3 The FEASIBLE Model

A major challenge when developing environmental financing strategies in EECCA is the lack of available data on investment and rehabilitation needs at the individual facility level. In order to overcome this challenge and enable successive iterations of alternative policy combinations in an environment where detailed and credible data is scarce, a software tool was created to enable realistic estimation of total financing needs by aggregation of individual needs.

FEASIBLE is a software tool developed to support the preparation of environmental financing strategies for water, wastewater and municipal solid waste services. The first version of FEASIBLE, a spreadsheet based version for water and wastewater, was released in 2001. FEASIBLE Version 2 is a stand alone application based on a database. It is released concurrently with this publication.[3]

The present chapter provides a brief description of FEASIBLE, its main functions, what it can and cannot do. A detailed description of the model is available in "The FEASIBLE Model, Version 2, User Manual & Documentation, 2003".

3.1 Using FEASIBLE

FEASIBLE can be used to facilitate the iterative process of balancing the required finance with the available finance. It provides a systematic, consistent and quantitative framework for analysing feasibility of financing environmental targets. A computerised model, FEASIBLE may be used to analyse "what if" scenarios that simulate what would happen if some present policies were changed. FEASIBLE presents the financial impacts of these changes in a systematic and transparent manner.

FEASIBLE requires specific, technical city-by-city data on the present size and state of infrastructure. It also requires that policy makers specify their objectives in terms of specific, measurable and time-bound targets. FEASIBLE calculates the investment, maintenance and operational expenditure that would be required to reach specific targets determined by local policy makers. Targets and objectives are not entered directly, but expressed in terms of selected technical measures. The translation from objectives and targets to technical measures is done as

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[3] The FEASIBLE model is freeware and can be obtained through the web pages of the OECD, DEPA and COWI.

a pre-modelling exercise by the user. FEASIBLE calculates expenditure needs under different assumptions concerning input data and parameters related to:

- Objectives and targets.
- Technical measures.
- Macro-economic projection.
- Technical and price correction coefficients.

The expenditure requirements are subsequently compared with forecasted levels and sources of finance. All sources of finance (public, private, domestic, foreign, etc.) and all financial products can be simulated.

FEASIBLE compares the expenditure needs with the supply of finance on a year-by-year basis and computes cash flow forecast, i.e. financing deficits or surpluses, both annual and accumulated. Not only the magnitude of total cash flow deficits/surpluses is presented. The structure of the financing gaps is also shown, e.g. coverage of capital investment expenditure by various funding sources that can be used to finance fixed assets, operation and maintenance costs, etc. These results help policy makers understand where the main bottlenecks are, as well as where, when and what additional policy interventions are needed to facilitate effective financing of infrastructure development programmes.

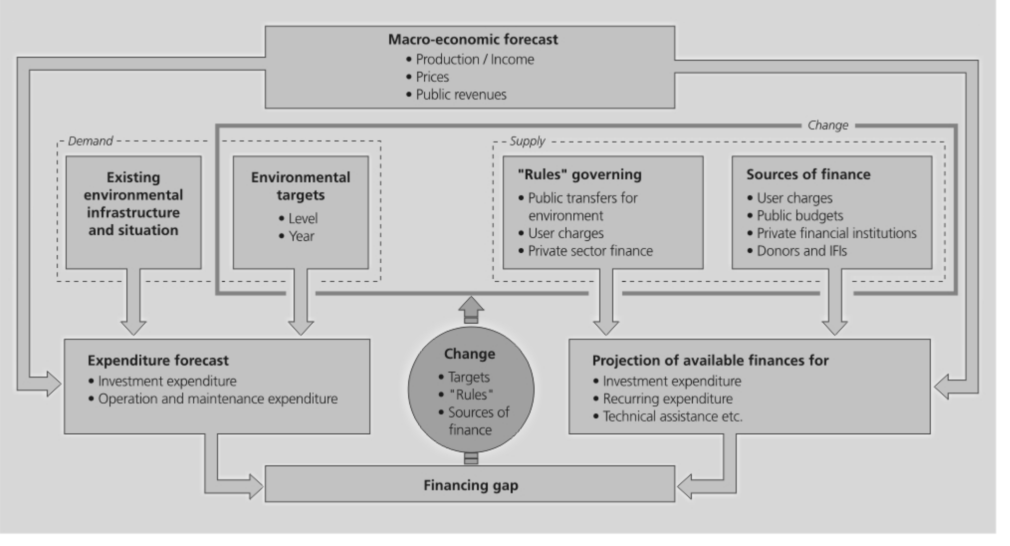
An environmental financing strategy can be developed through series of iterative runs of FEASIBLE with different assumptions describing targets and measures to mobilise additional finance or to re-allocate available funds. This process engages many policy makers and local experts who should reach a consensus, first on targets and then on the most realistic package of specific measures that can mobilise sufficient financial resources to meet the desired targets. The use of FEASIBLE introduces an additional layer of realism into this multi-stakeholders dialogue. In FEASIBLE, any increase in supply of finance is compared with what the national economy, public budgets[4] and households[5] could potentially

[4] Additional public expenditure are assessed on the basis of detailed analysis and forecast of macroeconomic developments, examination of historical budget execution records, review of relevant expenditure patterns and trends in comparable countries, as well as extensive discussions of the medium and long-term budgeting and investment planning with national, regional, and local authorities.

afford. This comparison serves as a test of whether suggested policy options are realistic. If affordable measures to mobilise additional finance cannot be found, FEASIBLE allows environmental or service level targets to be changed in order to simulate the effect of decreasing the demand for financing.

The chart below provides a schematic overview of the iterative process of the FEASIBLE methodology.

Figure 3-1: Overview of the FEASIBLE environmental financing strategy methodology



This iterative process informs decision makers how to use the limited funds of the public sector to achieve the biggest effect, and what needs to be done to mobilise sufficient financing from private and foreign sources. In several countries, it has proven to be a useful tool in the dialogue between the authorities responsible for infrastructure and environment, on the one hand, and authorities responsible for finance and economy, on the other. It has also been used to support ne-

[5] Households' capacities to sustain increased user charges are assessed against internationally adopted benchmarks for countries of similar income levels. In most of the environmental financing strategies covered by this review, the benchmark level for household water bill is established at 4% of average household income, under different assumptions on rates of future income growth.

gotiations on priority investment projects financed by IFI loans or through bilateral co-operation programmes.

Box 3-1 FEASIBLE - data need

The FEASIBLE model requires the user to collect and enter basic city-by-city and global data on the present infrastructure in the sectors covered by the financing strategy, including:

- Basic demographic data (population, income, local price levels).
- Existing service level (coverage, quality, capacity, technologies).
- Existing supply of finance (user charges, public budgets, international sources of finance).
- Environmental and service targets.

Although the model is able to run with a limited input and will propose default levels for some parameters, the value of the output increases with the accuracy of the data input.

The FEASIBLE methodology is quite specialised, and thus cannot serve all purposes. For example, it cannot optimise the selection of technical measures in terms of cost-benefit ratio or cost effectiveness. Box 3-2 below highlights the limitations of FEASIBLE.

Box 3-2 FEASIBLE - what the model cannot do

The FEASIBLE model cannot:

- Substitute for feasibility studies.
- Substitute for cost-effectiveness optimisation.
- Substitute for priority setting and cost-benefit analysis.
- Substitute for good policy making and effective implementation.
- Substitute for willingness-to-pay analysis.

It should, furthermore, be noted that proper use of FEASIBLE and interpretation of model results require extensive knowledge of the technical and financial aspects of the sectors analysed, as well as familiarity with computers. Hence, in some countries, local consultants and staff of beneficiary ministries will need to be trained in the use of FEASIBLE in order to be able to apply it appropriately.

3.2 Structure and Main Functions of FEASIBLE

FEASIBLE Version 2 enables analysis of the following sectors:

- Water supply and treatment.
- Wastewater collection and treatment.
- Municipal solid waste management.

Each module can be run independently of the others.

FEASIBLE is structured into four main components:

- **General information,** which contains the definition of the geographic area covered, subdivided into regions, municipalities and groups of municipalities, local cost correction coefficients, and the basic macro-economic and financial data underlying all model scenarios.

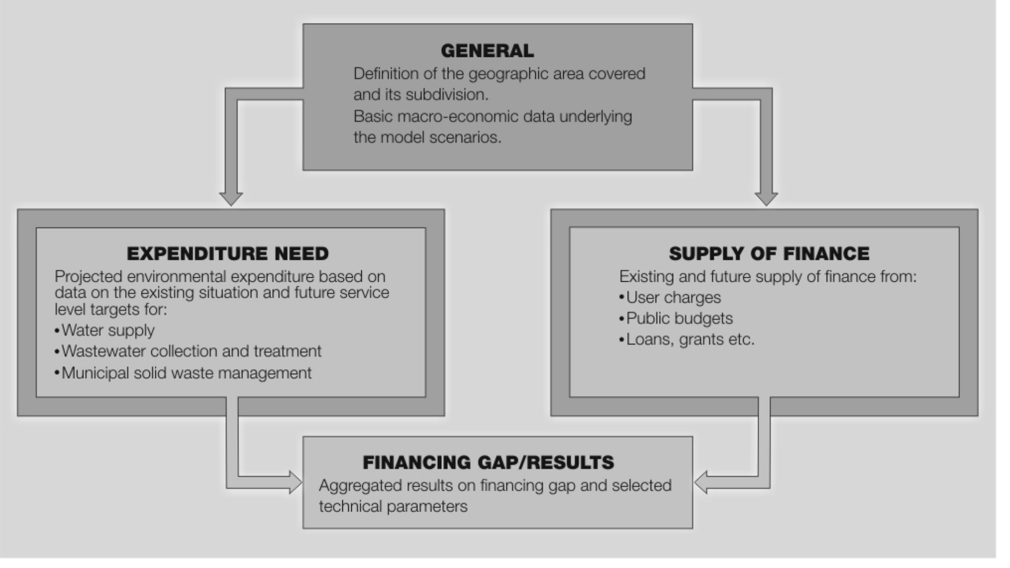
- **Expenditure need**, which calculates the projected environmental expenditure (for operation and maintenance, re-investment, renovation and new investments in environmental infrastructure), based on data on the existing situation, service level targets entered by the user and cost correction coefficients.

- **Supply of finance and affordability**, which describes the existing and future supply of finance from various sources and in various forms, for example, user charges, public budgets, loans, grants, etc. It also allows the user to define an affordability limit to which the potential increase in the corresponding source, for example user charges, will be constrained.

- **Financing gap/results**, in which aggregated results on financing gap and selected technical parameters are calculated and displayed in tabular and graphical format.

These components are composed as illustrated in Figure 3-2 below.

Figure 3-2 Structure of FEASIBLE



Water supply
The key parameters available to describe the service level and set targets for the water supply system are:

- Type of water intake and treatment technology.
- Volume of water production.
- Coverage of water supply (percentage of the population covered by central or local water supply).
- Renovation of intake, treatment and transmission system, as well as distribution network and service connections.

The water supply technologies available in the model are:

Urban	Rural
• Groundwater intake, no treatment. • Groundwater intake with normal treatment (chlorination, coagulation, sedimentation and filtration). • Surface water intake with normal treatment (chlorination, coagulation, sedimentation and filtration). • Surface water intake with advanced treatment (normal treatment + ozonation and filtration in a granular activated carbon filter).	• Hand pumps, groundwater. • Electrical pumps, no treatment, groundwater. • Electrical pumps, treatment, groundwater.

Wastewater treatment

The key parameters available to describe the service level and set targets for the wastewater treatment system include:

- Type of wastewater treatment technology.
- Wastewater collection rate (percentage of the population connected to sewer system).
- The share of the population connected to a wastewater treatment plant.
- Renovation and upgrading of pumping stations (increasing energy efficiency).

The wastewater treatment technologies available in FEASIBLE are:

Urban	Rural
• Mechanical. • Chemical (phosphorous removal). • Biological. • Nitrification. • Denitrification. • Nitrogen removal.	• Septic tanks. • Reed bed. • Biological sand filters. • Stabilisation ponds.

Municipal solid waste

The key parameters available to describe the service level and set targets for the collection municipal solid waste are:

- Coverage of collection system (% of population).
- Type of collection system implemented.

For treatment/recovery, FEASIBLE offers different types of treatment or recovery facilities, and the user is required to distribute collected waste to these facilities.

The municipal solid waste collection and treatment/recovery technologies available in FEASIBLE are:

Waste collection	**Treatment/recovery**
For households: • Kerbside, ordinary collection. • Kerbside, dual collection. • Drop-off, recycling station. • Drop-off, take back. • Drop-off, decentral. bring banks. • Kerbside, recyclables collection. For commerce, industry and C&D: • Container ordinary collection. • Container recyclables collection.	• MRF - Mixed waste. • MRF - Recyclables. - Mixed recyclables. - Source separated recyclables. • MRF - WEEE. • Composting plant. - Windrow (garden waste). - In-vessel composting (food waste). • Bio gasification plant. • Landfill. - EU. - Controlled landfill. - Dump. • Incineration plant. - New - heat/electricity. - New - heat. - Old. • HHW treatment facility. • C&D recycling facility.

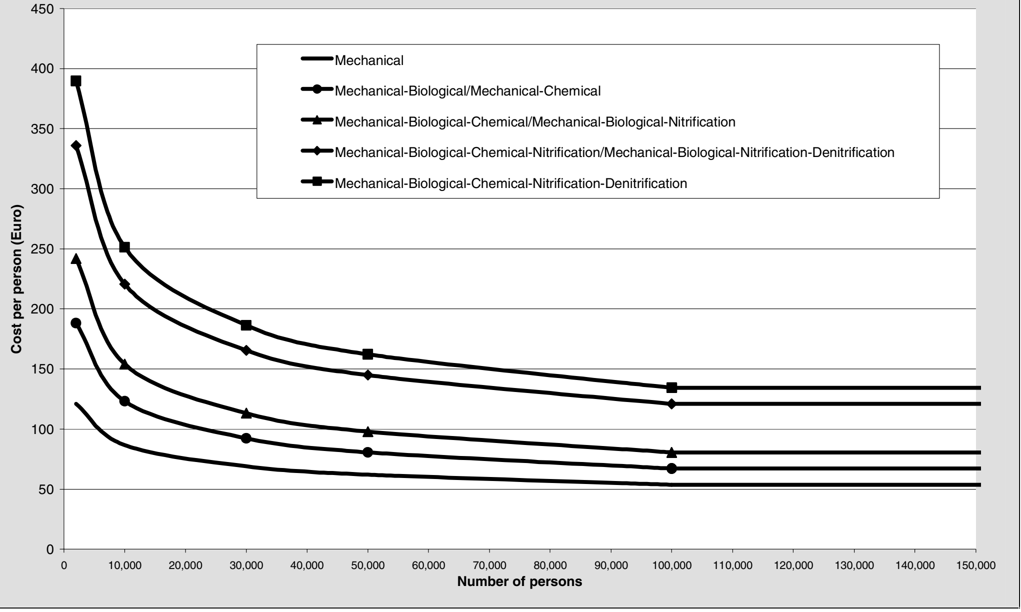
Generic expenditure functions

The calculation of the expenditure need is based on a number of generic expenditure functions that are incorporated into FEASIBLE. These expenditure functions allow easy estimation of the costs of alternative service and environmental targets with a limited data collection effort. They cover a number of technical measures within each sector.

Box 3-3 FEASIBLE - generic cost functions and local cost correction

FEASIBLE calculates the cost of specific technologies based on generic cost functions and local cost correction.

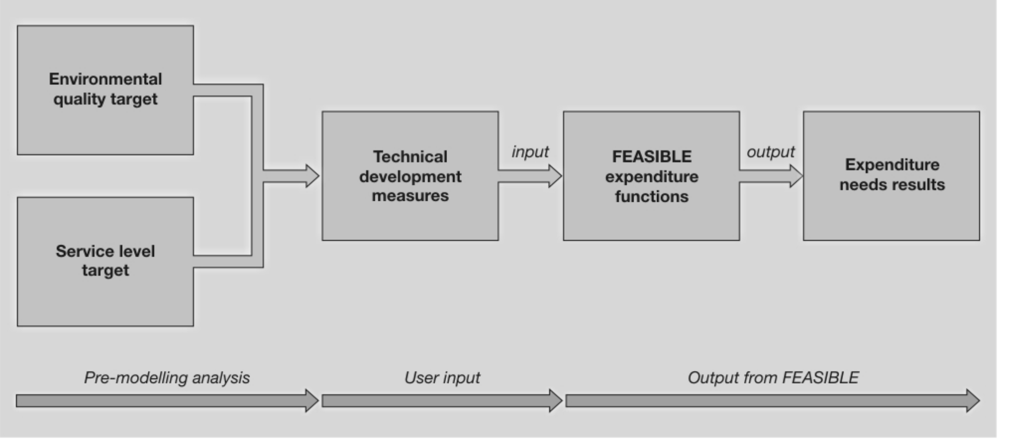
The generic cost functions estimate unit cost as a function of the type and the capacity of a facility. These functional relationships were derived from a number of stylised feasibility studies and are expressed at the international price level. The graph below shows just one example of such cost functions where the unit investment expenditure for alternative wastewater treatment technologies are shown as a function of the number of persons connected to the treatment facility. These expenditure functions are expressed in international prices and reflect the typical distribution on main cost components (equipment, materials, design, labour, energy, land, etc.) in European utilities. Each cost component has its own cost correction coefficient which can be used to adjust the international cost levels to local cost levels.



This means that the existing situation and the target situation are mimicked in the model through the selection of specific technical measures which would lead to the fulfilment of a given target.

A very important pre-modelling exercise therefore consists in translating environmental quality or service level targets to technical measures as illustrated in Figure 3-3 below.

Figure 3-3 Phases in the use of FEASIBLE



Hence, when modelling the existing situation in FEASIBLE, the user should select technical measures that are as close as possible to those actually applied in the relevant areas (regions, municipalities or groups of municipalities). Likewise, when modelling a target, the user should select technical measures that would lead to the achievement of the target according to the pre-model analysis.

The expenditure needs are calculated in international prices by the model, and a set of price correction coefficients is used by FEASIBLE to convert results from international prices to local prices. The user is, therefore, required to enter data concerning the local cost of key cost components, such as land, power, fuel, labour, equipment, building materials, etc.

In the supply of finance component, the user is required to specify data on the existing financing situation, as well as the future supply of finance. The forecast of the future supply of finance is done by the user as a pre-model exercise. The supply of finance is specified on a year-by-year cash-flow basis.

FEASIBLE distinguishes between the following sources and instruments of financing:

- User charges (from households, industry or other consumers).
- Public budget.
- Grants (from several sources).
- Loans (from IFIs or commercial banks).
- Other.

The financing gap/results component provides aggregated results on the financing gap, expenditure needs, supply of finance and selected technical parameters. The user may choose to see the gap for specific expenditure types and sources of supply of finance. Box 3-4 below shows some examples of types of financing gaps that may be analysed.

Box 3-4 FEASIBLE results - Examples of types of financing gaps

Total financing deficit/surplus

- Comparing the total expenditure need with the total supply of financing reflects the balance (or lack of balance) between the service level ambitions and the available financing.

Cost recovery deficit/surplus

- Comparing the O&M expenditure need with the supply of finance from user charges reflects the extent to which tariff payments by direct users are sufficient to cover the necessary operation and maintenance of the infrastructure.
- Comparing the O&M and re-investment expenditure need with the supply of finance from user charges reflects the extent to which tariff payments provide a contribution to operation and renewal of fixed assets in the infrastructure.

Re-investment deficit/surplus

- Comparing the O&M and re-investment expenditure need with the total supply of finance reflects the extent to which the total available financing is sufficient to cover the necessary operation, maintenance and re-investment. If an accumulated gap (backlog) appears, the implication is that the infrastructure will deteriorate compared to the base year.

Investment expenditure deficit/surplus

- Comparing the expenditure need for renovation, upgrading and extension of the service level with the supply of finance targeted at capital expenditure reflects the balance between needed investments and financing available to finance such investments.

Due care should, however, be taken when interpreting the aggregated financing gap in a country or large region with numerous independent utilities in the environmental sector covered by the financing strategy, as user charges typically are not transferable across administrative jurisdictions. Hence, an aggregated balance may well reflect local imbalances. For this purpose, FEASIBLE allows analysis of financial surpluses/deficits at more disaggregated levels (groups of municipalities or individual cities).

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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 Kaliningrad), 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.

Acknowledgements

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Most of the financial resources for this work has been provided by the Danish government. Other countries/institutions that have provided support for studies include: Australia, EC/TACIS, Germany, UK, Japan

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	Financing for Environmental, Affordable and Strategic Investments that Bring on Large-scale Expenditure
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 technical 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 achieved[1]. 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

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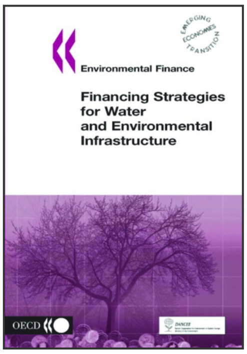
[1] As one of the Millennium Development Goals, by 2015 all United Nations Member States have pledged to reduce by half the proportion of people without sustainable access to safe drinking water. At the Johannesburg Earth Summit it was further agreed, by 2015 to reduce by half the proportion of people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