

Denmarks environmental assistance to Eastern Europe

1991-1996

an assessment of project achievements,
environmental policy performance and the
role of foreign assistance

Main report

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Preface

The Danish Environmental Support Fund for Eastern Europe (DESF) was initiated in 1991 by the Danish Parliament. It has gradually extended its scope and field of activities. In the period under review, 1991-1996, DESF supported activities in 13 countries for a total sum of 1.159 billion DKK (approximately 150 million ECU). DESF both offers technical assistance and supports direct investments in the recipient countries. DESF offers transfer of Danish technology and know-how and is hence a bilateral programme based on cooperation between Danish partners and partners in the recipient countries. DESF has been linked with sectoral environmental programmes managed by other Danish ministries¹, with an additional budget of 300 million. DKK for 1994-1996. The separate Environmental Investment Facility for Eastern Europe, which offers soft loans, had from 1995-96 a budget of 150 million DKK.

The purpose of the review of DESF's activities is:

- a) to undertake an independent review of the operational and administrative procedures of DESF,
- b) to draw a balance of the effects achieved through the activities of DESF,
- c) to provide recommendations on the future activities of DESF and the strategy for the provision of assistance to Eastern Europe in the field of the environment.

The evaluation consists of three parts:

(1) A project-oriented evaluation in which a review of 496 projects has taken place. In addition 47 projects have been subject to in-depth review, including inspection by technical experts. This part of the evaluation was conducted by PLS Consult in association with technical experts from Rambøll and Risø.

(2) A country-oriented evaluation in which visits to 8 of the recipient countries were carried out. Interviews were conducted with the national authorities, with other donors and independent experts. In addition, a number of projects were visited. This part of the evaluation was conducted by KPMG in close cooperation with associate prof. Mikael Skou Andersen, the University of Aarhus.

(3) A summarising and strategic evaluation, based on (1) and (2), conducted by associate prof. Mikael Skou Andersen, the University of Aarhus - the present report.

1. Energy Agency, Ministry of Interior, Ministry of Agriculture, Ministry of Transport and Ministry of Housing.

1. Principles for environmental assistance 1991-1996.

1.1. The legislative framework for environmental assistance.

A Bill for the establishment of an environmental support fund for Eastern Europe was proposed by members of the Danish Parliament in November 1989 and the principal decision to establish such a fund was taken by the Parliament on 8 February 1990. The Danish Environmental Support Fund (DESF) became operational in April 1991 upon adoption of the Government's Bill on Environmental Assistance to Eastern Europe (L124).

According to this law, the purposes of DESF should be:

- (1) To reduce pollution in Eastern Europe as well as the transboundary pollution from Eastern Europe,
- (2) To contribute to a development process on more sustainable terms,
- (3) To support nature protection in Eastern Europe,
- (4) To provide technology and know-how within the field of environment and energy.

The purpose should not only be to reduce transboundary pollution with an impact on Denmark, but also to reduce pollution in Eastern Europe more generally. The activities should comprise both traditional end-of-pipe pollution control and the introduction of cleaner technologies, as well as proper nature protection. In acknowledgement of the links between environmental protection and the economic and social development in the region, the purpose of DESF should also be to stimulate a more sustainable development in the region through the funded projects. The support should take place with the transfer of well-known technologies and types of know-how from Denmark.

The law stipulates that the activities should be concentrated in the parts of Eastern Europe closest to Denmark. The 1991-law identified this area quite broadly as Poland, Czechoslovakia, Hungary, the three Baltic republics, and the parts of the Soviet Union closest to Denmark. Also included, but according to the legislative framework given a second priority, should be Romania, Bulgaria, Yugoslavia and Albania.

An additional purpose of the support fund should be to support export of Danish know-how and equipment, and hence increase the share of the market of Danish environmental companies in Eastern Europe. Support should be provided on the basis of what the Danish resource base could offer - as bilateral assistance.

DESF was seen also as an integral component of the wider Danish efforts to provide economic and financial support to the transition economies in Eastern Europe. These efforts have also democratic and security-related aspects. Gradually, the activities of DESF have become a more and more significant part of these activities, and environmental support has become the cornerstone of Denmark's assistance to Eastern Europe.

The activities of DESF have been overseen by a Committee with representatives from economic and environmental interest organisations and other ministries.

1.2. Priorities and efforts 1991-93.

The priorities for the first years of environmental assistance were stated in rather general terms (Miljøstyrelsen, 1991). The possible action areas were identified in broad terms and the assistance was open to adjustments according to attained experiences and the political developments in the recipient countries.

In the 1991-guidelines for applications to DESF, the following five areas were prioritised: 1) Training and education; 2) Environmental aspects of energy supply; 3) Industry and waste; 4) Water (supply and sewage treatment); 4) Environmental aspects of agriculture; 5) Nature protection. There was a general requirement for co-financing, but projects for training and education could be funded up to 100 per cent. There were no fixed shares of support for different types of projects; this would rely on assessments of the individual project proposals.

According to the guidelines, the share of the DESF grant relied on an assessment of five factors: the potential for pollution reduction, the share of co-financing, the project viability, the potential for multiplication of project experiences and the potential for follow-up investments. Some caution was expressed regarding investment projects, and in general these projects would receive a grant of 35-50 per cent of the total costs. The impression from the guidelines and the first annual report is that technical assistance projects were deliberately prioritised in these first years. With regard to investment projects, the strategy was to promote projects that would attract co-investments from domestic or other international source, and which could also have a multiplication effect by serving as demonstration projects of environmental technology. This 'demonstration-strategy' was a replication of the strategy in domestic Danish programmes, e.g. the cleaner-technology programme.

In parallel with the implementation of the programme, the government and the parliament debated the principles for assistance to Eastern Europe. In september 1991 the government presented its action plan for assistance (Regeringen, 1991). In the conclusions of this plan a broad majority in the Danish parliament stressed the need for long-term economic and political reforms, and the principle of sustainable development. The Parliament's security committee specifically prioritised projects in the Baltic Sea region, stressed the need for cooperation with NGO's and emphasised in general the need for a dialogue with the recipient countries on the use of the assistance. In addition it pointed out that the environmental dimension should be integrated in all East-related programmes (Udvalget vedr. Dansk Sikkerhedspolitik, 1991).

From the beginning of the operation of DESF, a cornerstone has been cooperation with the environmental authorities in the recipient countries. In order to pursue this approach, framework agreements have been concluded with the recipient countries' environmental ministries. The framework agreements have been followed by the development of procedures for project identification and selection, although these differ considerably among the different recipient countries. Still, DESF remained an instrument for bilateral support. Applications were invited mainly from Danish firms and institutions, and the support facility itself was published in Danish only.

The geographical coverage of DESF was gradually extended to include also some of the former NIS-countries. In response to the dissolution of the Soviet Union, it was decided in October 1992 to extend the geographical coverage of DESF to include also Russia, russia and Ukraine. For this purpose an extra 60million DKK was allocated to the fund.

	1991	1992	1993	1994	1995	1996
Million DKK	94.8	159.3	185.5	198.5	246.9	288.6

Table 1.1. Annual appropriation of DESF 1991-96.

1.3. The EDRF framework: new priorities and organisational structure from 1994 to 1996.

In late 1992, it was decided to reorganise Denmark's international assistance and to establish a general financial framework for the bilateral aid for environmental issues and catastrophe areas, the so-called Environmental and Disaster Relief Facility. DESF was integrated into this framework, which increased the funding available for environmental assistance to Eastern Europe considerably. Whereas 100 million DKK had been allocated annually (with some extraordinary allocations) from 1991-1993, the funding for environmental assistance was scheduled to increase to 300 million kroner in 1994, and to increase with a further 100 million DKK each consecutive year until 1998 (Finansministeriet, 1993, BetÆnkning nr. 1252, Danmarks Internationale Indsats).

DESF has been supplemented by five sectoral programmes for environmentally related assistance, operated by the Ministries of Energy, Agriculture, Interior, Housing, and Transport respectively. While the sectoral ministries have provided support within their own fields, the Ministry of the Interior has provided support for nuclear protection. A total of 100 millions have been disbursed by the sectoral programmes annually from 1994-1996, while DESF has been responsible for the remaining funds.

Under the framework of EDRF a new strategy for environmental assistance to Eastern Europe has been drawn up (Milj styrelsen, 1993, Delstrategi vedr rende milj indsatser i st- og Centraleuropa, 28.10.93). This strategy applies both to DESF and the sectoral programmes, and has been discussed and approved by the Parliament's Committee for Environment and Planning.

The general purposes of the new strategy for environmental assistance in Europe have been to promote the following aims:

- best possible environmental and nature protection in Eastern Europe and reduction of regional and global pollution, including the transboundary pollution to Denmark,
- contribute to a political and economical development on environmentally justifiable principles, including support for a democratic and market economic development with considerations for the environment,
- promote transfer of eco-know how and technology from Denmark to the countries in Eastern Europe in the interest of the recipient countries and Denmark.

The aim of the new strategy has also been to assure geographical concentration and professional consistency in those fields where a visible and quick support could be provided, and to focus support in those areas where Danish know-how and technology have special qualifications as to offering of assistance. As such, from 1994, there have been more clear indications of which countries and issues that should be supported, than was the case from 1991-93.

Geographically, the focus has remained on the areas closest to Denmark (Poland, the Baltic republics and parts of Russia), especially with regard to water, where the Baltic Sea basin was given priority. In central Europe (Czech

Republic, Hungary and Slovakia) priority was given to projects relating to air pollution. Still, included under the programme, but with less priority, were Belarus, Ukraine, Romania and Bulgaria. In the remaining parts of the former Soviet Union, in the territory of former Yugoslavia and in Albania only individual projects would be supported.

According to the new strategy, the following issues would be given priority:

- Air pollution: conversion of energy supply systems towards renewables and natural gas, energy savings and emission reductions.
- Water pollution: protection and improvement of water supply systems, cleaner technology in industry, improvement of sewage treatment and prevention of agricultural pollution with effluents.
- Waste: hazardous waste, hospital waste and improvement of local waste management as well as recycling of waste from energy production and waste water treatment.
- Nature conservation: National parks, charting and monitoring of areas of natural beauty, planning and management of natural resources, general education and biodiversity.
- Institutional strengthening: capacity-building in environment and nature administrations.

These priorities applied both to DESF and the sectoral programmes. A more specific division of tasks took place subsequently.

1.4. Recommendations from the Audit Department.

In June 1993 the The Public Accounts Committee required the Danish Audit Department to undertake a general review of the coordination, administration and effectiveness of the bilateral support for Eastern Europe. This review also included the environmental assistance under DESF. The review of DESF was based on interviews with the central, coordinating ministerial bodies in the recipient countries and on visits to four environmental projects in Poland, Lithuania, Estonia and the Czech Republic.

The report from the Audit Department was presented in January 1995 and referred to DESF activities carried out from 1991-93. At the general level, the Audit Department criticised the lack of a framework legislation for the assistance to Eastern Europe, which was dispersed among seven different ministries. The Audit Department also noted that the recipient countries had not been sufficiently involved in the selection of projects and that they preferred to receive support for investments rather than technical assistance based on know-how.

With regard to DESF the Audit Department found that, due to the restricted number of staff, "a somewhat informal procedure for consideration of project proposals", that did not meet the general requirements of public management standards, had been applied.

The Audit Department claimed that the supported DESF projects so far could be expected to have only a limited environmental effect as they tended to be local and small-scale. The possible multiplication of the projects would be decisive for the environmental effects, but the lack of domestic sources for financing, e.g. due to the absence of user payment systems, seemed to inhibit or at least limit multiplication.

The effects of the assistance were also seen as restricted by the fact that most projects were initiated by Danish partners and not by the recipient countries, whose option was limited to approving or disapproving of the project. "One has

therefore in practice approved all project proposals without serious considerations about their coherence with other activities in the environmental field" claimed the Audit Department.

More specifically, the Audit Department recommended to improve the management of DESF by;

- the establishment of regular procedures for information to and consultation with the Danish embassies on project proposals,
- strengthening of the accounting procedures,
- more systematic follow-up procedures for the individual projects, including fixed deadlines for reports and on-site inspection of larger investment projects,

1.5. Administrative reorganization of DESF in 1995-1996.

On the basis of the recommendations of the Audit Department and of experiences attained from the operation of DESF, an administrative reorganization took place during 1995. New guidelines for applications were published, and they introduced a new and more standardized approach.

The most innovative step was to complement the application approach by a tendering procedure. According to this procedure projects agreed with the recipient countries would be developed on a common basis and were put out to tender. The purpose with the tendering approach was to avoid the dependency on the proposals that were submitted to DESF from private parties, and to allow the priorities of the recipient countries to play a greater role in the initiation and selection process. This new approach coincided with the development of National Environmental Action Plans (NEAPs) which had been agreed at the pan-European conferences in Luzern and Sofia. The NEAP approach led to the development of comprehensive action plans, that prioritised, or at least listed, environmental projects in need of financial support.

The application system continued to be in operation. Applications have since the end of 1995 been reviewed according to a more standardised evaluation system, which was intended to make the evaluations more transparent. The new scoring system gives equal emphasis to general purpose criteria of DESF (0.35) and internal project logic (0.35), while methodology (0.10) and project leaders' qualifications (0.20) play a lesser role. The scoring system leaves, however, considerable discretion to the officer in charge in the assignment of scores.

The staff of the DESF office at the Environmental Protection Agency in Copenhagen was gradually expanded during 1994 and 1995. The administrative capacity of DESF was further increased by hiring and placing programme coordinators directly in the environmental ministries of the recipient countries. The purpose with programme coordinators was to improve the process by which projects were identified and to improve cooperation with the national authorities. The programme coordinators have been recruited from the domestic ministries and have been introduced in Lithuania, Latvia, Estonia, Slovakia and Romania. More regular procedures for submission of quarterly accounts from the project coordinators to DESF were also introduced.

An effort to document the activities and results of DESF more systematically was made by the establishment of a comprehensive project database, containing information about all the funded projects. The database was gradually established during 1995 and 1996, as data on project leaders, financial contributions, environmental effects etc. were recorded.

However, with regard to the consultation with the Danish embassies it seems that more regular procedures have not been introduced and the on-site inspection of larger investment projects have also not yet been systematized.

While new administrative procedures were established and the resources of DESF expanded, the fund gradually extended its activities into the NIS area and to the Balkan peninsula. Activities in Russia were accelerated, especially in the areas of Saint Petersburg and Kaliningrad, and have made Russia one of the largest recipients of Danish support in later years (cf. below section 3.3.4.). Since 1994, projects were also supported more systematically in Ukraine, Romania and Bulgaria, while an effort was made to initiate projects in Belarus. At the same time, activities were maintained at a high level in the Baltic republics. There was some decline especially in Hungary and the Czech Republic and stagnation in Poland. The expansion of activities eastwards reflected both greater needs and a deliberate policy to improve cooperation with, in particular, the NIS-countries, as well as the possibility of duplicating successful projects in new

countries. A special contribution to Romania was agreed at the Luzern conference where Denmark as part of a general twinning of donors and recipients agreed to take responsibility for assisting Romania in drawing up its NEAP.

From its inception in 1991, DESF has extended its activities considerably, both geographically and in terms of annual disbursements. The changes which have taken place in the management seem to reflect both an internal learning process as well as external recommendations. In 1996, DESF was the most considerable disbursement mechanism of the Danish Environmental Protection Agency, a role that reflects the priority which support for environmental assistance has been given in Denmark.

1.6. Methodology of the assessment.

The methodology of the assessment follows a structure deduced from the programmatic intentions with DESF; which have been both to support specific environmental projects and through this instrument to enhance the more general capacity of environmental protection in the recipient countries.

The assessment of DESF has hence followed a dual path; on one hand a detailed assessment of the implemented projects with a review of the attained results and the internal administrative procedures for project management; on the other hand a broader survey of environmental policies and institutions in the recipient countries and the interaction with foreign assistance. The two paths or components have been labelled the 'project-evaluation' and the 'country-evaluation' respectively.

They offer two different types of conceptual lenses through which DESF activities have been assessed, and observations made in one part of the evaluation needed to be qualified with observations made in the other; insights that seemed logical or apparent from a project perspective often needed to be qualified with insights attained under the country perspective. And vice versa. This Janus-headed assessment approach is best explained as the combination of a top-down and a bottom-up perspective; in the project-evaluation the focus has been a programme management top-down perspective from the programmatic intentions of DESF towards the achieved results, while in the country-evaluation the focus has been a bottom-up perspective, focusing on the recipient's situation and the role that DESF-projects can play in this context. In this final report the two approaches have been synthesized and integrated into an overall assessment of DESF activities.

The **project** assessment consists of three elements. First, a description of the DESF project portfolio based on the information on project management in DESF's own database, supplemented with a questionnaire to the project coordinators of 496 projects. Second, a detailed review of 47 selected projects, based on on-site reviews and inspections with technical experts. Third, a review of internal administrative procedures of DESF.

The **country** assessment focuses on 8 of the 13 countries where DESF operates; i.e. Poland, Estonia, Lithuania, Russia, the Czech Republic, Slovakia, Romania and Ukraine. It has two components. Firstly, a general analysis of environmental policy and financing from 1990-96, supplied by university researchers in the countries.² Secondly, an

2. It was not possible to identify academic experts on environmental policy in Lithuania and Estonia. Reports on environmental policy in Estonia and Lithuania prepared for the Economic Commission of Europe (ECE) were used as basis instead.

assessment of the interplay between DESF project financing and domestic environmental policies, based on interviews with officials in the national environmental authorities, other donors active in the country, persons involved in DESF supported projects on the recipient side as well as independent experts and NGO's.

The assessment has been comprehensive and has been carried out by an exceptional combination of skills; PLS Consult which has experience in programme assessments has been responsible for the project evaluation with technical assistance from Rambøll and Risø. KPMG which has experience in environmental accounting and indicators has been responsible for the country evaluation in close association with Mikael Skou Andersen, who is an associate professor in political science at the University of Aarhus specialised in comparative environmental policy and economics. Mikael Skou Andersen has also been responsible for the synthesis report and for leading and coordinating the assessment process. Several meetings were held during the assessment process within the review team, as with members of DESF staff, to assure coordination and avoid overlap and duplication of efforts.

The report output from the assessment consists of;

- 1) A synthesis final report (the present), prepared by Mikael Skou Andersen. In English.
- 2) The project evaluation report with an annex containing detailed reviews of 47 selected projects, prepared by Morten Kvistgård, Head of Department, and Janne Sylvest, consultant, PLS Consult. In Danish.
- 3) 8 country evaluation reports prepared by Villy Dyhr, senior consultant, KPMG. In Danish. The country-reports contain annexes with reports prepared by Jerzy Sleszynski, Warsaw University; Elena Nikitina and Vladimir Kotov, Russian Academy of Sciences, Vadim Diukanov, Kiev-Mohyla Academy; Petr Jehlicka and Martin Branis, Charles University Prague; Jan Szollos et. al., Slovak Academy of Sciences and Daniela Constantin, Academy of Economic Studies of Bucharest. In English.³

The structure of the final report follows the structure of the assessment. In chapter 1 an overview of the intentions and policies of DESF in the period 1991-96 was provided. In chapter 2 the project portfolio is presented and the main results of the project assessment are summarised and discussed. They are supplemented by a financial analysis of DESF projects. In chapter 3 the main results of the country assessment are summarised and discussed. In chapter 4 a number of key issues and problems related to foreign support for environmental protection are raised and some observations regarding DESF performance are provided. In chapter 5 the concluding assesment of DESF activities for 1991-1996 is presented.

For more detailed information on specific aspects, the reader may have to refer to the sub-reports. On the other hand, the process of synthesizing the assessment has in some cases necessitated additional analysis of the primary data, and not all the findings presented in the final report have been included in the subreports.

The conclusions and recommendations provided in the final report have been reached in consensus among the members of the review team.

3. The environmental policy reviews have also been published separately at the occasion of the Fourth Pan-European Conference on the Environment in Aarhus 1998.

2. Description and assessment of DESF projects.

2.1. The distribution of support on recipient countries and sectors.

From 1991 to 1996 DESF made grants available for 1.160 billion DKK (equivalent to 150 million ECU) to a total of 496 projects.

Number of projects	91	92	93	94	95	96	91-96	Mill. DKK	Share
Poland	22	43	26	20	16	11	138	345	29.7%
Estonia	7	7	4	5	3	8	34	64	5.5%
Latvia	2	3	4	5	11	11	36	81	7.0%
Lithuania	2	9	4	12	13	23	63	146	12.6%
Russia	-	10	8	9	9	10	46	156	13.4%
Czech Republic	15	9	8	5	6	4	48	73	6.3%
Slovakia	2	2	1	1	7	3	16	44	3.8%
Hungary	6	11	4	2	1	3	27	38	3.2%
Romania	-	-	1	2	1	8	12	48	4.1%
Bulgaria	-	-	1	1	3	6	11	22	1.9%
Ukraine	-	-	1	2	7	3	13	41	3.5%
Belarus	-	1	1	1	3	3	9	15	1.3%
Other	4	5	4	6	10	14	43	89	7.7%
Total	60	100	67	71	90	107	496	1160	100%

Table 2.1: Distribution of projects on the consecutive years 1991-1996 and the total grants provided to projects in the recipient countries.

Table 2.1. shows the distribution of the number of projects and the financial support on the recipient countries. The financial support is expressed in grants; in many cases it was transferred in a later year and in a few cases not yet released at the time of the review due to DESF payment procedures (payment at time of delivery) or delay of projects.

The most important recipients of grants from DESF have been Poland and the three Baltic Republics, followed by Russia. This distribution reflects the priority accorded to the Baltic Sea region by DESF. The activities were especially marked in Poland in the first years of DESF operation, but declined in 1995 and 1996. Also the activities in the Czech Republic and Hungary have declined compared with the first years. Among the three Baltic republics, Lithuania stands

out as the most significant beneficiary of DESF activities. In 1996, there were more projects initiated in Lithuania than in Poland. Table 2.1. shows that the annual number of projects in Russia has been fairly constant, but in fact the economic contributions have increased and made Russia one of the most important beneficiaries of DESF activities in 1996. In later years, activities have also increased significantly in Romania, Bulgaria and Ukraine, although the share of DESF funds accorded to these countries remain at a lower level than for the countries in the Baltic Sea region.

Table 2.2. shows the distribution of projects and grants on the main types of activities. 41 per cent of the projects and 48 per cent of the grants have been placed in the water sector. The second most important type of activity has been air pollution, where 22 per cent of the projects and 23 per cent of the grants have been placed.

The single most important type of activity has been support for waste water treatment plants, where 31 per cent of the grants have been provided. The activities consist mainly in upgrading and renovation of existing plants, although in some instances complete plants have been installed. Within air pollution, the emphasis has been on energy production and sustainable energy projects, e.g. geothermal energy, windmills and air pollution abatement equipment or end of pipe technologies in the energy and industry sectors.

Although only accorded a smaller share of the total grants, projects within nature protection and institutional strengthening make up for 19 per cent of the total number of projects. Unsurprisingly, projects within these fields are less costly than projects in the water and air pollution sectors.

		Number of projects	%	DESF grant (mill.)	%
A1	Energy production	24	5%	82.6	7%
A2	Sustainable energy	52	10%	111.0	10%
A3	Industry	20	4%	63.5	5%
A4	Recipient	4	1%	2.3	0%
A5	ODS (CFCs)	8	2%	10.0	1%
	<i>Air pollution, total</i>	108	22%	269.5	23%
B1	Drinking-/ground water	36	7%	78.2	7%
B2	Waste water	102	21%	354.2	31%
B3	Industrial waste water	34	7%	74.2	6%
B4	Recipient	17	3%	20.8	2%
B5	Oilpollution abatement	13	3%	30.6	3%
	<i>Water, total</i>	202	41%	558.1	48%
C2	Waste	39	8%	78.8	7%
C3	Hazardous waste	28	6%	62.0	5%
	<i>Waste, total</i>	67	14%	140.8	12%
D	Institutional strengthening	54	11%	63.8	5%
E	Nature protection	39	8%	63.1	5%
F	Soil pollution	5	1%	8.0	1%
G	Nuclear protection	11	2%	35.4	3%
I	Other	10	2%	21.4	2%
	<i>Total</i>	496	100%	1160	100%

Table 2.2. The distribution of projects and grants in main fields of activities.

	<i>Type of activity:</i>	Number of projects	Per cent	DESF grant (mill)	Per cent
IN1	Disposition- and project proposals	35	7%	102	9%
IN2	Construction and operation	25	5%	115	10%
IN3	Equipment	128	26%	507	44%
	<i>Investment projects, total</i>	188	38%	724	62%
TA1	Analysis, studies and plans	136	27%	170	15%
TA2	Monitoring	14	3%	27	2%
TA3	Investigations	106	21%	170	15%
TA4	Training and education	45	9%	51	4%
	<i>Technical assistance, total</i>	301	61%	418	36%
A	Miscellaneous	7	1%	18	2%
	<i>Total</i>	496	100%	1160	100%

Table 2.3. The distribution of projects and grants on main types of activities plus share of hard investments.

The projects have been classified according to their predominant character as either investment projects or technical assistance projects, cf. table 2.3.

Among the investment projects, the classification differentiates between three types of projects: 1) Disposition and project proposals are projects that serve as preparation for subsequent investment projects; 2) Construction and operation projects are direct investments in facilities, while 3) Equipment projects are projects that supply equipment as a contribution to or component of existing installations or larger co-financed projects.

Among the technical assistance projects the classification differentiates between four types of projects; 1) Analysis, studies and plans that comprise TA projects of a more general and long-term oriented nature such as plans for waste management or ODS phase-out, often at regional or national level; 2) Monitoring; 3) Investigations, which comprise feasibility studies, often at project level and 4) Training and education.

Table 2.3. shows the number of projects within each category as well as the share of the DESF grants provided. The investment projects comprise also a certain element of technical assistance in terms of man-hours spent on planning, installation and supervision of the delivery of hard equipment, and the last column shows for each project category the share of funds spent purely on 'hard' equipment.

It follows from table 2.3. that investment projects comprise 38 per cent of the total number of projects, but count for 62 per cent of the actual grants. Technical assistance projects make up 61 per cent of the total projects, but count for only 36 per cent of the grants. These figures show that DESF activities are predominantly investment-oriented, although a distinct element of technical assistance is also present.

The investment oriented character of DESF activities does not imply that grants are spent on hard equipment only. In the case of construction- and operation projects (category IN2) about 21 per cent of the funds are used for hard equipment, while the remaining is spent on mainly labour services (engineering, consulting, project supervision), travels and other items. In the case of equipment projects (category IN3) a higher share of funds are used for hard equipment (46 per cent) but a substantial share of the resources are used also for other purposes deemed necessary for the projects.

It follows from table 2.3. that while construction- and operation projects have been relatively rare (only 25 projects), supply of environmental equipment has been a main focus of DESF activities. 128 projects (26 per cent) and 44 per cent of the grants relate to this type of activity.

Among the technical assistance projects especially "Analysis, studies and plans" (TA1) as well as "Investigations" (TA3) dominate. Each category accounts for 15 per cent of the grants, but the latter category (TA3) tends to be slightly more costly per project.

Table 2.4. presents a break-down of grants and projects on each of the consecutive years from 1991 to 1996. Grants are indicated in million kroner (rounded figures) and in brackets are indicated the number of projects. Table 2.4. illustrates how DESF from 1993 has changed its orientation significantly from technical assistance to investment projects.

	<i>Type of activity:</i>	1991	1992	1993	1994	1995	1996
IN1	Disposition- and project proposals	5 (2)	5 (3)	38 (11)	18 (11)	29 (7)	6 (1)
IN2	Construction and operation	0	11 (4)	20 (3)	13 (4)	51 (11)	21 (3)
IN3	Equipment	12 (8)	39 (14)	89 (24)	130 (27)	76 (20)	160 (35)
	<i>Investment projects, total</i>	17 (10)	54 (21)	147 (38)	161 (42)	156 (38)	188 (39)
TA1	Analysis, studies and plans	25 (17)	45 (34)	16 (16)	19 (11)	24 (26)	40 (32)
TA2	Monitoring	1 (1)	8 (4)	-	1 (1)	16 (6)	1 (2)
TA3	Investigations	30 (23)	53 (32)	10 (9)	22 (11)	23 (13)	32 (18)
TA4	Training and education	6 (9)	9 (10)	3 (2)	2 (5)	6 (6)	25 (13)
	<i>Technical assistance, total</i>	63 (50)	114 (80)	30 (27)	43 (28)	70 (51)	98 (65)
A	Miscellaneous	1 (1)	-	0 (1)	2 (1)	1 (1)	14 (3)
	<i>Total</i>	81 (61)	169 (101)	177 (66)	207 (71)	227 (90)	299 (107)

Table 2.4. Distribution of DESF grants on types of investment and technical assistance projects 1991-1996; indicated in million DKK (in brackets: number of projects) (N=496).

While in 1991 only 10 smaller investment projects were initiated, the years from 1993 to 1996 each featured about 40 new investment projects, at an increasing level of expenditure. Actual construction and operation projects, at an average expenditure level up to 7 million DKK, have remained limited in number, except in 1995. The focus has increasingly been on the supply of equipment in projects with an average expenditure level of 4-5 million DKK. In 1996 more than half of the DESF grants were committed for 36 such projects.

Technical assistance played a significant role in 1991 and 1992, the two first years of DESF operation. A sharp decline in technical assistance took place in 1993, reflecting not only that some of the projects were followed by investment projects, but also an increased scepticism in the recipient countries as well as in the programme administration as to the benefit of some of these projects. While 80 technical assistance projects were approved in 1992, only 27-28 were approved in each of the following years. With the increased DESF budget more technical assistance projects have been approved in 1995 and 1996. Although in 1996 about two thirds of the budget was spent on investment projects, more than 65 new technical assistance projects were initiated with a budget appropriation close to that of 1992.

	<i>Type of activity:</i>	1991	1992	1993	1994	1995	1996	Average
TA 1-4	Technical assistance, all types	2% (11%)	3% (6%)	2% (2%)	4% (4%)	2% (2%)	1% (9%)	2% (7%)
IN1	Disposition- and project proposals	35% (47%)	5% (15%)	16% (88%)	24% (80%)	21% (49%)	-	19% (80%)
IN2	Construction and operation	-	36% (83%)	58% (94%)	0% (91%)	44% (93%)	-	44% (92%)
IN3	Equipment	21% (72%)	36% (71%)	47% (82%)	53% (81%)	52% (79%)	74% (91%)	50% (80%)
IN 1-3	<i>Investment projects, total</i>	24% (67%)	32% (71%)	44% (82%)	47% (81%)	42% (84%)	74% (91%)	50% (82%)
	<i>Total</i>	6% (29%)	11% (44%)	36% (83%)	36% (78%)	29% (84%)	33% (91%)	25% (70%)

Table 2.5. Share of DESF grant allocated to 'hardware' equipment; and in brackets share of total project financing allocated to 'hardware' equipment. 1991 to 1996. (N=342).

Table 2.5. presents a detailed specification of the relative share of the DESF grant which is used for hardware. The DESF grant is normally only one component of the project budgets, which often also includes self-financing and contributions from other sources. Hence table 2.5. also presents a specification (in brackets) of the relative share of the total project budgets which is used for hardware. This decomposition can only be presented for finalised projects.

It is not surprising that the DESF hardware share was rather low in 1991-1992, when DESF mainly applied its resources for technical assistance. From 1993-1995, the share spent on hard equipment, mainly transferred from Denmark to the countries in Eastern Europe, was from 29-36 per cent - highest in 1993-94. Within the group of investment projects the share is higher and in has average been 50 per cent.

In brackets are specified the relative share of hardware expenses from the total project budgets. In general the hardware share is higher, when also including the other financial sources. In average the overall hardware share has been 70 per cent. Within investment projects the hardware share has been at 82 per cent. The east european countries are responsible for the main part of the co-financing, and they prefer to focus on the purchase of hardware equipment. This tendency explains why the hardware share is higher when measured against the total project budgets, than when measured against the DESF grants *per se*.

2.2. The distribution of support on types of project contractors and patterns of cooperation.

DESF is a programme for bilateral assistance and relied from 1991-96 mainly on applications received from project contractors of Danish origin, although in 1996 about half of the project portfolio was developed on a tendering basis. Table 2.6. shows the distribution of projects and grants on different types of project contractors.

Type of project contractor	Number of projects	Per cent	Share of grants (mill.)	Per cent
Consultants	203	61%	522	63%
R&D institute	41	12%	69	8%
Equipment supplier	29	9%	72	9%
Environmental NGO	9	3%	13	2%
State authority	7	2%	14	2%
Local/regional authority	3	1%	2	0%
Public utility	3	1%	25	3%
Manufacturer	3	1%	8	1%
Industrial sector organisation	2	1%	3	0%
Material supplier	1	0%	3	0%
Other	30	9%	94	11%
Total	331	100%	824	100%

Table 2.6. Distribution of projects and grants on different type of project contractors.

Professional consulting companies have been the dominating type of project contractors for DESF projects; about two thirds of the projects and grants have been channelled to projects in Eastern Europe through this type of project contractors. The remaining projects have been coordinated by a broad range of different actors, with research institutes and equipment suppliers as the most frequently occurring.

Type of partner in Eastern Europe (n-number of projects)	Partner 1	Partner 2	Partner 3
Local/regional authority	76	22	11
State authority	55	27	10
Consulting company	47	37	16
Public utility	41	21	8
R&D institute	27	11	5
Manufacturer/industry	15	4	5
Environmental NGO	6	2	0
Industry (beneficiary)	4	6	4
Equipment supplier	1	3	1
Industrial sector organisation	1	2	0
Other	21	13	3
No reply	53	199	281
Total	347	347	347

Table 2.7. Partners and recipients of project output in Eastern Europe (Source: PLS questionnaire; N=347).

156 different project contractors have been involved in the management of the 496 DESF projects. Two thirds of the grants have been provided to 20 companies often acting as project contractors. The five most frequently used have been: CowiConsult (48 projects), Kr,ger A/S (37 projects), Rambøll, (24 projects), Carl Bro A/S (21 projects) and Vandkvalitetsinstituttet (19 projects). These five companies have managed projects with grants equivalent to about 1/3 of the total DESF disbursements.

Table 2.7. shows the partners and recipients of project output in Eastern Europe (Data on the partners involved was collected through a questionnaire to the project contractors, which obtained a reply rate of 70 per cent). Up to three partners could be indicated, but most projects included only one or two partners. Table 2.7. shows that the most important project partners have been local and regional authorities, followed by state authorities, consulting companies and public utilities. Local and regional authorities often stand as the beneficiaries of improvements in waste water treatment or water supply, as well as of waste management proposals. State authorities are more often involved in projects related to capacity building, strategic planning or legislative advice. Consulting companies often become involved in the recipient countries to facilitate cooperation with the recipients of the support, and increasingly projects are carried out in close cooperation between a Danish and a local consulting company. Besides the linguistic and financial advantages of including local consultants in the projects, there are examples that such collaboration improves the future capacity for environmental modernisation in the country. Public utilities are often involved both as partners and beneficiaries in the energy, water and waste sectors.

Table 2.7. also shows that industry has only rarely been involved as a partner in the projects. In 15 cases industry has been the most important partner and in only 4 cases has an industry or commercial enterprise been the beneficiary of a project. This seems to reflect the difficulties with involving industrial enterprises that have been or still are in the uncertain process of transition to a market economy. Also environmental NGOs have only in relatively few instances been included as project partners, mainly within nature and wildlife conservation as well as in a few capacity-building projects.

2.3 Financing and co-financing of projects.

Projects financed by DESF grants are often combined with financial contributions from other sources. This approach has been a deliberate policy from the DESF administration. By assuring a financial contribution also from a source in the recipient country, the DESF administration can be relatively confident that the project is also of substantial priority to the recipient. Apart from that, co-financing is normally a precondition for implementation of large investment projects, e.g. waste water treatment plants.

A second financial strategy which DESF has followed, has been to prepare for loans from international financial institutions (IFIs), such as EBRD, NEFCO or the World Bank. In addition to this strategy projects have also been matched with other bilateral donors. From 1991-96 DESF has engaged in IFI-projects with a total commitment of about 460 million ECU or about 3.5 billion DKK. In addition DESF was engaged in further 7 projects with other bilateral donors, with a total commitment of about 40 million ECU or about 300 million DKK. Donor- and IFI-coordination takes place inter alia through the PPC, the Project Preparation Committee.

Table 2.8. presents a breakdown of the financial sources, but the table does not contain information on loans from IFI's. The information in the table is based on information on finalised or reported projects, and does not fully reflect the financial pattern that has emerged in the wake of the more recent attempts towards donor matching.

On the Danish side, the contribution from DESF can be supplemented both by **soft loans** and by **partner** contributions and equities; the latter is often the case in projects where the Danish partner is involved also in the subsequent operation of the facility (e.g. in waste management). On the **recipient** side there is a broad range of possible sources, which differ considerably from country to country. It is only seldom the recipient *per se* which contributes. Normally, the financing consists of contributions from either environmental funds, the state budget or local budgets or combinations of these. In the case of projects within the water, energy and waste sectors, the relevant public utilities (waterboards, energy utilities etc.) have their own budgets, provided that user-payment has been introduced, and these can often be an important source of co-financing. Independent environmental funds, based on environmental charges or debt-for-environment-swaps play a significant role in some countries. Because of the diversity of financial arrangements, table 2.8. shows only the aggregate contribution from the recipients side. **Donations and loans from other sources** are the contributions from other donors, either the EU-programmes PHARE and TACIS or other bilateral donors.

	DESF grants	DK soft loans	DK partner	Recipient	Donations, other	Loans, other	Sum
Poland	20%	-	2%	71%	7%	1%	100%
Estonia	83%	-	2%	10%	1%	3%	100%
Latvia	55%	-	2%	32%	7%	4%	100%
Lithuania	27%	10%	1%	62%	-	-	100%
Russia	46%	-	3%	46%	5%	-	100%
Czech R.	23%	-	12%	61%	-	4%	100%
Slovakia	13%	-	-	87%	-	-	100%
Hungary	42%	-	1%	57%	-	-	100%
Romania	100%	-	-	-	-	-	100%
Bulgaria	60%	-	1%	39%	-	-	100%
Ukraine	80%	-	19%	-	-	-	100%
Belarus	52%	-	2%	17%	-	29%	100%
Total	29%	1%	3%	62%	4%	1%	100%

Table 2.8. Financial sources of projects with DESF involvement (N=342).

The figures on the financial contributions to the DESF-supported projects, as presented in table 2.8., and reflect the actual financing which it was possible to obtain for the finalised and reported projects. In case of projects that are still under implementation or which have not yet been reported, only expectations and plans regarding the financial contributions are available and these are not included.

Table 2.8. shows that DESF grants have been matched significantly with finances from other sources. While DESF grants in average have financed 29 per cent of the project portfolio, other Danish contributions have remained modest (soft loans 1 per cent and partner contributions 3 per cent), so that the total Danish contribution to the projects in average is about 33 per cent. Sources in the recipient country (i.e. environmental funds, state budget or budgets at local utilities or authorities) contribute 62 per cent. Other bilateral donors have provided 4 per cent.

The specification of the financial contributions at country level provides also revealing information as to the different financial opportunities and constraints in the various recipient countries.

It must be stressed, though, that the figures are average figures, and that there are considerable differences among different types of projects. Often the financing of a few 'mega-projects' offsets the financing pattern of many smaller projects, with solo DESF funding being more common among the smaller projects, and complicated financial packages being more typical for the large infra-structural projects related to, e.g., waste water treatment.

Poland and **Slovakia** stand out as the two countries with the strongest domestic financial capacity, having financed more than 70 per cent of the projects themselves. In Poland DESF funds have covered only 20 per cent of the project

portfolio, but the explanation lies partly with some very large geothermal energy projects based on co-financing and domestic sources. The reason for the considerable financing capacity lies basically with the existence of the Polish environmental funds, mainly the National Fund, which collects environmental charges and taxes and utilise them for environmental investments and loans (see also section on Poland in chapter 3). Furthermore, many bilateral donors have been active in Poland, and cooperation seems reasonably well developed with an average contribution of 7 per cent to the DESF projects. The **Czech Republic** and **Hungary** have a lower, but still impressive, level of self-financing than the other two Visegrad-countries.

The Baltic Republics have in general a more limited financial capacity for environmental purposes. Self-financing has only been 10 per cent in **Estonia**. In Latvia, the share has been 32 per cent, while in **Lithuania** it is an impressive 62 per cent. Lithuania has also utilised Danish soft loans. On this background the DESF grants have covered from 27 to 83 per cent of the project costs in the Baltic states.

Russia seems to have a higher financial capacity than some of the Baltic Republics. 46 per cent of the project costs have been self-financed. The figure seems to contrast with the often more pessimistic perception of the financial opportunities in Russia, which has only weak environmental funds. The explanation seems to be that several DESF projects relate to water supply, sewer renovation and waste water treatment, where the Russian water

		DESF grants	DKsoft loans	DK partner	Recipient	Donations	Loans	Sum
A1	Energy production	14%		1%	85%	-	-	100%
A2	Sustainable energy	25%	-	10%	48%	18%	-	100%
A3	Industrial air pollution	33%	-	6%	57%	-	5%	100%
A4	Recipient/air	57%	-	-	43%	-	-	100%
A5	ODS (CFCs)	95%	-	-	-	5%	-	100%
B1	Drinking-water	45%	-	3%	49%	1%	2%	100%
B2	Waste water	23%	1%	1%	73%	1%	-	100%
B3	Industrial waste water	45%	33%	2%	20%	-	-	100%
B4	Recipient-/water	69%	-	4%	27%	-	-	100%
B5	Oil pollution abatement	70%	-	-	30%	-	-	100%
C2	Waste	82%	-	5%	12%	1%	-	100%
C3	Hazardous waste	53%	-	21%	17%	-	9%	100%

D	Institutional strengthening	89%	-	7%	4%	-	-	100%
E	Nature protection	22%	-	1%	51%	20%	5%	100%
F	Soil pollution	100%	-	-	-	-	-	100%
G	Nuclear protection	71%	-	13%	17%	-	-	100%
I	Other	25%	-	3%	72%	-	-	100%
	<i>Total</i>	29%	1%	3%	62%	4%	1%	100%

Table 2.9. Relative share of various financing sources in main fields of activities (N=342).

boards have their own finances. The Saint Petersburg area is the first place in Russia where user-fees for water have been introduced, hence providing a limited but independent flow of financial resources.

The financial situation in the new programme countries **Belarus**, **Ukraine** and **Romania** seems to be more difficult - in particular in Ukraine and **Romania** which have not been able to contribute to any of the finalised DESF projects. However, projects are under implementation in **Romania** with more considerable co-financing. In **Bulgaria**, the situation looks better, with a share of 39 per cent.

Table 2.9. shows, in the main fields of activities, the role of different financing sources.

The DESF share varies considerably between different fields of activities. DESF donations cover more than 70 per cent of the project costs within the fields ODS phaseout, water recipients, oil pollution, institutional strengthening, soil pollution and nuclear protection. At the opposite side of the spectrum lies energy projects, waste water projects and nature protection, with less than 30 per cent DESF contributions.

Correspondingly, the recipient countries contribute above their average share to energy supply projects and waste water projects, while small or no contributions have been afforded projects within ODS phaseout, industrial water pollution, oil pollution, waste management, institutional strengthening, soil pollution and nuclear protection.

Other donors have been involved mainly in sustainable energy and nature protection. Danish soft loans have been provided in the fields of municipal and industrial waste water treatment.

The general pattern, across the different countries, seems to be that the recipients are best prepared to contribute to projects which are investment oriented in conventional systems within the fields of energy and water. Partly, this is due to the existence of financial resources independent of the state budget in energy utilities and water boards, but may also reflect the priority of environmental funds. DESF hence has to offer a more comprehensive funding for projects which address issues without such financial backing in the recipient countries, e.g. soil pollution and recipient investigations.

	Waste water	Sustainable energy	Average share of self-financing
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	projects (B2)	projects (A2)	
Poland	70%	39%	71%
Estonia	-	-	10%
Latvia	58%	9%	32%
Lithuania	80%	3%	62%
Russia	56%	28%	46%
Czech Rep.	0%	18%	61%
Slovakia	94%	0%	87%
Hungary	16%	72%	57%
Romania	0%	-	0%
Bulgaria	0%	58%	39%
Ukraine	0%	0%	0%
Belarus	0%	-	17%

Table 2.10. Share of self-financing of projects within waste water treatment and sustainable energy (N=342).

Table 2.10. shows the share of self-financing by the recipient countries within the two project categories with the largest DESF disbursements; waste water treatment and sustainable energy projects. The pattern is in some respects more clear; Poland, Slovakia and Lithuania have a relatively high degree of self-financing of waste water projects. Waste water projects depend especially on the availability of local funds e.g. from water boards. Within the project category sustainable energy self-financing relies more on national sources (state budget or environmental funds). In this category it is mainly Poland, Hungary and Bulgaria which have high shares of self-financing, in all probability a reflection of the strength of environmental funds in these countries.

2.4. The implementation of projects.

2.4.1. Assessment of implementation by project contractors.

As part of the assessment, a questionnaire was mailed to the project contractors, in order to acquire their opinions and experiences regarding the implementation of the projects. The results of the questionnaire are fully reported in the PLS report, but some main findings are mentioned here. 70 per cent of the project contractors returned the questionnaire.

The project contractors have generally been satisfied with the cooperation with their partners in Eastern Europe. The most pronounced degree of satisfaction is found among those project contractors that cooperated with public authorities or utilities. About 90 per cent found the cooperation satisfactory or very satisfactory. Less satisfied were project contractors who cooperated with private firms in Eastern Europe, such as suppliers of equipment. Respectively 21 per cent and 14 per cent found the cooperation unsatisfactory or very unsatisfactory.

Linguistic and financial difficulties with the east European partners are the issues most frequently mentioned by the project contractors as having a negative influence on project implementation. Table 2.11. summarises the results

regarding factors with positive and negative influence.

Influence:	Positive	No	Negative
Willingness to cooperate	83%	11%	6%
Language skills	24%	36%	40%
Working traditions	23%	56%	21%
Communication	30%	46%	23%
Professional skills of heads	55%	40%	5%
Professional skills of employees	52%	42%	5%
Environmental consciousness	53%	42%	5%
Infrastructure	12%	67%	22%
Financing	13%	49%	39%

Table 2.11. The influence of various factors relating to the partners in Eastern Europe on cooperation. As assessed by the Danish project contractors (Source: PLS, 1998a: 23).

The project contractors were also asked to assess the degree of target fulfillment. 89 per cent of the contractors stated that the project had been fulfilled to a satisfactory or very satisfactory degree. 11 per cent of dissatisfied contractors had been involved in quite different types of projects, but waste management projects and projects in Poland were somewhat overrepresented.

The project contractors were also asked to give their opinion on the cooperation with the DESF administration. 80 per cent of the respondents found that the general organization of DESF is satisfactory or very satisfactory. There was also a pronounced degree of satisfaction among the respondents as regards information about DESF. However, 25 per cent of the respondents complained about a lack of transparency regarding DESF's considerations on project proposals. Many project contractors were missing a more explicit indication of focus areas and countries of priority to DESF funding.

The time used by DESF to consider project proposals is the issue that receives the most critical remarks by the project contractors. 32 per cent are not satisfied on this point. The professional competence of the DESF officers is regarded higher; only 10 per cent express some dissatisfaction. But there are many project contractors who miss a more active role and interest from DESF personnel during the implementation of the projects.

2.4.2. Assessment of the implementation of 47 selected projects.

A crucial component of the DESF assessment has been a review of 47 selected projects. The review comprised interviews with the project partners in eastern Europe and an on-site inspection of the equipment, when such equipment was part of the project.

The selection of projects matched the overall DESF project portfolio grant distribution on the different activity fields. Furthermore, two thirds were investment projects and one third were technical assistance projects. Six projects were

projects after the tender model, while the remaining were projects that had been selected according to the application model.

Each of the 47 projects is described and assessed in a separate report (in Danish). Each project has been assigned a score on seven variables, that are deduced from the general principles for DESF operation. The variables reflect both project internal targets as well as programmatic targets for DESF activities. A project may thus receive a high score for target fulfillment but at the same time a lower one for programme consistency, if it is found to be somewhat out of scope with the DESF activities. Of course a project may also be well in scope with the DESF targets, but poorly implemented. Only a project that is both out of scope and poorly implemented will receive a very low score. On the other hand only projects that are in scope and well implemented will be assigned a high score.

At project level the following four parameters have been assessed:

1. Involvement and cooperation among the partners.
2. Degree of target achievement (according to the initial targets of the projects).
3. Degree of co-financing.
4. Communication of results.

At programme level the following three parameters have been assessed:

1. The contribution to limit pollution, in eastern Europe or regionally, or to support nature protection,
2. The contribution of the project towards a more sustainable development process.
3. The transfer of relevant technology and know-how.

On each parameter the project either received the score 'high' or 'low'. A more differentiated scale was not considered appropriate when seven different parameters were involved. Two parameters were seen as more significant than the other five, and were counted twice in the computation of the average; the target achievement and the pollution control effect. The maximum number of 'High' that a project could achieve was 9, which gave the following classification scale for the assessment of the projects:

- 0-1 H: Very dissatisfactory,
- 2-3 H: Dissatisfactory.
- 4-5 H: Less satisfactory.
- 6-7 H: Satisfactory.
- 8-9 H: Very satisfactory.

The assessment of the six tender projects did not follow this procedure, however. They were all six still under implementation and were assessed in more general terms.

An overview of the reviewed projects and the assigned scores is presented in table 2.16. at the end of this chapter.

15 projects achieved the score 8 or 9 (very satisfactory). 16 projects achieved the score 6 or 7 (satisfactory). 7 projects achieved the score 4 or 5 (less satisfactory). 3 projects achieved the score 2 or 3 (dissatisfactory). The average score for these 41 projects was hence 6.6, implying that the average result at project level was satisfactory.

Of the six tender projects 2 were found to be very satisfactory, 2 were found to be satisfactory, 1 one was found to be less satisfactory and 1 was found to be dissatisfactory. Also among the tender projects the result was on average satisfactory.

2.5. Environmental effects.

The overall environmental effects of the DESF financed projects have been computed on basis of information provided by the project contractors. This information was provided both through the reporting of finalised projects to the DESF administration as well as through the questionnaire to the project contractors. The information on reported projects was updated in September 1998.

Air pollution	Unit/ year	Achieved ef- fect (N=29)	Stipulated effect (N=13)	Sum
Sulphurdioxide, SO ₂	tons	5,197	30,208	35,405
Carbondioxide, CO ₂	tons	332,862	167,885	500,747
Nitrogenoxides, NO _x	tons	8,486	464	8,950
Suspended dust and particulates	tons	23,375	3,289	26,664
Fly ash	tons	1,280	105,000	106,280
Volatile organic compounds, VOC	tons	1,082	752	1,834

Table 2.12. Achieved and stipulated effects - air pollution (N=42).

Water and water pollution	Unit/ year	Achieved ef- fect (N=28)	Stipulated effect (N=37)	Sum
Water supply savings	m ³	800	1,000,000	1,000,800
Established water supply	mio m ³	12,485	38,000	50,485
Sewage pipes in km.		39	-	39
Water consumption savings, industry	mio m ³	1,654	1,172	2,826
Reduction of organic matter	PE ⁴	407,945	1,866,073	2,274,018
Reduction of organic matter (BOD)	tons	8,934	40,867	49,801
Reduction of organic matter (COD)	tons	453	434	887
Reduction of nitrogen (N)	tons	2,230	11,722	13,952
Reduction of phosphorus (P)	tons	199	1,257	1,456
Reduction of heavy metals	tons	141	1,862	2,003

Table 2.13. Achieved and stipulated effects - water and water pollution (N=65).

It is mainly investment projects which have or will result in direct environmental effects. Of the total project portfolio of 496 projects, 188 projects were investment projects, but they count for two thirds of the total DESF disbursement.

Of the 188 investment projects, 135 have reported achieved or stipulated environmental effects. 42 projects have reported air pollution reductions, 65 projects have reported effects related to water and water pollution, 4 have reported effects relating to oil pollution, 14 have reported effects with relation to waste management, 8 have reported effects with relation to soil pollution and 2 have reported nuclear protection effects.

Waste management	Unit/ year	Achieved ef- fect (N=8)	Stipulated effect (N=6)	Sum
Landfill capacity	tons	341,000	395,000	736,000
Incineration	tons	-	1,445	1,445
Recycling	tons	1,510	10	1,520
Hazardous waste deposits	tons	830,000	16,000	846,000

4. PE is person equivalents (21.9 kg BOD).

Recycling hazardous waste	tons	2,600	-	2,600
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Table 2.14. Achieved and stipulated effects - waste management (N=14).

The environmental effects within nature protection are difficult to quantify and can not be compared directly with the emission reductions above.

With regard to air pollution 5,197 tons of SO₂, 8,486 tons of NO_x and 332,862 tons of CO₂ have been reduced as a consequence of projects implemented with DESF support. Further reductions of about 30,000 tons SO₂ and 167,000 tons CO₂ are stipulated.

With regard to water pollution, a organic matter (BOD) equivalent to 407,945 inhabitant equivalents annually has been removed. A capacity for removal of further 1,866,000 inhabitant equivalents will be established or modernized as a result of the current DESF effort. Such modernization implies in many instances phosphorus and nitrogen removal at standards close to the Danish. Water savings of annually 1.6 million m³ has been achieved in industrial enterprises.

With regard to waste management, a hazardous waste capacity of annually 830,000 tons has been established. Landfill capacity of 341,000 tons has been achieved.

It was mainly with effect from 1993 that DESF initiated its more investment oriented support policy, and delays in project implementation have not been unusual for many of the large investment projects, that require co-financing and which need to pass lengthy approval and planning procedures. Some projects did not succeed to raise the expected co-financing and had to be closed. Many of the project grants from 1995 and 1996 were effectively still under implementation when the review was carried out. A delay in the internal reporting system of DESF can also affect the figures.

It is to be expected that the environmental effects represent somewhat optimistic estimates. The review team foresees that some of the stipulated project effects are likely to encounter implementation difficulties. The effects within waste water treatment are the most realistic, while figures for air pollution and waste management are more uncertain.

2.6. Commercial effects.

Information has also been collected on the derived export from DESF financed projects. Information relates to the equipment exported to Eastern Europe in connection with the projects.

	Number of projects	Export of equipment (DKK)	DESF grants (DKK)	Return percentage
IN1	22	64,081,000	62,995,071	102%
IN2	13	32,461,000	55,444,423	59%
IN3	76	491,690,725	275,730,951	178%
TA1	13	21,782,491	23,133,643	94%
TA2	3	1,480,000	10,875,700	14%
TA3	11	75,347,038	18,750,560	402%
TA4	4	3,546,483	3,546,483	102%
Total	142	690,476,179	450,476,831	153%

Table 2.15. Export effects for Danish produced environmental equipment (N=142).

Through the questionnaire information on export effects has been supplied for 142 projects. The export effect is not surprisingly most significant for investment projects; close to 700 million DKK equipment has been exported. But there is also a surprisingly high export in connection with technical assistance projects; in particular of the category TA3. A closer analysis of the figures has revealed that two smaller projects are responsible for the major part of this additional export.

Of the total DESF-grants, worth 1,159,000 million DKK, 25 per cent or 290 million DKK, was spent on equipment. Of the total equipment export of 690 million, 400 million have hence been 'additional' purchases.

When the 400 million in additional export is assessed against the total DESF grants of 1,159,000 million DKK it shows that the DESF scheme has had a total return percentage of not less than 130 per cent. As information is lacking from about 1/3 of the investment projects (many still under implementation) this figure represents a conservative estimate. Exports have also been generated by the IFI financed projects, but data are not available.

3. Cooperation with the countries in Eastern Europe.

3.1. Principles and methods for cooperation.

From its inception the cooperation between DESF and the recipient countries has been formalised through bilateral agreements, concluded between the Environmental Protection Agency in Denmark and the relevant counterpart in the national administration of the recipient country. The counterpart is in all cases the Ministry in charge of the Environment; although in Russia it is the State Committee of the Environment.

The first agreements were signed in 1991 with Poland, Czechoslovakia, Hungary, Estonia, Latvia and Lithuania. An agreement with Russia was signed in 1993. In 1994 further agreements were concluded with Romania, Bulgaria, Belarus and Ukraine, which had not previously been included under DESF, and with Slovakia, which had become independent in 1993. There have been individual projects in Moldova, Croatia and Bosnia, but agreements with the national authorities have not been concluded. The political situation in the former Yugoslavia has generally been too unstable for the operation of the fund.

The concluded agreements are quite broad frameworks for cooperation and do not contain specific priorities for the use of DESF funds in the individual countries. The agreements are significant for creating a political understanding and acceptability of environmental support, but the specific priorities for the use of DESF funds have been developed through the subsequent cooperation between DESF and the national environmental authorities. While in the first years of DESF operation proposals passed a more ad-hoc approval from the national authorities, since 1996 regular country programmes, outlining the methods of cooperation and fields of priority, have been developed with all the recipient countries.

Still, the methods of cooperation differ considerably among the countries. Among the 8 countries included in the country review the procedures are most developed and formalised in Poland. With regard to Poland, a joint Polish-Danish Working Group, conducted by a joint Steering Committee, has been established. The group meets four times annually to decide on project proposals. In Lithuania, Estonia and Slovakia the structure is less formalised, but there appear to be biannual meetings between DESF and the national authorities where projects are approved. With respect to the Czech Republic, proposals are reviewed quarterly, but at desk officer level. In Ukraine and Romania project proposals are decided upon according to a more ad-hoc procedure without regular meetings. In Russia, cooperation agreements have been concluded both at the federal level and with the authorities in the two regions Kaliningrad and St. Petersburg. Biannual meetings are held to discuss projects, but these can also be approved by written procedure.

The differences in the procedures for cooperation reflect to some extent the intensity of the DESF activities in the recipient countries, and are not surprisingly least developed in the countries where DESF activities have been initiated most recently. To some extent the procedures for cooperation also reflect the strength and capacity of the national

environmental ministries; the quite formalised structure in Poland reflects the country's relative professionalism in dealing with foreign donors, while the absence of strict procedures in the Czech Republic seems to reflect a more modest interest in environmental aid as such. The absence of strict selection procedures, despite biannual reviews of proposals, in most of the countries also suggests that the recipient countries do not always insist on getting closely involved in the exact selection procedure for new projects.

The introduction of more regular and systematic rounds of project assessments seem to offer several advantages. First of all the fixed deadlines for review of applications can be communicated to potential applicants. Secondly the regular meetings may create the opportunity to choose and prioritise among different projects, which can favour a more cost-effective use of the funds. Thirdly the regular interaction between DESF and the national environmental authorities can facilitate the identification and selection of new projects in areas of high priority. Fourthly, the interaction with other financial sources, domestic and international, may be facilitated through such mechanisms.

In the first years the environmental assistance was coordinated from Copenhagen, but the preparation and implementation of Danish projects have since 1996 been improved through the employment of local programme coordinators in several of the countries (Belarus, Lithuania, Latvia, Estonia, Slovakia and Romania). Denmark is presently the only bilateral donor which has such local programme coordinators placed in the national ministries, although also EU's PHARE-programme has a similar organization. US-AID has also had environmental programme officers placed in the countries, but mainly at or associated with the US embassies.

The use of local programme coordinators seems to be useful in all the programme countries due to the limited administrative and technical capacity. Proposal for employment of programme coordinators is being negotiated in Poland, Russia and Ukraine. In Russia the State Committee of the Environment has been reluctant about the proposal, while in Ukraine and Poland an initiative is likely to be taken soon. The local programme officers in the five above mentioned countries have generally been recruited from the staff of the national ministries.

The local programme coordinators play an essential role in identifying potential projects and partners in the recipient countries and in assisting DESF personnel from Copenhagen on missions in the recipient countries. In principle, the local programme coordinators are also responsible for overseeing implementation of initiated projects, but in practice they are more likely to get involved in such projects only when specific problems that may require advice or intervention occur.

3.2. General problems in the recipient countries.

Especially in the first years of DESF operation, that followed immediately after the revolutions in Eastern Europe, the whole administrative and political system in the countries of Eastern Europe was in a state of flux. The transition to democratic and marketbased economies was encompassing; new democratically elected institutions were installed and had to find their role, former state enterprises found themselves exposed to the down-scaling of subsidies and to more fierce competition, the relationship between central and local authorities was changed and there was a general lack of confidence in persons and institutions that had been involved with the former regimes. In the Baltic republics new political and institutional structures had to be created, also in the environmental field, after independence had been attained.

Although most of the CEE countries had established environmental administrations before the revolutions, these administrations were often inadequately funded and staffed, and there was a lack of financial structures for environmental investments and modernisation. In the Baltic republics the regional environmental administrations, which during the Soviet period had been without formal powers, were suddenly promoted to national ministries, with all that it implied. In all of CEE and NIS the national environmental administrations had to find a new balance in the relationship with local authorities. In many cases electricity companies, water works and sewage plants were transferred from operation by national ministries to ownership by local municipalities, a transfer that created considerable economic, legal and political uncertainties and confusion. There was a lack of reliable environmental data and a lack of developed cost-benefit assessment procedures, which impeded an "optimal" use of the resources available, including the foreign assistance.

During the 1990's, all the CEE and NIS countries have experienced periods with rapid inflation, that among other things have eroded the salaries of public officials, including those in the environmental administration. The result has been a rapid turnover of staff in the environmental ministries. In particular persons with good linguistic or managerial skills have been able to get more decently paid jobs in the private sector, and although a number of committed persons have remained, the general tendency has been a thinning out of the environmental ministries for the best and most qualified staff.

Environmental issues, which played a significant role in the revolutionary process, are no longer subject to the same degree of public concern. The economic difficulties of the transition process have made the public more concerned about basic issues such as salaries, bread prices and housing costs, and environmental issues are to some extent seen as more 'luxurious' problems.

Environmental issues are often closely interconnected with the major economic, political and even national issues at stake in the transition process. The lack of effective pollution control and the degradation of water supply utility services constitute not only a serious threat to the health conditions of the population, but are also interconnected with the state of the economy. The ineffective energy supply systems, with substantial losses and use of pollution-intensive fuels, are costly to the economy and maintain the dependence on expensive energy imports, which in turn may entail continued political dependencies on certain big energy exporters in the region. There seems to be considerable room for win-win solutions that will create a double dividend, both for the environment and for the economy - but this opportunity remains poorly understood among key decision-makers in the region.

The situation differs considerably across the region, however. Environmental protection and policies are best understood and developed in Poland, Hungary and the Czech Republic. In Slovakia, Romania and Bulgaria environmental policy-making has been affected by the generally slow pace of reforms and the reluctant attitude among parts of the political elite towards democratization and the emergence of independent organizations, such as environmental NGOs. In the former Soviet republics there is, despite many common features, a division among the three Baltic republics and the NIS countries Russia, Ukraine and Belarus. In the Baltic republics, environmental policies have been propelled by considerable foreign aid, particularly of Nordic origin, which has also provided the environmental ministries with an increased leverage in the domestic political process. In the NIS countries the situation is the most difficult both in physical environmental terms and in political, as a viable framework for environmental financing and policy-making has not been developed.

In the following sections, the conditions, experiences and accomplishments of DESF activities in the 8 countries covered by the country review are detailed. More details are available in the 8 country reports prepared separately as part of the review (in Danish).

3.3. Summarising description of the situation, the cooperation and the accomplishments in 8 selected CEECs

3.3.1. Poland

Trends in environmental and economic indicators

Poland did not, despite economic hardship, suffer such serious declines in GDP as other CEE countries in the aftermath of 1989. GDP declined initially by about 7 per cent, but since 1992 the Polish economy has been growing, and the growth rates have in the most recent years been notably high, from 5-7 per cent, and GDP is now above the 1990 level. The improvements in the environmental field should be seen against this background. From 1990 to 1995 SO₂- and CO₂ emissions have declined with respectively 29 per cent and 14 per cent. Waste water discharges have been reduced with more than 20 per cent, while waste water treatment has been extended. Environmental investments have been increasing, and in 1995 reached the level of 1.8 per cent of GDP (COWI, 1998: 12).

Despite these positive trends, Poland's economy remains pollution-intensive with emissions considerably above the OECD-average. Measured against per unit of GDP CO₂-emissions are a factor 2.5 and SO₂-emissions a factor 5 to the OECD-average. In 1995 waste water treatment was missing in 217 out of 860 Polish cities and 105 cities had only mechanical treatment plants. Only 3 per cent of the villages have sewage treatment plants. The water quality of rivers has not improved since 1985.

Institutional capacity and domestic sources of financing.

In 1989 all environmental and nature protection responsibilities were consolidated within a single new ministry; The Ministry of Environmental Protection, Natural Resources and Forestry. The ministry prepared an ambitious National Environmental Policy plan, which was published in November 1990 and approved by the parliament in May 1991. The plan sets both short-term, mid-term and long-term goals and stands as a platform for an active environmental policy which should lead towards a more sustainable development.

In 1989 the National Fund for Environmental Protection and Water Resources Management was also established. The fund was to become an essential financing mechanism for Polish environmental policy. It receives its incomes from a broad range of environmental charges and fees, which are being used to finance environmental protection projects. The charges are automatically increased with the inflation rate, and the Fund has been able to finance about 20 per cent of the annual environmental investments since the early 1990's. Its activities are supplemented by more than 2400 municipal and 49 regional environmental and water management funds. These decentral mechanisms for environmental financing have taken an equal share of the investments. The system of environmental funds has served as a safeguard for environmental protection investments, especially in the first difficult years of transition, where the funds covered up to 58 per cent of environmental investments. In later years the environmental funds have retained their relative share at about 40 per cent.

Foreign aid has been provided both as debt-relief and as loans and grants. In 1992, the Polish Ministry of Finance established the EcoFund as a tool for debt-for-environment swaps. The EcoFund administers funds committed mainly by the United States, but also by France, Switzerland, Norway and Sweden. Its role remains limited, as it stands for only

a few per cent of the annual environmental investments. The assistance is partly untied, however, as the projects are offered on a tendering basis mainly to companies from the donor countries. Despite an impressive level of activity of western environmental donors, the overall level of environmental assistance, including both grants and Eco-Fund contributions, is equivalent to only about 5 per cent of the annual environmental investments in Poland.

Poland has, in comparison with other CEE countries, a relatively consolidated and independent environmental ministry and its unique and independent financial institutions for environmental investments, created in 1989, have assured that environmental policy receives financial backing during the transition process. The independent Polish environmental funds serve as a model, which the OECD has recommended other countries in the region to apply.

Patterns and problems of cooperation.

Poland was, due to its vicinity to Denmark, the first country where DESF began to operate, and about one third of the total DESF grants have been provided for projects in Poland. From 1991 to 1996 354 million DKK in support for 138 projects have been granted. Among the bilateral donors to Poland, other than EU/Phare, Denmark has been the most significant donor, with about 25 per cent of the grants. The Danish contribution has been equivalent to about 1 per cent of the total environmental investments in Poland in this period.

70 per cent of the DESF funds have been allocated to investment oriented projects, and waste water treatment has been a major focus area with about 138 million DKK in disbursement. Poland was one of the first countries which strongly required that the support was spent on investment projects rather than technical assistance, and since 1993 the Danish assistance became oriented mainly in this direction. Co-financing from Polish sources has been substantial, in average 71 per cent.

From 1991 to 1995 cooperation between DESF and Poland, on the selection and financing of projects, took place through the National Fund. In the first years a project unit of the Fund was located in the Ministry, but it was later transferred to the National Fund. In 1995, at the request of the Ministry's international office and as part of a general reorganization of the donor coordination, the cooperation was shifted from the Fund to the Ministry. This shift seems to have led to the significant decline in project activities which took place in 1996, where only 11 new projects were approved. While the Ministry is experienced in international cooperation, it seems to lack experience in project financing and approval, whereas a core task for the National Fund is to evaluate, prioritise and finance project proposals.

DESF has not yet placed a programme coordinator in Poland, but the issue has been raised with the Polish authorities. Talks are also progressing on improving the collaboration with the National Fund to the previous level.

Achievements

One of the early technical assistance projects, in the Jelena Gora region, which the review team had the opportunity to discuss with the Polish participants, confirmed the difficulties inherent in the initial DESF approach. In this 3.5 million DKK project a group of Danish consultants, led by the Association of Danish Municipalities, had established contact with the local authorities in this 'black triangle' region. A somewhat broad project, that would consult the regional and local authorities on establishing waste services, waste water treatment, district heating and clean-up of a hazardous site was initiated. The Danish consultants, unfortunately, modelled their recommended solutions very much according to the administrative and institutional set-up in Denmark, and did apparently not understand well enough the different conditions that apply in Poland. Except from some visits to Denmark for the Polish participants, the major part of the project grant was used for the consultants' fees. Apart from some brief and quite general reports there have not been tangible

results of the project. Understandably, this type of project, which was not unusual among donors particularly in the first years of assistance activity, created frustrations on the Polish side.

The experiences attained in this and some similar projects seem to have led DESF to focus its activities in Poland more strongly on investments.

There were several challenges to the more investment oriented grant policy that was pursued from 1993. The Polish authorities hesitated about waste water projects in the larger cities, often designated as HelCom hotspots, due to difficulties with planning and approval. In Gdansk a comprehensive effort to renovate waste water treatment, supported by DESF, got stalled in complicated local political affairs, with competing German and Swedish engineering companies on the sideline.

The Polish strategy was to focus the assistance to middle-sized cities. The effort was based on a comprehensive assessment of river quality in demarcated river basins, supported by Danish modelling of water quality, e.g. in the Rega and Narew river basins. The focus on medium-sized cities was more compatible with the size of the grants that DESF could offer within its annual budgets, and could in several instances also take place in HelCom designated Hot-spots.

Major projects, for which funding have been provided, have been carried out in Dzialdowo, Kielce, Kolobrzeg-Grzybowo, Pultusk, Szczecin-port and Zielona Gora. Smaller, low-cost technology projects have also been carried out at a number of locations, so that through 36 projects altogether more than 70 sewage treatment plants have been supported. Most of the waste water treatment plant projects that have been supported by DESF have been located in the northern part of Poland, close to the Baltic coast, but projects have been implemented in the southern tributaries of the Vistula and Oder rivers too.

Three major air pollution projects with investments have been carried out mainly at one location, the Dolna Odra power plant, situated south of Szczecin not far from Denmark. Air pollution projects are generally very investment intensive, and traditional scrubber or flue gas technologies are not a major Danish competence, but in the case of Dolna Odra advanced lean-burn technology has been introduced.

Two large geo-thermal energy projects have been part of the air pollution projects and built on Danish expertise. The projects are much larger in scale than similar units in Denmark, and now serve as demonstration plants for geothermal energy. Environmentally the effect on CO₂- and SO₂-emissions is very substantial, because geothermal energy replaces previous coal-based units.

Despite about 10 different technical assistance projects in the field of waste management, few tangible results have been achieved. An ambitious project for a complete waste incineration plant in the town of Zychlin was not implemented because of concerns from local citizens.

Significant projects within nature protection and support for NGOs have been implemented with higher degrees of success; e.g. this involved pest control in Polish forests, the establishment of an ornitological association and support for a conference facility for Poland's Ecological Club.

Summarising observations

The DESF activities in Poland have been comprehensive and the collaboration with the Polish authorities has been well developed, although the National Fund for many reasons seems to have been a more logical and effective counterpart

than the Ministry's international office. Activities have taken place throughout Poland, with a certain regional focus on the north-western Rega-area, where a cluster of projects developed (Dolna Odra, geothermal energy, waste water).

One might ask what difference or impact DESF financed projects have on the environmental situation in Poland, given the considerable domestic resources available. This question was raised in several interviews during the review visit to Poland, and it seems that the DESF support is seen as significant not primarily for its absolute contribution to environmental investments, but rather for its possible catalyzing effect in bringing in modern technology and expertise. While in Poland in particular, the stress is on the 'best technology' it seems that DESF projects, if well managed, also can help to assist the relevant Polish authorities in identifying the most appropriate solutions from a technical point of view.

Approximation with EU environmental legislation currently stands as a baseline against which all environmental issues are measured. The estimated costs of Polish compliance with the aquis communautaire range from 3-500 billion DKK, and deficits are still serious in many sectors. Although environmental concern in the Polish population is no longer as outspoken as in 1989, the impact of air pollution and poor drinking water on human health remains serious in several regions. Poland has responded to the environmental crisis by devoting significant resources of its own to remediate the problems. This approach contrasts significantly from some of the other countries where DESF has been active.

The previous DESF assistance has been relatively well placed, sectorally and geographically. Some resources have been used on technical assistance projects and feasibility studies with limited practical effect, but there have also been significant investment projects that will yield direct environmental improvements.

A stronger emphasis on cooperation with the environmental funds on specific investments is desirable. One option to be considered is to join the EcoFund such as Norway and Sweden has done, either by grants or by converted debts. In any case, a stronger cooperation with the funds in the early project identification phase may assure better opportunities for a follow-up on feasibility studies for investments.

3.3.2. Estonia

Trends in environmental and economic indicators

From 1991-1993, and following the disintegration from the Soviet planned economy, Estonia's GDP declined by 32 per cent. In the later years the economy has grown again, with GDP-increases of 3-6 per cent annually. Emissions of SO₂ and CO₂ have decreased with respectively 54 and 51 per cent since 1991, reflecting the decline of heavy industries and the conversion to more service-oriented industry. Figures on environmental investments are not very reliable, but indicate that the share of GDP devoted to environmental expenditures (including both investments and operational costs) was 1.8 per cent in 1994 (ECE, 1996). Only one third of these expenditures is incurred by the public authorities, the majority apparently stems from private companies and polluters, so there is reason to believe that the figure represents an optimistic estimate.

Despite certain positive trends, Estonia's economy remains pollution-intensive with emissions considerably above the OECD-average. Measured against per unit of GDP CO₂-emissions are a factor 4 and SO₂-emissions a factor 5 to the OECD-average. Waste water treatment has been upgraded thanks to foreign aid, but still needs renovation in several larger cities such as Tartu and Narva.

Institutional capacity and domestic sources of financing.

The Ministry of the Environment was established in 1989, but gained full powers only after independence from the Soviet Union. From 1990 to 1995 37 new environmentally related pieces of legislation have been approved. The ministry is relatively small, however, with only about 100 employees, and the environmental administration at the local level is weak or non-existing.

The Estonian Fund for Nature Protection and Rational Use of Natural Resources was established in 1983, with incomes from fines and non-compliance fees. It was reorganised in 1990 as an extra-budgetary environmental fund. It has both a state branch and 19 county branches. The resources of the fund are limited and in 1994 the total expenditure of the fund represented only 8 per cent of the country's total environmental expenditure (ECE, 1996: 62). The charges are automatically adjusted according to the inflation, and the fund also receives 5 per cent of the revenue from privatization of land and enterprise. Although formally independent, the fund is closely integrated in the operation of the Ministry. The fund offers mainly grants but also loans at low interest rates, and it plans to extend this activity to become a revolving fund with a more stable capital base.

In particular the nordic countries have offered environmental aid to Estonia. Finland (46%) has been the largest donor, followed by Denmark (18%), EU-Phare (12%) and Sweden (11%). In 1994 the foreign assistance was equivalent to 34 per cent of total environmental expenditures in Estonia (KPMG: 15).

Patterns and problems of cooperation.

Among the three Baltic Republics, DESF initially focused mainly on Estonia, but in the later part of the reviewed period emphasis shifted more to the two other countries. With 33 projects from 1991-1996, and grants worth 65 million DKK, DESF activities have been relatively moderate in Estonia. Still, on a per capita basis five times more funds were spent in Estonia than in Poland. The environmental problems are most acute in the north-eastern, predominantly Russian speaking, region, but the Estonian authorities preferred that foreign environmental assistance was prioritised for the Tallinn region. The considerable Finnish aid and interest for Estonia affected the possibilities for identifying projects further.

There has been a majority of technical assistance projects; only 6 investment oriented projects have been granted. From 1991-1993 all projects were technical assistance projects, a development which seems to reflect that the relatively new environmental administration was in a state of flux and was uncertain about its priorities and about how to deal with foreign assistance.

A more investment oriented grant policy has been initiated with effect from 1994. The six investment oriented projects approved from 1994-96 account for about 80 per cent of the value of the grants in that period. An Estonian programme coordinator, which oversees project implementation, has been employed since the beginning of 1997.

Co-financing from Estonian and other sources has been low; DESF has financed 83 per cent of the project portfolio, while Estonian sources have contributed with 10 per cent in average.

Achievements

The major fields of activities have been waste management and drinking/groundwater protection.

The most significant project seems to have been the clean-up of a former Soviet military airbase at Tapa, where about 100 tons of jet-fuel were removed. The project serves as a demonstration project for similar efforts. In addition DESF

funded projects have resulted in one windmill and the installation of a saw dust filter at a wood-manufacturer in Viisnurk.

An ambitious project to build up a national system of hazardous waste collection, co-financed by the environmental fund and Phare, has been delayed by poor coordination and difficulties with identification of an acceptable site (cf. PLS Consult report). A solid waste project has also been obstructed by poor cooperation with the involved municipalities and lack of financial commitment from the Estonian side (cf. PLS Consult report). A drinking/groundwater project in Tapa and Arukula, supported by 3 consecutive grants, has pointed out threats towards groundwater supplies from oil-contamination, but the drilling of new water wells awaits implementation of a tender procedure.

It is notable that few waste water treatment projects have been initiated in Estonia. Other donors have supported the Tallinn waste water treatment plant. DESF has in 1996 initiated water supply projects in Narva and more rural areas with IFI-financing, which will deliver significant improvements.

Summarising observations

It has been difficult for the review group to assess the exact reasons for the difficulties with project implementation in Estonia, but at least three factors can be mentioned: 1) The lack of experience in a relatively young post-Soviet environmental administration; 2) The limited financial capacity and commitment from the Estonian side and 3) Staff discontinuity in the DESF administration with regard to Estonia. While 1) and 2) may have worked to cause an imbalance towards technical assistance projects, in particular in the first years of activity, 2) and 3) seems to explain the problems with implementing the approved investment projects. A further factor might be the relative difficulties often involved with projects concerning waste.

3.3.3. Lithuania.

Trends in environmental and economic indicators

After the disintegration from the Soviet economy, Lithuania suffered a severe setback in GDP. From 1990 to 1993 GDP declined by 62 per cent. The emissions of CO₂ and SO₂ declined also, but with respectively 40 per cent and 44 per cent considerably less than GDP. The volume of waste water discharges declined only with 12 per cent from 1990 to 1994 (ECE, 1995: 7). The share of environmental investments of GDP has dropped significantly from 1.03 per cent in 1994 to 0.46 per cent in 1996 (COWI, 1998: 12). Since 1993 the economic situation has stabilised at a low and difficult level, and GDP has increased with only 2-3 per cent annually.

The Lithuanian economy is energy-intensive, but SO₂- and CO₂-emissions are relatively low per capita because of the reliance on nuclear power. The Ignalina nuclear power plant covers about 80 per cent of the total energy consumption. The situation with regard to waste water treatment will improve when the plants currently under construction in the major cities are completed. Waste management is disorganised, with more than 800 landfills operated more or less without environmental precautions.

Institutional capacity and domestic sources of financing.

Up to 1990 the central institution responsible for protecting Lithuania's environment, the Environmental Protection Department, was subordinated to its counterpart in Moscow. During the process which led to independence it was transformed and subordinated directly to the Lithuanian parliament. Only somewhat late, in 1994, was an independent Ministry of Environmental Protection established.

The State Nature Protection Fund was established in 1988. It was consolidated with the 1991 laws on taxes on natural resources and pollution, but it is not an independent fund as the Polish. Only two thirds of the proceeds from the taxes are devoted to the fund; one third is devoted to the state budget. There are more than 50 different charges and taxes, but as they are all quite low, their main function is revenue-raising. In addition to the state fund there are also 55 municipal funds. The funds have achieved a more important role since 1993, and are assessed to have covered about 20 per cent of the environmental investment costs in Lithuania in 1996 (COWI, 1998: 21). The National Fund is still an integral part of the ministry and does not have the independent status as the Polish one.

In 1998, the Lithuanian Environmental Investment Fund (LEIF) was established on basis of a 2 million ECU Phare grant. It is expected that its income will be supplemented by revenue flows from charges and fines. LEIF will operate as a revolving fund, offering low-interest loans.

Foreign assistance to Lithuania seems to have arrived later than to the other Baltic countries. The most important actor, when counting both grants and loans, has been Denmark (42%) followed by Phare (16%), EBRD (12%), Sweden (11%), World Bank (1%), Finland (4%), NEFCO (3%) and Norway (2%). From 1991 to 1996 Lithuania received assistance equivalent to 120 million US dollars, mainly for investment purposes. In 1997 the disbursed foreign financing is expected to amount to about 45 million US dollar, a sum which is equivalent to the total environmental investments of 1996 (COWI, 1998: 23, 41). Foreign assistance hence plays a significant role for the overall level of environmental investments in Lithuania.

Patterns and problems of cooperation.

With 63 projects and 146 million DKK in grants Lithuania has been the third most important recipient of DESF assistance. Although activities were initiated already in 1991, they gained momentum mainly from 1994.

Two thirds of the grants, measured in kroner, have been devoted to investment related projects. Technical assistance dominated mainly in the first years, but since 1994 a more investment oriented strategy was implemented. It coincided with the increase of activities.

Although Lithuania's position as a former Soviet republic is not different from that of Estonia, it is notable that there has apparently been a better interplay between the Ministry in Vilnius and DESF in identifying priorities and making good use of the support. It cannot be ruled out, that the understanding has been that while Finland was active in Estonia, Denmark tried to support Lithuania. Although there does not appear to be a specific structure for coordination and consultation, cooperation with the Lithuanian ministry seems to be well established. The good relationship and the fact that several projects have been identified and initiated in high-priority areas seem to rest with a well developed cooperation with key persons at a high level in the ministry. Cooperation has been facilitated by a local programme coordinator since 1996.

Co-financing of DESF projects from Lithuanian sources has been notably higher than in Estonia (62 per cent). On the background of Lithuania's economic hardship, this figure reflects in many ways the close cooperation that has been developed.

Achievements

About one third of the grants, measured in kroner, has been committed to waste water treatment projects, the majority of which have been placed in HELCOM designated hot-spots. Compared with Poland there have been relatively few feasibility and appraisal projects; practically all the grants have been spent on actual investment projects (IN3). DESF has supported the completion of the Vilnius waste water treatment plant, which had been initiated but never finalised in the Soviet period. Danish soft loans at 60 million DKK have been granted for this project too. Soft loans have also been attached to a more recent project grant, that will introduce sewage treatment in 13 medium sized cities. Small plants based on low-cost technology in rural areas have been supported too.

A large geothermal energy project in Klaipeda, co-financed by the World Bank and Lithuanian sources, is one of the notable results of the projects within sustainable energy. There have been relatively few projects within air pollution. Nuclear issues have been dealt with by the sectoral programme managed by the Ministry of the Interior, but training of Ignalina personnel has been supported.

Within waste management a modern and protected landfill with biogas production will be established in Kaunas. Nature protection has been an issue subject to several projects. The projects have focused at forest management, protection of river deltas and abatement of forest pests as well as support for NGO-activities in the field. Projects to strengthen the young Lithuanian ministry, in particular with regard to EU-approximation have been carried out.

Summarising observations

The DESF activities in Lithuania developed later than in Poland and Estonia, but have been comprehensive and surprisingly well placed. The collaboration with the Lithuanian authorities seem to have been exceptionally good in the reviewed period.

Given Lithuania's difficult economic situation - it is the country with the most serious decline in GDP of the eight surveyed here - the foreign environmental support seems to make a real difference as it represents about 50 per cent of the total annual environmental investments in Lithuania.

So far the projects seem to have matched the priorities and problem pressures of Lithuania well. Waste water treatment was and is the main priority, with waste policy as a second priority (ECE, 1995), and also nature conservation is a traditional Lithuanian concern (Rinkevicius, 1997). Some concern has been expressed in a debate in Lithuanian newspapers that the combination of Danish soft loans and bilateral assistance will lead to more expensive solutions than what would have been obtained in an open tender. It has also been noted that the costs of Danish consultants are quite high, and that Lithuanian expertise could be better integrated in the projects.

The decline of environmental investment expenditure that has taken place in Lithuania from 1994 to 1996 from 1.03 to 0.46 per cent of GDP (cf. above) is disturbing in some respects. The foreign support is not meant to make room for budgetary reductions in environmental expenditure. On the other hand, most of these reductions seem to have taken place at local level, where the authorities have been pressed by the realities of the transition economy.

3.3.4. The Russian Federation

Trends in environmental and economic indicators

Since the dissolution of the Soviet Union in December 1991 and the independence of the Russian Federation, the transition to market economy has been a difficult process. From 1990-1995 GDP declined by 38 per cent. Partly this decline is believed to reflect overcapacity in the former production system, which was created to conform with five year planning, as well as the uncontrolled shadow-economy which has developed in the 1990's. From 1990-1995 emissions of SO₂ and CO₂ declined with respectively 33 per cent and 5 per cent; significantly less than GDP. The decline reflects curtailment of industrial production rather than active pollution control. From 1991 to 1996 water discharges declined with 21 per cent - the decline took place in industrial discharges, while discharges from households remained unchanged (Nikitina and Kotov, 1998: 74).

Environmental investments as a share of GDP has been fairly constant at about 0.36 per cent, but declining in absolute terms due to the decline in GDP (COWI, 1998). Considerable uncertainties are related to actual disbursements, cf. below.

The Russian economy does not only remain pollution-intensive - its outdated technology and infra-structure poses a serious health threat to the population. Official data which has become available in later years show that 15 per cent of the country is regarded as zones of ecological catastrophe; 26 of the 89 regions are particularly affected. About half of the population is supplied with drinking water that does not meet sanitary requirement. Air pollution exceeds permitted levels in 204 cities and 1.4 billion tons of toxic waste is generated annually, while facilities for treatment are practically absent (see Nikitina and Kotov, 1998 for a more complete overview). Life-expectancy ranks among the lowest in the industrialised countries.

Institutional capacity and domestic sources of financing.

The most significant institutional innovation has been the unification of environmental responsibilities in one institution. In the Soviet period, environmental responsibilities rested with sectoral ministries that were also responsible

for production or exploitation of natural resources. Former president Gorbachyov created in 1988 a State Committee for Nature Protection, and in 1991 this institution was promoted into the Ministry for the Environment and Natural Resources. The Ministry acquired competences and responsibilities from a range of other ministries, but a bureaucratic competition on tasks and responsibilities continued.

The result of this process has been a gradual weakening of the Ministry for the Environment and Natural Resources from 1994 and onwards. In 1996 the Ministry was degraded to a State Committee, and with no Minister it had no longer a voice in the government. Competences regarding natural resources and control with the Russian environmental fund were shifted to other ministries. The re-creation of a state committee is without doubt a serious step backwards for environmental protection in Russia. A decentralisation of responsibilities to regions and Oblasts has taken place, but although these have shown an increased interest for this competence, it is generally not believed to have strengthened environmental protection due to the discretion of local power elites. Corruption is widely spread in government institutions in Russia today.

Environmental charges and taxes were introduced under *perestroika* and in 1991 environmental funds were established at all levels of the Russian Federation (local, regional and federal). 60 per cent of the revenue is allocated to the local level, while 30 per cent is allocated to the regional level. The Federal Russian Environmental Fund hence acquires only a limited share of the available means; 10 per cent of the 200 million US\$ which were collected in 1996. Due to the persistent budget crisis, the local authorities have generally incorporated the revenues from environmental charges into their general budgets. Another Russian phenomenon is 'underfinancing'; although the federation formally allocates revenues in the budget, the means are not available. Hence, the national environmental fund is believed to finance salaries for employees in the State Committee. The resources of the national fund are equivalent to 2-3 per cent of the national expenditures for environmental protection - in principle (COWI, 1998b).

User charges for water and energy are low and do not reflect operating costs, where they exist. However, they often contribute with a significant revenue flow for environment related investments in these sectors.

There is no coherent overview of foreign environmental assistance to Russia, but OECD estimates that the foreign environmental support is equivalent to 7 per cent of the annual environmental investment expenditures. The major contributors are international financing institutions, such as the World Bank and the Global Environment Facility (GEF). About 1-2 per cent of the 7 per cent stem from bilateral donors, which include Germany, Netherlands, Switzerland, USA and the Nordic countries.

Grants are provided mainly for local projects, often with transboundary pollution effects, and projects are therefore concentrated mainly in western Russia.

Patterns and problems of cooperation.

DESF activities in Russia were initiated in 1992, although the cooperation agreement was signed only in 1993. The activities have comprised 46 project grants worth 156 million DKK, and have been focused in the Baltic Sea Region as well as in the Moscow region. Although from the Russian perspective, the DESF share of foreign environmental assistance probably appears modest, Russia has actually been the second largest beneficiary of DESF funds. Two regional programmes for DESF activities in the St. Petersburg and Kaliningrad regions were drawn up in 1996.

The average self-financing of DESF projects from the Russian side has been 46 per cent. This figure is surprisingly high, and reflects that there is a substantial capacity for co-financing, in particular among utilities in the water and energy sectors - somewhat in contrast to the appalling conditions of the federal budget.

The major cooperative partner has been the State Committee for the Environment, which has approved the various DESF projects. In practice project contacts have been established mainly at the regional or Oblast level, also outside the prioritised regions.

Working conditions seem to have been difficult in Russia. While grants are appreciated at the local level, the authorities at the federal level, who must give their approval, are not well informed about the situation in the regions and have not always accommodated the cooperation as effectively as desirable. The contact in the State Committee is with an office for international relations which has many other responsibilities, and which lacks practical experience with project assessment and financing. However, there are also contacts with the State Committee's regional offices, e.g. in St. Petersburg. A proposal for a DESF country coordinator, to be placed in the State Committee, seems to be in progress, and could provide a significant strengthening of the activities.

It is the impression of the review team that more diplomacy is needed in cooperation with the Russians than in other CEE and NIS countries. The absence of a strong focal point for environmental protection, bureaucratic competition and the difficult economic and financial situation is only part of the problem. Providing assistance to a country with such a political and international legacy as Russia seems to require some extraordinary reflections on the approach and balance of the activities. A too one-sided emphasis on assistance to the western part of Russia, for instance, might be misinterpreted in domestic Russian politics.

Achievements.

About two thirds of the assistance has been investment-oriented; technical assistance dominated mainly in 1992.

Nearly 60 per cent of the grants, measured in DKK, have been provided to projects within waste water. Waste water treatment plants have been renovated and upgraded in the large cities of St. Petersburg, Pskov, Novgorod as well as in the Leningrad Oblast, and sewerage pipes have been renovated in St. Petersburg - all in the Baltic Sea catchment basin. At Moscow's Kuryanovo waste water treatment plant, the world's largest, a unit with phosphorus and nitrogen removal which meets EU standards has been established.

Another priority issue has been waste management, where 5 different projects have been carried out in the Moscow area. Whereas the first were feasibility studies, the final project will result in the construction of 600,000 m³ landfill capacity with environmental precautions.

There have only been few capacity-building projects, but notable is a project to strengthen the Russian environmental funds. Strengthening takes place in administrative and organisational terms, e.g. teaching the staff western accounting principles. Few air pollution projects have been carried out. An ambitious project to retrofit a utility with NO_x-cleaning failed to raise the necessary financing from other sources.

In Kaliningrad a number of projects have been initiated, particularly for improving water supply, and the investment effort in St. Petersburg has recently gained momentum. Although a number of feasibility projects have been carried out, the impression is that the follow-up has been better in Russia than in Poland. The later start of activities in Russia have favoured a more investment oriented grant policy.

Summarising observations

Despite difficult financial conditions a number of large-scale investment projects have been implemented in Russia. Cooperation seems to be most effective with utilities in the water sector at the regional level, and despite formal contacts with the State Committee in Moscow the activities are strongly regionalised particularly with regard to the Baltic Sea area.

The severe environmental crisis in Russia threatens human health, and a more clear mandate seems to be needed for DESF in order to address this aspect more systematically.

Environmental protection does not receive much attention in the current situation in Russia, and since 1994 a systematic weakening of key environmental institutions have taken place. More recently the Duma has shown interest in closing the environmental fund in order to transfer the revenue from environmental charges to the state budget. Russia lacks the prospect of EU-membership to bring its environmental standards up to a reasonable level of protection.

On this background, the foreign support could achieve a greater impact if it was more clearly connected with a policy for reforms of Russian environmental policy. Despite a certain degree of donor project coordination, there seem to have been few attempts in this direction currently. The degradation of the Ministry into a State Committee as well as the undermining of the environmental funds are counterproductive developments to the purposes of the foreign environmental assistance and must be regarded as unacceptable from a donor point of view. Foreign support has been linked with policy reforms in other fields, and DESF could raise this possibility with the major international financing institutions involved in environmental projects.

3.3.5. The Czech Republic

Trends in environmental and economic indicators

The economic development in the Czech republic since the velvet revolution has been fairly good, although not as good as the Polish development. GDP declined with 20 per cent from 1990 to 1992, and has increased gradually with 2.5-3.5 per cent since then. Following the liquidation of the planned economy, emissions of SO₂ and CO₂ have declined more than GDP with respectively 42 per cent and 22 per cent from 1990-1995. Part of the decline in SO₂ is believed to be the result of an active air pollution control policy. The capacity of sewage treatment plants has been extended with 46 per cent from 1991 to 1996. Environmental investments as a share of GDP has, according to Czech calculations, increased from 1.0 per cent in 1990 to 2.4 per cent in 1995 (SOE, 1998) among other reasons because of strict air pollution control laws.

Despite the decrease in emissions the Czech economy is still energy- and pollution intensive. SO₂-emissions per unit of GDP are 4 times the OECD-average; for CO₂-emissions twice the average (OECD, 1998). Landfilling is still the predominant method of waste management, and waste increased with 25 per cent from 1995 to 1996. 10 per cent of the sewage is discharged untreated and 5,000 smaller cities have no sewer or sewage treatment systems (SOE, 1998). Several highly polluting chemical plants continue to operate.

Institutional capacity and domestic sources of financing.

Environmental policy has experienced a turbulent period since the velvet revolution in 1989. Environmental issues had been a significant theme up to 1989 and remained so until the dissolution of the Czech- and Slovak republic in 1992.

The Federal Committee of the Environment (FCE) was from 1990-92 a strong and relatively independent institution, which initiated a comprehensive legislative activity. FCE was not conceptualised as a traditional ministry, but was composed of the regional environmental ministers, viceministers of foreign, financial and economic affairs and the parliamentary chairs of the environment committees in the Slovak and Czech republics. The purpose was to assure integration of environmental concerns in other sectors of activity. Independent regional administrations, subordinated only to FCE, were created. Forest and nature protection was included under the competence of FCE.

Most of these advances were lost when FCE was abolished with the division of the republic in 1992. The Ministry of the Environment lost competences and positions to the economic ministries, and it faced difficulties in having its proposals accepted. The population was less concerned about the environment, and so was the Vaclav Klaus government, which regarded environmental protection mainly as glaze on the cake. Since 1992 the allocations on the state budget for environmental purposes have been reduced.

The State Environmental Fund (SEF), which was established in 1991, and based on the incomes from environmental charges, does not enjoy the same status and independence as the Polish fund. It is controlled by the Ministry of the Environment, and it is the Minister which takes the final decision on the allocation of funds (Bizek, 1994). The charges have not been regulated with inflation. SEF is responsible for about 10 per cent of the annual environmental investments, which indicates that its role is limited. However, it seeks to act as a lever for further investments by offering only 40 per cent grants, 40 per cent loans - and requiring 20 per cent self-financing. SEF has mainly spent its revenues on water pollution control, but has recently given more priority to waste management. The revenues of SEF are expected to decline after the 1998 compliance deadline for air pollution emissions. Under the circumstances of the high share of GDP devoted for environmental investments in the Czech republic (2.4 per cent of GDP) the absolute contribution of SEF is more substantial than the 10 per cent share seems to indicate.

It is difficult to obtain information on the activity of donors in the Czech Republic. No figure seems to be available in the Czech Ministry on the overall figure for foreign assistance, but one source indicates that foreign assistance has not exceeded 10 million US\$ annually, equivalent to 1-2 per cent of total environmental expenditure (Bizek, 1994). Another more recent survey indicates that the following bilateral donors have been active: Austria (38%), Germany (35%), USA (21%), Denmark (4%) as well as Canada, Norway, France, Switzerland and others (together 1%) (Branis and Jehlicka, 1998). The latter survey seems to indicate a higher level of assistance, rather 20 million US\$ annually, or equivalent to 3-4 per cent of total environmental expenditure.

Patterns and problems of cooperation

The Czech and Slovak republic was one of the first countries where DESF began to operate. In what is now the Czech republic 48 project grants worth 73 million DKK have been granted. The activities peaked in 1993, and have declined to a rather low level in 1996. The share of funds granted for technical assistance projects has been relatively high throughout the period; and more than 50 per cent. In 1996 no investment projects were approved. The average share of self-financing of projects in the Czech republic has been 61 per cent.

Cooperation with the Czech authorities was affected by the political and constitutional changes that took place in 1992. While DESF initially cooperated directly with the Federal Committee of the Environment, cooperation shifted to the international office of the Ministry of the Environment in the Czech republic after 1992. It is the impression of the review team, that this ministry is seriously affected by turnover of staff. It lacks a clear policy for how to utilise foreign assistance in the most effective way, perhaps because it does not regard the foreign assistance as significant. The Czech

government does not cooperate with the international financing institutions, as it does not want to obtain loans for environmental purposes. The modest share of the Danish assistance as compared with other donors can also have affected the attitude of the Ministry.

Achievements

Control of air pollution seems to have been a major priority for DESF in the Czech republic. The country is only marginally located in the Baltic Sea basin, and sewage treatment has not been an issue of DESF concern, except for equipment for one smaller demonstration project in the city of Hovice.

It is notable that three projects concerning industrial air pollution have been carried out; the two of them addressing chemical factories and one addressing a wood- and furniture company. The air pollution effects have not been transboundary, however, and the projects seem to have developed as more or less commercial projects. The factories have identified Danish environmental technology or consultants and support has subsequently been obtained.

A cluster of projects have been implemented in the city of Decin in the 'black triangle' and have resulted in conversion of two decentral coal fired units to gas fired units. It functions as a demonstration project for Danish gas turbines and gas technology and has helped reduce local air pollution in a valley with serious inversion and forest die-back. The project, which was identified by DESF, was co-funded by SEF and Clean Air Policy, a private US donor. In return for its contribution the US donor required that all of the reduced emissions could be credited in a domestic US emission trading programme. The US donor financed only 10 per cent of the project, but according to independent observers the Decin project is now better known in the Czech republic as a demonstration project for joint implementation, rather than for the Danish contribution. As the project otherwise has been found to be very satisfactory, it raises some questions regarding PR and information on the Danish efforts.

Within waste management one project has assisted in the commercial establishment of a controlled landfill for hazardous waste in the Ostrava region. A project to build an incinerator in the city of Most failed because of lack of financial support, due mainly to poor project preparation, and political difficulties.

Technical assistance has been offered in a number of projects, and three project clusters relating to capacity building will be mentioned here.

Three subsequent projects addressed the establishment of a new water law in the Czech republic. Draft legislative texts were discussed, and study trips for the Czech officials to a number of countries sponsored. According to the project documents, the project was carried out successfully. However, during the visit of the review team to Prague it was revealed that the water law had never been passed. It had been turned down at an early stage, apparently because of a 'poor and inconsistent draft' according to an independent observer at Charles University.

A second and more successful TA project cluster relates to the issue of economic instruments in Czech environmental policy and green tax reform. The first project resulted in a comprehensive report on Danish environmental taxation experiences, and a closer working relationship has been developed with the Ministry as with Czech environmental economists on this issue. The projects are not so sophisticated in terms of economic methodology, but have catalysed essential and otherwise absent policy considerations. It is the impression of the review team, that the broader political impact of these projects so far have been limited, due to the weak position of the Ministry of the Environment, but the advent of a new government might cause a change.

A regional energy TA project in East Bohemia has many similarities with the Jelena Gora project in Poland. It was a technical assistance project and the Danish consultants addressed several issues, including feasibility studies and demonstration of energy saving measures in a public institution. However, a much closer working relationship seems to have developed, in particular because a Czech partner was directly involved in the implementation of the project. This consultant is at the same time a key advisor on Czech energy policy for the government, e.g. on energy price reform, and it seems that Danish ideas and principles for energy planning and saving in this way have become institutionalised knowledge in the Czech Republic, in particular a computer model for local energy planning.

Summarising observations

DESF activities in the Czech republic have declined somewhat after the environmental protection 'recession' began in 1993.

The lack of an active attitude from the Czech Ministry of the Environment and the fact that DESF has been one of the smaller donors, seem to be significant factors in understanding the way the project portfolio has developed. The relative strong emphasis on technical assistance, in particular for feasibility studies etc., is surprising given the level of technical know-how in the Czech republic. On the other hand, the investment oriented projects seem to have developed mainly due to more commercial interest from Czech firms or utilities that have screened the market for adequate environmental technology. It cannot be ruled out that Danish technology would have been chosen also without DESF support. DESF seems to have been only partly succesful in linking its funds for local or regional investment projects on a broader scale, with the Decin and Ostrava projects as notable exceptions.

The lessons to be learned from the mentioned TA-projects seem to be pertinent to the CEE as a whole. To engage directly in the details of legislative activity is cumbersome and not without substantial risks, and may lead to excessive use of funds. To match relevant national partners with Danish project consultants seems to be a better way of transferring know-how and methods, while leaving the specific decisions or proposals to be developed to the country itself.

Due to the commitments in the legislation that was passed in 1991-92, particularly regarding air pollution control, the ambitions in Czech environmental policy must be regarded as relatively high. Also expenditures for environmental investments are apparently at a higher level than in many other countries in Europe, including the EU. Approximation with EU environmental legislation remains an economic and political challenge, and the Czech Republic seems to rely mainly on the polluters to pay, as strong environmental funds do not exist.

Whether foreign assistance still has a role to play in the Czech republic is an open question, given the level of know-how and internal financial commitments, as well as the domestic political priorities.

3.3.6. Slovakia.

Trends in environmental and economic indicators.

The economic development in the Slovak Republic was difficult in the first years of transition, where GDP declined with 21 per cent. However, since 1993, and after independence, Slovakia's GDP has been steadily increasing, with annual growth rates from 4-9 per cent. In 1995 CO₂-emissions had decreased with 25 per cent, while SO₂-emissions had been reduced with 69 per cent compared to 1990 (EEA, 1998). Waste water discharges declined with only 5 per cent. The share of the population connected to sewers increased insignificantly from 51 per cent to 53 per cent from 1991 to

1996 (Szollos et. al., 1998: 97). Despite the good economic conditions environmental expenditures as a share of GDP have dropped substantially, from 1.31 per cent in 1993 to 0.28 per cent in 1997 (Szollos et. al., 1998: 111). Expenditures for environmental purposes on the state budget in 1998 have been reduced to one third of the level in 1993. Since the state budget used to cover about 50 per cent of the environmental expenditures (Klarer, 1997: 51) this deduction represents a serious cutback.

The Slovak economy is energy and pollution intensive, dominated by several heavy industries. Nominal SO₂- and CO₂-emissions are close to the OECD-average, but measured against units of GDP several times higher. 75-80 per cent of the rivers are classified as heavily or very heavily polluted and waste water treatment is insufficiently extended with only 42 per cent of discharges being treated.

Institutional capacity and domestic sources of financing.

The Slovak Republic followed the same path of almost revolutionary developments in environmental policy as the Czech Republic in the years of the joint Czech and Slovak Republic. However, from the 'velvet divorce' in 1993 the developments have been marked by "the resignation of many experts from the state environmental administration, restrictions in budgeting for the environmental sector, constraints in presenting environmental themes in the mass media, environmental legislation stagnation and the continuing development of anti-environmental and unsustainable trends and activities" (Szollos et. al., 1998: 96). Legislation has been passed despite the NGO's; restrictions have been imposed on their spending.

The Ministry of the Environment inherited the responsibilities of the former Federal Committee of the Environment, but was weaker and much less influential. Still, an important strategic document, the State Environmental Policy, managed to get approved by the government in 1993 and by the parliament in 1996. The reductions apportioned to the Ministry on the state budget exceed the budget reductions of any other ministry.

The State Fund for the Environment of the Slovak Republic was established in 1991. The Minister of the Environment appoints an advisory board for the fund, but is responsible for the allocation of funds. In 1993 the Fund contributed 20 per cent of total environmental expenditures. Since then its incomes have not been increased, despite inflation.

Foreign environmental assistance has been provided by the usual range of donors, but has been more limited than in the Czech Republic. From 1994-1997 the most important were Denmark (46%), EU-Phare (28%), GEF (13%) and Switzerland (12%). In 1996 the contribution was about 35 million DKK and (compared with a SEF-budget of 1.2 billion SEK) it means that the share of foreign assistance was about 2-3 per cent of total environmental expenditures.

Patterns and problems of cooperation.

DESF has been especially active in Slovakia since 1995. A total of 16 projects representing grants of 44 million DKK have been initiated in Slovakia. 78 per cent of the grants have been provided for investment projects and the Slovak co-financing has been surprisingly high, 87 per cent.

The projects are scattered across a wide range of activities, with a certain focus on air pollution, waste water and sewage projects. The 1993 DESF strategy for Slovakia made air pollution first priority and 49 per cent of the means have been devoted for such projects.

A programme coordinator has been employed in Slovakia since 1996.

Achievements

The results of two of the early technical assistance projects confirm the difficulties inherent in the 1991-92 approach of DESF. The recipients formulated it politely that a report on a waste management system in Kosice was "considered as informative material - from this point of view we have not used the project".

Some more ambitious investment projects have been initiated in later years of DESF operation. A modern waste water treatment plant has been established in Ziar nad Hronum and serves as demonstration unit for Danish technology. Two windmills will be placed in Ziar nad Hronum. And dustfilters will be installed at wood and furniture factories.

Technical assistance continues to be provided also. Two subsequent projects have addressed a possible laboratory structure for the Environment Ministry. A fact-finding mission was carried out to Slovak slaughterhouses and a feasibility study for geothermal energy initiated.

Summarising observations

The developed projects seem to be sound, but most of them are still under implementation.

The situation in Slovakia is not elevating and is likely to have affected the opportunities for project development.

Environmental expenditures have been reduced significantly, despite growth in the domestic economy. The government is reluctant to ensure progress in environmental protection and environmental interests are not taken seriously. The DESF project portfolio has so far not addressed issues of capacity-building or strengthening of NGOs, but it would be appropriate to do so under the present circumstances.

3.3.7. Romania

Trends in environmental and economic indicators

The decline in GDP in Romania was serious from 1990-92; about 25 per cent. From 1993 GDP has increased notably with 3-5 per cent annually. Emissions of SO₂ and CO₂ have decreased about 30 per cent, but in 1995 they began to increase again following the stronger upward trends in the economy. There has hardly been any progress in waste water treatment or in waste management. Environmental expenditures are assessed to be 0.8 per cent of GDP (Constantin, 1998).

Romania's economy is the most pollution- and energy intensive in eastern Europe, when not counting the NIS-region (Klarer, 1997: 7). Emissions of SO₂ are despite decreases 5-6 times the OECD average when measured per capita. Waste water treatment is insufficiently extended and many plants operate ineffectively or not at all (Constantin, 1998: 52). Waste management is still in an incipient phase.

Institutional capacity and domestic sources of financing.

The Ministry of Water, Forests and Environmental Protection was first established in 1990 and aimed at an integral approach to environmental management. The pace of reforms has generally been slow in Romania, and that seems also to apply to environmental protection. In 1995 the new Environmental Protection Act was finally approved by the parliament. The Ministry lacks an operational wing in terms of an environmental protection agency, and as the administrative tradition is quite centralised, the local and regional authorities are rather weak, also in environmental matters. Romania is nevertheless keen on implementing the international conventions it has signed.

No environmental fund exists in Romania. The main source of environmental financing is the state budget as well as private enterprises. US-AID has initiated a project to prepare for the creation of an environmental fund.

No figures or data are available on the relative contributions of other donors.

Patterns and problems of cooperation.

DESF activities in Romania were only initiated quite recently. Apart from an early ODS phaseout project, the first project was granted in 1995. The start of the cooperation with Romania was connected to the preparation of a national environmental action plan at the occasion of the Sofia conference. Denmark had agreed to a twinning arrangement with Romania for this purpose, and from the cooperation on the NEAP the project portfolio seems to have developed. Cooperation took place with ICIM, a research institute subordinated both to the Ministry of Environment and the Ministry of Education. ICIM has elaborated the NEAP for Romania in cooperation with Danish consultants.

In 1995 and 1996, 12 different projects, accounting for total grants worth 47 million DKK have been initiated. 2/3 of the grants have been spent on investment related projects, but most of these are still under implementation. Romania's ability and willingness to co-finance projects have improved, e.g. in the Arad waste water project and the cement projects.

A project coordinator has been employed since 1996. The coordinator is not placed in the Ministry, but works from Brasov. The contacts with the Ministry itself seem to be reasonable, although there is scope for improvement in particular regarding the application of the NEAP. Cooperation with the Ministry of Industry is well developed.

Achievements

One of the more spectacular projects is a project to limit emissions from Romania's cement industry with Danish technology. The present production methods are primitive and the emissions are harmful to health several places in Romania. The project is under implementation, but has been impeded by privatization of the industry. As new French owners refused to continue the agreed project at one plant, the Romanian Ministry of Industry decided to require formally, in the tender documents, that the project be carried out with the required co-financing at the other plants to be privatised.

A project concerning a Local Environmental Action Plan is under implementation, and the chosen region is well-known in Romania for its active pollution control policy.

Investment projects regarding water supply, waste water treatment, district heating and solid waste management at various locations have been granted. The identified projects seem well placed and efforts have been done to assure co-financing. It is noteworthy that few feasibility studies have been initiated, and that it has been possible to progress directly towards rather comprehensive investment projects.

Summarising observations

Cooperation with Romania has been developed only recently. Not many other donors have paid attention to Romanias environmental difficulties, that belong to some of the most serious in Eastern Europe. The slow pace of reforms may have contributed to this development. The links which have been established through work on the NEAP seem to have provided a good platform for further initiatives by DESF and a special relationship with key authorities that may prove fruitful in the future.

3.3.8. Ukraine

Trends in environmental and economic indicators

Ukraine has found itself in a painful and difficult process of adaptation to the dissolution of the former Soviet Union. Political reforms towards a market economy have been slow or absent, while GDP has declined more than 50 per cent compared to 1990. There are not indications that the economy will recover in the near future. Emissions of CO₂, SO₂ and NO_x have declined, but less than GDP. While traditional pollutants such as SO₂ and NO_x have declined 41 and 52 per cent, CO₂-emissions have only declined with 36 per cent. About 52 per cent of the population is connected to sewage treatment plants, but sewer systems are dilapidated and no improvement has taken place during the 1990's. Environmental expenditures are assessed to have been at the level of 2.7 per cent of GDP in 1994, but the figures apparently include costs related to clean-up after the Chernobyl nuclear accident.

Ukraine's economy is pollution-intensive. Emissions of CO₂ per capita are lower than in Denmark, but measured against per unit of GDP, Ukraine's emissions are 63 times as high. SO₂-emissions per capita are 11 times as high as the Danish - 880 times per unit of GDP. Ukraine depends largely on energy imports, mainly from Russia. The water supply systems of the major cities are in acute need of renovation. Water is supplied only in 3 hours in the morning and 3 hours in the evening in many large cities other than Kiev, due to leakage in water supply systems. The technical standards of the Soviet period and material use imply that the remaining life expectancy for water supply systems is assessed to be no more than 10 years. Due to infrequent water supply, the leakage of sewage water from decayed sewer systems into water supply pipes is common, and water supply is not of a safe bacteriological standard.

Institutional capacity and domestic sources of financing.

The Ministry of Environmental Protection and Nuclear Safety was established in 1991, building on the former State Committee that was established in 1987. Management of issues related to nuclear safety was added to the portfolio of the Ministry in 1994, and constitutes the most significant part of the Ministry's activities. The Ministry has responsibilities related to environmental standards, health protection and inspection, but issues related to water supply and sewage is vested with the recently merged State Committee of Architecture, Housing, Construction, Reconstruction, and Water. The Ministry's operational wing is the State Department for Environmental Protection, which is responsible for practical implementation and has regional offices in the different Oblasts.

In addition, a separate Ministry of Emergencies and Affairs of Population Protection from the Consequences of Chernobyl Catastrophe was established in 1991. There is a lack of clarification of responsibilities between these two and several other ministries (Diukanov, 1998: 136).

Since 1991, Ukraine has adopted a basic environmental legislation, but mainly based on 'command-and-control' approaches. In 1996, a National Environmental Action Plan was approved by the government, and approved by the parliament in 1998. The plan is a result of the NEAP process, but is said to lack clear priorities, clear targets and specific initiatives. The plan has only recently been made available to the public.

Environmental funds in Ukraine are weak. Pricing of water and sewage follows the principles from the Soviet period and has not been reformed.

Foreign environmental assistance to Ukraine has been limited. OECD estimates that for 1994-97 it totals about 430 million DKK, including both donations and international credits and loans. The World Bank has so far not succeeded in implementing any of its loans. Under the TACIS programme about 10 rather small scale projects focusing on nature conservation and technical assistance have been granted. US-AID has operated an office in Kiev, but is not likely to continue its activities. Figures are not available for the contribution of various donors, but Denmark is said to be the most active bilateral donor presently.

Patterns and problems of cooperation.

Cooperation with Ukraine commenced in 1992. The first project was initiated in 1993 and a formal agreement of cooperation signed in 1994.

Ukraine has been one of the smaller beneficiaries of DESF activities, but in recent years the activities have increased. From 1991-96 grants worth 41 million DKK distributed on 13 projects have been initiated. 12 of these projects were approved from 1994-96, so the activities are quite recent. DESF has indicated that annual disbursements could be raised to the level of 40 million DKK in 1999.

60 per cent of the grants have been directed towards investment projects, mainly within air pollution but also related to water and waste water. Technical assistance has been focused mainly in the water sector, and has related to efforts to improve water supply and sewage systems in different parts of Ukraine.

There has been little co-financing from domestic sources in Ukraine. Projects that required co-financing have been stalled due to lack of financial means and other difficulties.

The Ministry's environmental section has limited staff and is marked by the same difficulties with turnover of staff as elsewhere in the region. Salaries of public officials have not been increased with the inflation, and the morale does not seem high, as one cannot sustain on the official income. DESF should continue to be aware of the risk of corruption, which may take place through requirements for returns from Ukrainian project partners.

A country programme with a list of priorities has not been formally agreed between Ukraine and DESF, although agreement was reached with the Ministry of Environmental Protection and Nuclear Safety. The State Committee of Housing, Construction, Reconstruction, Water and Architecture wanted to stand as signatory of the agreement. This latter Committee has apparently been a difficult partner in projects relating to water.

Achievements

The DESF supported investment projects are generally large-scale and impressive, as they address significant environmental problems.

A project to clean up a former Soviet military air base at Ludsk for oil pollution will address one of the largest contaminated sites in Ukraine, and is a project several times the scale of similar projects in Denmark.

A project to plan phaseout of ozone-depleting substances has resulted in subsequent financial implementation support from the Global Environmental Facility. The project was also carried out in other countries, e.g. Russia.

A project to introduce cleaner technologies in the machine-building industry will involve up to 20 companies and offer training of Ukrainian engineers and staff. Although the project will probably not create win-win situations from an economic point of view, it will serve to demonstrate what can be achieved by minimising consumption of materials for production. It will also institutionalise know-how about cleaner technology through the involved Ukrainian partner.

Ambitious and large-scale projects to remediate air pollution effects in Ukraine have been agreed, but the projects have not been able to raise the desired co-financing, due to the economic situation.

A substantial effort has finally been done in relation to the water sector. In Lviv, studies for preparation of a water and waste water project are likely to lead to implementation. And a feasibility study at Crimea is likely to lead to the World Bank financing a regional project to renovate the water infrastructure. The Crimean region is particularly affected by the decay of water infrastructure. Finally, DESF has supplied significant water supply equipment for Yalta and Sevastopol.

Summarising observations

Despite the difficult framework conditions for environmental policy, DESF has managed to launch a number of ambitious projects, that are likely to yield significant environmental benefits. Cooperation with the Ukrainian authorities as well as with the international financing institutions, particularly the World Bank, seems to be good. The prospects for the future effort in Ukraine look promising, although the lack of domestic means for co-financing is not acceptable in the longer run.

The main problem in Ukraine seems to be the lack of reforms, politically and economically. The absence of reforms has also implications for environmental protection. Institutional strengthening, e.g. through improved information systems in the Ministry and possibly for creation of an independent environmental fund, could help catalyze the environmental reform process. The focus on water supply could be supplemented with initiatives to introduce proper pricing of water services in the Vodocanals, and hence increase the revenue flow for renovation of the water infrastructure.

4. Assessment of key issues and problems.

4.1. The need for and role of foreign assistance.

The mandate for DESF has been to operate mainly in the area of the Baltic Sea (Poland, the Baltic Republics, and the parts of Russia closest to the Baltic Sea), with a second priority to the parts of the east European region more distant to Denmark.

The geographical focus of DESF activities from 1991-96 has been comprehensive. Unlike other western donors DESF has not developed a partnership with one major recipient, but has - within its mandate - operated in most of the region. A special relationship seems to have developed with Lithuania, which has been one of the largest beneficiaries of DESF grants. In Poland, DESF has been the largest bilateral donor, despite the presence of many donors. In Slovakia, Romania and Ukraine, DESF has become the most significant donor on the background of limited foreign environmental support from the West. Unlike several other donors, DESF has in addition to technical assistance also offered direct support for investments. This dimension of the DESF grant policy is highly appreciated among the recipients.

Considerable declines in air and water pollution emissions have taken place all over Eastern Europe since 1989, reflecting the decline in industrial production. Only in Poland and the Czech Republic have active pollution control policies played a perceptible role. In Estonia and Lithuania policies combined with foreign support have played a role mainly with regard to waste water treatment. In Russia, Ukraine, Slovakia and Romania the reforms towards better environmental protection have been moderate or insignificant, and the declines in various emissions are due to the difficulties of the economic transition process.

Foreign assistance for environmental protection has been offered by many western countries, but it is still the East Europeans who have financed the major part of the environmental costs. Only in the Baltic Republics has the foreign assistance reached a level of 35-50 per cent of the annual environmental investments. In Poland, the Czech Republic and Russia, foreign environmental assistance has not exceeded 5-7 per cent.

The capacity for environmental protection can be regarded as relatively satisfactory only in Poland, where the existence of independent environmental funds, based on the incomes from pollution charges and fines, offers a stable financial framework for continuous investments in pollution control. In the Czech Republic and in Estonia, the environmental funds are weaker and have a smaller turnover. In these three countries, as well as in Lithuania and Romania, there is however an interest in conforming with EU environmental standards, which seems to assure a certain amount of progress.

In Russia, Ukraine and Slovakia, the environmental protection policies have, compared with the ambitions immediately after the changes of the political systems, by and large been dismantled. The political institutions in charge of

environmental policies are weak and the financial commitments have been reduced. Particularly in Russia and Ukraine, but also in Romania, the lack of effective environmental policies seems to have serious implications for the health conditions of the populations - not only due to various toxic and non-toxic emissions but also due to the appalling state of water supply systems. In addition energy consumption per unit of GDP remains high and inefficient.

Foreign environmental assistance has a different role to play in the different parts of the region. In Poland and the Czech Republic, the environmental assistance is no longer essential, but it can still make a difference by providing access to advanced equipment and by offering partnership and training to local institutions and persons. In these two countries, it is not the absolute financial contribution which is important, but the qualitative cooperation that can take place in the framework of foreign assistance. In the Baltic Republics, the assistance is a significant component of the countries' environmental investments, and if continued at the present level, could enable these countries to achieve a more reasonable general standard in the basic issues of air pollution, waste water and waste management. In Russia, Ukraine and Romania, the assistance can offer relief in prioritised hot-spots and help solve problems which are urgent and serious, but the resources required imply that foreign assistance can only deal with a limited number of problems.

The gradual extension of DESF activities towards a broader effort in the region is noteworthy, and appropriately reflects the seriousness of the problems particularly in the area of the former Soviet Union.

4.2. Project identification.

A key problem for DESF is the mechanisms whereby projects are identified - and the possible congruence with the priorities of the recipient countries. Both an application procedure and a tender procedure are currently applied.

In the first years of DESF activity, only the application method was applied and as DESF operated with a limited staff (as only limited resources were available for administration) new projects were often developed by different Danish firms and consultants, who on their own identified and proposed partners and projects in Eastern Europe. The choice of the application method may have reflected the broad public involvement in Denmark with the problems of Eastern Europe and the expectation that many different actors were ready to involve themselves in environmental assistance. The application method, as well as the general disorder in Eastern Europe immediately after 1989, seems to be the reason for the relative lack of focus in the project portfolio especially in the first years. The authorities in the recipient countries could only offer rather broad shopping lists of problem areas, but no specific project opportunities.

A basic principle for the bilateral assistance, which DESF can offer, is the development of projects based on the competencies and skills of Danish firms and institutions, which are prepared to involve themselves in such projects. Still, it is not granted that the assistance which can be offered on a bilateral basis always reflects the most urgent needs or priority areas of the recipients. To the extent that Danish firms and companies search for project opportunities, their proposals will often reflect the technologies and types of know-how that they can deliver, and they will not necessarily be able to identify the most relevant or distressed partners in the recipient countries.

It is the opinion of the review team that the first two years of DESF activity, due to the relatively passive use of the application method, became biased towards consultant-driven projects, developed among companies familiar with DESF activities. Several of these projects had few tangible benefits for the recipient countries. This pattern applied

mainly in countries close to Denmark, but not in the more difficult NIS-region or in Balkan, where few Danish firms ventured at their own initiative.

The problems seem to have been recognised by the DESF administration, and from about 1993 a laudable effort was done by DESF to develop projects which more closely matched the priorities of the recipient countries. From 1993, DESF also gave priority to investment projects, and in a number of cases it was possible to follow up on initial feasibility studies with implementation projects. From 1993-95, DESF succeeded to initiate annually about 40 investment projects. Many of these investment projects are impressive, they transfer rather advanced environmental technology and they give reason to expect that substantial environmental improvements will be reached. The projects have been identified through many different sources, but generally in closer cooperation with the recipient countries. The Luzern conference in 1993 agreed that National Environmental Action Plans (NEAPs) for each of the East European countries should be developed. Such NEAPs provided donors such as DESF with lists of national priorities that formed a better informed starting point for the identification of projects.

The principal advantage of the application method seems to be that the DESF administration does not have to develop projects on its own, but can review and assess incoming proposals. The method allows DESF to select from a broader range of project opportunities, but calls for proposals and specification of DESF priorities do not seem to have been advertised at regular intervals. It is the impression of the reviewers that the DESF administration has tried to shield itself from consultant-driven projects by not advertising too actively the support policy, and instead has developed cooperation with companies with an acknowledged expertise. The reviewers are not entirely convinced about the principal merits of this approach, but it seems within the narrow limits of the application method to have been a reasonably productive approach.

Since 1996, a tendering procedure has been used in parallel with the application method. The tendering procedure implies that DESF, in active cooperation with the authorities in the recipient countries, identifies the needs for assistance, then elaborates and develops the specific projects to be carried out and finally tenders out the implementation of these projects. It is the opinion of the reviewers, that the introduction of the tendering procedure represents a significant improvement in allowing the recipient countries a more active role in identifying and developing projects. It offers a more transparent process, although in practice there are relatively few Danish companies with the skills and expertise to engage in such large projects.

The first experiences with the tendering procedure indicate that although it apparently has been more successful in terms of targeting assistance to issues of priority, the development of tenders in close cooperation with the authorities in the recipient countries is a time-consuming process. It can take up to one year from the initial agreement until a tender can be offered. In most cases, professional consultants have been hired to prepare the tenders, although also the DESF personnel and the local project coordinators are involved in the drafting stage. The main difficulty seems to be that the tendering procedure has its own legal logic, which often requires additional expertise. A clear disadvantage of the tendering approach is therefore that it is administratively resource-consuming. It is therefore appropriate that the DESF policy has been to develop tenders for more large-scale projects, often about 8-12 million DKK.

It is the opinion of the review team, that the tendering procedure is especially appropriate for large infrastructural projects related to water and energy. The review team agrees with the DESF administration, that the tender procedure needs to be supplemented with the application model, which offers more flexibility. There still seems to be a role for the application model in particular for smaller projects and for technical assistance projects.

The use of regular and advertised calls for proposals for DESF and a transparent indication of priority areas will be essential to increase the critical mass of projects to choose from. Such procedures would also allow more Danish firms and institutions to take part in DESF activities. Calls for applications could be divided into two phases; a first call for letters of intent and a second invitation to selected applicants to submit detailed proposals.

As regards the tender procedure, the priorities of the recipient countries need to be carefully defined. There is a certain risk, especially in the NIS-region, that the project-identification of the recipient countries is distorted in ways which are not preferable by the local affiliation of particular civil servants. However, projects identified on basis of National Environmental Action Plans, designated hot-spots or other objective criteria represent the result of a more conscious and collective process.

A third alternative to the application and tendering methods is to transfer DESF grants directly to responsible environmental institutions in the recipient countries. Such a transfer would imply an untying of the assistance, a principle which the 1995 Sofia declaration recommended to be mutually adopted among Western donors. It would allow the recipient country to use the assistance more freely in accordance with its national priorities. Presently, the appropriate financial institutions responsible for environmental investments in most of the recipient countries must be regarded too weak for the application of this method - with the exception of Poland.

In Poland, both the National Fund and the EcoFund offer viable frameworks for the direct transfer of assistance - in the latter case the funds will remain partly tied, as the tenders of projects are reserved to firms from the donors of the EcoFund (USA, France, Switzerland, Norway, Sweden). By transferring a lump-sum grant to Poland's EcoFund, DESF could release administrative resources for the assistance to other countries. The review team recommends that this approach be considered for Poland, and as appropriate also for other countries where environmental funds may be allowed to operate independently and accountably.

4.3. Project assessments.

In 1995, a more systematic procedure for the assessment of DESF project proposals (according to the application method) was introduced.

The scoring system gives equal emphasis to general purpose criteria of DESF (0.35) and internal project logic (0.35), while methodology (0.10) and project leader's qualifications (0.20) play a more inferior role. The procedure has provided a more systematic project review than in the first years of operation, but could still be improved.

The scoring system does not address some of the essential aspects of DESF financing, such as significance of the environmental problems addressed or the cost-effectiveness of the proposed measures. The assessment methodology does not address the allocation of financial means for hardware equipment versus consulting services, and it does not give credit to projects that include local partners.

While the environmental and technical assessment of the projects generally are of a high quality, there does not seem to be a clear economic project assessment. Project assessments should address the cost-effectiveness of the proposed measures, i.e. the costs per unit of pollution reduction should be indicated and measured against a general yardstick for such costs. DESF could develop more systematic guidelines for reasonable costs, e.g. per unit of CO₂-reductions or per

unit of WWTP capacity. The availability of such information would provide a better basis for prioritising among different project opportunities.

In addition, the inclusion of local consulting partners in the projects is generally desirable, both from a cost-effectiveness point of view and a capacity-building perspective. The project assessment could more explicitly address these aspects.

An issue which apparently has often been subject to some dispute between project partners has been the allocation of funds between the Danish project contractors and the recipients of assistance. It was mentioned in several interviews, that the recipients regard the costs of Danish consultants as disproportionate, and that more funds should be allocated for actual environmental hardware.

The per hour tariffs of the Danish consultants reflect the price level in Denmark and have been controlled by DESF according to current regulations. The crucial problem is hence the amount of hours assigned for projects. A more persistent drawback of the application method appears to be its lack of competition on the amount of resources to be spent on consulting services. The application model implies that a Danish contractor proposes a project and indicates the number of man-hours necessary for implementation, but there are few ways in which the DESF administration can really check the appropriateness of these figures.

It is the impression of the reviewers, that the dynamics that follow from the lack of competitive pricing on consultant services help explain the relatively low hardware share of some DESF grants. The shift in 1996 towards a tendering procedure has only partly mitigated this problem, as the application method still accounts for about half of the grant portfolio. A transparent procedure for submission of applications and revised principles for coverage of consulting services seem to be the key to a possible increase of the average hardware share. Not only the per hour salary of Danish consultants need to be considered, but also the overall share of the project grant allocated for their services.

The present hardware share of about 35 per cent implies that in average 65 per cent of DESF grants are used for the services of consultants, mainly of Danish origin. Financial contributions from other sources, mainly of East European origin, secure that in average 80 per cent of the financing for the total project packages are spent on hardware. The reviewers are concerned that this distribution may lead some observers to regard DESF as a commercial instrument, rather than an environmental one. In order to raise its hardware share, DESF should consider to offer the same share of support for consulting as for investments. By lowering the support for consulting services in investment projects, e.g. to 50 per cent, DESF would provide an incentive to all parties to limit these costs as efficiently as other disbursement categories. In this way, it will be possible to raise the overall hardware share to a level that in a better way matches the preferences of the recipients, i.e. 50 per cent or more.

4.4. Fields of activity.

The country review has shown that water supply is a major environmental and health related problem in most of Eastern Europe, and this issue could be addressed more explicitly in the future.

The DESF activities have so far focused mainly on conventional end-of-pipe technologies for waste water treatment, air pollution control and waste management, although an effort has been done also to identify cleaner technology and in particular sustainable energy projects.

While cleaner technology projects must be seen as a desirable contribution to the modernisation of industrial production methods, such projects are complicated by the difficult financial situation faced by firms and enterprises in the transition economies. There is a strong competition for investment funds and interest rates are high in Eastern Europe and many companies are reluctant to involve themselves in environmental projects. They need to be presented as shortcuts to improved economic performance as well. It has also proven difficult to identify firms which, with certainty, are likely to survive the transition period, and industry related projects are generally more risky than conventional end-of-pipe solutions for public authorities.

A particular problem for cleaner technology is created by the absence of true-cost pricing for water and energy services in most of the economies. These circumstances often render cleaner technology projects unprofitable from the point of view of industry. Unless clear win-win situations can be identified, cleaner technology projects are likely to have limited value.

In practice, end-of-pipe technologies are a more likely candidate for projects. Waste water treatment will soon be sufficiently extended in Poland and the Czech Republic, but in the rest of the region there is still a considerable backlog. The previous activities have focused on modernization of older plants, as well as on creating new capacity. Low-cost and simple-technology projects should be considered, as it is expensive for all parties to duplicate present Danish standards. In particular the extension with nitrogen removal should be considered carefully, as this treatment is not cost-effective compared with other paths to nitrogen-reduction, and also hardly relevant in the case of discharges to freshwaters. Also sustainable energy projects seem to have a considerable potential, i.e. coal-to-gas conversions and geothermal energy.

Waste incineration is regarded with scepticism in many countries. Despite several attempts to support construction of waste incinerators, only one or two are under implementation. Modern land fill management and recycling systems are more likely candidates for support.

The previous grant-strategy (for investment projects) has been a demonstration strategy. In principle each project should demonstrate the advantages of applying Western (Danish) technology and know-how, and is expected then to be disseminated to a broader range of interested communities or firms. The demonstration strategy implies that each DESF-project should be a unique project, at least in the country where it is implemented. Projects that duplicate previous projects have generally not been supported, with the exception of waste water treatment plants and where duplication has taken place in a different country.

It is the opinion of the review-team that the demonstration strategy has not sufficiently taken into account the financial limitations on environmental investments in considerable parts of the region. Duplication is often unlikely to take place due to the costs of Western technology and lack of resources for environmental investments - in particular in the least affluent countries. On the other hand, duplication by DESF support could often be an attractive and cost-effective option, once a viable project-package (e.g. for coal-to-gas-conversion, for windmills, for wwtp or for water supply etc.) has been identified. It should of course be avoided to give preference to one specific Danish supplier. By promoting duplication of successful projects, a greater multiplication effect can be achieved, and the administrative difficulties incurred by developing unique projects could be reduced.

There have been few large-scale nature protection activities with DESF support, and many projects have in fact rather related to strengthening of NGOs. The few actual nature protection activities have, however, provided significant benefits, and this field of activity is likely to be given more attention in the future through cooperation with the Danish Agency for Nature and Forestry. Co-financing from other sources has been quite satisfactory for nature protection projects. On the other hand, the NGO-projects carry the risk of subsidizing rather small organizations without sufficient scale and professionalism. A tendency towards many small NGOs is reported to be reinforced by the presence of many donor agencies. Nevertheless, projects implemented by NGOs can often be implemented with less man-hours from the Danish side, and are especially relevant in countries with limited democratic and environmental reforms.

The provision of technical assistance to promote capacity-building is likely to remain a component of DESF activities. Previous efforts to provide advice and support for the environmental ministries have yielded few tangible benefits due to the turnover of staff and the political instability. Activities to be carried out to strengthen environmental ministries and funds should in a better way take into account the difficult conditions for their work. Involvement in legislative activity can not be recommended. The project to strengthen the Russian environmental funds seems to be more promising. Projects to build up modern information systems, with transparent access to publications and documents of the national ministries, as in the Danish system, seem to be a potential opportunity. More training of environmental staff at Danish institutions or educational centres is a further possibility, which could strengthen the ties between Denmark and key individuals in the environmental administrations in Eastern Europe.

4.5. Financing and the role of various partners.

International financing institutions (IFI) such as the World Bank, European Bank of Reconstruction and Development (EBRD), the Nordic Investment Bank (NIB) and others are often accorded a key role in environmental financing in Eastern Europe.

In recent years, it has been a key component of the DESF strategy to provide grants for pilot projects and feasibility studies, which then prepare the ground for subsequent IFI financing. This strategy has been successful in a number of cases, such as the small municipalities project in Estonia. From 1991-96, DESF was involved in the implementation of 10 different projects with IFI-financing, with a total disbursement of 420 million ECU (3,2 billion DKK). 5 additional projects have been matched and are under preparation; their budgets amount to 362 million ECU (2,8 billion DKK). It is clear that this strategy significantly assures a multiplication of the finances available for environmental investments in Eastern Europe.

The basic strengths of the IFIs relate to their expertise in project preparation and the considerable sums which they can offer, provided that the recipients are prepared to raise loans. The policy of DESF to provide funds for IFI pilot projects is nevertheless important, as the East European countries lack the resources for such preparations, and as they ultimately may raise funds that are far more encompassing than what the bilateral donors can offer.

IFI-projects do not necessarily lead to purchases of Danish environmental equipment, but with Danish involvement in the tender phase, some Danish equipment or consulting will be likely to be included. Unfortunately no data is available on this aspect.

The problem with the banks is that the loans they offer are only provided in relatively large sums, which do not always match the investment needs of environmental projects well. They can then be offered as credit lines for the countries, which need to split them up and manage smaller loans and credits. Still, the IFIs have a rather conservative and conventional policy of lending. From the country review process it was the impression, that the IFIs have only had limited success in environmental financing so far.

DESF policy for cooperation has developed in recent years, and is not well reflected in the financial composition of the 342 finalised projects. The above-mentioned 15 projects serve to make a sum available for environmental protection which exceeds the total DESF budget almost with a factor 5. Cooperation with the IFIs seems promising and should be continued.

With regard to other bilateral donors, cooperation and coordination at project level take place through PPC, the Project Preparation Committee. In addition to the Nordic countries also Switzerland, Austria, Germany, France, UK, Japan, Canada, the USA and the EU have offered bilateral environmental assistance to the countries in Eastern Europe. Each of the donor countries operate according to their own criteria, and the divergence does not always facilitate cooperation. DESF has in 9 cases been able to initiate projects in cooperation with other donors. Coordination is time and resource consuming and is not really an end in itself. It is more important to avoid duplication of efforts.

PPC has so far approved a total of 59 projects with joint donor and IFI involvement. From 1993-1996 Denmark was involved in 19 of these projects, and is one of the most active participants in the PPC process (PPC, 1998). Since 1993 PPC has also matched bilateral donor funding in 58 other projects, but in 1998 all the 58 projects are still under preparation so it is a complicated path to environmental improvements.

A reasonably useful model for donor coordination was developed in the Daugapils project in Latvia, where a component of a larger World Bank project was singled out and implemented in cooperation by Swedish and Danish funding agencies. Apportioning responsibility for particular components reduces the risk that a joint donor and IFI effort get stuck in complex project management.

The role of donors may have been somewhat overestimated as compared to domestic East European sources of finance. The scale of DESF grants seems well suited also to match local and national funds in the East European countries, in particular from national environmental funds which exist in Poland, the Czech Republic, Estonia, Slovakia and Russia and which are being created in Lithuania and Romania. In countries where such funds are weak, local water boards offer an alternative partner with an independent revenue flow.

The IFI's, on the other hand, can provide finances at a scale which match the actual needs for infra-structural environmental investments in the region. The question is whether the countries in Eastern Europe are prepared to take loans, and to which extent the IFI's have expertise to develop sustainable environmental projects. DESF has acted as an active broker in this process, by facilitating and preparing the ground for IFI-financed investments.

4.6. Monitoring of on-going projects and documentation of effects and outcomes.

The review team has noted with some concern, that DESF does not have written procedures for monitoring and inspection of on-going investment projects. The national country coordinators are expected to follow these projects, but it seems that they do not have sufficiently precise instructions and mainly become involved when difficulties arise. Besides, such coordinators have not been employed in all the programme countries.

It is also necessary to develop firm procedures and methods that will allow for precise ex-ante and ex-post monitoring of pollution emissions, in order to substantiate the environmental effects of DESF projects. Presently, the environmental effects can only be assessed on the basis of information from the project contractors, who have an obvious interest in supplying as positive a picture of their project achievements as possible. As monitoring is costly such methods should be developed mainly for the key investment projects. They may have to include inspection of an independent third-party. DESF also needs to improve its internal database management system to improve the quality control of the registered environmental effects, which should be more critically assessed before being recorded.

A programme to co-ordinate and qualify the activities of the project co-ordinators needs to be developed. Their knowledge of Danish environmental policy and know-how as well as exchange of information among them could be strengthened through annual seminars taking place in Denmark.

Finally, there may be good reasons to provide the country co-ordinators with a stronger backing up in terms of an environmental attaché at some of the Danish embassies. The country co-ordinators employed in the national ministries are often recruited from these ministries and despite their qualities, they do not always have sufficient influence to handle project complications. A stronger presence in the programme countries can be expected to improve the implementation of DESF financed projects. There is also another aspect: environmental assistance makes up the greater part of Denmark's assistance to Eastern Europe and needs to be better co-ordinated with Danish foreign policy. One example is the reluctance in Estonia against projects in cities with Russian speaking citizens. An effort to convince the Estonian authorities of the broader advantages of such projects requires the experience that an environmental attaché could provide. Environmental attachés can also play a key role in the identification of projects. However, it is essential that such attachés have both a proven record in environmental protection and can work as generalists. It is recommended that environmental attachés be considered for the embassies in Warsaw, in Moscow, and for the Baltic states (either in Riga or Vilnius).

5. Concluding assessment of DESF activities 1991-1996.

5.1. Assessment of the achieved results.

5.1.1. The project portfolio.

From 1991-1996, DESF provided grants for 496 projects of bilateral assistance. By September 1st 1998, 327 projects had been finalised, while 169 projects were still under implementation.

In the first two years of activity the emphasis was mainly on technical assistance. From 1993, a more investment oriented strategy has been pursued, in which projects that integrate support for equipment and construction works with consulting services have been prioritised. In the first five years of activity, DESF relied on applications from Danish project initiators, but since 1996 a tender procedure, for projects developed in co-operation with the recipients, has been introduced to supplement the application procedure.

The review of the project portfolio has shown that the most significant field of activity has been support for waste water treatment, followed by sustainable energy projects. About one third of the grants was spent on purposes related to waste water treatment, mainly extension and modernisation of existing plants. Within sustainable energy, activities have focused on coal-to-gas conversions and geothermal energy.

In the reviewed period 62 per cent of the available funds were provided for investment oriented projects, while 38 per cent were provided for technical assistance. The actual share of DESF funds granted for hardware and equipment has for the reviewed period as a whole been 25 per cent, but has increased to about 35 per cent in the years after 1993.

A fundamental component of the DESF strategy has been to assure co-financing from sources in the recipient countries and, where possible, from international financing institutions. This co-financing has been considerable; the final accounts from 342 finalised or reported projects show that DESF funds have been matched with other funds in the ratio of 1:2. Financial sources in the recipient countries have covered 62 per cent, while the remaining shares have been covered by Danish loans, partner contributions, other donors and international financing institutions. When including the co-financing, the hardware share of the total DESF project budgets has been 70 per cent in the reviewed period.

The considerable East European co-financing of the DESF projects is in some respects surprising. The degree of co-financing varies among the different countries, and has been most significant in countries such as Poland, the Czech Republic, Slovakia and Lithuania. The East Europeans contribute to the projects with labour and buildings but also with financial means for investments, and they seem particularly keen on the need for actual equipment and hardware that represent environmental investments.

DESF has made a considerable effort to release loans from International Financing Institutions (IFIs), such as the World Bank and the European Bank for Reconstruction and Development, for environmental projects. This effort has provided significant results in 15 projects. DESF has provided grants for pilot projects, that have served to prepare the way for subsequent loans. This effort is part of a more recent strategy and most of the projects with IFI involvement are still under implementation. From 1991-96, DESF has been engaged in IFI projects with a total commitment of about 782 million ECU or about 6 billion DKK.

Two thirds of the projects have been co-ordinated by Danish consultants. There are relatively few Danish firms which have the capacity and resources to manage environmental projects in Eastern Europe. About 20 Danish firms, mainly consulting engineers, have been very active in DESF projects and account for the majority of the grants. Still, supply of equipment and materials have involved a larger group of Danish firms. The most important type of project partners in the recipient countries has been local, regional or national authorities, as well as consulting companies and public utilities.

5.1.2. Results of the project review

A survey was conducted among the project contractors of all DESF financed projects and a sample of DESF projects were carefully reviewed by a team of technical and environmental experts (PLS, 1998a). The projects were reviewed both according to the overall DESF targets and according to their own implementation. The review followed a systematic classification (cf. Chapter 2).

The survey among the project contractors showed an overall satisfaction with the programme management of DESF. There seems to be room for further improvement in particular regarding the transparency of project selection, and also regarding the time used to make decisions on projects.

A crucial component of the overall review was the in-depth review of a sample of 47 projects. These projects were selected to be representative for the total number of investment projects, geographically and with regard to type of activity. Interviews were carried out with the project partners and a technical inspection took place.

Each of the 47 projects has been described and assessed in a separate report. Each project has been assigned a score on seven variables, that are deduced from the general principles for DESF operation. The variables reflect both project internal targets as well as programmatic targets for DESF activities.

The following classification scale was used for the assessment of the projects:

0-1 H: Very dissatisfactory,

2-3 H: Dissatisfactory.

4-5 H: Less satisfactory.

6-7 H: Satisfactory.

8-9 H: Very satisfactory.

The results of the in-depth project review are presented in table xx on page yy. 15 projects were rated very satisfactory, 16 projects were rated satisfactory, 7 projects were rated less satisfactory and 3 projects were rated dissatisfactory. The

average score for 41 application projects was hence "satisfactory". Also for the 6 tender projects, the result was on average satisfactory.

This result shows that the general results of DESF's activities at project level have been found to be satisfactory when assessed against the original purposes with DESF's activities. This is a result, which is not often achieved by programmes for foreign assistance.

5.1.3. Results of the country review.

A review of environmental policies and institutions, as well as the patterns of co-operation with DESF, has taken place in eight countries; Poland, Estonia, Lithuania, Russia, Czech Republic, Slovakia, Romania and Ukraine.

Considerable declines in air and water pollution emissions have taken place in all of Eastern Europe since 1989, but these declines generally reflect the decline in industrial production. Only in Poland and the Czech Republic have active pollution control policies played a perceptible role. In Estonia and Lithuania policies combined with foreign support have played a role mainly with regard to waste water treatment. In Russia, Ukraine, Slovakia and Romania the declines in various emissions are mainly due to the difficulties of the economic transition processes.

Foreign assistance for environmental protection has been offered by many Western countries. In the Baltic states the foreign assistance has reached a level of 35-50 per cent of the annual environmental investments. In Poland, the Czech Republic and Russia foreign environmental assistance has not exceeded 5-7 per cent.

The capacity for environmental protection can be regarded as relatively satisfactory only in Poland, where the existence of independent environmental funds, based on the incomes from pollution charges and fines, offer a stable financial framework for continuous investments in pollution control. In the Czech Republic and in Estonia, the environmental funds are weaker and have a smaller turnover. In these three countries, as well as in Lithuania and Romania, there is however an interest to conform with EU environmental standards, which seems to assure a certain amount of progress. This is not the case in Russia, Ukraine and Slovakia where environmental protection policies, compared with the ambitions immediately after the changes of the political systems, by and large have been dismantled.

Foreign environmental assistance has a different role to play in the different parts of the region. In Poland and the Czech Republic, the environmental assistance can provide access to advanced equipment and offer partnership and training to local institutions and persons. In the smaller Baltic states, the assistance can enable these countries to achieve a more reasonable environmental standard. In Russia, Ukraine and Romania the assistance can offer relief in some hot-spots.

Co-operation between DESF and the environmental authorities in the recipient countries has taken place according to framework agreements. Co-operation seems to have been significantly well developed in Lithuania and to a considerable extent also in Poland, which have been some of the largest beneficiaries of DESF activities. Co-operation seems also quite well developed with Romania, Ukraine and Slovakia, although marked by the political and institutional difficulties in these three countries. In the Czech Republic and Estonia there are other donors who have played a more significant role, and the activities and achievements of DESF have been less impressive. In Russia, co-operation has been developed both at the national and regional level, and despite the prevailing administrative and economic disorder, the results are good.

Generally, the recipients stress, that DESF operates in a flexible and effective way, that the DESF staff is active and enthusiastic and that DESF belongs to the group of donors that offers real assistance in terms of support for investments.

5.1.4. Environmental effects of DESF activities.

The investment projects account for two thirds of total DESF grants, and of this category about 80 per cent have reported achieved or stipulated environmental effects. 84 have reported their achieved environmental effects by August 1998, while 80 projects under implementation have reported stipulated environmental effects. The remaining projects within technical assistance have not yielded direct environmental effects.

The environmental effects have not been directly measured, but are the effects reported by the project coordinators. The effects are the gross effects, resulting from the total financial effort in addition to DESF support, as it is not possible to disentangle the environmental effects resulting from the DESF contribution.

In table 5.2., the key environmental effects are listed and compared with key environmental emission data for Denmark. The overall environmental effects to be achieved under the DESF programme are significant.

It was mainly with effect from 1993 that DESF initiated its more investment oriented support policy, and delays in project implementation have not been unusual for many of the large investment projects, that require co-financing and which need to pass lengthy approval and planning procedures. Many of the project grants from 1995 and 1996 were effectively still under implementation when the review was carried out. This explains why the greater part of the environmental effects depend on projects currently under implementation.

With regard to air pollution 5,197 tons of SO₂, 8,486 tons of NO_x and 332,862 tons of CO₂ have been reduced as a consequence of projects implemented with DESF support. Further reductions of about 30,000 tons SO₂ and 167,000 tons CO₂ are expected. The CO₂-reductions stem mainly from the geothermal energy projects, which substitute traditional coal-based energy supplies.

Reductions of:	Achieved	Stipulated	Total DESF	Denmark Emissions ⁵
SO ₂ (tons)/year	5,197	30,208	35,405	158,000
NO _x (tons)/year	8,486	4,464	12,950	267,000
CO ₂ (tons)/year	332,862	167,885	500,747	61,190,000
VOC (tons)/year	1,082	752	1,834	95,000
BOD (tons)/year	8,934	40,867	49,801	173,988 ⁶

5. Sources: OECD environmental data 1995; Miljø styrelsen Vandmiljø -96, Miljø styrelsens affaldsstatistik.

6. Gross emissions before sewage treatment.

BOD (PE)/year	407,945	1,866,073	2,274,018	8,300,000 ⁷
Reduction of phosphorus (tons)/yr	199	1,257	1,456	1,236
Reduction of nitrogen (tons)/year	2,230	11,722	13,952	8,939
Haz. Waste Capacity tons	830,000	16,000	846,000	191,000t
Landfill Capacity tons	341,000	395,000	736,000	1,812,000t

Table 5.2. Environmental effects from DESF supported investment projects (N=145). Achieved, stipulated and total.

With regard to water pollution, organic material equivalent to about 407,000 person equivalents has been removed, mainly due to renovation and extension of municipal waste water treatment. Further reductions of about 1,866,000 person equivalents are expected as a result of the DESF effort. This capacity includes in many cases phosphorus and nitrogen removal. With regard to waste management, a hazardous waste capacity of annually 830,000 tons has been established. Landfill capacity of 341,000 tons has been achieved and expected.

The stipulated environmental effects represent estimates from the project contractors, and the review team expects on basis of previous experience that some of the stipulated project effects are likely to encounter implementation difficulties. The effects within waste water treatment are the most realistic, while figures for air pollution and waste management are more uncertain.

The total environmental effects are less impressive than initially expected, especially with regard to SO₂, but compared to the economic effort, the effects remain significant.

5.2. Summarising conclusions.

The assessment of DESF activities from 1991-96 has shown, that the beginning was difficult, but that the DESF administration has managed to develop and innovate its grant policy in a direction, that has yielded satisfactory and promising results.

In the first two years of activity, the emphasis on technical assistance did generally not provide a reasonable level of results. The use of the application method combined with the understaffing of DESF caused an unfortunate bias towards consultant-driven projects, the output of which was often a rather general exchange of ideas between East and West, e.g. in terms of non-committing feasibility studies. The political and administrative disorder in Eastern Europe contributed to the difficulties with project identification.

The more investment oriented grant policy, based on a closer dialogue with the recipients, which was introduced from 1993, has managed to produce a more significant and visible output. This effort was partly developed on the basis of

7. Gross emissions before sewage treatment.

project contacts that had been established in 1991-92, but also on the close co-operation with relevant environmental authorities. Annually, DESF has supported about 40 large and midsized investment projects, co-financed with East European and other sources - mainly within the fields of waste water treatment, sustainable energy production and waste management.

The efforts of DESF to develop co-operation with the International Financing Institutions in order to multiply the funds available for environmental projects have been a significant component of the more investment oriented strategy and a major achievement. Through IFI-involvement in 15 projects about 6 billion Danish kroner will be provided as loans for environmental projects.

The in-depth review of 47 projects, a representative sample, has shown that when assessed on a systematic scale, that includes both programme relevance and project goal fulfilment, the implementation of the DESF projects is found to be "satisfactory". The in-depth review was a crucial component of the overall assessment and this result is significant for the overall evaluation of the ability of DESF to develop and fund projects.

There have been well developed contacts with the national environmental authorities in all the recipient countries, and often close consultation on the selection of projects. Of the 8 countries included in the country review the results of DESF activities are especially impressive in Lithuania, while they seem quite promising in Romania and Ukraine despite the shorter timespan of the DESF effort. Good results have also been obtained in Russia and Poland.

Results are most impressive where large-scale projects have been identified and implemented to address basic environmental issues or problems. In countries where the co-operation with the environmental authorities have been especially close and succesful, the project pattern seems to be less marked by feasibility studies, and more by direct implementation.

The implementation of the investment projects has not always been as smooth as one might expect, and several of the largest and most ambitious projects are still in progress. Delays have been caused by factors that could not always be anticipated. The achieved and reported environmental effects from DESF activities are so far relatively moderate as regards the key parameters SO₂ and BOD, while they are more significant for CO₂.

There is reason to believe that the implementation of the full DESF project portfolio will yield significant environmental benefits; i.e. a renovated waste water treatment capacity of about 2,300,000 person equivalents in the Baltic Sea region, a reduction of acidifying SO₂-substances equivalent to one fourth of Denmark's domestic emissions and a curbing of CO₂-emissions at the level of 1/2-1 per cent of Denmark's domestic emissions.

The relatively high level of co-financing from other actors implies that the overall return percentage, i.e. means being used for the purchase of Danish technology and know-how, is calculated to be not less than 130 per cent of the grants. Since data are missing from 77 investment projects and from the IFI projects it is a somewhat conservative figure, but the only one available. There has hence been an additional commercial benefit for Denmark's environmental industry from DESF activities. Still, there have also been many DESF projects financed mainly or exclusively by DESF means, for instance within nature protection, soil pollution and capacity building. More than half of the 496 projects were implemented only with DESF support.

The assessment has shown that since the more investment oriented strategy was initiated in 1993, in average 35 per cent of the DESF grants have been used for equipment/hardware, while the remaining has been spent on consulting services.

Within the group of investment projects the share used for equipment/hardware is higher, in average 50 per cent. However, the average hardware share for the reviewed period as a whole was only 25 per cent.

Concerns have been voiced in the recipient countries that Danish consultants are expensive, and the recipients stress that they have domestically a strong base of technical know-how that could be better integrated in the projects. They prefer the support to be used mainly for purchase of advanced environmental equipment. The reviewers do not agree with the most hardware-focused opinions that have been expressed, but the hardware share is essential because it is the combination of tangible amounts of hardware combined with technical assistance which is likely to have the most significant impact in pedagogical and environmental terms.

Many donors offer only technical assistance, but DESF belongs to the group of donor agencies that also offers support for investments. It belongs to one of the substantial merits of DESF that the decision was taken also to support direct investments. Still, the reviewers are of the opinion that the hardware share of DESF grants could be increased to a somewhat higher level than the present. A 50/50 division between hardware and consulting services would be a reasonable and realistic yardstick. A higher hardware share would also allow more Danish firms to contribute to DESF projects.

The introduction of the tender procedure in the last years of the reviewed period provides reason for optimism regarding future DESF performance. Basically, the tender procedure offers the possibility to identify large-scale projects in close co-operation with the authorities in the recipient countries and in closer accordance with their priorities. The tender procedure allows also for competitive bids for project implementation. Some difficulties arise from the resources and time necessary to develop tender projects; tender projects need to be large projects and they need to be very carefully prepared. The review team recommends that DESF is supplied with additional administrative resources for this purpose, if necessary by being allowed the same share of administrative resources as Danced and the former Danida. The review team also recommends that the application method be continued, although with some changes cf. below.

The tender projects that have been initiated in 1996 provide reason for optimism as regards the future capacity of DESF to deliver considerable results for the resources devoted to environmental assistance. These projects address urgent problems, the hardware share is notably high and collaboration seems to progress productively.

5.3. Recommendations

The following recommendations are provided on the basis of the assessment:

- to include health-related aspects of environmental protection, particularly regarding water supply, more firmly in the DESF-mandate,
- to announce to the recipient countries the approximate annual amount available for projects in each country, to allow the recipients to consider their priorities more carefully,
- to strengthen co-operation with the recipient countries by extending the network of country co-ordinators to all the involved countries,
- to increase the use of the tendering method and provide an effort to increase the average hardware share of DESF grants to a minimum of 50 per cent,

- to advertise transparently the possibility to submit applications for DESF grants at specified deadlines, with indication of priority activities and countries,
- to revise the project assessment system to include also financial cost-effectiveness methods, providing yardsticks for reasonable costs per unit of emission reduction,
- to encourage the participation of technical experts and companies from the recipient countries in the projects and to provide credit for such inclusion in the project assessment,
- to develop more routine project packages that can be replicated with fixed shares of DESF grants, in particular for waste water treatment, coal-to-gas conversions and cleaner technology, and in general to allow replications of projects where reasonable,
- to avoid projects related to waste incineration, except where clear and firm commitments can be provided ex-ante by the relevant authorities,
- to provide technical assistance to further the strengthening of environmental funds and establish transparent and accessible information systems in the environmental ministries,
- to establish fixed and guaranteed deadlines for consideration of project proposals,
- to introduce firm procedures for monitoring and inspection of DESF investment projects, possibly also by third-parties
- to introduce firm procedures for ex-ante and ex-post monitoring of emissions, in order to substantiate environmental effects of DESF projects,
- to improve the network of country co-ordinators by annual seminars and more precise assignment of responsibilities,
- to extend and improve informational activities on the supported projects, for instance through DESF signposting at major investment projects,
- to consider untying the assistance to Poland by placing financial means directly in the Polish Eco Fund in return for a seat on the Board, as other countries have done,
- to reconsider the need for assistance to the Czech Republic and Hungary,
- in Russia, Ukraine, Belarus and Slovakia to improve donor co-ordination in order to tie the Western assistance more closely to suggestions or requirements for reforms of environmental policy and its institutions,
- to strengthen the co-ordination with other Danish ministries and the recipients, as well as with the wider economic and political issues at stake in the region, by placing environmental attachés (with environmental insight) at Danish embassies in Warsaw, in Russia and in one of the Baltic states if possible at a reasonable level of cost.

