

Environmental policy in economies in transition

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Considerable improvement in environmental pollution has been achieved, primarily due to targeted environmental policies rather than general economic developments. Some countries in central and eastern Europe have managed to reduce emissions even after the gross domestic product once again began to increase. Everywhere in the region, however, the cost-effectiveness of environmental spending is questionable. Most countries have established systems of earmarked resource and pollution taxes, which provide a sizable share in financing environmental investment. With stationary sources of pollution brought under increasingly effective control, the environmental problems in central and eastern Europe, and eventually in the newly independent states, will start to resemble those of developed market economies. As more activities become affected by environmental protection measures, cost-effectiveness considerations deserve increased attention.

Key terms cost-effectiveness, environmental pollution, policy reform.

Historical background

It is well documented that centrally planned economies used to exert a significantly greater pressure on their environmental resources than comparable market economies did. For instance, there was a clear distinction between the European Union (EU) and the centrally planned economies in central and eastern Europe with respect to the energy and resource intensities of their domestic products. More-detailed analyses would reveal that not the level of industrial development, but rather the economic system adhered to was crucial in explaining the differences in environmental performance among the European countries. Atmospheric emissions provided literally visible proof of the environmental protection failure in centrally planned economies. This failure could partially be attributed to an ill-designed environmental policy (eg, based on economic incentives in the absence of markets) and partially to the running of inefficient economies (1).

A bias towards heavy industry and the resulting underrepresentation of the service sector is perhaps the most important single cause of the continuing pressure on natural resources in centrally planned economies and their heirs. The position of heavy industries had its historical roots. These industries contributed to the inertia of the economy they were part of, because of the weakness of democratic institutions that could effectively represent

social preferences. The dominance of heavy industries was coupled with the lax environmental enforcement characteristic of economies in which almost everything was owned by the state.

Environmental policy reforms

In their struggle for a friendlier, safer environment, economies in transition thus have to overcome 2 barriers, general system inefficiency and inadequate policy principles. The economic reforms vigorously promoted by most of the new governments will remove the first obstacle. Given all the developments in the region, it is unlikely that a permanent comeback of l'ancien régime may threaten the future of economic and political reforms. Nevertheless preventing social disturbances or dealing with their effects may postpone achieving efficiency goals of the reform and make environmental improvements slower. Consequently environmental policy makers cannot take the beneficial results of market reforms for granted.

The other barrier is not easy to overcome either. Quite commonly in centrally planned economies, the failure of environmental policies was linked to an inadequate level of charges and to the lack of developed markets. Thus there was a natural temptation to conclude that, with the advent of a market economy, some "optimally calculated charges" will — at last! — start to work. This feeling

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was reinforced by the West (2, 3), which uncritically referred to East-European financial instruments in environmental protection.

Waiting for positive spillover effects of emerging markets has been the main cause of the lack of environmental improvement in some economies in transition. Poland may have well ended up in this group if the government had yielded to numerous advocates of "liberal" environmental policies. Recommendations to build these policies on Pigouvian taxes were coming both from politicians and academics. In the latter case the advice was based on poor scholarship and ignorance of the western experience. In the former case motivation must have been shrewder. The argument to let market forces determine the level of abatement, once externalities were accounted for through Pigouvian taxes, could be appealing to liberally-oriented administrators who ran the government in 1989–1991. The Machiavellian point was, however, that the Minister of Industry (a promoter of the idea) perfectly knew that, throughout the 1990s, any attempt to elevate pollution charges to their Pigouvian levels would fail for political reasons. Hence the recommendation "not to mess with market forces" was in fact equivalent to admitting that environmental protection was premature and should be postponed until later.

The environment was addressed by the Polish government in a pragmatic way. In 1990 the Ministry of Environment drafted its major policy document (4), which was quickly approved by the Council of Ministers and then officially accepted by Parliament in 1991. Its section on policy implementation was based on a more detailed analysis of economic instruments (5) that served as a technical appendix to the main document.

According to the *Outline of Economic Instruments* (5) economic instruments perform a number of useful functions. Most importantly they help to minimize overall costs of environmental protection through an efficient and nonarbitrary differentiation of control requirements. The document envisaged a substantial role both for marketable permits and pollution charges, the latter, however, serving mainly revenue raising purposes.

Poland's environmental policy statements of 1990 were the first among those adopted by governments in economies in transition. By 1993 all countries had some environmental programs. As a rule, they were not very specific with respect to the choice of instruments. Furthermore, none of these programs were selective enough to provide for clear enforcement and investment priorities. The first policy adopted in Poland was fairly selective, but it was subsequently amended several times to accommodate various political concerns. The World Bank (6) tried to inspire governments to adopt priorities and sharpen investment criteria rationally, but its approach has not permeated actual policy-making processes.

Emission standards seem to be the focal point of many discussions in the Ministry of Environment. They are sometimes perceived as the "modern", "Western" approach to solving environmental problems. There is thus a serious risk that Poland — together with other central and eastern European countries — will make an unfortunate attempt to replicate the strictest (eg, German) emission standards. The effects would be 2-fold. First, as such standards will be doomed to violation by many polluters for a number of years, they will contribute to the attitude of disregard for the law rather than providing incentives to abate or innovate. Second, by inflating the demand for sophisticated abatement technology, which is unavailable domestically, they will affect the import intensity of domestic production.

Most central and eastern European countries adopted emission standards similar to those existing in the European Union. In Poland fairly stringent air emission standards for new sources were established in 1990. Corresponding standards for existing sources came into effect in 1998. Western-like water effluent standards were introduced in 1995. In all cases there has been strong pressure exerted by polluters to relax these requirements. The Polish Ministry of Environment sees 2 ways to accommodate justified economic concerns without abandoning the standards. One is emission trading, while the other is compliance schedules. Both instruments are provided in the draft Environmental Protection Act and both were practiced "on an experimental basis" after 1989.

After 1989, the Polish government attempted to solve the enforcement problem by making more courageous use of administrative instruments, including forced shut-downs, and restructuring the fine system so that most cases of noncompliance trigger an administrative action (noncompliance fees should only be used in the case of accidental spillovers). This practice, however, turned out to be more difficult than expected, and noncompliance fees are still collected in some "chronic" cases too. An effective alternative to a shut-down would be a marketable permit option. However, because of the insufficiency of the existing legal framework, exercises of that kind can be done on an "experimental basis" only.

Effectiveness of new environmental policies

In the early 1990s there was a widespread belief that central and eastern Europe was a devastated piece of land whose decontamination would take decades or more and that the acute lack of money was the key factor determining the failure of environmental policies so far. This attitude — occasionally resurfacing over and over again — can be easily explained by a number of historical, political, and economic factors; nevertheless it is far from

the real predicament, and from the real issues confronting the region.

First, some unquestionable "hot spots" co-exist with many near-pristine areas containing valuable ecological systems that were saved from reckless communist industrialization. They represent an asset that is not fully appreciated by local populations and — ironically — may well be depleted during the first decade of the postcommunist economic and social recovery. Second, there is nothing historically unique about the contamination in central and eastern Europe. As studies show, old industrial centers in western Europe and North America were exposed to pollution that is at least as bad as that in upper Silesia or northern Bohemia (7). It proved possible to "recover" such areas in a relatively short period (of 2 decades or so) once the problem was recognized and adequate policies were implemented. Third, with the exception of some isolated cases (where a contaminated site has to be simply "sealed" and set aside until later), environmental recovery does not have to be excessively expensive. Maintaining a sufficiently high — on the order of 1–2% — share of environmental investment expenditures in the gross domestic product (GDP) is a reasonable condition for the recovery. Some countries of the region have already succeeded in mobilizing such resources (both in the private and public sectors). Fourth, it is thus not the lack of money, but rather the inability to spend the money cost-effectively which postpones recovery and makes environmental policies difficult to enforce. An additional obstacle is the lack, or poor coordination, of industrial restructuring, agricultural, and other sectoral policies.

It is too early to see the East-West gap in life expectancy narrow (8,9). A few more years of steady improvement are needed before the effects of environmental

degradation can be overcome. Moreover, the relationship between mortality or morbidity and the environment is far from an obvious one. Demographic and health consequences of environmental disruption are often overshadowed by impacts of economic, social, and political circumstances. As Okólski & Pulaska (10) have demonstrated, the excessive mortality of the Polish population throughout the 1960s and 1970s was caused by poor work conditions (both physically and psychologically), poor life-style (such as, eg, tobacco and alcohol), and degraded environments, the last factor being only of secondary importance.

No systematic environmental risk studies have been carried out in central and eastern European countries to design appropriate cost-effective policies. An optimal policy-mix should solve a given problem by choosing instruments that, first of all, activate measures addressing major impacts related to exposure pathways that are relatively inexpensive to control. Unfortunately, the effectiveness of new environmental policies cannot be measured directly in terms of demographic indicators, at least not for the time being. Likewise, because of aggregation questions, it would be difficult to gauge progress towards improved ambient quality over large geographic territories (11). What can be measured are emissions, and, in the following presentation, our analysis will focus on this indicator.

Table 1 illustrates some key aspects of environmental policy effectiveness in Poland. The first observation is that improved environmental performance cannot be fully attributed to a declining GDP. Air pollution intensity decreased both in 1989–1992, when the economy was shrinking, and in 1992–1995, when the economy was expanding. Water, water pollution, and solid waste intensity were more or less stable in the first period, but they improved substantially in the second. Energy intensity improved as well, although partially due to the higher quality fuel-mix achieved after 1992, and to some extent due to other causes (such as the changing GDP mix and technologies).

The second observation becomes apparent when comparing lines 7 and 8 of table 1. Even though the falling emission of gases (mainly sulfur dioxide) are visible, the most impressive improvement relates to particulate matter pollution. For it the centrally planned economies offered a striking contrast with western European economies and the environmental policy failure of the former was best revealed. At the same time, for it, the most spectacular improvement can be demonstrated; this situation suggests that the effect results from policy reform rather than merely from economic processes.

In addition, table 1 offers a perspective on the relation between the allocative efficiency and environmental performance. Substantial as they are, the lowered energy and water intensities of the GDP (14–16% and

Table 1. Economic pressure on the environment in Poland. (TOE = ton of oil equivalent, TOQE = ton of "oil quality" equivalent: identical with TOE in the case of oil and gas; 2 TOE of coal are assumed to be 1 TOQE; 1 TOE of hydro and nuclear electricity is assumed to be 3 TOQE). Source: author's estimates based on data from files (energy, water and pollution) of the Polish Central Statistical Office and the World Bank (GDP = gross domestic product).

	1989	1992	1995
1 GDP per capita ^a (USD 1000/person)	2300	1900	2200
2 Energy intensity of GDP (TOE/USD 1000)	1.42	1.48	1.20
3 Energy intensity of GDP (TOQE/USD 1000)	0.89	0.86	0.77
4 Water intensity of GDP (m ³ /USD 1000)	171	172	142
Pollution intensity of GDP			
5 Industrial solid waste (tons/USD)	1.6	1.7	1.4
6 Wastewater (m ³ /USD 1000)	50	47	36
7 Gases ^b (kg/USD 1000)	58	43	33
8 Dust (kg/USD 1000)	17	9	5

^a Estimated in 1992 dollars in constant 1992 prices, at the 1992 nominal exchange rate of the Polish currency.

^b Excluding carbon dioxide.

17%, respectively) are nevertheless less striking than the lowered water and air pollution intensities (29% and 44—70%, respectively). This situation demonstrates that the environmental protection failure in pre-1989 Poland was not just a matter of a resource intense economy and that post-1989 policies triggered improvements much higher than implied by increased allocative efficiency.

The table also suggests that the least successful environmental policy domain is industrial waste disposal, for which the pace of improvement lags behind even that of increased energy efficiency. [See also reference 12.] In general, the pollution intensity of Poland's economy has fallen sharply not because of declining energy use, but rather despite the moderate improvement in the average energy intensity. This trend should be emphasized since it contradicts early recommendations made by many analysts, who expected environmental improvements to be led by advances in energy use.

Is the Polish 1989—1995 experience typical for other economies in transition? For some of them it is. A study by Zyllicz & Lehoczki (13) demonstrated similar patterns for the Czech Republic, Hungary, and Slovakia. In all 3 countries emissions decreased and, as a rule, the rates of reduction were higher than the decline in GDP. Consequently, they cannot be seen merely as a result of lower production, and this downward-sloping trend is likely to be sustained also during the economic recovery now under way. There are some country-specific differences. In particular, statistical records show that, in Hungary, the improvement took place already in the early 1980s (despite the rising level of industrial output) and therefore suggests that structural adjustments initiated in the late 1970s started to benefit the environment earlier than in the other centrally planned economies. Still, however, if compared with the levels of economic activity, the pollution intensities of the GDP in these countries have remained remarkably higher than in western Europe.

The pollution intensities are even higher in the former Soviet Union, where the economy collapsed at an unprecedented rate. At the same time, no reliable statistics exist to monitor corresponding trends in emissions. Available evidence suggests that little, if any, improvement in pollution intensities has been achieved except for the Baltic republics. Overall the predicament in countries such as Russia, Belarus, and the Ukraine differs from the one in Poland in that the decline in their GDP was much deeper, stabilization efforts came later, and environmental policies received lower priority in government forums.

Efficiency of new environmental policies: present and future

The extent of environmental disruption in former centrally planned economies was so large that initially there

was no risk of "overshooting" in remedial action. Countries were far from the welfare maximization criterion of marginal benefits equating marginal costs. Therefore, one can assume that, as a rule, eliminating pollution implied increased efficiency. No formal studies, however, were undertaken to determine an economically optimal level of environmental quality.

Early analyses of environmental damage in Poland alluded to as much as 25% of the GDP allegedly lost due to disruption. At the other extreme, a World Bank estimate (14) was much more conservative and corresponded to a mere 3% of the GDP. Although the Polish economy spending on environmental investment of slightly over 1% of the GDP has not yet been overshot, it would be difficult to provide policy makers with a firm recommendation as to how much would still be justified. One reason is that, until the early 1990s, there were no empirical studies of benefits from environmental improvement (other than reduced damage from productivity loss). For instance, the first full-blown contingent valuation surveys in former centrally planned economies were carried out in Poland and Lithuania in 1994 (15,16). Other surveys have now also almost been completed, but none of these studies have had any direct policy impact so far. It would be also premature to trace any policy impacts of benefit transfer analyses carried out in central and eastern Europe (17).

One general indication regarding possibly increased efficiency in environmental expenditures is based on the observed trend towards greater emphasis on air protection. Under the central planning regimes, damage resulting from atmospheric emissions and affecting human health, forests, and buildings was neglected as it did not limit production directly. On the contrary, water pollution leading to visible water deficits directly affected power plants (through deficits of water suitable even for cooling purposes) and other important sectors. Thus, if environmental protection was noted at all, it was confined mainly to water. After 1989, policy makers discovered air protection with the result that spending rapidly increased (13) and the effects already discussed began to appear.

Financing environmental protection

The "polluter-pays principle" has been declared by central and eastern European and by governments of newly independent states (NIS) as a guiding rule in their environmental policies. However, as in developed market economies, many subsidy schemes are retained. For historical and political reasons, some subsidies to the worst polluting industries have continued even in Poland, which (in 1990) took drastic steps to free the state

budget from this burden. Coal subsidies declined from USD 2294 million in 1989 to USD 134 million in 1993 (18). The latter number may seem moderate when compared with the German hard-coal direct subsidies of DEM 12 billion a year (19), but for a middle income country it is a burden difficult to bear. Additional implicit subsidies result from growing indebtedness (unpaid taxes and suppliers' bills, roughly several hundred million dollars a year) and noninternalized external costs of extraction (same order of magnitude). Disturbing as they are, these numbers are nevertheless closer to a hypothetical "free market" equilibrium than in most other economies which are in transition and have a heavy industrial heritage.

Industrial subsidies are gradually eliminated, at least in some central and eastern European countries, and the pace of this process does not depend on environmental policies. The latter affects the scale of subsidies related to abatement and clean-up activities. Economies in transition have perhaps even more motivation than the OECD (Organization for Economic Co-operation and Development) countries to suspend the rule of polluter-pays principle. In addition to the traditional trade competitiveness and employment arguments, there are 2 others. State-owned enterprises or their heirs can rightly claim that their predicament, including current insolvency or a backlog of environmental neglect, results from state intervention in the past. Consequently, it is the state that has to share the costs of any remedial action. Subsidies are also expected by municipalities whose extremely low incomes, resulting from poor regional development policies in the past, are insufficient to afford sewage treatment and waste disposal. Such municipalities clearly violate environmental standards, but — unlike industrial polluters — cannot be shut down.

However, instead of rejecting the polluter pays principle altogether and subsidizing environmental protection from the state budget, virtually all former centrally planned economies operate extra-budgetary "environmental" funds. The funds get most of their revenues from pollution and resource taxes earmarked for environmental protection. In this way at least an indirect form of a polluter's responsibility for abatement is retained.

In Poland, environmental taxes are assessed for water abstractions, waste water effluents, over 50 categories of air pollutants, waste disposal, and tree cutting. The rates are set below Pigouvian levels, but they are substantial and often higher than in the OECD countries. For instance, the sulfur dioxide charge is set at USD 90 per ton. Other pollutants are taxed according to rates that are more or less proportional to their toxicity (inversely proportional to maximum permissible concentrations). Some charges provide incentives for applying low-cost abatement options, like, for example, coal washing, but as a rule they are too low to be relied on entirely. Instead revenue raising is their most important role (20).

Polish pollution and resource taxes claim USD 400—500 million a year or 0.5% of the GDP or 1.5% of the state budget. For most taxing items they are split into national, regional, and municipal funds in fixed proportions of 36%, 54%, and 10%, respectively. There is a National Fund for Environmental Protection and Water Resource Management (the National Fund), and 49 regional and 2460 municipal funds. Altogether these funds spend an amount corresponding to 40% of official environmental investment expenditures. The rest is financed from municipal budgets (15—20%), enterprise profits and commercial loans (30—35%), the state budget (5%), and foreign sources (less than 5%).

It is remarkable that over 95% of environmental project financing comes from domestic sources. The state budget plays a minor role, providing money mainly for nature conservation, monitoring, and — as a heritage from the past — several large wastewater treatment projects. Environmental funds have emerged as a major source of funding for the entire spectrum of projects, ranging from environmental education to forestation, clean-up, and the development of abatement technology.

The Polish National Fund is by far the largest among its central and eastern European/NIS counterparts not only because of the size of the economy, but also because of a high level of pollution charge rates and a fairly decent collection rate of 70%. In Russia, for instance, environmental funds spent only USD 50 million in 1993 (21). In Lithuania, the 1994 pollution and resource charge revenues were USD 4.6 million (22). In other NIS countries environmental fund budgets are typically below USD 1 million (23). In most cases, the low level of revenues results from low charge rates. Sometimes, as, for example, in Lithuania, revenues are low because of systems of waivers and rebates and despite high nominal rates. In central and eastern European countries environmental fund budgets are higher than in the NIS with the Czech fund reported to have raised over USD 130 million in 1994, thus placing itself right after Poland (24). However, the Czech environmental statistics are subject to a wide margin of uncertainty that makes such estimates questionable when confronted with microeconomic surveys. In 1993 the Bulgarian, Hungarian, and the Slovak National Funds reported USD 3.6, USD 36.3, and USD 30.8 million, respectively (25).

Environmental funds differ not only in size, but also in the extent of centralization, with the Polish system representing perhaps the most centralized pattern. In contrast, environmental funds in the NIS are largely decentralized. The Russian pollution charges break down into the following 4 components: 10% for the state budget (earmarked for environmental protection), 9% for the federal environmental funds, 27% for regional ones, and 54% for local funds. In the Ukraine the system is even

more decentralized, and municipal funds claim 70% of pollution charge revenues.

While there are pros and cons for leaving revenues where the pollution originates (ie, at the lowest, municipal, level), experience shows that excessive decentralization is not effective. One of the main roles of an environmental fund is to concentrate scarce capital on a small number of projects at one time in order to speed up investments and provide benefits sooner. In a developed market economy this role can be played by the banks. High nominal interest rates and the underdevelopment of the financial sector in economies in transition leave a niche for the funds (26). If the funds are excessively decentralized, the money flows to too many projects at a time, and therefore the investment process is lengthened, costs are elevated and environmental improvements are postponed. Moreover, as studies indicate, the efficiency of spending at the municipal level is much lower than at higher administrative levels (27, 28).

A common feature of investment financing for environmental protection in economies in transition is that it comes almost exclusively from domestic sources. As in Poland, in most countries, foreign sources contribute less than 5%. Estonia provides a rare exception to this pattern, as Finnish donors and investors provide a half of its environmental financing. It is worth noting that the predominance of domestic sources is characteristic both for countries with a high level of expenditures (eg, Poland) and for countries where the spending is low (eg, the Ukraine). This situation suggests that there is a kind of complementarity between the 2 types of sources, with domestic funds opening up opportunities for foreign investment or assistance.

International assistance and cooperation

As already noted, international assistance has played a minor role in environmental protection in economies in transition. Countries that can demonstrate improvements, like Poland or the Czech Republic, finance abatement projects almost entirely from their domestic sources. Those lagging behind, like Bulgaria, Russia, or the Ukraine, failed at mobilizing sufficient domestic resources.

The awareness of the fact that economies in transition should apply the polluter-pays principle, or at least its plural form, has grown gradually. In Bulgaria, one of the reasons for environmental opposition gaining high political significance was the popular expectations that the West would pay for the clean-up once the communist government was expelled (29). Subsequent disillusionment resulted in a radical decline of environmental interests. In Poland there was an expectation that the Paris

Club would approve a massive debt-for-environment swap. The Ministry of Environment developed a program for spending 30% of the total indebtedness (ie, USD 10 billion) in 1992–2010 (30). Soon it turned out that the Paris Club was willing to approve conversions of up to 10% only, not necessarily environment-related, provided that creditor countries would negotiate appropriate swaps on a voluntary and bilateral basis. The Polish government maintained its preference for environmental swaps. Until 1998 only 5 creditors, the United States, Switzerland, France, Sweden and Italy, concluded such swap agreements (totaling USD 500 million) and joined what has become an innovative, effective, and efficient channel of international environmental assistance (26, 31). Norway pledged some funds, but did not sign a long-term swap agreement. More governments have indicated interest in this mechanism, but its rules conflict with key features of traditional environmental assistance.

International assistance for economies in transition has received much more attention worldwide than warranted by its contribution to the host countries' environmental budgets. A justified question is therefore whether its relevance boils down to the (unimpressive) intensity of financial flows. It certainly does not, but a fair assessment has to include both economic and environmental aspects viewed from both the donors' and the recipients' perspectives.

It is obvious from geographic analyses of international assistance that environmental benefits can only marginally explain donors' choices (13). As a rule, the assistance is primarily motivated by economic considerations. Donors expect their projects to pay with additional contracts awarded to their firms, and they do not fail. Traditional bilateral programs are typically based on what is called the tied procurement. It gives donors certainty that third-country contractors will not free-ride on someone else's taxpayer money. Multilateral facilities, such as, for example, the PHARE program of the European Union (the most important assistance channel in central and eastern Europe) allow for a more competitive procurement policy, but still the decision-making authority lies outside the host country, and cost-effectiveness of environmental spending can be achieved, but by pure chance.

From the host country perspective, the most important advantage of foreign investment is modern technology transfer. International assistance projects have a great potential here, but the cost for the beneficiary may not be zero. One telling example is modern monitoring equipment donated to Polish environmental inspectors. Various regional inspectorates received equipment from various donors and produced by various manufacturers. Healthy as it is, diversity unfortunately has its price too. Because of a thin market for any single brand, most suppliers do not provide service facilities in the country. For

spare parts and maintenance, inspectors must turn to distant service centers. In case of an incidental equipment failure, they cannot be assisted by inspectors from a neighboring region, as they probably use different systems.

Countries receiving assistance also complain that excessive amounts of donors' money are spent on consulting services rather than on investment. In Budapest they say that the accumulated stock of feasibility studies can fill the Danube. Perhaps each country can quote its own horror story about foreign money wasted on incompetent assistance, but the problem is a complex one. A prevailing opinion in economies in transition is that local experts and authorities know perfectly what has to be done, and what is needed is just money. As discussed in previous sections, by and large, this is not the case, and studies can be useful. Indeed striking a balance between consulting and investment is not an easy task.

Is there a way to reconcile environmental effectiveness with donors' economic interests, and a justified desire to spend on actual investment with a need to spend prudently? In 1991 Poland launched an experiment involving a large-scale, long-term debt-for-environment swap. EcoFund, a foundation supervised by a council composed of creditor country representatives and Poles, was designed to address problems that traditional assistance fails to solve. EcoFund is a multilateral facility supporting projects of international significance and consistent with domestic environmental policy. At the same time donors' economic interests are served by procurement carried out through international tenders limited to participating countries (32). With the American, Swiss, French, and Polish firms on board, joined by Swedish and Italian ones, strong competition is maintained and contract prices are not inflated. As EcoFund provides only partial financing (usually up to 30% of the project costs), a significant leverage effect is achieved. As a result each of the creditor countries gets contracts more than it donates in the form of debt forgiveness. The elaborate yet transparent project selection criteria help to achieve cost-effectiveness and balance the need for consulting. In addition, by being placed outside regular government structures and shielded from the political instability characteristic of most economies in transition, EcoFund has become a center of professional excellence. Its impact is already apparent with many domestic funds adopting some of its project appraisal techniques.

Summary and concluding remarks

Economies in transition comprise a highly heterogeneous region. This heterogeneity not only reflects

diversified historical and political traditions, but, more importantly, it also reveals various approaches taken by respective governments after 1989.

All countries shared the heritage of inefficient, polluting economies and lax enforcement. Being an early reformer since the 1970s, Hungary was the first to lower environmental pressure, although not to the relative level observed in the OECD countries. With the collapse of the central planning system and the beginning of structural adjustments, the amount of resources used and pollution emitted decreased drastically. However, not everywhere throughout the region was this decline steeper than the decline in the GDP. In most NIS countries, economic output was falling faster than energy use and emissions. The environmental performance is not only clearly dependent on the pace and quality of restructuring, but also on active environmental policies.

Environmental aspects of the Polish transition have been widely documented. After 1989 the pollution and resource intensity of the GDP improved markedly. What can be demonstrated is that, contrary to some early expectations, environmental improvements were predating progress in energy efficiency. Pollution was reduced significantly as a result of more effective enforcement accompanied by sharply increased environmental investment expenditures. Environmental fund activities have had a decisive impact on the level of spending.

Elements of the Polish model can be found in several countries which — like, for example, the Czech Republic and Lithuania — introduced fairly high pollution charges and improved enforcement. Emphasis shifting from water to air pollution has been characteristic of this process. Countries less advanced in reforming policies — like, for example, Bulgaria, Russia and the Ukraine — spend very little on air protection.

Both more and less successful countries rely almost exclusively on their domestic resources while coping with environmental problems. Except for Estonia, the contribution of international assistance programs to the investment process has been of secondary importance. Nevertheless, the quality, efficiency, and effectiveness of environmental policies in central and eastern European/NIS countries could potentially gain a lot from international cooperation. Although many successful capacity-building projects were carried out, often the advice economies in transition receive is either inconsistent or impractical.

Achieving cost-effectiveness in environmental expenditure and integration with other areas of government activities form the aspects which require substantial improvement everywhere throughout the region. Marketable permit-implementation analyses pave the way for a broader understanding of the need to minimize abatement costs. At the same time there are several areas in which policy integration has been sought without any major

successes as yet, mainly because of the division of responsibility between various governmental bodies.

For many years to come, the energy sector will remain a critical area of government concern and intervention. In Poland, coal mining alone costs the state budget more or less what the public sector (including environmental funds) spends on environmental investment. The price tag attached to the Chernobyl disaster in the Ukraine is set at billions rather than millions of dollars. Huge funds are spent on nuclear safety programs aimed at reducing the risk of a Chernobyl-like disaster in all the countries which, as, for example, Bulgaria and Lithuania, operate Chernobyl-like reactors. In Slovakia plans to build a new nuclear power plant in Muchavce triggered tension with its neighbors, and they face strong resistance both domestically and abroad.

With stationary (mostly industrial and municipal) sources of pollution brought step-by-step under increasingly effective control, the environmental problems in central and eastern Europe and eventually in the NIS will start to resemble those of developed market economies. The policy will have to focus on nonpoint sources of air and water pollution, including car exhaust. In addition, with living standards increased, pressure to develop undeveloped areas will increase and thus intensify conflicts over land use and nature protection. This situation calls for a more proactive approach on the part of governments to incorporate environmental concerns into every aspect of its policies, including agriculture, transportation, and household consumption patterns. As more and more activities are affected by environmental protection measures, cost-effectiveness considerations need to attract more attention.

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