technical innovation and customer orientation. Competition is crucial to this outcome; without it, the performance incentive is reduced to profit maximisation with a much weaker and sometimes perverse effect on efficiency-derived economic welfare.

4.2.1.1 The unsuitability of the private regulated monopoly model

To substitute the simple mechanism of market competition as a framework for private-sector monopolies by regulatory mechanisms requires an inordinately sophisticated public sector. Some countries possess this sophistication in abundance – the US with its regulatory commissions developed since the 1830s, France with its 200-year-old system of concessions and the UK with its new hybrid systems – and yet have produced only mixed results. For middle-income countries with weak administrations and weaker governance and where essential supervisory functions have been delegated to municipalities, managing PPPs is a daunting task.

[16] In practice, project promoters re-coup this 10% "risk capital" by adding it into their internal pre-bid calculations, as a margin to their supply price calculations.

In theory, such shortcomings in the CEECs can be mitigated or even avoided altogether through the participation of international financial institutions in public-private partnership arrangements. While the IFIs have certainly prevented the worst, certain institutional features prevent an entirely robust defence of the public interest. The World Bank has by far the deepest knowledge of the issues (closely followed by the more multi-cultural EBRD), but it does not always act accordingly. Political pressures at Governing Board level, and a general need to increase its lending portfolio combined with traditional banker's preference for bankability can lead to the approval of projects that fall short of a social optimum. The EIB has only limited staff resources to process its huge loan portfolio and is handicapped in its critical scrutiny by its institutionalised respect for the wishes of its sovereign borrowers. For all IFIs, the sovereign guarantees usually requested create a kind of "moral hazard".[17]

There is as yet only anecdotal evidence available as regards the performance of western utility companies taking over or building new networks or plants in the accession countries. In general, the following points can be made: The regulatory environment is, not unreasonably, in constant evolution. This either discourages investment or leads to large risk premia being factored in the internal calculations of investors. While the resulting terms may be initially accepted by authorities, they are subsequently viewed as unfair, giving rise to re-negotiations.

Nevertheless, it is becoming evident that the basic economic constellation remains unfavourable to FDI in utilities other than power generation. Basically, FDI implies the import of western equipment at western prices, to be paid for by consumers having a third or less purchasing power. In addition, costs are raised by comparatively high transaction costs (some 4% for legal and financial consultancy fees) and the risk premium mentioned earlier. A corruption "tax" of around 15% of contract value is quite common in the more southern parts of Eastern Europe, although this applies equally to mere supply contracts.

In addition, especially in the water sector, foreign companies have often behaved in ways that have de-legitimised their contribution in the CEECs. Foreign multinationals (mostly French and German) own specialised water construction and engineering subsidiaries which benefit from capturing works and maintenance contracts associated with water

[17] Economic agents take on more risk than they normally would in the expectation that some of their potential liabilities will be covered by others.

(service) concessions. "The high costs of works contracts was one of the factors that led the town of Debrecen in Hungary to abandon privatisation in favour of a public sector solution."[18] In many cases, the supply of equipment rather than the long-term provision of water services appears to have been the major business objective of foreign multinationals.

Studies[19] have shown that local authorities, through local procurement and competitive tendering, can often build facilities at a lower cost than western companies, although this may mean doing without seemingly attractive financing packages, including supplier (export) credits.

There are thus at least three reasons at present that argue against the seemingly convenient option of relying on foreign capital to by-pass the financing constraint faced by the governments of the accession countries:

- the weakness of regulatory capacity,
- expensive transaction costs and risk premia, and
- short-term profit maximising behaviour by foreign multinationals.

Does this mean that traditional public sector solutions are the only alternative? To answer in the affirmative would condemn a key sector of environmental investment to remain islands of state socialism, with all its shortcomings. The challenge, therefore, is to develop public sector models of efficient provision that mimic the market as regards incentives for efficiency. As the following section will demonstrate, external finance can play a crucial role not just as a source of funding, but as a management tool.

4.3 Finance as management tool

The manner in which funds for investment in municipal infrastructures are obtained has consequences for:

- the general economic discipline in using such monies, and
- the parameters taken into account in economic decision-making, notably life-cycle analysis.

All money, including central government funding for local government, can be considered as debt.[20] The extent to which this is taken into account

[18] Hall (2001).

[19] Internal EIB Memorandum(2000) and Lobina and Hall (2000, pp. 35-55).

[20] Ring-fenced receipts from pollution charges invested by environmental funds may seem an exception, but they do not alter the fact that government as a whole in the CEECs does not pay for investment with current tax receipts.

by the ultimate beneficiaries and for specific investment projects differs widely according to the form of financing chosen. The table below summarises the options available for utility investment. In practice, however, several of these methods may be used to "financially engineer" an investment. This may blur the lines of responsibility but also, on occasion, allows the use of "cheap" public money in combination with more expensive, but "disciplinary" external credit and equity.

The first case is the traditional one still favoured by some finance ministers even in Western Europe. Central government borrows at the official bond rate, with the borrowed money blending into the general (otherwise tax-financed) central budget. As regards investment, this treasury debt takes on the perceived quality of a grant, i.e. costless money, by the time the money arrives at its first destination, for instance a municipality. This illusion is re-enforced by the time the money arrives at the public utility. Outside scrutiny of the quality of the individual investment does not take place, as capital markets need to consider only the creditworthiness of the central government. The economic discipline imposed on the key technical decision-maker, the utility, is low, balanced by other incentives (see below) which maximise the scale and cost of the investment.

Moreover, under traditional budget funding, the investment is often considered in isolation, as a stand-alone budget line not explicitly linked to a "business plan" affecting annual budgets for another two decades. To judge by the frequent references in the literature to oversized waste and water treatment facilities, there appears to be some incentive to maximise the investment rather than to minimise the costs. The follow-on costs – operational and maintenance – are either not considered or, perversely, maximised as they can increase the importance of the utility and hence its claims on the budget and its weight in local employment.

Under the second option shown in Table 14, *municipal borrowing*, a key decision-maker – local government – has a direct interest in cost-effective solutions, as its total borrowing capacity is constrained. That same government is heavily dependent on the technical advice of its utility, however, which itself will also produce engineer-driven (or worse, supplier-driven) solutions under this scenario rather than economic ones. Moreover, the investment may still be judged as a once-off expenditure, without due regard for the long-term burden on municipal budgets (or, under cost-recovery pricing, on the local economy).

Table 14. Debt finance for utilities

Finance method	**Borrower**	**First recipient**	**Guarantor**	**Second recipient**	**Perceived quality**	**Lender scrutinises**
Treasury (bonds)	Central govt.	Municipality	Central govt.	Municipal utility	= Grant funding	Nat'n debt; portfolio*
Municipal borrowing	Local authority	Self	Central govt./ Municipality	Municipal utility	≈ Grant funding	Municipal debt
Public corporate	Utility	Self	[Municipality]	–	Debt	Utility
Public project	S.P. "vehicle"	S.P. vehicle	[Municipality]	–	Debt	Project
PPP	Shareholders	Project company	Shareholders	–	Debt	Project

*The IMF assesses both the quality and the amount of total public debt; the EU's test for adherence to the "Maastricht criteria" is chiefly quantitative.

This can change under the third option, i.e. when the public utility itself assumes debt directly. The extent to which this changes the incentive structure depends critically on the relationship between local government and its utility. If the government itself effectively takes all decisions, using the utility simply as a means of financial engineering, the outcome is identical to option 2 (municipal borrowing). If, however, government makes a transparent and virtually arms-length contract with the utility and guarantees the loan only partially and conditionally, two economic agents gain an interest in the efficiency of the investment decision.

The first is the utility itself, which now carries the loan on its balance sheet and must service this debt for decades. The second, no less important agent is the lender, i.e. the IFI and/or commercial bank, which must now undertake due diligence scrutiny and assess the economic viability of the investment.

However, the bank's main concern will still be the creditworthiness of the utility as a whole, not the individual investment. In other words, an expensive unit can be added to an existing network which, by raising all rates, effectively cross-subsidises the new plant. This is a common procedure in this form of project finance.

This changes under the fourth option, where the debt is attached to a specific investment through the use of a special project "vehicle". To obtain finance, promoters must not only present a "bankable" long-term business plan, including full life-cycle costing, but also submit to bankers' scrutiny the legal soundness and quality of contracts linking the project to the takers of its "off-take" contract. The interlinked nature of financial (investment) and downstream revenue contracts also protects the investment to some extent from undue political influence.

An example is a recent €81 million loan to finance the rehabilitation of the Jakusevac landfill in Zagreb arranged by the EBRD and summarised in the text box below.

The last option, public-private partnerships, can take many forms which make the private sector a risk-sharing partner. This does not necessarily mean private risk capital, but can involve a fixed-price turnkey contract, management contract, etc.

Assuming classic project financing, private-sector suppliers will typically provide equity together with the municipality. In theory, this creates an incentive to design and deliver the most cost-effective solution. In practice, as mentioned earlier, the (small, 10% of project cost) equity is often "priced-into" the cost of supplies. This can create the worst of all possible worlds, where the private sector gains the freedom implied in its

equity (ownership) status while maximising returns as a supplier to "its" company. Supplier credits may further weaken the discipline that might be exercised by financial institutions in an arms-length relationship.

A case of non-recourse financing in Zagreb

The loan will be extended to ZGOS, a special purpose company that has been established by the city of Zagreb for this project. The loan is guaranteed by the city and consists of a €45 million A-Loan from the EBRD's account and a €36 million B-loan syndicated to participating banks, led by Dexia Project and Public Finance International Bank (Dexia). This is the first international loan extended to the municipal sector in Croatia without a sovereign guarantee.

The city of Zagreb's strong creditworthiness and the EBRD's preparatory work, financial due diligence and involvement have been critical factors in making the financing structure bankable.

Source: EBRD press release.

4.4 A public sector alternative to privatisation

Financing/management structures that allocate debt and hence responsibility as closely as possible to the operational level while forcing lenders to look further than the closure fee can help to break the traditional nexus between public ownership and bureaucratic and politicised management of utilities. Provided the institutional framework is right, this creates options other than privatisation that require a level of deontological probity and technical sophistication unlikely to be present in all CEEC municipalities.

The solution with the least drawbacks appears to be the public limited company borrowing and investing on its own responsibility. This company concludes detailed performance and subsidy contracts with the political owners (local government), like any private company. During the past decade, this has become the standard model in most of Western Europe. It is also the model favoured by the EU in cases where privatisation is resisted, but where the option of competitive tendering for municipal and regional utility services thus becomes available.

However, seemingly similar formal structures regulating relations between city councils and "their" corporations had a variety of realities, with considerable impact on the parameters that interests us most in this context: efficiency and cost-savings.

Governance is in fact crucial to success. City councils must pass a number of self-denying ordinances, agreeing to:

- a maximum of managerial autonomy for the undertaking. Reducing competing technical and managerial structures in the administration to a minimum is one indicator of good faith in this respect;
- a board of management that includes outside members who are appointed for their knowledge and integrity, linked neither to the political system nor to economic interests directly involved; and
- an independent regulatory authority, i.e. foregoing the option of *ex-post* political rate-setting.

The public corporation should have a private legal status and be subject to standard accounting and reporting rules. A private minority stake can be an advantage, if it a) protects the corporation from political manipulation and b) brings in know-how. An equity stake by an IFI, such as is available from the London-based EBRD, fulfils these criteria.

The advantages of this solution are:

- cheap finance, as the risk premium is reduced through an explicit guarantee or implicit backing of the main, public shareholder; and
- a built-in limit either on neglecting broader social and environmental concerns in the pursuit of profit or on exerting undue political influence unconstrained by economic responsibility.

In order to deliver the maximum environmental effectiveness, however, such a structure must operate under a number of broader economic framework conditions. Only some of these are now becoming the object of European policy, including:

- cost-recovery pricing;
- economically/environmentally efficient size; and
- respect for the marginal cost (environmental utility) curve.

We now turn to these three elements of economic efficiency, each of which requires making difficult political choices.

CHAPTER 5
COST-RECOVERY PRICING

Utilities are the last refuge of the general practice in socialist economies of setting political prices for goods and services of primary necessity. Even in Western Europe, many utility rates were until recently subsidised or cross-subsidised under the service of general interest (*service publique*) logic. This practice is now largely limited to public transport, where an economically respectable case for such subsidies can be made to capture socio-economic, so-called non-user, benefits.[21]

(Higher) prices can make a crucial contribution to solving the problem addressed in this study: how to pay for environmental investment. First, higher prices reduce the wasteful consumption typical of the former socialist countries, which not only benefits the environment but reduces the quantity of investment needed to meet that reduced demand. Secondly, and more obviously, they provide the financial resources to fund investment. Less obviously, by lessening or entirely eliminating the need for subsidies, they also provide the basis for the autonomy of utilities and hence, again, for efficiency.

The positive effect of higher prices for both the environment and investment is best documented for the energy sector. On average, the CEECs' economies consume five times as much energy per unit of GDP as Western European economies. Even if the CEECs doubled their present GDP while at the same time achieving average Western European efficiency levels, energy consumption would be 60% lower than it is today. In other words, closing or not upgrading 40% of existing capacity could accommodate growth for the next 15 years, while allowing huge savings in investment, current costs and the balance of payments. In addition to large local environmental benefits, costless in cash terms, there is the promise of greenhouse credits once the European and Kyoto emissions trading schemes become fully operational[22]

Part of the computed efficiency gains from higher prices would be the result not of reduced demand from final consumers, but from more

[21] Even here, however, the level of subsidies often reflects the considerable inefficiencies deriving from the delivery of public services through public agencies operating on a cost-plus basis. The latter are protected from political scrutiny by providing politicians with well-paid supervisory board appointments.

[22] See Egenhofer and Mullins (2000) and current research on this issue at www.ceps.be

efficient plant forced on electric utilities and other industrial users. For the reasons explained in the preceding chapter, even without any additional regulatory constraints from the *acquis,* that plant would not only be more energy-efficient but also substantially cleaner per unit of output. Higher energy prices downstream would help to fund such investment.

Similarly, the low price of water charged to households, industry and agriculture leads to extraordinary waste. As a result, status quo-based planning for investment in treatment plants, sewerage systems, etc. exaggerates the real needs. For both energy and water (and to a lesser extent, waste), there is an important link between regulatory economic reforms and the financial burden of *acquis*-related investment.

> Across-the-board subsidies are blunt instruments to treat cases of social hardship. Support targeted on the most needy households is more efficient if decoupled from the pricing of services. Subsidies can also be useful to support project preparation for capital investments, or public-partnerships. They should not discourage energy and water conservation or public-private partnerships (OECD, 1998).

The policy context for improved economic efficiency and investment in the water sector has been improved by the adoption of the EU Water Framework Directive in 2000. Its major innovation with regard to economic efficiency is the imposition of basin-level planning on the one hand (see section 4 of Chapter 6, below), and cost-recovery pricing on the other. This Directive now forms part of the *acquis.* There has not been enough time for these provisions to affect actual projects. The ability of the Union to enforce this principle in the accession countries must be seen against the performance of member states in the present Union, where recovery varies between 100% and *less than 1%,* perversely in some water-stressed regions in Southern Europe (see Speck, 2001).

5.1 Prices and consumption

There is a consensus in the economic profession that water has a low price elasticity of demand, which contrasts with the evidence of recent experience in the CEECs. The impact on consumption of higher pricing introduced during the last decade in the transition countries has been dramatic. These rises were introduced in response to budget constraints and Western-inspired reforms that anticipated the *acquis*-mandated cost-recovery principle.

In Bulgaria, for example, water consumption dropped to half and even 2/3 of previous levels,[23] although cost-recovery is limited to operational, not capital, costs. In the Czech Republic, consumption of drinking water dropped by 43%.

The EU Water Framework Directive, Article 9,1

Recovery of costs for water services

Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted according to Annex III, and in accordance in particular with the polluter pays principle.

Member States shall ensure by 2010:

- that water pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive;
- an adequate contribution of the different water uses, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services, based on the economic analysis conducted according to Annex III and taking account of the polluter pays principle.

Member States may in doing so have regard to the social, environmental and economic effects of the recovery as well as the geographic and climatic conditions of the region or regions affected.

To quote the World Bank on water investment in Poland:

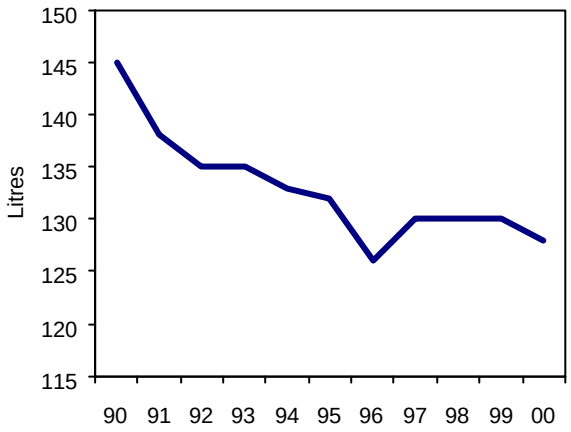
> *Setting prices that reflect the cost of doing business.* This is enormously important to investment planning because it affects consumption. The investment costs [estimated] are calculated on the basis of 1991 consumption levels in Poland. If we take industrial and household consumption levels closer to the EU average, **the investment needs fall by 40-60%** (emphasis added) (World Bank, 1999c, p. 32).

What can explain the contradiction between elasticity pessimism and observed reality? A closer look at the studies made to prove low price elasticity shows that they have been mostly carried out in the US and

[23] See Bardanska (2001, p. 39). Some of the measured decline is due to the effective privatisation of local wells.

Scandinavia.[24] The yield estimates of elasticities as low as -0.10 in Scandinavia and -.03 in the US. Rich households spend insignificant fractions of their income on water, not enough for marginal price changes to affect consumer behaviour. As the graph below illustrates, however, higher prices have reduced consumption in Germany during the last decade. Industry in advanced countries, on the other hand, will have already optimised consumption. Neither of these conditions applies to the CEECs.

Figure 1. Daily personal water consumption in Germany, per inhabitant



Source: Bundesverband der Gas- und Wasserwirtschaft (BGW).

It is by no means straightforward to translate the decline in consumption to lower costs of services. In Estonia, prices have increased by between three and almost ten-fold in the past five years leading to a "remarkable decrease in water consumption".[25] Paradoxically, in an otherwise unchanged policy context, this can create further *upward* pressure on prices. An Estonian official makes the following revealing calculus: 80% of water services are fixed costs, 20% variable. With fixed costs covered by a reduced volume, unit prices would rise to a level where average households would pay 4% and poor households 9% of income for water

[24] See Höglund (1999) and Dalhuisen (2001, p. 94).

[25] See Kraav (2001, p. 43).

services (at 100l/pp/day). Yet prices are still below cost-recovery levels and only begin to reflect the cost of investment in EU-conform facilities.

While some of this calculus is explained by the exceptionally low level of income in Estonia as compared to the world prices charged for upgrading facilities, the basic flaw in the argument lies in taking the absolute number behind the 80% fixed costs as given. Although no detailed data are available, informal information suggests that the drop in water consumption has not led to a reduction of staff in the industry; nor that facilities that are now oversized have been scrapped.

5.2 Internalising external costs?

In the water sector, the principle of cost-recovery pricing is not entirely straightforward. Environmentalists stress the (additional) environmental cost of water use which needs to be internalised in prices. Thus, in keeping with this intellectually sound view, the cost of water to the consumer should reflect both the direct monetary cost of operations and capital expenditure and also the internalised externalities. "For too long, the environment has been subsidising the provision of water at below full costs."[26]

While this may be a useful marker for sustainability policies in rich countries, it is all but irrelevant in the context of poorer countries such as the CEECs, where even the conventional cost-recovery level of prices faces the social constraint (see section 5.3 below).

The EU Water Framework Directive of 2000 for the first time makes cost-recovery prices mandatory (see text box above). However, it includes "environmental and resource costs". For the purpose of encouraging investments in the CEECs, this distracts from the more realistic goal of reduced consumption and fails to identify the link between pricing and investment resources. Moreover, allowing member states to "have regard to the social…effects of [cost] recovery" essentially allows the status quo to continue.

5.3 Prices: The social constraint

A key argument for low, non-cost recovery prices is social.[27] Prices for utility-provided services are set at levels tailored to the ability of the

[26] See Tydeman (1994, p. 121).

[27] A macroeconomic argument – inflation – is sometimes used to justify resistance to change.

poorest segments of society to pay. This is a serious matter in some of the poorer CEECs: for at least a decade, successful transition will continue to create a very unequal income distribution. The World Bank calculates a rise in utility bills of households from the present 10% to 12% or 13% by 2015 in the Czech Republic [29] to reflect the cost of upgrading. This appears modest, but implies a comparatively heavy price rise for low-income sectors. (Absolute costs will, of course, more than double, but the rise of GDP absorbs most of the relative cost increase in average household income.)

The question is, however, whether maintaining an inefficient system provides an optimum even from a narrowly social perspective. As is often the case in municipal utilities, e.g. public transport in most EU countries, generally inefficient management hides its underperformance behind the social service provision. While that provision may justify a subsidy, this can be targeted much more directly within a system that subjects economic agents to quasi-market disciplines.[30]

The poor tend to be more exposed to poor environmental conditions, and are least able to afford medical care.[31] More generally, public expenditures for environmentally related investments compete with other, urgent social priorities, e.g. spending for health and education. Anything that reduces that burden, and thus frees resources for core public responsibilities, is socially beneficial.

A related argument in favour of social pricing is "willingness to pay". It is generally stated that higher (cost-recovery) pricing is resisted by the population as a whole and is therefore politically impossible. One only has to look at the UK with its resistance to fuel taxes and, until recently, water metering, to recognise the force of this resistance.

Where consumer resistance is a major issue, temporary subsidies, on a scale that does not nullify the incentive to save, may be supplied from the public budget or by using soft-loans from Environment Funds and IFIs. Phasing-out schedules for such subsidies can be linked to the observed growth of disposable income. In judging the 'bankability" of a water

[28] A macroeconomic argument – inflation – is sometimes used to justify resistance to change.

[29] World Bank (1999a, p. 182).

[30] See also Estache et al. (2000).

[31] The health benefits of environmental investments are being calculated by ECOTEC for the Commission.

project, IFIs use an informal benchmark to the effect that subsequent user charges should not exceed 4% of household income.

However, there needs to be a special solution for the very poor – a significant part of the CEECs' population. They must be in a position to benefit from at least lifeline supplies of water, sanitation, electricity and other services.

One way that has been advocated in the literature for combining efficiency and equity goals is the so-called block tariff. Under an increasing-block tariff, consumption of services (usually water or power) is priced at an initially low rate up to a specified volume or use (block) and at a higher rate per block thereafter. The number of blocks varies from three to as many as ten.[32] This is the precise opposite of what is practised by utilities operating under commercial considerations unconstrained by regulation. Here, the rates decline with growing volumes, reflecting economies of scale in service provision.

This is clearly a case where environmental efficiency and social acceptability conflict with crude measures of economic efficiency. It is in situations like this where the growing official legitimacy of the sustainability idea – which stresses the need to balance environmental, social and economic efficiency – has to be made operational.

The trade-off is greatly facilitated, if the concept of economic efficiency is enlarged from a pure business perspective to factoring social acceptability/equity into the equation as a pre-condition for a generally efficiency-enhancing system of pricing.

EU grants can lower the economic cost of investment to a level where low-priced "lifeline" blocks can be charged to consumers. This avoids charging all consumers at levels that are affordable by the poorest section – with highly damaging results on total consumption as well as investment funding.

As argued in greater detail in Chapter 6, this effect can be nullified by concentrating grants on a few projects. The maximum grant ratio permitted by the Union's pre-accession facility ISPA – 75% of the total – allows a few large investments to be made under conventional public sector management and with heavily subsidised water rates, leaving no grant money at all for subsequent projects. With a grant ratio of 15-20%, a far larger number of investments would benefit without jeopardising the economic discipline associated with corporate or project debt finance.

[32] See Bond (1998).

To the extent that user charges fall short of cost-recovery levels, subsidies have to make up the difference. From an efficiency perspective, subsidies are not neutral but conducive to mis-allocation of total public resources. An OECD report (1998) on the subject concluded:

> Subsidies have played an instrumental role in the development of municipal environmental infrastructure in CEECs…, often representing more than three-quarters of capital outlays. While subsidies reduce the revenue requirements that must be covered from user chargers (thereby shifting the costs of services to a broader range of taxpayers), they often engender perverse effects, encouraging end-of-pipe investments at the expense of pollution prevention and providing incentives for oversizing of infrastructure. They have also promoted overuse of energy and water, thus exerting upward pressure on user fees once financial support from central budgets was withdrawn or reduced.

5.4 Environmental funds

An EU (Phare, etc.) manual provides a succinct definition of a financing mechanism with potential as a strategic development tool:

> Extra-budgetary environmental funds are receiving growing attention as mechanisms for providing, leveraging and facilitating finance for environmental protection activities in CEE countries. These funds are quasi-independent or independent institutions, having been created by the initiative of Ministries of Environment for the purposes of providing additional, ear-marked finance for the support of environmental protection activities (Francis, 1994).

> Such funds exist, or are in the process of being formed, in nearly every CEE country. (Exceptions include Romania and some of the Balkan states.) In almost all of the countries where they function, these funds are operated under the auspices of the national Ministry of Environment. (The major exception is Poland, which has a national and 49 provincial funds, existing as legally independent institutions created by Parliamentary Act.) The funds typically receive revenues from pollution charges and fines, environmental taxes, product charges and other fees on the use of natural resources and the environment. The funds then use this money to support environmentally beneficial activities, such as investments in pollution control and prevention technology, environmental education, and the establishment of environmental monitoring systems. The financial support provided by the funds

is disbursed in various forms, most commonly as grants and soft loans (European Commission, 1997, section 9.9).

Environmental Funds are an important source of finance for infrastructure projects in most candidate countries. However, by raising prices (in the form of para-fiscal eco-charges), they occupy the same "economic niche" as full recovery pricing. The latter, although established only on economic grounds, is in fact a much more powerful environmental policy tool than the much lower pollution charges.

It was argued earlier that one of the beneficial effects of higher prices for energy, water and waste is that they generate financial resources for new investment. Several CEECs are indeed using the proceeds from fiscal and para-fiscal charges paid by users and polluters to finance investments in environmental infrastructure through environmental funds. These include water effluent charges, waste disposal charges, air pollution charges, fines, etc.

Environmental Development Fund of Slovenia

Established under the EP Act in 1993, the Environmental Development Fund of Slovenia is a public legal entity organised as a non-profit joint stock company, which provides preferential loans for environment projects. The Fund supports public sector environmental services, the purchase and development of equipment and technologies, aid to polluters in the implementation of rehabilitation programmes, and financial engineering.

Since 1995, EcoFund and the World Bank have cooperated on an *Air Pollution Abatement Programme,* which provides soft loans for household and boilerhouse conversions from dirty fuels. Some 4,000 household loans and 50 boilerhouse loans had been extended by 1998.

Total disbursement in 1995-97 totalled some DM 400 million; and the 1998 budget was also DM 400 million.

Such mechanisms are claimed to have two advantages. Politically, they appear to create an equitable link between taxation and its use, easing public acceptance and/or making it difficult for industrial lobbies to object to such charges as machinations of finance ministers. Secondly, "ring-fencing" such revenue for the purpose of investment is thought to provide a stable basis for long-term investment that is reasonably secure from rival claims on the public budget and from annual budgetary politics.

The main objection to such schemes must be that they may only marginally improve the status quo, supporting rather than calling into question a system of political pricing and public administration. Charges, for instance, are set well below cost-recovery prices. Investments continue to be planned, executed and operated by municipal or other public agencies.

There have already been occasions, however, when the EBRD, for instance, has been able to associate "soft" money from Environmental Funds with debt finance to yield socially acceptable user charges without compromising the institutional efficiency of investments.

CHAPTER 6
POLICY ISSUES FOR THE EUROPEAN UNION

6.1 The scope for policy

This study has sought to demonstrate that when environmental investment costs are properly counted – including operating and financing costs – and compared to sustainable GDP shares, they can only be undertaken in decades with transition periods to match.

At this level of analysis there is no significant margin of choice for the candidate countries that could be influenced through tough negotiating demands from the European Union. This would seem to put the onus of providing the physical pre-conditions for rapid *acquis* compliance firmly back on the EU itself. Only substantially enlarged grants from the EU could bridge the gap between EU-mandated investments and EU and western-mandated fiscal probity.

The next step in our analysis was to look more closely at the assumptions underlying the current cost estimates and to identify potential sources of savings. In the context of this small exploratory study, it was of course not possible to quantify the combined effects of "automatic" economic adjustment and a better policy mix. In each case, however, the study identified orders of magnitude that were considerable. Between 30% and 50% seemed possible in many areas. While it may be unrealistic to assume that each of these savings is fully achievable, these are in fact compound savings (unit costs, unit numbers, unit size, marginal cost principle – see section 6.2 below – and operating efficiency), so that partial success with each would still result in, say, halving compliance costs.

These numbers serve no predictive purpose. They do, however, suggest that there are significant potential gains from optimising policy. Taking the simplest evidence: the range of unit costs from simple to triple and more contained in the original 1997 study suggests that there is a high potential pay-off from institutional arrangements that impose economic efficiency and guarantee independence from supplier interests. Unit costs are only the beginning, however. Other mechanisms – e.g. cost-recovery user charges – can significantly reduce the physical capacity needed. Institutional arrangements, discussed later in this chapter, can promote or prevent the investment in plants of efficient size, with savings of up to 50% in life-cycle costs. This suggests that policy should not be limited to finding money for "planned" investment (which, in the case of supplier

finance, can be counterproductive) but rather be directly targeted at getting value for money.

Equally important, even that reduced expenditure can often be taken off current public budget and/or national debt. We must not confuse the two different macroeconomic constraints facing the candidate countries in this context: the budgetary/debt limits set by fiscal prudence, as dictated by the IMF and "Maastricht" on the one hand; and, on the other, the total "burden" on the economy created by the need to divert productive investment and consumption to fulfilling the environmental *acquis*. It is a reflection of traditional thinking (and the importance of "public" utilities in the total picture) that these two magnitudes are often treated as one. The "burden" on the economy argument is, of course, highly questionable economics,[33] although in the present Union, it is increasingly part of industry's (and even the Commission's) mantra, warning not to damage competitiveness.

Making the efficiency of investment decisions and subsequent operations a key target of policy fits badly with current practice, which leaves the task of project preparation to the candidate countries, reducing the Union's role to approval or refusal on largely formal, procedural grounds. This last concluding chapter argues for a more economically focused approach, which uses the present instruments of pre-accession aid and dialogue more intelligently.

6.2 Marginal costs vs. full compliance

One of the most widely documented relationships in environmental economics is the exponentially declining rate of environmental return on investment (see Figure 1). Two examples show the practical importance of this relationship to CEEC compliance efforts and its potential for an environmentally efficient transition strategy.

One example taken from wastewater treatment plotted schematically in the graph below, shows the exponential cost of removing the last 30% or 10% of a contaminant as compared to the first 70% or 90%, etc.

[33] See, for instance, Section 2.3.6 on health benefits. More broadly, leaving aside narrow issues of cost competitiveness for individual businesses, discussed in Section 3.2, investing in the environment and "consuming" environmental benefits through higher prices does not lower GDP, but merely changes its composition. See also Heymann and Walter (2002).

In detail, the numbers – in this case for wastewater treatment in the CEECs – may look as presented in Table 15.

Figure 2. Marginal cost curve of waste water treatment ($/kg)

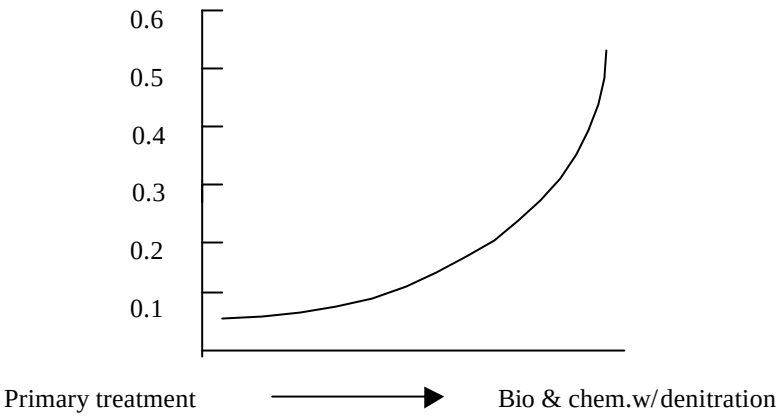


Table 15. Marginal costs of waste water treatment ($/kg, BOD removal)

Treatment level	**Total cost**	Marginal cost
Primary	0.55	
Chem. enhanced primary	0.59	0.04
Primary precipitation	0.73	0.14
With biological treatment	1.00	0.27
Biological and chemical	1.00	0.0
Bio & chemical with denitration	1.45	0.45

Source: Somlyody (1995).

The second example relates to compliance costs for the Urban Waste Water Directive (UWWD) in the Czech Republic. Here the marginal cost curve is generated by technical economies and diseconomies of scale related to the *size* of conurbations to be connected to sewerage pipelines and advanced treatment facilities.

At present, a comparatively high percentage – 74% – of the population is connected to the public sewerage system (although 10% of this receives no treatment). There are 650 communities with a population above 2000 – the level specified in the Directive – which need to invest in sewage

networks. Some of these communities are close to major conurbations and can be connected cheaply. Others are dispersed and would need small, relatively costly installations.

Table 16. Czech investment in sewerage to comply with the UWWP for towns with populations between 2,000 and 10,000

% of community covered	Investment (€ million)
0[1]	726
60	1000
100	1775

[1] Cost of improving the larger conurbation's only.

Source: World Bank.

A ventilation by percent of the population served would show a dramatic rise of costs at the margin, since the last 40% are the smallest communities. The World Bank argues that compliance costs could be halved by exempting from the Directive the smaller communities situated in areas where well managed septic tanks are an environmentally sound alternative. There is a second reason to delay investing in small rural communities: many of these communities will shrink, especially in Poland, as a result of CAP-induced rationalisation. Moreover, limited public funds will be needed to finance infrastructure for the new urban populations which will be displaced from the land.

The issue of marginal benefits with respect to costs is the subject of a largely underground debate between DG Environment and the major IFIs (EIB, World Bank and the EBRD, but also the Commission's own ISPA). It should be brought out in the open and decided by the political masters of these institutions.

DG Environment generally insists that all new plant, e.g. a wastewater treatment facility, should satisfy the highest standard immediately. The IFIs would argue that building a plant achieving a reduction of 80% of pollutants at 50% of the cost of a 100% performance would allow building another plant coping with 80%. Thus, with a given amount of investment, 160 rather than 100 units of damage to the environment are avoided.

The Commission is concerned with the credibility of the letter of the law – a credibility that extends beyond the CEECs. Although double standards exist *de facto* in the execution of environmental legislation in the EU, the law as such is not called into question. Thus, by insisting on

full compliance, the Commission keeps its powder dry, i.e. the ability to take a member state to Court if persuasion fails.

The goal of maintaining the integrity of the law in an enlarged Union is thus not a trivial one. Current policy does not, however, squarely face the fact that a Union of double-standards is a mathematical inevitability. The real question therefore is whether these double standards should exist on paper (a simple policy guidance) or in the environment. It is clear that those with a proprietary stake in the regulations they have fought years to put on the books give priority to avoiding the compliance gap on paper. Neither finance ministers nor environmental politicians need share this view.

The dilemma may be resolved by combining three approaches. The first would be to tighten the deadline for carrying out priority investments on a range of cost-effective investments. The World Bank could produce a list of such investments in a matter of months – to be discussed with the candidates. The second element would be to gain a commitment from the candidates to spend a specified and disproportional (in EU terms) share of the budget until such time as full compliance is achieved. The transition period is indefinite, which merely acknowledges reality, but the dynamism of compliance would be arguably higher than in some current (Cohesion) member states.

The third approach would be to use the PEPA process,[34] in combination with the "funded investment strategy" required prior to accession, to obtain a realistic picture of the time frame involved in achieving full compliance. Such a picture should differentiate between delays due to funding constraints and those due to technical delays. The purpose of this exercise would not be to fix transition periods, but to allow a political judgement on the seriousness of the compliance gap on the one hand, and to show policy options, including the size and allocation from future Regional Fund allocations, on the other.

[34] As mentioned in the Introduction, the Commission launched in 2000 a technical assistance initiative, PEPA (Priority Environmental Projects for Accession), to look into the reasons for the low rate of project proposals and to help the candidates acquire a detailed and accurate view of their own *acquis*-related project preparation
(see http://europa.eu.int/comm/environment/docum/pepaprogramme2001.pdf).

6.3 Leveraging grants for maximum policy impact

Grants from the Union are a welcome supplement to other forms of funding and finance. Properly allocated, they can provide a "soft" element to the total package, whose benefits can be passed on, for example, to provide concessionary rates to disadvantaged groups in new cost-recovery pricing schemes for utilities.

However, if grants are badly used, they can do as much damage as they do good. The largest single flaw of the present ISPA regulation is to allow 75% (exceptionally 85%) of total capital costs to be funded by an EU grant, the rate currently used for "Cohesion" funding for the four "poorest" member states. It is the European Parliament that has insisted on this misguided form of generosity.

There is a long experience with both the Regional and Cohesion Funds showing that what one might call "easy money" is not spent well. In the case of utilities, the lucky recipient (municipality) has little incentive to choose cost-effective technology, and to make choices of scale and location which take into account the needs of its neighbours (see section 6.4 above) There is also a tendency to disregard follow-on operational costs. In the rush to get a share of limited funds, older but well specified project proposals are dusted off and presented, although changed circumstances may dictate a different approach altogether. Grant finance on this scale thus also cements the existing public utility structures. Little or no innovation is required in management and price regimes. Outside scrutiny over the economic rationale of the investment is kept to a minimum.

These drawbacks are not trivial but concern the entire water and waste sectors, which account for half of the calculated compliance costs for "investment-heavy" directives. The ideal would be a cap on EU grants at a maximum of 20% of investment costs. This would also fit more closely with Commission rhetoric to be found both in Regional Policy and accession documents, which make mixed financing the option of choice.

With a smaller, e.g. 10-20%, grant share, far more projects can be reached than is the case under the 75% rule. The distorting effects of easy money would be all but eliminated by the discipline imposed on both government and utility managers by the remaining 80-90% to be found from their own resources. While too small an amount to reduce efficiency incentives, grants in this range would be enough of a carrot to exercise conditionality if a policy framework existed. One such conditionality would be to ensure that the most effective scale choice possible is being made – which usually means that more than one municipality is involved.

Table 17. ISPA grants as share of project costs

project	Cost € Mil.	ISPA share
LITHUANIA		
Vilnius: rehab. & extension of water supply	40.00	50%
Druskinninkai: Wastewater treatment	5.50	50%
POLAND		
Torun: Water modernisation	79.10	62%
Krakow: Wastewater treatment plant	80.00	60%
Szczecin: Sewage disposal	46.40	66%
Wroclaw: Collectors/waters supply	65.25	56%
Gdynia: Wastewater plant for community Union	20.85	72%
Krakow: Municipal waste managem. in municipality	22.75	62%
Wroclaw: Solid waste	20.40	66%
ESTONIA		
Tartu: Tunnel collector project K2	7.70	71%
Narva: City sewerage treatment plant rehab.	8.95	56%
BULGARIA		
Regional landfills (group) waste management	60.60	75%
Stara Zagora Dimitrovgrad: Construction	43.40	75%
HUNGARY		
Szeged: Wastewater collection & treatment plant	66.65	50%
Szeged: Regional waste management program	12.80	65%
Szolnok: Waste management system	10.30	70%
LATVIA		
Riga: Water & Environment project phase II	24.30	70%
Jelgava: Development of water supply, wastewater	15.00	75%
Venspills: Improvement of water supply, wastewater	20.10	47%
ROMANIA		
Craiova: Rehab. of sewerage network	70.40	75%
Lasi: Upgrading of water & wastewater system	51.40	75%
Valea Jiuliu: Dunutuni wastewater treatment plant	9.70	75%
CZECH REPUBLIC		
Ostrava: City sewage system upgrading	24.90	67%
SLOVENIA		
Celje: Wastewater treatment plant	14.75	60%
Lendava: Sewerage system & central wastewater	11.65	44%
SLOVAKIA		
Trencin: Sewerage & wastewater & water treatment plant	7.95	50%
Nitra: Wastewater treatment; Plant sewerage system	10.35	50%
TOTAL	**829.45**	**66%**

Source: Calculated from ISPA press release, 27 October 2000.

Annual ISPA funding available for the environment is about €500 million. Against the estimated bill of €100 billion, plus operating costs, this money must be seen more as a potential policy lever for efficiency than a significant contribution to a funding gap.

The ISPA grant share in recent environmental projects in the CEECs is shown in Table 13.

This high share of European grant aid – an average of 66% of project cost and with many projects benefiting from the full 75% ceiling – seems to be in conflict with several of the "key orientations" established for ISPA by the Commission, notably the last point:

- Community dimension of investments,
- systemic approaches (no isolated ad hoc interventions),
- concentration on projects with impact on a maximum number of people, and
- maximum financial leverage.

Direct bureaucrat-to-bureaucrat deals are easier and faster to arrange than financial engineering, which normally requires considerable technical and institutional adjustments to project proposals as well as lengthy negotiations. Initially, there would have been few projects to fund if ISPA had tried to introduce "financial leverage".

In cases where privatisation is not the answer (see Section 4.1) the solution must therefore be to encourage the establishment of public or semi-public entities that are large and sophisticated enough to put together project proposals and financing packages in which EU grants, domestic grants, soft loans from Environment Funds and IFIs and supplier credits can be combined. This raises the larger problem of municipal utilities as the single most important agent in *acquis* investment.

6.4 The problem of municipalities

The fact that municipalities are often the ultimate economic agents in charge of the bulk of "heavy" accession investments poses a number of problems.

Municipalities (in most of Europe) tend to be not only the owners of water, waste and energy utilities but also the economic regulators (price setters), albeit within the framework of national legislation. Thus, they tend to own the infrastructure assets and frequently also directly provide the services. Local employment and local patronage are involved. At the

same time, they have limited means to engage in new investment with their own resources. In most CEECs, their borrowing capacity is capped at 10-15% of annual expenditure. They thus have power (as project promoters and owners) without responsibility (for the economic cost and efficiency of investment choices).

Apart from the general problems associated with bureaucrats as economic agents, a particular problem arises in environmental infrastructures for water, waste water and solid waste management. Here, frequently, the cheapest and most efficient solution requires cooperation between several municipalities.

In part this reflects scale economies. As regards water and waste management, the geographical area governed by a given municipality may be a) too small to support technically efficient plant and b) not coincide with the geography of the ecological space to be managed, notably the (river) basin. It is only at this level that solutions with the lowest costs (cost/environmental benefit ratios) can be identified.

Planning at this level is now becoming mandatory under the EU Water Framework Directive adopted in 2000. Article 9.2 reads: "Member States shall report in the River Basin Management Plans on the planned steps towards implementing paragraph 1 which will contribute to achieving the environmental objectives of this Directive and on the contribution made by the various water uses to the recovery of the costs of water services".

But this Directive sets 2009 as the deadline for adopting such plans – much too late to serve as a guide for crucial investments to be undertaken during this decade. Moreover, for the purposes of identifying ecologically meaningful cooperation projects between municipalities, a river basin is often too large a unit. The US equivalent, watersheds, are smaller in scale. (Watersheds also often define real communities, with all this means in terms of mobilising civil society and collective responsibility.)

Such planning, however, can be a mere technical exercise far removed from the political decisions on the ground. It is therefore doubly important – from an economic as well as environmental efficiency point of view – to create structures that induce municipalities to cooperate in a wider framework.

In theory, central government has the means to encourage such cooperation through making it a condition for ministerial grants and soft loans from Environment Funds. As stated elsewhere, however, direct grants from e.g. ISPA or soft loans from Western technology suppliers may undermine such discipline which, at any rate, is weakened by party-political and other links or rivalries at local and central government level.

Municipal governments are also loathe to lose political patronage which would follow any serious rationalisation.

In Hungary, for instance, the 1990 Self-Government Act transferred the assets of 28 water service companies to the larger municipalities. These companies have, however, been broken up into 300 new service companies. These are too small to either make cost-effective investments or manage operations at the requisite technical level.[35]

What is the solution? Outright privatisation has proven less than successful in the CEEC water sector, and private concessions granted under present conditions could well perpetuate the municipal fragmentation. On the other hand, traditional public agency-type management does not provide a suitable framework for efficient economic management and investment.

Experience in countries such as the Netherlands, however, shows that public companies can work efficiently in the water sector. There are two requisite conditions, which are mutually supportive. The first is a sharing of ownership and concession rights in an "intercommunal"-type structure. This dilutes party-political interference, making it easier to take rational decisions on staffing levels, location of plants, etc. The second condition for efficiency is to give the jointly owned water company responsibility for its balance sheet, including, crucially, the right to raise debt in its own name. The legal form of such a company should be that of a private limited company.

France is also a leader in creating "intercommunal" associations for infrastructure purposes, while Germany (which is the country of origin of many consultants sent to the CEECs) has the most inefficient system of water management in Europe, owing to its fragmentation. According to the World Bank, cost savings of 50% would be possible through a more rational system in Germany.[36]

6.5 Financial and environmental benefits of an integrated energy strategy

There exists what one might call a mechanistic view of *acquis* investment which suits civil servants, private project promoters and IFIs alike. It is the result of looking at investment requirements from an essentially status quo perspective, without considering broader options. The Bulgarian

[35] World Bank (1999d, p. 180).

[36] Kraemer and Jagen (1995).

energy efficiency programme of 1999 shows, on paper at least, that an integrated strategy that reduces demand as well as improves the quality of supply is an attractive proposition on financial grounds and well as regarding pollution control. Using purchasing power parity as a base, Bulgaria's energy consumption per unit of GDP is seven times (!) the OECD average.[37]

The programme contains 1) measures requiring no investment (price reform); 2) low-cost investment, e.g. in efficient street lighting; and 3) heavy investment in e.g. household gasification, the reduction of transmission losses in electricity and improved co-generation.

The table below summarises the economic and environmental costs and benefits of implementing the programme. The most striking numbers are those of columns 2 and 3. It shows a payback period for investments ranging from one year (households), two years for industry and street lighting and four years for the costly energy sector itself.

In addition, the energy savings would avoid building two new 2.3 MW power stations at a cost of $3 billion – not counting the follow-on annual operating costs. These savings correspond to 1.3 times the total investment cost of the energy efficiency programme itself.

It is a comment on governance – in Bulgaria, the Commission and the IFIs – that such an economic bargain is taken up only hesitantly. There are four major obstacles. One is shortage of public money for investments or investment guarantees. The second is the fragmentation of national responsibilities, notably between different ministries, between central government and municipalities and the national producer monopolies. The National Efficiency Agency has no powers: it is an official lobby within government.

The third obstacle is the absence of a self-interested project promoter. Apart from the public interest (and, potentially) the minister of finance, virtually all economic and public agents lose from such a programme. By contrast, merely adding capacity is good business, while 100 micro-investments, in e.g. improved co-generation or street lighting, do not form a critical mass. Commissioning large projects is satisfying, bringing power and money to top central and municipal officials. IFIs, although on paper are committed to supporting programmes of this kind, tend to

[37] World Bank (2001, p. 6).

behave much like banks on the ground.[38] They prefer projects with real cash flow over gains from reduced oil imports or reduced public expenditure which are difficult to "engineer" into a financing package.

The much maligned World Bank, which generally does excellent public policy work in the CEECs, is an honourable if partial exception. Three years (!) after the establishment of the Bulgarian National Efficiency Agency, it produced a study[39] calling for a National Efficiency Strategy. In contrast to the purely technical study cited earlier as the source of Table 18, the World Bank report had to be carried out in collaboration with the authorities, notably the powerful State Agency for Energy and Energy Resources (SAEER)

That agency exhibits a traditional producer mentality, sharing, i.a., the fascination of most Balkan countries with exports and thus the apparent need to create new capacity.[40] The Bank's report thus had to include a high export scenario requiring investment in new capacity by 2015 of 2,246 MW, as opposed to 750 MW under a no-export scenario. It also had to include a scenario assuming high international gas prices which would make it economical to construct three lignite-powered 300 MW plants.

While the World Bank's policy recommendations partially overlap with the priorities of the AEVA study cited earlier – notably the need for cost-recovery prices for electricity, improved co-generation and investment in a residential gas network to tap into the Russian transit pipeline, it does not contain an explicit reference to the small, high-payback schemes cited in the AEVA study.

The fourth obstacle for implementing a programme of this kind is created by the approach of the European Commission. There are, in fact, two elements. First, given the severe shortage of staff (contrary to myth), which lowers the quality of the Commission's work in all policy areas,

[38] In the words of one analyst, "The requirements of the [IFIs] are generally so strict, both formally and financially, that very few environmental projects have been able to qualify for loans – and it has been argued that these projects might well have been financed by any commercial banker" (Andersen, 1999).

[39] Ibid.

[40] Exports are superficially attractive as a source of foreign exchange, a calculus that ignores the foreign exchange cost of building new capacity with high risk-premium capital. In Bulgaria, the argument is complicated by the political conflict with the EU over the requested closure of four out of six nuclear power plants.

Table 18. The Bulgarian Energy Efficiency Programme

						Greenhouse gas reduction			
Sector	**Investment ($)**	**Annual savings ($)**	**Gen. capacity saved MW**	**Electricity savings (mil. kw/h)**	**Energy savings (Ktoe/y)**	**CO_2 (Kt/y)**	**N_2O (t/y)**	**CH_4 (t/y)**	**SO_2 reduction (Kt/y)**
Industry	701	325	390	1960	1775	7743	1089	280	55
Households and services	540	542	134	670	1248	1124	25	276	87
Transport	245	50	0	–	147	480	4	73	4
Efficient lighting	215	94	921	1566	130	2630	820	33	19
Energy sector	652	146	900	1250	1130	317	7	5	75
TOTAL	2353	1157	2345	2816	4430	12294	1945	667	240

Source: National Efficiency Agency, Bulgaria/Austrian Energieverwertungsagentur (unpublished, 1999).

there is the technical/administrative preference for large rather than may small projects. Occasionally, EU grants are attached to World Bank programme lending, but nothing as varied and long-term as the Bulgarian strategy can be put into the format (financial precision, tendering, etc.) required for grant aid. Secondly, and equally fundamentally, the EU's policy, managed by DG1A (now Enlargement DG), has exclusively concentrated on its mandate of assuring *acquis* compliance. It largely ignored the "Environment for Europe" process, which was initiated in Dobris in 1991 and was concerned with environmental rather than legal priorities.[42]

6.6 The EU Commission's capacity for strategic action

These comments raise the question of the Commission's ability to deliver policy optimisation. Enlargement is a hugely complex task. Even from a purely "*acquis*" perspective, there were 30-odd policy "chapters" to negotiate with each of the ten-plus candidate countries. Compared to earlier enlargement negotiations, "Copenhagen"[45] broke new ground as regards political "criteria" but not as regards the core economic agenda. In other words, as regards democracy, the rule of law, etc., there is a recognition of the special conditions presented by "transformation". On the economic front, the problem of transformation is largely subsumed in the adoption, by the candidate countries, of a particular system of market regulation (adapted in the case of the CAP). There is, of course, active support for this adoption in the form of assistance to "administrative capacity-building" and other forms of technical assistance.

Nevertheless, it still seems odd that nowhere in the Commission is there a locus of reflection and coordination dealing with the unique economic development/transformation process in substantive rather than purely institutional terms. The candidate countries are presented with a thousand hurdles to jump and given some aid, but the Commission's role is essentially one of monitoring progress. That monitoring is carried out

[42] See Andersen (1999, p. 2).

[43] Exports are superficially attractive as a source of foreign exchange, a calculus that ignores the foreign exchange cost of building new capacity with high risk-premium capital. In Bulgaria, the argument is complicated by the political conflict with the EU over the requested closure of four out of six nuclear power plants.

[44] See Andersen (1999, p. 2).

[45] The basic political roadmap for enlargement was agreed at the 1993 European Council in Copenhagen.

"chapter" by chapter by the relevant DGs without strategic coordination of the effects of related policies.

This is obvious in the case of the environmental *acquis*. This study has suggested that there are many levers of policy that together could perhaps halve the burden of *acquis* compliance and/or halve the time for achieving it. On either environmental or economic development grounds, this is a big prize. The savings potential is equivalent to the total of accession aid to the year 2006. In light of the prospect of enlarging the euro area and maintaining stability afterwards, ± 1% of GDP more or less on the current budget deficit is a large number.

But the procedures governing the interactions between the Commission and the candidate countries are designed to prevent policy optimisation. The first flaw is the early fragmentation of EU administrative responsibility in DG Enlargement into departments dealing with individual countries. This makes sense if the process to be administered is exclusively seen in terms of negotiation, and thus, ultimately, in legal terms. But administrative units dealing with single countries cannot each have the necessary in-depth knowledge of the actual economic sectors they are *de facto* influencing. This part of the equation is supposed to be supplied by the specialised DGs, in our case DG Environment.

But this does not necessarily solve the problem. First, the general terms of reference even for DG Environment are ultimately legal, even when this includes institutional and investment components. In other words, DG Environment is not asked to assist in improving the environment in the candidate countries and to develop a strategy for achieving this at the lowest cost. Even if this were its mandate, it would not necessarily have the expertise: DG Environment is mainly a regulator, staffed by generalists and lawyers assisted by scientists.

And if DG Environment had a broader mandate for accession/transformation policies, it would not be in a position to coordinate these policies with other relevant departments: DG Economic and Financial Affairs (which should be) concerned with the budgetary/Maastricht implications of the *acquis* investment programme; DGs Energy and Internal Market, which deal with the liberalisation of energy markets and public utilities in general; and DG Competition, which must take a view on subsidies, etc. Coordination is firmly in the hands of DG Enlargement which, to repeat, is in the business of managing a negotiating process, not concrete policy.

As argued elsewhere in this chapter, a crucial potential player in the Commission is DG Regional Policy and more particularly its specialised

Directory F: ISPA (see above). More than any other single agency, it could be the executor of a comprehensive, ecologically and economically intelligent investment strategy. However, with a mandate narrowed to (financing infrastructure for) *acquis* compliance and with a limited staff, it is largely preoccupied with processing project proposals.

This limited role is also necessarily the result of another basic decision taken by the Union: to leave the initiative for project proposals to the candidate countries, with the Commission's role limited to that of granting or denying approval. Much of that process is concerned with the observance of proper procedures. Economic considerations tend to be limited to assuring financial cover for investments, and not their intrinsic cost-effectiveness. DG Environment is asked to comment on larger projects, but lacks resources (manpower and expertise) and the mandate to judge the economic merits of the projects in question.

To the extent that there is a locus of strategic transformation intelligence in the EU system, this resides, somewhat tenuously, in the partnership agreement with the World Bank. The World Bank's usefulness is, above all, as a consultant. It has two clients: the EU Commission and the candidate countries. Through Phare, the EU pays for some consultancy services to the candidate countries. These serve to co-fund comprehensive transformation strategies in such sectors as education, health, poverty reduction and, in our case, the environment. When it comes to implementing such strategies though investment, the World Bank can provide programme loans, again supplemented by Phare, etc. grants. These loans, however, are more likely to finance the administrative infrastructure for reforms rather than big-ticket items.

Here, the Bank reverts to its core role as lender. For countries with low incomes, World Bank loans are cheaper than public funding by the national treasuries through the bond markets. This is no longer true for the more developed candidate countries (Czech Republic, Estonia, Hungary, Poland and Slovenia). The latter two have recently accessed the bond market at respectively 27 and 30 basis points above Libor – a rate that the World Bank cannot match.[46]

This may seem surprising, given that the Bank can borrow very cheaply on world capital markets. The explanation lies in what the Bank itself calls "high transaction costs". Translated, this means that Bank loans

[46] "Framework for World Bank Group Support to EU Accession Candidate Countries in Central and Eastern Europe", (revised) January 2002 (http://www.worldbank.org/eca/euenlargement/).

come with a package of value-added expertise which, from an outsider's perspective, improve resource allocation by much more than the cost of a few hundred basis points on loans. For borrowing governments, however, the real cost, may lie in the loss of political room for manoeuvre that is implied in the Bank's insistence on project quality. Unlike the practice of other banks, notably the EIB, that quality is not judged on a stand-alone basis but in the context of a programmatic sector analysis.

It is here that the Commission and more particularly ISPA could redress the balance by aligning its grant allocation with the judgement of the World Bank – literally the only source of strategic economic thinking available. This happens on an *ad hoc* basis at the national level, but the large percentage grants of ISPA help to "crowd out" the sort of economic discipline that the Bank brings to the table.

The EIB, in theory the natural partner of the Commission and with far larger resources for lending in the CEECs, has a philosophy of respecting the sovereign preferences of its borrowers, which helps to keep its staff small and profits high on the back of solid sovereign guarantees. While committed to supporting the EU's political objectives, it stresses its Treaty-accorded right to interpret this commitment independently of the Commission.

In sum, while sources of economic intelligence and the instruments for applying such intelligence exist, the Union's governance of the enlargement process is fragmented and lacks an administrative/political focus for any strategy going beyond formal *acquis* compliance. The costs to the candidate countries, the future stability of the euro, the Union's own budget and last, but by no means least, to the environment are significant.

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