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4 Development and Implementation of Environmental Financing Strategies

This chapter provides an overview of the generic process and tasks of developing and implementing an environmental financing strategy (EFS). The actual implementation of the EFS methodology in a given country or region may, of course, deviate from this general description depending on the specific context and local circumstances. Chapter 5 contains a case description, which gives an impression of the way in which the practical implementation has been handled and the results generated. Furthermore, it should be noted that important follow-up activities such as policy implementation studies, feasibility studies and detailed design, which are outside the scope of the environmental financing strategies themselves, need to be implemented for the benefits to materialise.

4.1 Stakeholders and the Process

Effective dialogue is needed

An intense process of analysis, consensus building and communication across various groups of stakeholders is an integral part of the preparation of an environment financing strategy. This multi-stakeholder dialogue will usually comprise the following types of stakeholders:

- Authorities responsible for municipal infrastructure and/or the environment in the country in question. These authorities will, generally, have some overall sector planning responsibilities and should, therefore, be involved in discussions concerning target setting and sector priorities.
- Authorities responsible for public budget planning (fiscal policy and economic planning) in the country in question. Ministries of economy and finance will, generally, be the key actors in relation to the public budget, which may be an important source of finance for municipal environmental infrastructure. These authorities should, therefore, be involved in considerations with regard to alternative policy packages for supply of finance.
- The local authorities and/or utilities who are responsible for providing the environmental services to the end-users, and who will be the owners of individual investment or rehabilitation projects. In addition, the tariff policy is most often decided at the local level. These stakeholders have the detailed data on the current situation that is required in order to make a projection of

the expenditure needs. At the same time, participation of implementing agencies in discussions concerning targets and policies is imperative.

- International financing institutions or donors who may act as sponsors of consultancy inputs to EFS development, and who may wish to use the financing strategy as a tool to support negotiations with authorities and municipalities in the relevant country.
- Private domestic and foreign partners and investors who could, potentially, be interested to participate in and provide funds for utility rehabilitation and modernisation programmes. Such interests will, most likely, be low at the early stages of sector restructuring. In some specific cases, however, as, for example, large utilities in country capitals or other major cities, private investor funds could be a realistic source of financing.
- Consultants (international and/or local) will often be hired to assist in the development of an environmental financing strategy. The consultants can facilitate the process by being responsible for the calculation of expenditure needs and supply of finance for various scenarios based on the data and decisions supplied by the other stakeholders. For this purpose, the consultants may use FEASIBLE.

Obviously, local ownership of the process and the results is paramount to facilitate the practical use of an environmental financing strategy, as key issues addressed, such as the adequacy of present user charges and the realism of stated service level targets, by nature, will be politically sensitive.

The suggested structure of this dialogue is outlined below.

Phases in development and implementation

Developing and implementing an environmental financing strategy will take place as a process stretching over a considerable span of time⁶. In general, the process can be expected to consist of the following phases:

- 1 Preparation (1-3 calendar months).

⁶ Experience has shown that the preparation of an environmental financing strategy needs to be supported by local and international consultancy assistance. This will typically be in the order of 15 man-months local consultancy and 5 man-months international consultancy.

- 2 EFS baseline analysis (5-7 calendar months).
- 3 EFS scenario analysis (3-4 calendar months).
- 4 Preparation of implementation programme/strategy (duration depending on local political process).
- 5 Implementation, including progress monitoring and updating (continuous).

The general content of each of these phases and the roles of the various stakeholders involved are depicted in the flow diagram in Figure 4-1 below. The flow diagram illustrates how international co-operation can be used to facilitate the process of using FEASIBLE to develop a financing strategy. The process in any particular country or region may follow a different path. The dark fields show essential actions – the “drivers” – of the process at each stage. The lighter fields illustrate supporting actions.

Although only the first three phases are a part of the environmental financing strategies themselves, the last two phases are nevertheless necessary preconditions for the benefits to materialise.

Figure 4-1 The process of developing and implementing financing strategies and the roles of key stakeholders

		Key Stakeholders	
Roles		Authorities responsible for infrastructure	Finance/economic planning authorities
	<i>Preparation (few months)</i>	Identify the infrastructure development programme to be implemented	
<i>Development of baseline analysis (5-7 months)</i>		Kick-off meeting: establishment of steering group and working group of local experts, agreement on methodology and outputs, detailed time schedule and division of responsibilities	
		Provide technical data to consultants	Provide financial data and "rules" to consultants
		Provide baseline assumptions and forecasts to consultants	
		Check quality of engineering data and assumptions	Check quality of financial data and assumptions
		Workshop on the baseline analysis, indicative agreement on targets and scenarios to be analysed	
<i>Development of scenario analysis (3-4 months)</i>		Take decision about specific targets for scenario analysis	
			Take decision about the realistic options to increase financing from different sources
		Negotiate options to mobilise additional financing from different sources (user charges, public budgetary and extra-budgetary funds, attracting private and foreign financing)	
		Negotiate further options to close financing gaps – increasing financing or revising targets to reduce expenditure needs	
		Iterative process continues until the parties can find a set of 2-4 alternative scenarios each containing different targets and/or different measures to close financing gaps.	
		Workshop to present scenarios to achieve agreed targets with alternative, realistic strategies to finance all related investment and operation and maintenance expenditure	
<i>Implementation of EFS</i>		The government formally adopts targets, implementation programme and financing strategy and reflects it in the budget (mid-term appropriations and annual commitments)	
		Government agencies implement measures and institutions to mobilise additional finance envisaged in the EFS (e.g. allow commercialisation of infrastructure services, reform tariffs, remove barriers to FDI, facilitate access to capital markets). At the same time, the government launches the public expenditure programme envisaged in the EFS and develops a rolling mid-term pipeline of projects.	
<i>Progress monitoring</i>		Evaluate implementation and expenditure, update inputs to FEASIBLE and rerun the model to check what corrections in plans and instruments are needed	
		Consistently implement measures and institutions to mobilise the additional finance envisaged in EFS. Introduce necessary correction and launch second period of implementation. Continue verification of progress.	

Key Stakeholders

Foreign and local consultants and experts	Project owners (e.g. municipalities and utilities)	International cooperation partners
		Develop terms of reference; identify funding. Choose international consultants
		Participate, agree, execute contracts
Collect data on the present state of infrastructure and available finance (2-3 field missions)	Provide technical and financial data to consultants	
Calibrate FEASIBLE, load data, develop baseline scenario and baseline financing gap assessment	Provide baseline assumptions and forecasts to consultants	
Write intermediate report on baseline scenario; characterise baseline financing gaps		Check quality of methodology
Fomulate targets in the quantitative language of FEASIBLE		
Fomulate realistic options to increase financing in the quantitative language of FEASIBLE	Take decision about the realistic options to increase financing from different sources	
Carry out simulations for scenario analysis; identify financing gaps for each target; provide this information to authorities		
Provide technical support for negotiations	Provide commitments on local co-financing and tariffs	
Simulate if proposals agreed by authorites can close financing gaps. Feed back.		
Provide technical support for negotiations, conduct "what-if" simulations	Provide inputs to negotiations on targets or increased local co-financing including tariffs	
Provide consulting services to municipalities in project development and preparation and to the government in pipeline management	Municipalities reflect government decisions in their mid-term investment plans, prepare project proposals and submit them to the government expenditure programme	IFIs and donor countries take the approved EFS into account in their programming
Provide consulting services to municipalities and the government	Implement periodical review of their investment plans and implement projects	

4.2 Importance of the Baseline Analysis

The establishment of a sound baseline scenario is crucial to any medium- or long-term analysis of sector policies and programmes. This alternative describes the future as it is likely to look if historical trends and present policies⁷ continue unchanged. This is not a trivial exercise, as expected changes external to the sector under consideration need to be taken into account in defining the baseline, for example technological progress, growth of income, changes in population and consumption patterns, macro-economic conditions, international trade, etc. However, a good “no-change-in-policy” alternative is essential to understand the need, if any, for modification of present policies and for altering the trends.

In terms of an environment financing strategy, the baseline scenario includes a projection of the future needs for expenditure that will result from maintaining the present level and quality of service, with the same facilities under operation, the same pollution control equipment, emission standards, etc. Completion of already ongoing or firmly committed projects can also be included in the baseline. The baseline scenario also includes a projection of the supply of finance that will result from continuation of present policies on user charges, public budget allocations, private sector financing for the environment sector, etc. For grants and loans, normally, only firmly committed finance is included in the baseline.

4.3 Scenario Analysis and the Policy Dialogue

The environmental finance strategy, *sensu strictu*⁸, is established by running the model several times with different targets and different parameters representing various available packages of policies affecting the demand and supply of financing until one or more scenario is found where all targets are met and all financing gaps are closed.

⁷ Note that "policy" is defined broadly to encompass the entire spectrum of policy pronouncement, enactment of laws and regulations, enforcement hereof and all practices and habits that can be said to be policy related. In some countries, enhanced enforcement of policy may constitute a significant "change in policy".

⁸ A combined set of environmental targets and financing proposals is said to constitute an environmental financing strategy *sensu strictu* if it closes the financing gaps (i.e. no deficits in any year).

The need for environmental expenditure is a function of the level of ambition of the targets, both in terms of how soon and how much (e.g. water produced, population served, pollution abatement) is to be achieved.

The supply of finance is influenced by a large number of policies, including, but not confined to, policies on user charges, public budget allocations and the access to capital and financial markets capable of offering long-term debt finance. Government policies may also enhance sovereign and municipal credit worthiness, create more favourable conditions for private sector participation or better leveraging of foreign funds.

A set of environmental targets and policies that influence the supply of finance form a scenario. The scenario is feasible if all targets are met and all financing gaps can be closed during the entire implementation period.

The scenario analysis forms the basis for policy dialogue on whether the policies that determine the available supply of finance and the environmental objectives need to be revised and how.

This interactive process of multiple model runs and policy assessment is needed to define realistic strategies. Realistic strategies are those for which feasible policy packages ensure that the planned service level is provided at affordable user charges and fiscal burdens. The financing gap can be bridged by a combination of increasing the supply of finance and decreasing the demand for financing (e.g. through cost savings or revised targets). The affordability constraint, determined on the basis of international benchmark data for comparable income level countries, can be met only by a combination of income growth, income support and decreasing the financing needs.

The key value in applying the EFS methodology lies in its contribution to systematising the difficult discussions on targets, instruments and money. Local leadership in the process and ownership of results is the necessary condition to facilitate the practical use in development and implementation of infrastructure development programmes.

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Introductory Statement

**by Mr. Hans Christian Schmidt,
Minister of the Environment, Denmark**

During the 1990's National Environmental Action Plans (NEAPs) and strategies were developed in most Eastern European countries to address the challenges of reforming the environmental sector along with the transition from planned to market economies. While providing good overviews of the environmental problems and needs in the region, the first generation NEAPs did not reflect the limitations of scarce resources and the need for structural reforms of the environmental sectors. As a response to the limitations of the NEAPs, Denmark and other donor countries have during the last four years supported work in the OECD to develop Environmental Financing Strategies (EFSs), to help countries plan better for environmental improvements and secure long term sustainability of the planned infrastructure investments. The environmental financing strategy is a methodology used to organise information and to balance environmental policies and targets with available resources.

It is well documented today that the municipal infrastructure sector, not least in the water sector, is in a very critical state. This is especially true in countries of the former Soviet Union, the EECCA countries (Eastern Europe Caucasus and Central Asia), where accession to and support from the EU have so far not been driving forces. The current status of public infrastructure in the EECCA region is one of severe under-investment, huge losses of water and energy and a high accident rate. Preventive maintenance has given way to accident management and damage repair, costing several times more than that of regular maintenance. The needs by far exceed the available financial resources, and therefore, governments and service providers must prioritise and seek ways of increasing the financial flow to the sector as well as reducing the costs of providing the services.

The environmental financing strategy is, thus, a methodology to organise information and to balance environmental policies and targets with available resources. Up to now, Denmark has financed the development of a computerised decision support tool, the so-called FEASIBLE model, which facilitates the balancing of needs with available financing. The tool has been tested on a number of country and regional studies in the water sector (Georgia, Moldova, Kazakhstan, Ukraine and three regions in Russia, viz. Novgorod, Pskov and Kalinin-grad), and lately it has been extended to include the waste sector. The waste model has been tested in Novgorod and in Latvia. The first reports (Georgia,

Moldova and Novgorod) were submitted to the Almaty Conference in the year 2000. In response to the “Guiding Principles for Reform of the Urban Water Supply and Sanitation Sector in the NIS” adopted by Ministers in Almaty, additional studies have now been completed, and the FEASIBLE model has been reprogrammed in a more user-friendly second version. This model is available for free to subscribers.

I am pleased to learn that recently other donors, such as the EU TACIS and Germany, have used the methodology and model developed to support EFSs in other regions in Russia and in Armenia. Furthermore, the methodology has been applied without the use of the FEASIBLE model but as a project based prioritisation tool that is particularly relevant in smaller countries and as a next step when overall policies and targets are set.

This report presents an overview of the EFS methodology and, in particular, the FEASIBLE model, and it provides a synthesis of the results achieved so far by applying the methodology. I will not give a summary of the report here but just point to a few key conclusions:

- The studies show that in the EECCA region the financial resources available today are hardly sufficient to cover operating costs of the existing deteriorating water infrastructure.
- User charges have reached affordability levels in some countries like Kazakhstan and Moldova. There is, however, still room for increasing tariffs in other regions, such as Russia and the Ukraine.
- There is scope for reducing operating costs through energy and water saving measures that should also be taken into account when dimensioning and designing new infrastructure or upgrading existing facilities.
- There is no doubt that public budgets as well as international financial support and partnerships will still have to play a substantial role in the future financing of strongly needed capital investments in improved environmental infrastructure. And this support must be linked with continued institutional and economic reforms.

The FEASIBLE model has proven its applicability, not only in EECCA countries but also in accession countries, and I believe that the cost-effectiveness of

Danish environmental investments could also be improved by applying the methodology more actively in Denmark. Lately, the OECD has demonstrated the applicability of the FEASIBLE model in developing countries by developing a financing strategy for the wastewater sector in the Chinese province of Sichuan.

We see the EFS methodology and the FEASIBLE model as important building blocks for the Strategic Partnership on Water for Sustainable Development, which was launched at the World Summit on Sustainable Development in Johannesburg in September 2002. It is my hope that this publication and the EFS methodology including the FEASIBLE model will be of interest to many new user groups (municipal investment planners, regional and national administrations, international financing institutions, consultants, etc.). I wish to thank those institutions, regions and countries, which have actively participated in developing the EFS methodology and the FEASIBLE tool and made valuable information available for the environmental financing strategies in general and for this publication in particular.

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List of Abbreviations and Acronyms

C&D	Construction and demolition
CIS	Commonwealth of Independent States (of the former Soviet Union)
DANCEE	Danish Cooperation for Environment in Eastern Europe
DEPA	Danish Environmental Protection Agency
EAP	Environmental Action Programme
EECCA	Eastern Europe, Caucasus and Central Asia, comprises countries of the former Soviet Union except the EU accession countries (Estonia, Latvia and Lithuania)
EFS	Environmental financing strategy
EU	European Union
EUR	Euro
FDI	Foreign Direct Investments
FEASIBLE	<u>F</u> inancing for <u>E</u> nvironmental, <u>A</u> ffordable and <u>S</u> trategic <u>I</u> nvestments that <u>B</u> ring on <u>L</u> arge-scale <u>E</u> xpenditure
GDP	Gross domestic product
GEL	Georgian lari
HH	Household
HHW	Hazardous household waste
IFI	International financing institution

ISPA	Instruments for Structural Policy Adjustment
LCD	Litre per capita per day
MRF	Materials recycling facility
MSW	Municipal solid waste
NEAP	National environmental action programme
NIS	Newly Independent States (of the former Soviet Union)
O&M	Operation and maintenance
OECD	Organisation for Economic Co-operation and Development
SMART	Specific, measurable, agreed, realistic and time-bound (targets)
USD	United States dollar
WEEE	Waste electrical and electronic equipment
WS	Water supply
WW	Wastewater
WWT	Wastewater treatment

Executive Summary

An important obstacle to achieving environmental goals in many countries has been the failure to adequately address the associated financial issues: the costs of achieving environmental goals; how those costs could be minimised; and the challenge of matching costs with available resources. This volume presents an approach for addressing these issues, particularly for investment-heavy environmental infrastructure, such as urban water supply, wastewater collection and treatment and municipal solid waste. Its main message is that a systematic modelling approach to investment and financial management can improve decision-making and ensure a better use of scarce resources. The main ideas underlying this approach are the importance of realism, affordability and cost-effective use of resources in achieving environmental goals.

A computerised decision support tool – FEASIBLE – was developed by OECD and Denmark to help develop financing strategies, mostly in the countries of Eastern Europe, Caucasus and Central Asia (EECCA), but also in EU accession countries and China. It currently may be applied in the water supply, waste water and solid waste management sectors, and the goal is to extend it to energy-related infrastructure. FEASIBLE is freely available and can be obtained through the web pages of OECD, the Danish Environmental Protection Agency and COWI, the Danish consulting firm that developed the model.

The basic approach underlying FEASIBLE is to take public policy targets in areas like water supply and sanitation, determine the costs and timetables of achieving them, and to compare the schedule of these expenditure needs with available sources of finance. This analysis generally reveals “finance gaps” during planned implementation. FEASIBLE can then develop various scenarios to determine how these gaps could be closed. This could be by: identifying policy reforms that could help achieve the targets at lower cost; identifying ways of mobilising additional finance; adjusting the ambition level of the targets; or extending the time period for achieving the targets.

An important feature of FEASIBLE is the emphasis on realism and affordability. The model can assess the levels of finance (public, private, domestic, foreign) that might be available under different macro-economic conditions. In this way it provides a check on what public budgets might realistically be expected to contribute. It can also help to assess the potential social implications of increasing tariffs by determining the impacts of such price increases on household income. By focussing on these issues, the application of FEASIBLE is more than a tech-

nical exercise: it also supports a process of dialogue and consensus building among the key stakeholders involved in financing environmentally-related infrastructure. In this way it can build a bridge between policy development and implementation.

The analyses prepared to date for EECCA countries have shown that the percentage of the urban population with access to water supply, wastewater treatment and solid waste management services is higher than in countries at a similar income level, but that these services are inefficiently designed and very costly to operate and maintain. At the same time, the existing arrangements for providing these services are financially unsustainable. Thus, in most EECCA countries there is a chronic shortage of funds for proper operation and maintenance of infrastructure, such as small repairs, replacement of worn-out parts, small capital repairs and essential rehabilitation. This has resulted in the rapid loss of the economic and technical value of assets. If corrective action is not taken, it may eventually lead to the physical collapse of the infrastructure, with severe consequences for human health, the environment and economic activity.

The grave situation in EECCA calls for a fundamental reform in the approach to financing environmentally-related infrastructure and the associated policy and institutional arrangements. Overly ambitious plans to extend the coverage and level of infrastructure services need to be replaced by more realistic, modest capital improvement programmes, tailored at providing essential repairs and rehabilitation of critical elements of infrastructure in order to maximise efficiency gains (mainly reduction of energy costs) within the limits of what households and public budgets can afford.

Even achieving these more modest objectives represents a major challenge for EECCA countries. *User charges* will be the most important long-term source of finance for operation and maintenance expenditure, though the low income in many EECCA countries represents an important affordability constraint. *Public budgets* will have an essential role in the short and medium term in financing rehabilitation and capital investments, in providing social protection and in facilitating access to credit. However, infrastructure programmes have to compete with other pressing social priorities. Thus, scarce *public funds and donor grants* need to be strategically prioritised; they will need to be increased in many

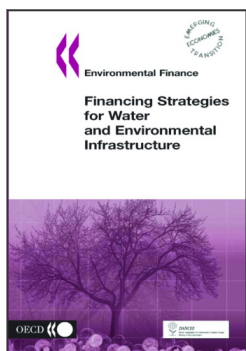
EECCA if the Millennium Development Goals are to be achieved¹. The importance of *domestic financial and capital markets* will grow over time. *International financial institutions (IFI)* will continue to have an important role in capital investments and promoting financial and management discipline. The role of the *private sector* will for many years be more important in providing managerial know-how than finance.

Even though the development of environmental financing strategies (EFS) has only been undertaken in the last few years, it has already triggered some significant policy changes in EECCA countries. *In Novgorod Oblast (Russia)*, the EFS for the water sector was officially adopted by Regional Government and used to identify a portfolio of projects co-financed by the Oblast and international donors. The municipal waste EFS for *the Novgorod and Yaroslavl Oblasts* led to a revision of the waste management plans that involved the identification of more cost-effective regional solutions. *In Moldova*, the EFS was adopted as an official policy document and supported a draft government resolution relaxing unrealistically stringent wastewater effluent standards. *In Kaliningrad (Russia)*, the EFS was used to identify a portfolio of projects co-financed by the Oblast and international donors. *In Ukraine*, the EFS was used to support a comprehensive water sector strategy. *In Pskov (Russia)*, the EFS stimulated a policy debate about infrastructure development targets that were revealed as being financially unsustainable and unrealistic. *In Georgia and Kazakhstan*, the EFS has provided a revealing “reality check” on possible co-financing arrangements with IFIs and donors.

The experience accumulated to date suggests that the environmental financing strategy methodology can be useful tool for governments in developing realistic plans to achieve nationally or internationally agreed targets. The underlying assumption is that governments should not finance all or most expenditure, or sponsor all or most projects. Relying on the public budget to finance operational and maintenance costs of collective infrastructure, for example, is not a sustainable solution. The main role of government in relation to finance is to establish the policy, regulatory and institutional framework within which resources from users, financial markets, capital markets, local budgets and enterprises can be

¹ As one of the Millennium Development Goals, by 2015 all United Nations Member States have pledged to reduce by half the proportion of people without sustainable access to safe drinking water. At the Johannesburg Earth Summit it was further agreed, by 2015 to reduce by half the proportion of people without access to basic sanitation

mobilised in a complementary way, and applied as cost-effectively as possible to achieve agreed goals. Hence, the financing strategies can be useful not only to help plan the government budget, but also in suggesting how policy instruments that affect the capacities and decisions of other public and private financial agents might be reformed.



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